Men's 110m Hurdles Touchdown Times - by athletics meeting

LAST UPDATE: 17-May-25

2025 Yangtze River Delta Athletics Diamond Gala (Keqiao, CHN)

FINAL

date 03-May-25 wind 0.6 m/s

Omega Timing (2025) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tinch, Cordell (USA) (2000)		time	2.39	3.45	4.43	5.40	6.37	7.33	8.31	9.30	10.31	11.35		12.87	5 / 1			
reaction time	0.162	interval	7 steps	1.06	0.98	0.97	0.97	0.96	0.98	0.99	1.01	1.04	1.52	PB		3.01	2.91	3.04
		velocity	5.74	8.62	9.33	9.42	9.42	9.52	9.33	9.23	9.05	8.79	9.22	8.55		9.11	9.42	9.02
Muratake, Rachid (JPN) (2002)		time	2.37	3.45	4.46	5.45	6.45	7.46	8.47	9.50	10.54	11.58		13.10	4 / 2			
reaction time	0.150	interval	7 steps	1.08	1.01	0.99	1.00	1.01	1.01	1.03	1.04	1.04	1.52			3.08	3.02	3.11
		velocity	5.79	8.46	9.05	9.23	9.14	9.05	9.05	8.87	8.79	8.79	9.22	8.40		8.90	9.08	8.82
Broadbell, Rasheed (JAM) (200		time	2.43	3.49	4.52	5.54	6.54	7.54	8.57	9.61	10.63	11.67		13.24	6 / 3			
reaction time	0.168	interval	7 steps	1.06	1.03	1.02	1.00	1.00	1.03	1.04	1.02	1.04	1.57			3.11	3.03	3.10
		velocity	5.65	8.62	8.87	8.96	9.14	9.14	8.87	8.79	8.96	8.79	8.93	8.31		8.82	9.05	8.85
Xu Zhuoyi (CHN) (2003)		time	2.46	3.54	4.58	5.59	6.60	7.61	8.62	9.63	10.67	11.72		13.29	7 / 4			
reaction time	0.165	interval	7 steps	1.08	1.04	1.01	1.01	1.01	1.01	1.01	1.04	1.05	1.57			3.13	3.03	3.10
		velocity	5.58	8.46	8.79	9.05	9.05	9.05	9.05	9.05	8.79	8.70	8.93	8.28		8.76	9.05	8.85
Liu Junxi (CHN) (2003)		time	2.42	3.48	4.52	5.55	6.56	7.58	8.59	9.62	10.66	11.72		13.30	3 / 5			
reaction time	0.167	interval	7 steps	1.06	1.04	1.03	1.01	1.02	1.01	1.03	1.04	1.06	1.58			3.13	3.04	3.13
		velocity	5.67	8.62	8.79	8.87	9.05	8.96	9.05	8.87	8.79	8.62	8.87	8.27		8.76	9.02	8.76
Parchment, Hansle (JAM) (199		time	2.46	3.55	4.59	5.61	6.61	7.62	8.63	9.65	10.69	11.74		13.32	8 / 6			
reaction time	0.156	interval	7 steps	1.09	1.04	1.02	1.00	1.01	1.01	1.02	1.04	1.05	1.58			3.15	3.02	3.11
		velocity	5.58	8.39	8.79	8.96	9.14	9.05	9.05	8.96	8.79	8.70	8.87	8.26		8.70	9.08	8.82
Llopis, Enrique (ESP) (2000)		time	2.45	3.54	4.54	5.57	6.58	7.59	8.61	9.65	10.68	11.78		13.44	2 / 7			
reaction time	0.136	interval	7 steps	1.09	1.00	1.03	1.01	1.01	1.02	1.04	1.03	1.10	1.66			3.12	3.04	3.17
		velocity	5.60	8.39	9.14	8.87	9.05	9.05	8.96	8.79	8.87	8.31	8.45	8.18		8.79	9.02	8.65
Bennett, Orlando (JAM) (1999)		time	2.40	3.51	4.56	5.59	6.63	7.66	8.69	9.75	10.81	11.87		13.49	1 / 8			
reaction time	0.142	interval		1.11	1.05	1.03	1.04	1.03	1.03	1.06	1.06	1.06	1.62			3.19	3.10	3.18
		velocity	5.72	8.23	8.70	8.87	8.79	8.87	8.87	8.62	8.62	8.62	8.65	8.15		8.60	8.85	8.62
Edwards, Eric (USA) (2000)		time	2.44	3.54	4.61	5.65	6.69	7.76	8.83	9.89	10.97	12.11		13.90	9 / 9			
reaction time	0.142	interval		1.10	1.07	1.04	1.04	1.07	1.07	1.06	1.08	1.14	1.79			3.21	3.18	3.28
		velocity	5.62	8.31	8.54	8.79	8.79	8.54	8.54	8.62	8.46	8.02	7.83	7.91		8.54	8.62	8.36

2025 Grand Slam Track Miami (Miramar, FL) (TV Analysis)

Short Hurdles

date 02-May-25 wind 1.4 m/s

Henson (2025) - Athlete First: 2025 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cunningham, Trey (USA) (199		time	2.54	3.57	4.57	5.56	6.54	7.54	8.54	9.56	10.58	11.64		13.00	3 / 1			
reaction time	0.190	interval	7 steps	1.03	1.00	0.99	0.98	1.00	1.00	1.02	1.02	1.06	1.36	=PB		3.02	2.98	3.10
		velocity	5.40	8.87	9.14	9.23	9.33	9.14	9.14	8.96	8.96	8.62	10.31	8.46		9.08	9.20	8.85
Zhoya, Sasha (FRA) (2002)		time	2.60	3.66	4.67	5.64	6.64	7.62	8.61	9.64	10.64	11.71		13.06	4 / 2			
reaction time	0.250	interval	7 steps	1.06	1.01	0.97	1.00	0.98	0.99	1.03	1.00	1.07	1.35	PB		3.04	2.97	3.10
		velocity	5.28	8.62	9.05	9.42	9.14	9.33	9.23	8.87	9.14	8.54	10.39	8.42		9.02	9.23	8.85
Crittenden, Freddie (USA) (199		time	2.57	3.60	4.60	5.60	6.60	7.60	8.61	9.64	10.67	11.71		13.09	6 / 3			
reaction time	0.170	interval		1.03	1.00	1.00	1.00	1.00	1.01	1.03	1.03	1.04	1.38			3.03	3.01	3.10
		velocity	5.34	8.87	9.14	9.14	9.14	9.14	9.05	8.87	8.87	8.79	10.16	8.40		9.05	9.11	8.85
Britt, Jamal (USA) (1998)		time	2.60	3.63	4.66	5.64	6.67	7.67	8.67	9.67	10.69	11.77		13.10	8 / 4			
reaction time	0.210	interval	7 steps	1.03	1.03	0.98	1.03	1.00	1.00	1.00	1.02	1.08	1.33			3.04	3.03	3.10
		velocity	5.28	8.87	8.87	9.33	8.87	9.14	9.14	9.14	8.96	8.46	10.54	8.40		9.02	9.05	8.85
Beard, Dylan (USA) (1998)		time	2.60	3.65	4.63	5.60	6.60	7.61	8.61	9.64	10.71	11.78		13.24	7 / 5			
reaction time	0.120	interval		1.05	0.98	0.97	1.00	1.01	1.00	1.03	1.07	1.07	1.46			3.00	3.01	3.17
		velocity	5.28	8.70	9.33	9.42	9.14	9.05	9.14	8.87	8.54	8.54	9.60	8.31		9.14	9.11	8.65
Roberts, Daniel (USA) (1998)		time	2.57	3.63	4.67	5.67	6.67	7.70	8.71	9.74	10.84	11.91		13.36	5 / 6			
reaction time	0.270	interval	7 steps	1.06	1.04	1.00	1.00	1.03	1.01	1.03	1.10	1.07	1.45			3.10	3.04	3.20
		velocity	5.34	8.62	8.79	9.14	9.14	8.87	9.05	8.87	8.31	8.54	9.67	8.23		8.85	9.02	8.57
Obasuyi, Michael (BEL) (1999)		time	2.60	3.67	4.70	5.72	6.74	7.80	8.84	9.88	10.91	11.95		13.41	2 / 7			
reaction time	0.180	interval	7 steps	1.07	1.03	1.02	1.02	1.06	1.04	1.04	1.03	1.04	1.46			3.12	3.12	3.11
		velocity	5.28	8.54	8.87	8.96	8.96	8.62	8.79	8.79	8.87	8.79	9.60	8.20		8.79	8.79	8.82
Belocian, Wilhem (FRA) (1995)		time	2.57	3.60	4.64	5.62	6.62	7.67	8.71	9.77	10.84	11.95		13.47	1 / 8			
reaction time	0.170	interval	7 steps	1.03	1.04	0.98	1.00	1.05	1.04	1.06	1.07	1.11	1.52			3.05	3.09	3.24
		velocity	5.34	8.87	8.79	9.33	9.14	8.70	8.79	8.62	8.54	8.23	9.22	8.17		8.99	8.87	8.46

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

2025 Xiamen Diamond League (Xiamen, CHN)

FINAL

date 26-Apr-25 wind 0.3 m/s

Omega Timing (2025) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tinch, Cordell (USA) (2000)		time	2.41	3.45	4.45	5.44	6.43	7.44	8.45	9.47	10.51	11.56		13.06	2 / 1			
reaction time	0.158	interval	7 steps	1.04	1.00	0.99	0.99	1.01	1.01	1.02	1.04	1.05	1.50			3.03	3.01	3.11
		velocity	5.69	8.79	9.14	9.23	9.23	9.05	9.05	8.96	8.79	8.70	9.35	8.42		9.05	9.11	8.82
Muratake, Rachid (JPN) (2002)		time	2.40	3.47	4.48	5.47	6.48	7.48	8.49	9.52	10.55	11.60		13.14	3 / 2			
reaction time	0.167	interval	7 steps	1.07	1.01	0.99	1.01	1.00	1.01	1.03	1.03	1.05	1.54			3.07	3.02	3.11
		velocity	5.72	8.54	9.05	9.23	9.05	9.14	9.05	8.87	8.87	8.70	9.10	8.37		8.93	9.08	8.82
Liu Junxi (CHN) (2003)		time	2.39	3.45	4.47	5.49	6.51	7.53	8.54	9.58	10.60	11.65		13.24	1 / 3			
reaction time	0.159	interval	7 steps	1.06	1.02	1.02	1.02	1.02	1.01	1.04	1.02	1.05	1.59	PB		3.10	3.05	3.11
		velocity	5.74	8.62	8.96	8.96	8.96	8.96	9.05	8.79	8.96	8.70	8.82	8.31		8.85	8.99	8.82
Crittenden, Freddie (USA) (199		time	2.43	3.50	4.52	5.53	6.55	7.56	8.58	9.61	10.63	11.70		13.28	7 / 4			
reaction time	0.150	interval		1.07	1.02	1.01	1.02	1.01	1.02	1.03	1.02	1.07	1.58			3.10	3.05	3.12
		velocity	5.65	8.54	8.96	9.05	8.96	9.05	8.96	8.87	8.96	8.54	8.87	8.28		8.85	8.99	8.79
Roberts, Daniel (USA) (1998)		0.155	no information available											13.35	5 / 5			
Llopis, Enrique (ESP) (2000)		time	2.43	3.52	4.56	5.56	6.57	7.57	8.58	9.61	10.65	11.78		13.36	4 / 6			
reaction time	0.148	interval	7 steps	1.09	1.04	1.00	1.01	1.00	1.01	1.03	1.04	1.13	1.58			3.13	3.02	3.20
		velocity	5.65	8.39	8.79	9.14	9.05	9.14	9.05	8.87	8.79	8.09	8.87	8.23		8.76	9.08	8.57
Xu Zhuoyi (CHN) (2003)		time	2.48	3.57	4.61	5.63	6.64	7.65	8.66	9.69	10.74	11.80		13.37	9 / 7			
reaction time	0.153	interval	7 steps	1.09	1.04	1.02	1.01	1.01	1.01	1.03	1.05	1.06	1.57			3.15	3.03	3.14
		velocity	5.53	8.39	8.79	8.96	9.05	9.05	9.05	8.87	8.70	8.62	8.93	8.23		8.70	9.05	8.73
Izumiya, Shunsuke (JPN) (2000		time	2.42	3.48	4.51	5.53	6.54	7.60	8.65	9.68	10.72	11.79		13.39	10 / 8			
reaction time	0.152	interval	7 steps	1.06	1.03	1.02	1.01	1.06	1.05	1.03	1.04	1.07	1.60			3.11	3.12	3.14
		velocity	5.67	8.62	8.87	8.96	9.05	8.62	8.70	8.87	8.79	8.54	8.76	8.22		8.82	8.79	8.73
Parchment, Hansle (JAM) (199(		time	2.51	3.57	4.60	5.62	6.63	7.64	8.67	9.71	10.76	11.84		13.49	8 / 9			
reaction time	0.150	interval	7 steps	1.06	1.03	1.02	1.01	1.01	1.03	1.04	1.05	1.08	1.65			3.11	3.05	3.17
		velocity	5.47	8.62	8.87	8.96	9.05	9.05	8.87	8.79	8.70	8.46	8.50	8.15		8.82	8.99	8.65
Holloway, Grant (USA) (1997)		time	2.37	3.40	4.38	5.38	6.36	7.37	8.38	9.43	10.53	11.70		13.72	6 / 10			
reaction time	0.153	interval	7 steps	1.03	0.98	1.00	0.98	1.01	1.01	1.05	1.10	1.17	2.02			3.01	3.00	3.32
		velocity	5.79	8.87	9.33	9.14	9.33	9.05	9.05	8.70	8.31	7.81	6.94	8.02		9.11	9.14	8.26

2025 European Athletics Indoor Championships (Apeldoorn, NED)

FINAL

date 07-Mar-25

European Athletics (2025) - european athletics indoor championships results book

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Szymański, Jakub (POL) (2002)		time	2.42	3.45	4.44	5.43	6.41							7.43	6 / 1			
reaction time	0.155	interval	7 steps	1.03	0.99	0.99	0.98						1.02			3.01		
		velocity	5.67	8.87	9.23	9.23	9.33						9.53	8.08		9.11		
Belocian, Wilhem (FRA) (1995)		time	2.40	3.44	4.44	5.44	6.44							7.45	5 / 2			
reaction time	0.140	interval	7 steps	1.04	1.00	1.00	1.00						1.01			3.04		
		velocity	5.72	8.79	9.14	9.14	9.14						9.62	8.05		9.02		
Kwaou-Mathey, Just (FRA) (19		time	2.42	3.45	4.46	5.46	6.48							7.50	4 / 3			
reaction time	0.165	interval	7 steps	1.03	1.01	1.00	1.02						1.02			3.04		
		velocity	5.67	8.87	9.05	9.14	8.96						9.53	8.00		9.02		
Jordán, Abel (ESP) (2003)		time	2.42	3.49	4.51	5.52	6.53							7.54	1 / 4			
reaction time	0.155	interval	7 steps	1.07	1.02	1.01	1.01						1.01			3.10		
		velocity	5.67	8.54	8.96	9.05	9.05						9.62	7.96		8.85		
Geerds, Job (NED) (2002)		time	2.43	3.49	4.52	5.53	6.54							7.61	2 / 5			
reaction time	0.171	interval	7 steps	1.06	1.03	1.01	1.01						1.07			3.10		
		velocity	5.65	8.62	8.87	9.05	9.05						9.08	7.88		8.85		
Obasuyi, Michael (BEL) (1999)		time	2.48	3.54	4.57	5.58	6.60							7.63	7 / 6			
reaction time	0.142	interval	7 steps	1.06	1.03	1.01	1.02						1.03			3.10		
		velocity	5.53	8.62	8.87	9.05	8.96						9.44	7.86		8.85		
Martínez, Asier (ESP) (2000)		time	2.43	3.49	4.51	5.54	6.58							7.68	8 / 7			
reaction time	0.146	interval	7 steps	1.06	1.02	1.03	1.04						1.10			3.11		
		velocity	5.65	8.62	8.96	8.87	8.79						8.84	7.81		8.82		

Semi-Final 2

date 07-Mar-25

European Athletics (2025) - european athletics indoor championships results book

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Szymański, Jakub (POL) (2002)	time	2.41	3.45	4.44	5.43	6.43							7.49	6 / 1				
reaction time 0.164	interval	7 steps	1.04	0.99	0.99	1.00					1.06				3.02			
	velocity	5.69	8.79	9.23	9.23	9.14					9.17	8.01			9.08			
Kwaou-Mathey, Just (FRA) (19	time	2.43	3.49	4.49	5.48	6.48							7.49	5 / 2				
reaction time 0.157	interval	7 steps	1.06	1.00	0.99	1.00					1.01				3.05			
	velocity	5.65	8.62	9.14	9.23	9.14					9.62	8.01			8.99			
Obasuyi, Michael (BEL) (1999)	time	2.41	3.47	4.50	5.51	6.51							7.55	8 / 3				
reaction time 0.129	interval	7 steps	1.06	1.03	1.01	1.00					1.04				3.10			
	velocity	5.69	8.62	8.87	9.05	9.14					9.35	7.95			8.85			
Jordán, Abel (ESP) (2003)	time	2.41	3.48	4.50	5.52	6.53							7.58	1 / 4				
reaction time 0.154	interval	7 steps	1.07	1.02	1.02	1.01					1.05				3.11			
	velocity	5.69	8.54	8.96	8.96	9.05					9.26	7.92			8.82			
Pedre, Theo (FRA) (2005)	time	2.43	3.50	4.52	5.53	6.55							7.60	4 / 5				
reaction time 0.133	interval	7 steps	1.07	1.02	1.01	1.02					1.05	PB			3.10			
	velocity	5.65	8.54	8.96	9.05	8.96					9.26	7.89			8.85			
Minoue, Gregory (GER) (2002)	time	2.44	3.52	4.56	5.58	6.60							7.68	7 / 6				
reaction time 0.139	interval	7 steps	1.08	1.04	1.02	1.02					1.08				3.14			
	velocity	5.62	8.46	8.79	8.96	8.96					9.00	7.81			8.73			
Joseph, Jason (SUI) (1998)	time	2.49	3.56	4.58	5.58	6.61							7.70	3 / 7				
reaction time 0.176	interval	7 steps	1.07	1.02	1.00	1.03					1.09				3.09			
	velocity	5.51	8.54	8.96	9.14	8.87					8.92	7.79			8.87			
Sevler, Mikdat (TUR) (1998)	time	2.42	3.49	4.54	5.59	6.66							7.82	2 / 8				
reaction time 0.122	interval	7 steps	1.07	1.05	1.05	1.07					1.16				3.17			
	velocity	5.67	8.54	8.70	8.70	8.54					8.38	7.67			8.65			

Semi-Final 1

date 07-Mar-25

European Athletics (2025) - european athletics indoor championships results book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)	time	2.39	3.43	4.44	5.43	6.41							7.44	4 / 1			
reaction time 0.126	interval	7 steps	1.04	1.01	0.99	0.98						1.03			3.04		
	velocity	5.74	8.79	9.05	9.23	9.33						9.44	8.06		9.02		
Llopis, Enrique (ESP) (2000)	time	2.38	3.44	4.45	5.45	6.45							7.49	5 / 2			
reaction time 0.126	interval	7 steps	1.06	1.01	1.00	1.00						1.04			3.07		
	velocity	5.76	8.62	9.05	9.14	9.14						9.35	8.01		8.93		
Geerds, Job (NED) (2002)	time	2.43	3.49	4.51	5.51	6.51							7.54	2 / 3			
reaction time 0.157	interval	7 steps	1.06	1.02	1.00	1.00						1.03	PB		3.08		
	velocity	5.65	8.62	8.96	9.14	9.14						9.44	7.96		8.90		
Martínez, Asier (ESP) (2000)	time	2.41	3.47	4.50	5.51	6.52							7.56	6 / 4			
reaction time 0.129	interval	7 steps	1.06	1.03	1.01	1.01						1.04			3.10		
	velocity	5.69	8.62	8.87	9.05	9.05						9.35	7.94		8.85		
Simonelli, Lorenzo Ndele (ITA)	time	2.38	3.45	4.49	5.52	6.54							7.60	1 / 5			
reaction time 0.139	interval	7 steps	1.07	1.04	1.03	1.02						1.06			3.14		
	velocity	5.76	8.54	8.79	8.87	8.96						9.17	7.89		8.73		
Kiljan, Krzysztof (POL) (1999)	time	2.40	3.46	4.50	5.52	6.55							7.62	7 / 6			
reaction time 0.146	interval	7 steps	1.06	1.04	1.02	1.03						1.07			3.12		
	velocity	5.72	8.62	8.79	8.96	8.87						9.08	7.87		8.79		
Bacari, Elie (BEL) (2003)	time	2.39	3.47	4.51	5.51	6.55							7.75	3 / 7			
reaction time 0.111	interval	7 steps	1.08	1.04	1.00	1.04						1.20			3.12		
	velocity	5.74	8.46	8.79	9.14	8.79						8.10	7.74		8.79		
Lakka, Elmo (FIN) (1993)	time	2.41	3.51	4.57	5.66	6.72							7.81	8 / 7			
reaction time 0.125	interval	7 steps	1.10	1.06	1.09	1.06						1.09			3.25		
	velocity	5.69	8.31	8.62	8.39	8.62						8.92	7.68		8.44		

2025 Chinese National Grand Prix (Nanjing, CHN)

Race 5

date 23-Feb-25

Hubei Athletics Sport Science (2025)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Junxi (CHN) (2003)	time	2.56	3.61	4.64	5.63	6.64							7.47	/ 1			
reaction time 0.151	interval	7 steps	1.05	1.03	0.99	1.01						0.83	PB		3.07		
	velocity	5.36	8.70	8.87	9.23	9.05						11.71	8.03		8.93		
Zhu Shenglong (CHN) (2000)	time	2.60	3.64	4.67	5.68	6.70							7.56	/ 2			
reaction time 0.145	interval	7 steps	1.04	1.03	1.01	1.02						0.86	PB		3.08		
	velocity	5.28	8.79	8.87	9.05	8.96						11.30	7.94		8.90		

Xu Zhuoyi (CHN) (2003)	time	2.63	3.68	4.69	5.71	6.72					7.59	/ 3	
reaction time 0.156	interval	7 steps	1.05	1.01	1.02	1.01				0.87	=PB		3.08
	velocity	5.22	8.70	9.05	8.96	9.05				11.17	7.91		8.90
Chen Yuanjiang (CHN) (2006)	time	2.64	3.70	4.74	5.74	6.76					7.62	/ 4	
reaction time 0.152	interval	7 steps	1.06	1.04	1.00	1.02				0.86	PB		3.10
	velocity	5.20	8.62	8.79	9.14	8.96				11.30	7.87		8.85
Qin Weibo (CHN) (2002)	time	2.64	3.71	4.73	5.73	6.75					7.63	/ 5	
reaction time 0.174	interval	7 steps	1.07	1.02	1.00	1.02				0.88	=PB		3.09
	velocity	5.20	8.54	8.96	9.14	8.96				11.05	7.86		8.87

2024 Chinese National Championships (Quzhou, CHN)

FINAL date 16-Sep-24 wind 0.2 m/s

Shandong Athletics Sport Science (2024)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xu Zhuoyi (CHN) (2003)	time	2.58	3.63	4.65	5.67	6.69	7.71	8.73	9.77	10.81	11.88		13.31	6 / 1			
reaction time 0.171	interval	7 steps	1.05	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.07	1.43			3.09	3.06	3.15
	velocity	5.32	8.70	8.96	8.96	8.96	8.96	8.96	8.79	8.79	8.54	9.80	8.26		8.87	8.96	8.70
Liu Junxi (CHN) (2003)	time	2.57	3.62	4.67	5.72	6.76	7.77	8.82	9.88	10.91	11.97		13.41	8 / 2			
reaction time 0.161	interval	7 steps	1.05	1.05	1.05	1.04	1.01	1.05	1.06	1.03	1.06	1.44			3.15	3.10	3.15
	velocity	5.34	8.70	8.70	8.70	8.79	9.05	8.70	8.62	8.87	8.62	9.74	8.20		8.70	8.85	8.70
Chen Yuanjiang (CHN) (2006)	time	2.62	3.69	4.72	5.76	6.79	7.82	8.84	9.88	10.95	12.04		13.49	4 / 3			
reaction time 0.160	interval	7 steps	1.07	1.03	1.04	1.03	1.03	1.02	1.04	1.07	1.09	1.45			3.14	3.08	3.20
	velocity	5.24	8.54	8.87	8.79	8.87	8.87	8.96	8.79	8.54	8.39	9.67	8.15		8.73	8.90	8.57
Zeng Jianhang (CHN) (1998)	time	2.57	3.63	4.65	5.68	6.69	7.74	8.77	9.82	10.92	12.01		13.51	7 / 4			
reaction time 0.164	interval		1.06	1.02	1.03	1.01	1.05	1.03	1.05	1.10	1.09	1.50			3.11	3.09	3.24
	velocity	5.34	8.62	8.96	8.87	9.05	8.70	8.87	8.70	8.31	8.39	9.35	8.14		8.82	8.87	8.46
Shi Guoxing (CHN) (2000)	time	2.68	3.74	4.78	5.81	6.83	7.86	8.91	9.96	11.03	12.11		13.54	3 / 5			
reaction time 0.170	interval		1.06	1.04	1.03	1.02	1.03	1.05	1.05	1.07	1.08	1.43			3.13	3.10	3.20
	velocity	5.12	8.62	8.79	8.87	8.96	8.87	8.70	8.70	8.54	8.46	9.80	8.12		8.76	8.85	8.57
Zhu Shenglong (CHN) (2000)	time	2.60	3.66	4.69	5.72	6.74	7.77	8.84	9.91	10.94	12.06		13.55	5 / 6			
reaction time 0.141	interval	7 steps	1.06	1.03	1.03	1.02	1.03	1.07	1.07	1.03	1.12	1.49			3.12	3.12	3.22
	velocity	5.28	8.62	8.87	8.87	8.96	8.87	8.54	8.54	8.87	8.16	9.41	8.12		8.79	8.79	8.52
Yang Quanlei (CHN) (1999)	time	2.62	3.72	4.77	5.81	6.84	7.89	8.96	10.04	11.13	12.22		13.67	2 / 7			
reaction time 0.153	interval		1.10	1.05	1.04	1.03	1.05	1.07	1.08	1.09	1.09	1.45			3.19	3.15	3.26
	velocity	5.24	8.31	8.70	8.79	8.87	8.70	8.54	8.46	8.39	8.39	9.67	8.05		8.60	8.70	8.41
Liu Bowen (CHN) (2001)	time	2.60	3.69	4.74	5.81	6.87	7.96	9.06	10.16	11.29	12.41		13.98	9 / 8			
reaction time 0.193	interval		1.09	1.05	1.07	1.06	1.09	1.10	1.10	1.13	1.12	1.57			3.21	3.25	3.35
	velocity	5.28	8.39	8.70	8.54	8.62	8.39	8.31	8.31	8.09	8.16	8.93	7.87		8.54	8.44	8.19

2024 Memorial van damme (Brussels, BEL)

FINAL date 13-Sep-24 wind 0.4 m/s

Omega Timing (2024) - diamond league race analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)	time	2.43	3.48	4.50	5.50	6.50	7.51	8.54	9.56	10.59	11.63		13.16	6 / 1			
reaction time 0.150	interval	7 steps	1.05	1.02	1.00	1.00	1.01	1.03	1.02	1.03	1.04	1.53			3.07	3.04	3.09
	velocity	5.65	8.70	8.96	9.14	9.14	9.05	8.87	8.96	8.87	8.79	9.16	8.36		8.93	9.02	8.87
Simonelli, Lorenzo Ndele (ITA)	time	2.39	3.44	4.46	5.49	6.49	7.51	8.52	9.55	10.60	11.65		13.22	4 / 2			
reaction time 0.136	interval	7 steps	1.05	1.02	1.03	1.00	1.02	1.01	1.03	1.05	1.05	1.57			3.10	3.03	3.13
	velocity	5.74	8.70	8.96	8.87	9.14	8.96	9.05	8.87	8.70	8.70	8.93	8.32		8.85	9.05	8.76
Crittenden, Freddie (USA) (199	time	2.41	3.49	4.51	5.54	6.57	7.56	8.59	9.61	10.65	11.71		13.24	3 / 3			
reaction time 0.141	interval		1.08	1.02	1.03	1.03	0.99	1.03	1.02	1.04	1.06	1.53			3.13	3.05	3.12
	velocity	5.69	8.46	8.96	8.87	8.87	9.23	8.87	8.96	8.79	8.62	9.16	8.31		8.76	8.99	8.79
Tinch, Cordell (USA) (2000)	time	2.40	3.47	4.48	5.47	6.47	7.47	8.49	9.54	10.61	11.69		13.27	7 /4			
reaction time 0.147	interval	7 steps	1.07	1.01	0.99	1.00	1.00	1.02	1.05	1.07	1.08	1.58			3.07	3.02	3.20
	velocity	5.72	8.54	9.05	9.23	9.14	9.14	8.96	8.70	8.54	8.46	8.87	8.29		8.93	9.08	8.57
Obasuyi, Michael (BEL) (1999)	time	2.44	3.51	4.53	5.54	6.56	7.56	8.61	9.65	10.70	11.75		13.31	8 / 5			
reaction time 0.160	interval	7 steps	1.07	1.02	1.01	1.02	1.00	1.05	1.04	1.05	1.05	1.56			3.10	3.07	3.14
	velocity	5.62	8.54	8.96	9.05	8.96	9.14	8.70	8.79	8.70	8.70	8.99	8.26		8.85	8.93	8.73
Izumiya, Shunsuke (JPN) (2000	time	2.39	3.45	4.49	5.51	6.54	7.58	8.62	9.66	10.71	11.78		13.33	2 / 6			
reaction time 0.145	interval	7 steps	1.06	1.04	1.02	1.03	1.04	1.04	1.04	1.05	1.07	1.55			3.12	3.11	3.16
	velocity	5.74	8.62	8.79	8.96	8.87	8.79	8.79	8.79	8.70	8.54	9.05	8.25		8.79	8.82	8.68

Edwards, Eric (USA) (2000)		time	2.39	3.48	4.51	5.54	6.56	7.57	8.61	9.65	10.71	11.77		13.35	1 / 7			
reaction time	0.128	interval		1.09	1.03	1.03	1.02	1.01	1.04	1.04	1.06	1.06	1.58			3.15	3.07	3.16
		velocity	5.74	8.39	8.87	8.87	8.96	9.05	8.79	8.79	8.62	8.62	8.87	8.24		8.70	8.93	8.68
Roberts, Daniel (USA) (1998)		time	2.34	3.39	4.42	5.42	6.46	7.50	8.55	9.63	10.71	11.81		13.44	5 / 8			
reaction time	0.145	interval	7 steps	1.05	1.03	1.00	1.04	1.04	1.05	1.08	1.08	1.10	1.63			3.08	3.13	3.26
		velocity	5.86	8.70	8.87	9.14	8.79	8.79	8.70	8.46	8.46	8.31	8.60	8.18		8.90	8.76	8.41

2024 Weltklasse (Zürich, SUI)

FINAL date 05-Sep-24 wind -0.3 m/s *Omega Timing (2024) - diamond league race analysis*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.36	3.37	4.35	5.31	6.30	7.29	8.30	9.31	10.35	11.41		12.99	6 / 1			
reaction time	0.144	interval	7 steps	1.01	0.98	0.96	0.99	0.99	1.01	1.01	1.04	1.06	1.58			2.95	2.99	3.11
		velocity	5.81	9.05	9.33	9.52	9.23	9.23	9.05	9.05	8.79	8.62	8.87	8.47		9.29	9.17	8.82
Zhoya, Sasha (FRA) (2002)		time				5.51	6.50	7.50	8.50	9.51	10.52	11.54		13.10	2 / 2			
reaction time	0.148	interval	7 steps				0.99	1.00	1.00	1.01	1.01	1.02	1.56	PB			2.99	3.04
		velocity				7.47	9.23	9.14	9.14	9.05	9.05	8.96	8.99	8.40			9.17	9.02
Crittenden, Freddie (USA) (199		time	2.39	3.44	4.44	5.44	6.45	7.47	8.49	9.50	10.54	11.59		13.15	7 / 3			
reaction time	0.127	interval		1.05	1.00	1.00	1.01	1.02	1.02	1.01	1.04	1.05	1.56			3.05	3.05	3.10
		velocity	5.74	8.70	9.14	9.14	9.05	8.96	8.96	9.05	8.79	8.70	8.99	8.37		8.99	8.99	8.85
Parchment, Hansle (JAM) (199(		time	2.45	3.50	4.52	5.54	6.55	7.57	8.58	9.59	10.61	11.63		13.18	8 / 4			
reaction time	0.131	interval	7 steps	1.05	1.02	1.02	1.01	1.02	1.01	1.01	1.02	1.02	1.55			3.09	3.04	3.05
		velocity	5.60	8.70	8.96	8.96	9.05	8.96	9.05	9.05	8.96	8.96	9.05	8.35		8.87	9.02	8.99
Roberts, Daniel (USA) (1998)		time	2.36	3.41	4.43	5.44	6.45	7.48	8.50	9.53	10.56	11.61		13.18	5 / 5			
reaction time	0.154	interval	7 steps	1.05	1.02	1.01	1.01	1.03	1.02	1.03	1.03	1.05	1.57			3.08	3.06	3.11
		velocity	5.81	8.70	8.96	9.05	9.05	8.87	8.96	8.87	8.87	8.70	8.93	8.35		8.90	8.96	8.82
Muratake, Rachid (JPN) (2002)		time	2.43	3.48	4.49	5.49	6.49	7.51	8.53	9.57	10.61	11.66		13.20	3 / 6			
reaction time	0.161	interval	7 steps	1.05	1.01	1.00	1.00	1.02	1.02	1.04	1.04	1.05	1.54			3.06	3.04	3.13
		velocity	5.65	8.70	9.05	9.14	9.14	8.96	8.96	8.79	8.79	8.70	9.10	8.33		8.96	9.02	8.76
Tinch, Cordell (USA) (2000)		time	2.42	3.48	4.51	5.52	6.52	7.54	8.56	9.60	10.64	11.71		13.31	1 / 7			
reaction time	0.170	interval	7 steps	1.06	1.03	1.01	1.00	1.02	1.02	1.04	1.04	1.07	1.60			3.10	3.04	3.15
		velocity	5.67	8.62	8.87	9.05	9.14	8.96	8.96	8.79	8.79	8.54	8.76	8.26		8.85	9.02	8.70
Simonelli, Lorenzo Ndele (ITA)		time	2.42	3.49	4.51	5.53	6.55	7.57	8.62	9.69	10.76	11.84		13.45	4 / 8			
reaction time	0.158	interval	7 steps	1.07	1.02	1.02	1.02	1.02	1.05	1.07	1.07	1.08	1.61			3.11	3.09	3.22
		velocity	5.67	8.54	8.96	8.96	8.96	8.96	8.70	8.54	8.54	8.46	8.71	8.18		8.82	8.87	8.52
Joseph, Jason (SUI) (1998)		time	2.50	3.59	4.62	5.61	6.62	7.66	8.71	9.77	10.85	11.93		13.60	9 / 9			
reaction time	0.170	interval	7 steps	1.09	1.03	0.99	1.01	1.04	1.05	1.06	1.08	1.08	1.67			3.11	3.10	3.22
		velocity	5.49	8.39	8.87	9.23	9.05	8.79	8.70	8.62	8.46	8.46	8.40	8.09		8.82	8.85	8.52

2024 Golden Gala · Pietro Mennea (Roma, ITA)

FINAL date 30-Aug-24 wind 0.4 m/s *Omega Timing (2024) - diamond league race analysis*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)		time	2.40	3.49	4.53	5.54	6.55	7.55	8.56	9.57	10.60	11.63		13.18	6 / 1			
reaction time	0.151	interval	7 steps	1.09	1.04	1.01	1.01	1.00	1.01	1.01	1.03	1.03	1.55			3.14	3.02	3.07
		velocity	5.72	8.39	8.79	9.05	9.05	9.14	9.05	9.05	8.87	8.87	9.05	8.35		8.73	9.08	8.93
Martíinez, Asier (ESP) (2000)		time	2.45	3.52	4.53	5.53	6.54	7.57	8.59	9.62	10.66	11.71		13.27	2 / 2			
reaction time	0.157	interval	7 steps	1.07	1.01	1.00	1.01	1.03	1.02	1.03	1.04	1.05	1.56			3.08	3.06	3.12
		velocity	5.60	8.54	9.05	9.14	9.05	8.87	8.96	8.87	8.79	8.70	8.99	8.29		8.90	8.96	8.79
McLeod, Omar (JAM) (1994)		time	2.38	3.44	4.49	5.52	6.52	7.53	8.55	9.59	10.64	11.70		13.28	9 / 3			
reaction time	0.151	interval		1.06	1.05	1.03	1.00	1.01	1.02	1.04	1.05	1.06	1.58			3.14	3.03	3.15
		velocity	5.76	8.62	8.70	8.87	9.14	9.05	8.96	8.79	8.70	8.62	8.87	8.28		8.73	9.05	8.70
Edwards, Eric (USA) (2000)		time	2.39	3.46	4.51	5.53	6.55	7.57	8.59	9.63	10.68	11.73		13.29	8 / 4			
reaction time	0.130	interval		1.07	1.05	1.02	1.02	1.02	1.02	1.04	1.05	1.05	1.56			3.14	3.06	3.14
		velocity	5.74	8.54	8.70	8.96	8.96	8.96	8.96	8.79	8.70	8.70	8.99	8.28		8.73	8.96	8.73
Bennett, Orlando (JAM) (1999)		time	2.40	3.49	4.53	5.54	6.57	7.58	8.60	9.64	10.69	11.75		13.33	5 / 5			
reaction time	0.166	interval		1.09	1.04	1.01	1.03	1.01	1.02	1.04	1.05	1.06	1.58			3.14	3.06	3.15
		velocity	5.72	8.39	8.79	9.05	8.87	9.05	8.96	8.79	8.70	8.62	8.87	8.25		8.73	8.96	8.70
Simonelli, Lorenzo Ndele (ITA)		time	2.38	3.44	4.48	5.50	6.52	7.53	8.56	9.61	10.67	11.76		13.34	4 / 6			
reaction time	0.164	interval	7 steps	1.06	1.04	1.02	1.02	1.01	1.03	1.05	1.06	1.09	1.58			3.12	3.06	3.20
		velocity	5.76	8.62	8.79	8.96	8.96	9.05	8.87	8.70	8.62	8.39	8.87	8.25		8.79	8.96	8.57
Tinch, Cordell (USA) (2000)		time	2.42	3.47	4.50	5.51	6.53	7.54	8.57	9.61	10.66	11.74		13.34	3 / 7			

reaction time	0.171	interval	7 steps	1.05	1.03	1.01	1.02	1.01	1.03	1.04	1.05	1.08	1.60				3.09	3.06	3.17
		velocity		5.67	8.70	8.87	9.05	8.96	9.05	8.87	8.79	8.70	8.46	8.76	8.25		8.87	8.96	8.65
Beard, Dylan (USA) (1998)		time		2.41	3.48	4.49	5.50	6.50	7.51	8.54	9.58	10.64	11.73		13.35	7 / 8			
reaction time	0.170	interval			1.07	1.01	1.01	1.00	1.01	1.03	1.04	1.06	1.09	1.62			3.09	3.04	3.19
		velocity		5.69	8.54	9.05	9.05	9.14	9.05	8.87	8.79	8.62	8.39	8.65	8.24		8.87	9.02	8.60
Fofana, Hassane (ITA) (1992)		time		2.48	3.60	4.68	5.74	6.79	7.85	8.93	10.02	11.10	12.21		13.84	1 / 9			
reaction time	0.154	interval			1.12	1.08	1.06	1.05	1.06	1.08	1.09	1.08	1.11	1.63			3.26	3.19	3.28
		velocity		5.53	8.16	8.46	8.62	8.70	8.62	8.46	8.39	8.46	8.23	8.60	7.95		8.41	8.60	8.36

2024 Kamila Skolimowska Memorial (Silesia, POL)

FINAL date 25-Aug-24 wind 1.1 m/s

Omega Timing (2024) - diamond league race analysis

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.35	3.34	4.34	5.31	6.30	7.30	8.30	9.33	10.37	11.44		13.04	6 / 1			
reaction time	0.157	interval	7 steps	0.99	1.00	0.97	0.99	1.00	1.00	1.03	1.04	1.07	1.60				2.96	2.99	3.14
		velocity		5.84	9.23	9.14	9.42	9.23	9.14	9.14	8.87	8.79	8.54	8.76	8.44		9.26	9.17	8.73
Broadbell, Rasheed (JAM) (200		time		2.40	3.46	4.44	5.46	6.46	7.45	8.45	9.49	10.52	11.54		13.05	5 / 2			
reaction time	0.152	interval	7 steps	1.06	0.98	1.02	1.00	0.99	1.00	1.04	1.03	1.02	1.51				3.06	2.99	3.09
		velocity		5.72	8.62	9.33	8.96	9.14	9.23	9.14	8.79	8.87	8.96	9.28	8.43		8.96	9.17	8.87
Roberts, Daniel (USA) (1998)		time		2.32	3.40	4.40	5.40	6.42	7.43	8.47	9.51	10.57	11.65		13.24	8 / 3			
reaction time	0.154	interval	7 steps	1.08	1.00	1.00	1.02	1.01	1.04	1.04	1.06	1.08	1.59				3.08	3.07	3.18
		velocity		5.91	8.46	9.14	9.14	8.96	9.05	8.79	8.79	8.62	8.46	8.82	8.31		8.90	8.93	8.62
Tinch, Cordell (USA) (2000)		time		2.41	3.45	4.49	5.49	6.50	7.50	8.52	9.58	10.63	11.70		13.29	4 / 4			
reaction time	0.173	interval	7 steps	1.04	1.04	1.00	1.01	1.00	1.02	1.06	1.05	1.07	1.59				3.08	3.03	3.18
		velocity		5.69	8.79	8.79	9.14	9.05	9.14	8.96	8.62	8.70	8.54	8.82	8.28		8.90	9.05	8.62
Bennett, Orlando (JAM) (1999)		time		2.42	3.48	4.51	5.51	6.51	7.52	8.56	9.64	10.71	11.78		13.35	3 / 5			
reaction time	0.154	interval			1.06	1.03	1.00	1.00	1.01	1.04	1.08	1.07	1.07	1.57			3.09	3.05	3.22
		velocity		5.67	8.62	8.87	9.14	9.14	9.05	8.79	8.46	8.54	8.54	8.93	8.24		8.87	8.99	8.52
Zhoya, Sasha (FRA) (2002)		time		2.39	3.46	4.49	5.49	6.49	7.52	8.57	9.65	10.73	11.83		13.40	1 / 6			
reaction time	0.138	interval	7 steps	1.07	1.03	1.00	1.00	1.03	1.05	1.08	1.08	1.10	1.57				3.10	3.08	3.26
		velocity		5.74	8.54	8.87	9.14	9.14	8.87	8.70	8.46	8.46	8.31	8.93	8.21		8.85	8.90	8.41
Szymanski, Jakub (POL) (2002)		time		2.43	3.47	4.46	5.46	6.46	7.46	8.48	9.52	10.61	11.71		13.41	2 / 7			
reaction time	0.182	interval	7 steps	1.04	0.99	1.00	1.00	1.00	1.02	1.04	1.09	1.10	1.70				3.03	3.02	3.23
		velocity		5.65	8.79	9.23	9.14	9.14	9.14	8.96	8.79	8.39	8.31	8.25	8.20		9.05	9.08	8.49
Simonelli, Lorenzo Ndele (ITA)		time		2.42	3.48	4.52	5.53	6.55	7.58	8.62	9.67	10.73	11.84		13.48	7 / 8			
reaction time	0.178	interval	7 steps	1.06	1.04	1.01	1.02	1.03	1.04	1.05	1.06	1.11	1.64				3.11	3.09	3.22
		velocity		5.67	8.62	8.79	9.05	8.96	8.87	8.79	8.70	8.62	8.23	8.55	8.16		8.82	8.87	8.52
Kiljan, Krzysztof (POL) (1999)		time		2.43	3.50	4.57	5.60	6.65	7.69	8.77	9.86	10.97	12.08		13.73	9 / 9			
reaction time	0.162	interval	7 steps	1.07	1.07	1.03	1.05	1.04	1.08	1.09	1.11	1.11	1.65				3.17	3.17	3.31
		velocity		5.65	8.54	8.54	8.87	8.70	8.79	8.46	8.39	8.23	8.23	8.50	8.01		8.65	8.65	8.28

2024 Athletissima (Lausanne, SUI)

FINAL date 22-Aug-24 wind -0.1 m/s

Omega Timing (2024) - diamond league race analysis

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Broadbell, Rasheed (JAM) (200		time		2.36	3.43	4.45	5.45	6.46	7.47	8.49	9.51	10.53	11.57		13.10	3 / 1			
reaction time	0.138	interval	7 steps	1.07	1.02	1.00	1.01	1.01	1.02	1.02	1.02	1.04	1.53				3.09	3.04	3.08
		velocity		5.81	8.54	8.96	9.14	9.05	9.05	8.96	8.96	8.96	8.79	9.16	8.40		8.87	9.02	8.90
Holloway, Grant (USA) (1997)		time		2.32	3.35	4.34	5.32	6.31	7.30	8.31	9.34	10.41	11.51		13.14	6 / 2			
reaction time	0.146	interval	7 steps	1.03	0.99	0.98	0.99	0.99	1.01	1.03	1.07	1.10	1.63				3.00	2.99	3.20
		velocity		5.91	8.87	9.23	9.33	9.23	9.23	9.05	8.87	8.54	8.31	8.60	8.37		9.14	9.17	8.57
Parchment, Hansle (JAM) (199		time		2.44	3.49	4.49	5.49	6.49	7.49	8.49	9.50	10.55	11.63		13.23	7 / 3			
reaction time	0.154	interval	7 steps	1.05	1.00	1.00	1.00	1.00	1.00	1.01	1.05	1.08	1.60				3.05	3.00	3.14
		velocity		5.62	8.70	9.14	9.14	9.14	9.14	9.14	9.05	8.70	8.46	8.76	8.31		8.99	9.14	8.73
Roberts, Daniel (USA) (1997)		time		2.32	3.36	4.37	5.38	6.38	7.40	8.42	9.46	10.51	11.61		13.26	5 / 4			
reaction time	0.164	interval	7 steps	1.04	1.01	1.01	1.00	1.02	1.02	1.04	1.05	1.10	1.65				3.06	3.04	3.19
		velocity		5.91	8.79	9.05	9.05	9.14	8.96	8.96	8.79	8.70	8.31	8.50	8.30		8.96	9.02	8.60
Simonelli, Lorenzo Ndele (ITA)		time		2.37	3.43	4.46	5.48	6.50	7.51	8.54	9.58	10.63	11.69		13.26	4 / 5			
reaction time	0.136	interval	7 steps	1.06	1.03	1.02	1.02	1.01	1.03	1.04	1.05	1.06	1.57				3.11	3.06	3.15
		velocity		5.79	8.62	8.87	8.96	8.96	9.05	8.87	8.79	8.70	8.62	8.93	8.30		8.82	8.96	8.70
Tinch, Cordell (USA) (2000)		time		2.38	3.43	4.44	5.44	6.45	7.47	8.52	9.57	10.64	11.71		13.34	1 / 6			
reaction time	0.153	interval	7 steps	1.05	1.01	1.00	1.01	1.02	1.05	1.05	1.07	1.07	1.63				3.06	3.08	3.19

		velocity	5.76	8.70	9.05	9.14	9.05	8.96	8.70	8.70	8.54	8.54	8.60	8.25		8.96	8.90	8.60
Zhoya, Sasha (FRA) (2002)		time	2.44	3.52	4.55	5.59	6.60	7.61	8.63	9.68	10.73	11.80		13.37	8 / 7			
reaction time	0.142	interval	7 steps	1.08	1.03	1.04	1.01	1.01	1.02	1.05	1.05	1.07	1.57			3.15	3.04	3.17
		velocity	5.62	8.46	8.87	8.79	9.05	9.05	8.96	8.70	8.70	8.54	8.93	8.23		8.70	9.02	8.65
Joseph, Jason (SUI) (1998)		time	2.48	3.56	4.60	5.59	6.61	7.64	8.69	9.76	10.86	11.97		13.78	2 / 8			
reaction time	0.148	interval	7 steps	1.08	1.04	0.99	1.02	1.03	1.05	1.07	1.10	1.11	1.81			3.11	3.10	3.28
		velocity	5.53	8.46	8.79	9.23	8.96	8.87	8.70	8.54	8.31	8.23	7.75	7.98		8.82	8.85	8.36

2024 Olympic Games (Paris, FRA)

FINAL

date 08-Aug-24 wind -0.1 m/s

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.46	3.45	4.43	5.39	6.35	7.35	8.35	9.35	10.41	11.51		12.99	6 / 1			
reaction time	0.104	interval	7 steps	0.99	0.98	0.96	0.96	1.00	1.00	1.00	1.06	1.10	1.48			2.93	2.96	3.16
		velocity	5.58	9.23	9.33	9.52	9.52	9.14	9.14	9.14	8.62	8.31	9.47	8.47		9.36	9.26	8.68
Roberts, Daniel (USA) (1997)		time	2.45	3.53	4.53	5.53	6.58	7.59	8.61	9.63	10.65	11.70		13.09	4 / 2			
reaction time	0.139	interval	7 steps	1.08	1.00	1.00	1.05	1.01	1.02	1.02	1.02	1.05	1.39			3.08	3.08	3.09
		velocity	5.60	8.46	9.14	9.14	8.70	9.05	8.96	8.96	8.96	8.70	10.09	8.40		8.90	8.90	8.87
Broadbell, Rasheed (JAM) (200		time	2.55	3.60	4.63	5.65	6.64	7.64	8.65	9.65	10.68	11.72		13.09	5 / 3			
reaction time	0.144	interval	7 steps	1.05	1.03	1.02	0.99	1.00	1.01	1.00	1.03	1.04	1.37			3.10	3.00	3.07
		velocity	5.38	8.70	8.87	8.96	9.23	9.14	9.05	9.14	8.87	8.79	10.23	8.40		8.85	9.14	8.93
Llopis, Enrique (ESP) (2000)		time	2.59	3.64	4.65	5.65	6.65	7.66	8.67	9.69	10.73	11.80		13.20	3 / 3			
reaction time	0.144	interval	7 steps	1.05	1.01	1.00	1.00	1.01	1.01	1.02	1.04	1.07	1.40			3.06	3.02	3.13
		velocity	5.30	8.70	9.05	9.14	9.14	9.05	9.05	8.96	8.79	8.54	10.01	8.33		8.96	9.08	8.76
Muratake, Rachid (JPN) (2002)		time	2.59	3.63	4.66	5.65	6.66	7.68	8.69	9.73	10.75	11.83		13.21	9 / 5			
reaction time	0.161	interval	7 steps	1.04	1.03	0.99	1.01	1.02	1.01	1.04	1.02	1.08	1.38			3.06	3.04	3.14
		velocity	5.30	8.79	8.87	9.23	9.05	8.96	9.05	8.79	8.96	8.46	10.16	8.33		8.96	9.02	8.73
Crittenden, Freddie (USA) (199		time	2.58	3.64	4.67	5.69	6.72	7.74	8.76	9.80	10.84	11.91		13.32	8 / 6			
reaction time	0.161	interval		1.06	1.03	1.02	1.03	1.02	1.02	1.04	1.04	1.07	1.41			3.11	3.07	3.15
		velocity	5.32	8.62	8.87	8.96	8.87	8.96	8.96	8.79	8.79	8.54	9.94	8.26		8.82	8.93	8.70
Bennett, Orlando (JAM) (1999)		time	2.55	3.61	4.62	5.63	6.65	7.67	8.68	9.71	10.77	11.86		13.34	7 / 7			
reaction time	0.142	interval		1.06	1.01	1.01	1.02	1.02	1.01	1.03	1.06	1.09	1.48			3.08	3.05	3.18
		velocity	5.38	8.62	9.05	9.05	8.96	8.96	9.05	8.87	8.62	8.39	9.47	8.25		8.90	8.99	8.62
Parchment, Hansle (JAM) (199		time	2.60	3.67	4.69	5.70	6.73	7.75	8.78	9.81	10.84	11.91		13.39	2 / 8			
reaction time	0.144	interval	7 steps	1.07	1.02	1.01	1.03	1.02	1.03	1.03	1.03	1.07	1.48			3.10	3.08	3.13
		velocity	5.28	8.54	8.96	9.05	8.87	8.96	8.87	8.87	8.87	8.54	9.47	8.22		8.85	8.90	8.76

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

Semi-Final 3

date 07-Aug-24 wind 0.6 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Bennett, Orlando (JAM) (1999)		time	2.33	3.38	4.40	5.39	6.38	7.38	8.39	9.42	10.45	11.50		13.09	7 / 1			
reaction time	0.155	interval		1.05	1.02	0.99	0.99	1.00	1.01	1.03	1.03	1.05	1.59	PB		3.06	3.00	3.11
		velocity	5.89	8.70	8.96	9.23	9.23	9.14	9.05	8.87	8.87	8.70	8.82	8.40		8.96	9.14	8.82
Roberts, Daniel (USA) (1997)		time	2.29	3.34	4.36	5.37	6.37	7.38	8.40	9.43	10.46	11.52		13.10	8 / 2			
reaction time	0.143	interval	7 steps	1.05	1.02	1.01	1.00	1.01	1.02	1.03	1.03	1.06	1.58			3.08	3.03	3.12
		velocity	5.99	8.70	8.96	9.05	9.14	9.05	8.96	8.87	8.87	8.62	8.87	8.40		8.90	9.05	8.79
Izumiya, Shunsuke (JPN) (2000		time	2.60	3.61	4.65	5.70	6.73	7.76	8.79	9.82	10.86	11.94		13.32	5 / 3			
reaction time	0.165	interval	7 steps	1.01	1.04	1.05	1.03	1.03	1.03	1.03	1.04	1.08	1.38			3.10	3.09	3.15
		velocity	5.28	9.05	8.79	8.70	8.87	8.87	8.87	8.87	8.79	8.46	10.16	8.26		8.85	8.87	8.70
Trajkovic, Milan (CYP) (1992)		time	2.36	3.42	4.43	5.43	6.43	7.46	8.49	9.54	10.62	11.71		13.32	3 / 3			
reaction time	0.128	interval	7 steps	1.06	1.01	1.00	1.00	1.03	1.03	1.05	1.08	1.09	1.61			3.07	3.06	3.22
		velocity	5.81	8.62	9.05	9.14	9.14	8.87	8.87	8.70	8.46	8.39	8.71	8.26		8.93	8.96	8.52
Martinez, Asier (ESP) (2000)		time	2.38	3.47	4.51	5.51	6.53	7.55	8.58	9.62	10.66	11.73		13.35	2 / 5			
reaction time	0.130	interval	7 steps	1.09	1.04	1.00	1.02	1.02	1.03	1.04	1.04	1.07	1.62			3.13	3.07	3.15
		velocity	5.76	8.39	8.79	9.14	8.96	8.96	8.87	8.79	8.79	8.54	8.65	8.24		8.76	8.93	8.70
Rodrigues, Eduardo (BRA) (19		time	2.45	3.52	4.54	5.56	6.57	7.59	8.62	9.66	10.72	11.81		13.44	6 / 6			
reaction time	0.159	interval		1.07	1.02	1.02	1.01	1.02	1.03	1.04	1.06	1.09	1.63			3.11	3.06	3.19
		velocity	5.60	8.54	8.96	8.96	9.05	8.96	8.87	8.79	8.62	8.39	8.60	8.18		8.82	8.96	8.60
Xu Zhuoyi (CHN) (2003)		time	2.44	3.54	4.58	5.62	6.69	7.74	8.79	9.82	10.85	11.90		13.48	4 / 7			
reaction time	0.166	interval	7 steps	1.10	1.04	1.04	1.07	1.05	1.05	1.03	1.03	1.05	1.58			3.18	3.17	3.11
		velocity	5.62	8.31	8.79	8.79	8.54	8.70	8.70	8.87	8.87	8.70	8.87	8.16		8.62	8.65	8.82
Belocian, Wilhem (FRA) (1995)		time	2.38	3.45	4.49	5.51	6.54	7.56	8.63	9.70	10.78	11.87		13.52	9 / 8			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.148	interval		1.07	1.04	1.02	1.03	1.02	1.07	1.07	1.08	1.09	1.65			3.13	3.12	3.24
		velocity	5.76	8.54	8.79	8.96	8.87	8.96	8.54	8.54	8.46	8.39	8.50	8.14		8.76	8.79	8.46

Semi-Final 2

date 07-Aug-24 wind -0.1 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Broadbell, Rasheed (JAM) (200		time	2.38	3.44	4.48	5.51	6.53	7.54	8.56	9.59	10.64	11.69		13.21	6 / 1			
reaction time	0.151	interval	7 steps	1.06	1.04	1.03	1.02	1.01	1.02	1.03	1.05	1.05	1.52			3.13	3.05	3.13
		velocity	5.76	8.62	8.79	8.87	8.96	9.05	8.96	8.87	8.70	8.70	9.22	8.33		8.76	8.99	8.76
Crittenden, Freddie (USA) (199		time	2.37	3.43	4.47	5.49	6.50	7.52	8.56	9.58	10.63	11.66		13.23	2 / 2			
reaction time	0.139	interval		1.06	1.04	1.02	1.01	1.02	1.04	1.02	1.05	1.03	1.57			3.12	3.07	3.10
		velocity	5.79	8.62	8.79	8.96	9.05	8.96	8.79	8.96	8.70	8.87	8.93	8.31		8.79	8.93	8.85
Mendy, Louis François (SEN) (		time	2.44	3.52	4.57	5.58	6.60	7.62	8.65	9.67	10.72	11.77		13.34	4 / 3			
reaction time	0.191	interval		1.08	1.05	1.01	1.02	1.02	1.03	1.02	1.05	1.05	1.57			3.14	3.07	3.12
		velocity	5.62	8.46	8.70	9.05	8.96	8.96	8.87	8.96	8.70	8.70	8.93	8.25		8.73	8.93	8.79
Zhoya, Sasha (FRA) (2002)		time	2.40	3.48	4.52	5.54	6.55	7.55	8.56	9.60	10.67	11.76		13.34	8 / 3			
reaction time	0.160	interval	7 steps	1.08	1.04	1.02	1.01	1.00	1.01	1.04	1.07	1.09	1.58			3.14	3.02	3.20
		velocity	5.72	8.46	8.79	8.96	9.05	9.14	9.05	8.79	8.54	8.39	8.87	8.25		8.73	9.08	8.57
Simonelli, Lorenzo Ndele (ITA)		time	2.33	3.39	4.42	5.44	6.44	7.46	8.50	9.55	10.61	11.72		13.38	7 / 5			
reaction time	0.154	interval	7 steps	1.06	1.03	1.02	1.00	1.02	1.04	1.05	1.06	1.11	1.66			3.11	3.06	3.22
		velocity	5.89	8.62	8.87	8.96	9.14	8.96	8.79	8.70	8.62	8.23	8.45	8.22		8.82	8.96	8.52
Joseph, Jason (SUI) (1998)		time	2.45	3.54	4.58	5.60	6.61	7.64	8.68	9.73	10.79	11.86		13.43	5 / 6			
reaction time	0.180	interval	7 steps	1.09	1.04	1.02	1.01	1.03	1.04	1.05	1.06	1.07	1.57			3.15	3.08	3.18
		velocity	5.60	8.39	8.79	8.96	9.05	8.87	8.79	8.70	8.62	8.54	8.93	8.19		8.70	8.90	8.62
Ojora, Tade (GBR) (1999)		time	2.35	3.45	4.52	5.56	6.60	7.64	8.70	9.75	10.81	11.88		13.47	3 / 7			
reaction time	0.141	interval	7 steps	1.10	1.07	1.04	1.04	1.04	1.06	1.05	1.06	1.07	1.59			3.21	3.14	3.18
		velocity	5.84	8.31	8.54	8.79	8.79	8.79	8.62	8.70	8.62	8.54	8.82	8.17		8.54	8.73	8.62
Pereira, Rafael (BRA) (1997)		time	2.42	3.53	4.60	5.67	6.73	7.79	8.86	9.94	11.04	12.17		13.87	9 / 8			
reaction time	0.148	interval		1.11	1.07	1.07	1.06	1.06	1.07	1.08	1.10	1.13	1.70			3.25	3.19	3.31
		velocity	5.67	8.23	8.54	8.54	8.62	8.62	8.54	8.46	8.31	8.09	8.25	7.93		8.44	8.60	8.28

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

Semi-Final 1

date 07-Aug-24 wind 0.1 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.31	3.32	4.29	5.27	6.24	7.22	8.22	9.24	10.29	11.37		12.98	6 / 1			
reaction time	0.149	interval	7 steps	1.01	0.97	0.98	0.97	0.98	1.00	1.02	1.05	1.08	1.61			2.96	2.95	3.15
		velocity	5.94	9.05	9.42	9.33	9.42	9.33	9.14	8.96	8.70	8.46	8.71	8.47		9.26	9.29	8.70
Llopis, Enrique (ESP) (2000)		time	2.41	3.46	4.48	5.48	6.48	7.47	8.49	9.52	10.55	11.61		13.17	5 / 2			
reaction time	0.138	interval	7 steps	1.05	1.02	1.00	1.00	0.99	1.02	1.03	1.03	1.06	1.56			3.07	3.01	3.12
		velocity	5.69	8.70	8.96	9.14	9.14	9.23	8.96	8.87	8.87	8.62	8.99	8.35		8.93	9.11	8.79
Parchment, Hansle (JAM) (199(		time	2.46	3.51	4.51	5.53	6.52	7.51	8.52	9.54	10.59	11.64		13.19	3 / 3			
reaction time	0.148	interval	7 steps	1.05	1.00	1.02	0.99	0.99	1.01	1.02	1.05	1.05	1.55			3.07	2.99	3.12
		velocity	5.58	8.70	9.14	8.96	9.23	9.23	9.05	8.96	8.70	8.70	9.05	8.34		8.93	9.17	8.79
Muratake, Rachid (JPN) (2002)		time	2.60	3.65	4.68	5.70	6.70	7.73	8.75	9.78	10.82	11.88		13.26	4 / 4			*Shibayama (2024)*
reaction time	0.160	interval	7 steps	1.05	1.03	1.02	1.00	1.03	1.02	1.03	1.04	1.06	1.38			3.10	3.05	3.13
		velocity	5.28	8.70	8.87	8.96	9.14	8.87	8.96	8.87	8.79	8.62	10.16	8.30		8.85	8.99	8.76
Obasuyi, Michael (BEL) (1999)		time	2.42	3.50	4.55	5.58	6.60	7.63	8.66	9.70	10.75	11.80		13.36	8 / 5			
reaction time	0.149	interval	7 steps	1.08	1.05	1.03	1.02	1.03	1.03	1.04	1.05	1.05	1.56			3.16	3.08	3.14
		velocity	5.67	8.46	8.70	8.87	8.96	8.87	8.87	8.79	8.70	8.70	8.99	8.23		8.68	8.90	8.73
Qin Weibo (CHN) (2002)		time	2.46	3.55	4.58	5.61	6.62	7.64	8.67	9.70	10.75	11.82		13.41	2 / 6			
reaction time	0.178	interval	7 steps	1.09	1.03	1.03	1.01	1.02	1.03	1.03	1.05	1.07	1.59			3.15	3.06	3.15
		velocity	5.58	8.39	8.87	8.87	9.05	8.96	8.87	8.87	8.70	8.54	8.82	8.20		8.70	8.96	8.70
Mohamed, Raphaël (FRA) (199		time	2.48	3.56	4.61	5.63	6.64	7.65	8.67	9.73	10.80	11.86		13.41	9 / 7			
reaction time	0.159	interval	7 steps	1.08	1.05	1.02	1.01	1.01	1.02	1.06	1.07	1.06	1.55			3.15	3.04	3.19
		velocity	5.53	8.46	8.70	8.96	9.05	9.05	8.96	8.62	8.54	8.62	9.05	8.20		8.70	9.02	8.60
Andrews, Antoine (BAH) (2003		time	2.41	3.50	4.54	5.57	6.60	7.63	8.65	9.71	10.78	11.85		13.43	7 / 8			
reaction time	0.135	interval	7 steps	1.09	1.04	1.03	1.03	1.03	1.02	1.06	1.07	1.07	1.58			3.16	3.08	3.20
		velocity	5.69	8.39	8.79	8.87	8.87	8.87	8.96	8.62	8.54	8.54	8.87	8.19		8.68	8.90	8.57

Repechage 3

date 06-Aug-24 wind -1.1 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Qin Weibo (CHN) (2002)		time	2.46	3.54	4.56	5.56	6.57	7.60	8.64	9.69	10.74	11.81		13.44	3 / 1			
reaction time	0.184	interval	7 steps	1.08	1.02	1.00	1.01	1.03	1.04	1.05	1.05	1.07	1.63			3.10	3.08	3.17
		velocity	5.58	8.46	8.96	9.14	9.05	8.87	8.79	8.70	8.70	8.54	8.60	8.18		8.85	8.90	8.65

Belocian, Wilhem (FRA) (1995)	time	2.38	3.45	4.49	5.52	6.55	7.59	8.63	9.68	10.75	11.84		13.45	2 / 2				
reaction time 0.130	interval		1.07	1.04	1.03	1.03	1.04	1.04	1.05	1.07	1.09	1.61			3.14	3.11	3.21	
	velocity	5.76	8.54	8.79	8.87	8.87	8.79	8.79	8.70	8.54	8.39	8.71	8.18		8.73	8.82	8.54	
Takayama, Shunya (JPN) (1994)	time	2.34	3.40	4.44	5.45	6.48	7.50	8.56	9.62	10.71	11.82		13.45	7 / 3				
reaction time 0.140	interval		1.06	1.04	1.01	1.03	1.02	1.06	1.06	1.09	1.11	1.63			3.11	3.11	3.26	
	velocity	5.86	8.62	8.79	9.05	8.87	8.96	8.62	8.62	8.39	8.23	8.60	8.18		8.82	8.82	8.41	
Szymański, Jakub (POL) (2002)	time	2.43	3.51	4.53	5.55	6.56	7.58	8.63	9.69	10.78	11.91		13.63	5 / 4				
reaction time 0.153	interval	7 steps	1.08	1.02	1.02	1.01	1.02	1.05	1.06	1.09	1.13	1.72			3.12	3.08	3.28	
	velocity	5.65	8.46	8.96	8.96	9.05	8.96	8.70	8.62	8.40	8.07	8.15	8.07		8.79	8.90	8.36	
Willis, Tayleb (AUS) (2003)	time	2.38	3.46	4.52	5.56	6.61	7.69	8.77	9.86	10.95	12.06		13.67	6 / 5				
reaction time 0.160	interval		1.08	1.06	1.04	1.05	1.08	1.08	1.09	1.09	1.11	1.61			3.18	3.21	3.29	
	velocity	5.76	8.46	8.62	8.79	8.70	8.46	8.46	8.39	8.39	8.23	8.71	8.05		8.62	8.54	8.33	
Sáenz, Martín (CHI) (2001)	time	2.50	3.62	4.69	5.73	6.80	7.90	9.01	10.08	11.19	12.29		13.95	8 / 6				
reaction time 0.149	interval	7 steps	1.12	1.07	1.04	1.07	1.10	1.11	1.07	1.11	1.10	1.66			3.23	3.28	3.28	
	velocity	5.49	8.16	8.54	8.79	8.54	8.31	8.23	8.54	8.23	8.31	8.45	7.89		8.49	8.36	8.36	
Bacari, Elie (BEL) (2003)	time	2.39	3.47	4.53	5.58	6.64	7.70	8.79	9.90	11.02	12.18		14.13	4 / 7				
reaction time 0.147	interval	7 steps	1.08	1.06	1.05	1.06	1.06	1.09	1.11	1.12	1.16	1.95			3.19	3.21	3.39	
	velocity	5.74	8.46	8.62	8.70	8.62	8.62	8.39	8.23	8.16	7.88	7.19	7.78		8.60	8.54	8.09	

Repechage 2

date 06-Aug-24 wind -0.5 m/s

Paris 2024 Olympic Games - Results Book (2024)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pereira, Rafael (BRA) (1997)	time	2.43	3.52	4.55	5.60	6.62	7.65	8.69	9.75	10.83	11.94		13.54	3 / 1			
reaction time 0.140	interval		1.09	1.03	1.05	1.02	1.03	1.04	1.06	1.08	1.11	1.60			3.17	3.09	3.25	
	velocity	5.65	8.39	8.87	8.70	8.96	8.87	8.79	8.62	8.46	8.23	8.76	8.12		8.65	8.87	8.44	
Mohamed, Raphael (FRA) (199	time	2.52	3.61	4.66	5.70	6.74	7.77	8.81	9.86	10.92	11.99		13.54	7 / 2				
reaction time 0.195	interval	7 steps	1.09	1.05	1.04	1.04	1.03	1.04	1.05	1.06	1.07	1.55			3.18	3.11	3.18	
	velocity	5.44	8.39	8.70	8.79	8.79	8.87	8.79	8.70	8.62	8.54	9.05	8.12		8.62	8.82	8.62	
Bouanani, Amine (ALG) (1997)	time	2.51	3.61	4.65	5.67	6.69	7.72	8.75	9.81	10.87	11.95		13.54	6 / 3				
reaction time 0.187	interval	7 steps	1.10	1.04	1.02	1.02	1.03	1.03	1.06	1.06	1.08	1.59			3.16	3.08	3.20	
	velocity	5.47	8.31	8.79	8.96	8.96	8.87	8.87	8.62	8.62	8.46	8.82	8.12		8.68	8.90	8.57	
Mordi, Manuel (GER) (2003)	time	2.48	3.55	4.58	5.59	6.61	7.63	8.68	9.74	10.82	11.92		13.55	5 / 4				
reaction time 0.177	interval	7 steps	1.07	1.03	1.01	1.02	1.02	1.05	1.06	1.08	1.10	1.63			3.11	3.09	3.24	
	velocity	5.53	8.54	8.87	9.05	8.96	8.96	8.70	8.62	8.46	8.31	8.60	8.12		8.82	8.87	8.46	
Czykier, Damian (POL) (1992)	time	2.43	3.52	4.57	5.59	6.63	7.67	8.75	9.84	10.95	12.06		13.71	4 / 5				
reaction time 0.152	interval	7 steps	1.09	1.05	1.02	1.04	1.04	1.08	1.09	1.11	1.11	1.65			3.16	3.16	3.31	
	velocity	5.65	8.39	8.70	8.96	8.79	8.79	8.46	8.39	8.23	8.23	8.50	8.02		8.68	8.68	8.28	

Repechage 1

date 06-Aug-24 wind 0.2 m/s

Paris 2024 Olympic Games - Results Book (2024)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Crittenden, Freddie (USA) (199	time	2.43	3.53	4.60	5.63	6.66	7.69	8.72	9.76	10.80	11.85		13.42	2 / 1			
reaction time 0.154	interval		1.10	1.07	1.03	1.03	1.03	1.03	1.04	1.04	1.05	1.57			3.20	3.09	3.13	
	velocity	5.65	8.31	8.54	8.87	8.87	8.87	8.87	8.79	8.79	8.70	8.93	8.20		8.57	8.87	8.76	
Martinez, Asier (ESP) (2000)	time	2.50	3.58	4.62	5.65	6.68	7.70	8.73	9.76	10.80	11.86		13.46	5 / 2				
reaction time 0.162	interval	7 steps	1.08	1.04	1.03	1.03	1.02	1.03	1.03	1.04	1.06	1.60			3.15	3.08	3.13	
	velocity	5.49	8.46	8.79	8.87	8.87	8.96	8.87	8.87	8.79	8.62	8.76	8.17		8.70	8.90	8.76	
Liu Junxi (CHN) (2003)	time	2.38	3.45	4.50	5.54	6.58	7.61	8.67	9.74	10.81	11.92		13.52	8 / 3				
reaction time 0.143	interval	7 steps	1.07	1.05	1.04	1.04	1.03	1.06	1.07	1.07	1.11	1.60			3.16	3.13	3.25	
	velocity	5.76	8.54	8.70	8.79	8.79	8.87	8.62	8.54	8.54	8.23	8.76	8.14		8.68	8.76	8.44	
Diessl, Enzo (AUT) (2004)	time	2.43	3.53	4.56	5.60	6.63	7.67	8.72	9.78	10.86	11.94		13.56	7 / 4				
reaction time 0.109	interval	7 steps	1.10	1.03	1.04	1.03	1.04	1.05	1.06	1.08	1.08	1.62			3.17	3.12	3.22	
	velocity	5.65	8.31	8.87	8.79	8.87	8.79	8.70	8.62	8.46	8.46	8.65	8.11		8.65	8.79	8.52	
Thorne, Craig (CAN) (2001)	time	2.47	3.57	4.63	5.66	6.70	7.75	8.80	9.87	10.94	12.04		13.62	4 / 5				
reaction time 0.167	interval		1.10	1.06	1.03	1.04	1.05	1.05	1.07	1.07	1.10	1.58			3.19	3.14	3.24	
	velocity	5.55	8.31	8.62	8.87	8.79	8.70	8.70	8.54	8.54	8.31	8.87	8.08		8.60	8.73	8.46	
Kiljan, Krzysztof (POL) (1999)	time	2.41	3.50	4.56	5.60	6.65	7.71	8.76	9.84	10.95	12.07		13.73	6 / 6				
reaction time 0.148	interval	7 steps	1.09	1.06	1.04	1.05	1.06	1.05	1.08	1.11	1.12	1.66			3.19	3.16	3.31	
	velocity	5.69	8.39	8.62	8.79	8.70	8.62	8.70	8.46	8.23	8.16	8.45	8.01		8.60	8.68	8.28	
Lakka, Elmo (FIN) (1993)	time	2.44	3.53	4.58	5.61	6.65	7.70	8.76	9.84	10.94	12.07		13.75	3 / 7				
reaction time 0.140	interval	7 steps	1.09	1.05	1.03	1.04	1.05	1.06	1.08	1.10	1.13	1.68			3.17	3.15	3.31	
	velocity	5.62	8.39	8.70	8.87	8.79	8.70	8.62	8.46	8.31	8.09	8.35	8.00		8.65	8.70	8.28	

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

Heat 5

date 04-Aug-24 wind 0.7 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.31	3.34	4.32	5.29	6.26	7.24	8.23	9.25	10.31	11.39		13.01	6 / 1			
reaction time	0.136	interval	7 steps	1.03	0.98	0.97	0.97	0.98	0.99	1.02	1.06	1.08	1.62			2.98	2.94	3.16
		velocity	5.94	8.87	9.33	9.42	9.42	9.33	9.23	8.96	8.62	8.46	8.65	8.46		9.20	9.33	8.68
Broadbell, Rasheed (JAM) (200		time	2.42	3.51	4.57	5.62	6.65	7.68	8.70	9.73	10.77	11.84		13.42	8 / 2			
reaction time	0.151	interval	7 steps	1.09	1.06	1.05	1.03	1.03	1.02	1.03	1.04	1.07	1.58			3.20	3.08	3.14
		velocity	5.67	8.39	8.62	8.70	8.87	8.87	8.96	8.87	8.79	8.54	8.87	8.20		8.57	8.90	8.73
Zhoya, Sasha (FRA) (2002)		time	2.46	3.54	4.59	5.60	6.62	7.62	8.63	9.66	10.72	11.83		13.43	9 / 3			
reaction time	0.152	interval	7 steps	1.08	1.05	1.01	1.02	1.00	1.01	1.03	1.06	1.11	1.60			3.14	3.03	3.20
		velocity	5.58	8.46	8.70	9.05	8.96	9.14	9.05	8.87	8.62	8.23	8.76	8.19		8.73	9.05	8.57
Takayama, Shunya (JPN) (1994		time	2.55	3.61	4.65	5.68	6.72	7.75	8.80	9.85	10.93	12.02		13.46	5 / 4			
reaction time	0.147	interval		1.06	1.04	1.03	1.04	1.03	1.05	1.05	1.08	1.09	1.44			3.13	3.12	3.22
		velocity	5.38	8.62	8.79	8.87	8.79	8.87	8.70	8.70	8.46	8.39	9.74	8.17		8.76	8.79	8.52
Willis, Tayleb (AUS) (2003)		time	2.37	3.46	4.53	5.58	6.62	7.69	8.75	9.84	10.94	12.04		13.63	2 / 5			
reaction time	0.153	interval		1.09	1.07	1.05	1.04	1.07	1.06	1.09	1.10	1.10	1.59			3.21	3.17	3.29
		velocity	5.79	8.39	8.54	8.70	8.79	8.54	8.62	8.39	8.31	8.31	8.82	8.07		8.54	8.65	8.33
Qin Weibo (CHN) (2002)		time	2.50	3.60	4.64	5.65	6.67	7.69	8.72	9.79	10.89	12.00		13.64	3 / 6			
reaction time	0.199	interval	7 steps	1.10	1.04	1.01	1.02	1.02	1.03	1.07	1.10	1.11	1.64			3.15	3.07	3.28
		velocity	5.49	8.31	8.79	9.05	8.96	8.96	8.87	8.54	8.31	8.23	8.55	8.06		8.70	8.93	8.36
Lakka, Elmo (FIN) (1993)		time	2.42	3.51	4.56	5.59	6.62	7.67	8.73	9.80	10.89	12.05		13.84	4 / 7			
reaction time	0.125	interval	7 steps	1.09	1.05	1.03	1.03	1.05	1.06	1.07	1.09	1.16	1.79			3.17	3.14	3.32
		velocity	5.67	8.39	8.70	8.87	8.87	8.70	8.62	8.54	8.39	7.88	7.83	7.95		8.65	8.73	8.26
Al-Yoha, Yaqoub (KUW) (1993		time	2.50	3.65	4.86	6.45	8.73							dnf	7 / --			
reaction time	0.151	interval	7 steps	1.15	1.21	1.59	2.28									3.95		
		velocity	5.49	7.95	7.55	5.75	4.01									6.94		

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

Heat 4

date 04-Aug-24 wind 0.3 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Joseph, Jason (SUI) (1998)		time	2.48	3.56	4.58	5.57	6.56	7.56	8.56	9.61	10.66	11.70		13.26	6 / 1			
reaction time	0.170	interval	7 steps	1.08	1.02	0.99	0.99	1.00	1.00	1.05	1.05	1.04	1.56			3.09	2.99	3.14
		velocity	5.53	8.46	8.96	9.23	9.23	9.14	9.14	8.70	8.70	8.79	8.99	8.30		8.87	9.17	8.73
Simonelli, Lorenzo Ndele (ITA)		time	2.36	3.43	4.46	5.44	6.44	7.46	8.48	9.55	10.60	11.68		13.27	7 / 2			
reaction time	0.151	interval	7 steps	1.07	1.03	0.98	1.00	1.02	1.02	1.07	1.05	1.08	1.59			3.08	3.04	3.20
		velocity	5.81	8.54	8.87	9.33	9.14	8.96	8.96	8.54	8.70	8.46	8.82	8.29		8.90	9.02	8.57
Izumiya, Shunsuke (JPN) (2000		time	2.58	3.63	4.67	5.69	6.72	7.74	8.75	9.80	10.83	11.91		13.27	9 / 3			
reaction time	0.150	interval	7 steps	1.05	1.04	1.02	1.03	1.02	1.01	1.05	1.03	1.08	1.36			3.11	3.06	3.16
		velocity	5.32	8.70	8.79	8.96	8.87	8.96	9.05	8.70	8.87	8.46	10.31	8.29		8.82	8.96	8.68
Ojora, Tade (GBR) (1999)		time	2.35	3.44	4.50	5.51	6.52	7.54	8.59	9.65	10.70	11.76		13.35	5 / 4			
reaction time	0.138	interval	7 steps	1.09	1.06	1.01	1.01	1.02	1.05	1.06	1.05	1.06	1.59			3.16	3.08	3.17
		velocity	5.84	8.39	8.62	9.05	9.05	8.96	8.70	8.62	8.70	8.62	8.82	8.24		8.68	8.90	8.65
Belocian, Wilhem (FRA) (1995)		time	2.41	3.46	4.49	5.51	6.53	7.55	8.60	9.68	10.74	11.86		13.48	8 / 5			
reaction time	0.145	interval		1.05	1.03	1.02	1.02	1.02	1.05	1.08	1.06	1.12	1.62			3.10	3.09	3.26
		velocity	5.69	8.70	8.87	8.96	8.96	8.96	8.70	8.46	8.62	8.16	8.65	8.16		8.85	8.87	8.41
Liu Junxi (CHN) (2003)		time	2.40	3.48	4.52	5.52	6.56	7.60	8.66	9.73	10.81	11.91		13.54	2 / 6			
reaction time	0.162	interval	7 steps	1.08	1.04	1.00	1.04	1.04	1.06	1.07	1.08	1.10	1.63			3.12	3.14	3.25
		velocity	5.72	8.46	8.79	9.14	8.79	8.79	8.62	8.54	8.46	8.31	8.60	8.12		8.79	8.73	8.44
Bacari, Elie (BEL) (2003)		time	2.39	3.47	4.51	5.53	6.57	7.61	8.67	9.74	10.81	11.91		13.66	3 / 7			
reaction time	0.135	interval	7 steps	1.08	1.04	1.02	1.04	1.04	1.06	1.07	1.07	1.10	1.75			3.14	3.14	3.24
		velocity	5.74	8.46	8.79	8.96	8.79	8.79	8.62	8.54	8.54	8.31	8.01	8.05		8.73	8.73	8.46
Czykier, Damian (POL) (1992)		time	2.47	3.56	4.62	5.63	6.68	7.73	8.80	9.90	11.05	12.20		13.99	4 / 8			
reaction time	0.153	interval	7 steps	1.09	1.06	1.01	1.05	1.05	1.07	1.10	1.15	1.15	1.79			3.16	3.17	3.40
		velocity	5.55	8.39	8.62	9.05	8.70	8.70	8.54	8.31	7.95	7.95	7.83	7.86		8.68	8.65	8.06

Heat 3

date 04-Aug-24 wind 1.1 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xu Zhuoyi (CHN) (2003)		time	2.46	3.55	4.59	5.62	6.63	7.65	8.67	9.68	10.73	11.79		13.40	7 / 1			
reaction time	0.159	interval	7 steps	1.09	1.04	1.03	1.01	1.02	1.02	1.01	1.05	1.06	1.61			3.16	3.05	3.12
		velocity	5.58	8.39	8.79	8.87	9.05	8.96	8.96	9.05	8.70	8.62	8.71	8.21		8.68	8.99	8.79
Andrews, Antoine (BAH) (2003		time	2.36	3.45	4.50	5.54	6.59	7.62	8.66	9.71	10.76	11.85		13.43	6 / 2			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time 0.151	interval	7 steps	1.09	1.05	1.04	1.05	1.03	1.04	1.05	1.05	1.09	1.58				3.18	3.12	3.19
	velocity		5.81	8.39	8.70	8.79	8.70	8.87	8.79	8.70	8.70	8.39	8.87	8.19		8.62	8.79	8.60
Roberts, Daniel (USA) (1997)	time		2.38	3.45	4.49	5.50	6.53	7.57	8.62	9.68	10.73	11.81		13.43	3 / 3			
reaction time 0.164	interval	7 steps	1.07	1.04	1.01	1.03	1.04	1.05	1.06	1.05	1.08	1.62				3.12	3.12	3.19
	velocity		5.76	8.54	8.79	9.05	8.87	8.79	8.70	8.62	8.70	8.46	8.65	8.19		8.79	8.79	8.60
Trajkovic, Milan (CYP) (1992)	time		2.41	3.46	4.48	5.49	6.51	7.52	8.56	9.63	10.69	11.79		13.43	2 / 4			
reaction time 0.139	interval	7 steps	1.05	1.02	1.01	1.02	1.01	1.04	1.07	1.06	1.10	1.64				3.08	3.07	3.23
	velocity		5.69	8.70	8.96	9.05	8.96	9.05	8.79	8.54	8.62	8.31	8.55	8.19		8.90	8.93	8.49
Parchment, Hansle (JAM) (199(	time		2.46	3.54	4.56	5.58	6.60	7.61	8.66	9.70	10.76	11.83		13.43	8 / 5			
reaction time 0.159	interval	7 steps	1.08	1.02	1.02	1.02	1.01	1.05	1.04	1.06	1.07	1.60				3.12	3.08	3.17
	velocity		5.58	8.46	8.96	8.96	8.96	9.05	8.70	8.79	8.62	8.54	8.76	8.19		8.79	8.90	8.65
Pereira, Rafael (USA) (BRA) (1!	time		2.41	3.49	4.55	5.59	6.61	7.63	8.66	9.71	10.77	11.86		13.47	4 / 6			
reaction time 0.142	interval			1.08	1.06	1.04	1.02	1.02	1.03	1.05	1.06	1.09	1.61			3.18	3.07	3.20
	velocity		5.69	8.46	8.62	8.79	8.96	8.96	8.87	8.70	8.62	8.39	8.71	8.17		8.62	8.93	8.57
Thorne, Craig (CAN) (2001)	time		2.45	3.54	4.60	5.63	6.67	7.70	8.76	9.80	10.86	11.96		13.60	5 / 7			
reaction time 0.157	interval			1.09	1.06	1.03	1.04	1.03	1.06	1.04	1.06	1.10	1.64			3.18	3.13	3.20
	velocity		5.60	8.39	8.62	8.87	8.79	8.87	8.62	8.79	8.62	8.31	8.55	8.09		8.62	8.76	8.57
Kiljan, Krzysztof (POL) (1999)	time		2.41	3.49	4.55	5.60	6.64	7.69	8.75	9.82	10.90	12.01		13.67	9 / 8			
reaction time 0.153	interval	7 steps	1.08	1.06	1.05	1.04	1.05	1.06	1.07	1.08	1.11	1.66				3.19	3.15	3.26
	velocity		5.69	8.46	8.62	8.70	8.79	8.70	8.62	8.54	8.46	8.23	8.45	8.05		8.60	8.70	8.41

Heat 2

date 04-Aug-24 wind 1.2 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mendy, Louis François (SEN) (	time		2.44	3.53	4.56	5.57	6.58	7.60	8.63	9.65	10.69	11.76		13.31	9 / 1			
reaction time 0.170	interval			1.09	1.03	1.01	1.01	1.02	1.03	1.02	1.04	1.07	1.55			3.13	3.06	3.13
	velocity		5.62	8.39	8.87	9.05	9.05	8.96	8.87	8.96	8.79	8.54	9.05	8.26		8.76	8.96	8.76
Bennett, Orlando (JAM) (1999)	time		2.35	3.46	4.51	5.51	6.53	7.55	8.58	9.61	10.67	11.73		13.35	7 / 2			
reaction time 0.160	interval			1.11	1.05	1.00	1.02	1.02	1.03	1.03	1.06	1.06	1.62			3.16	3.07	3.15
	velocity		5.84	8.23	8.70	9.14	8.96	8.96	8.87	8.87	8.62	8.62	8.65	8.24		8.68	8.93	8.70
Obasuyi, Michael (BEL) (1999)	time		2.40	3.47	4.52	5.56	6.59	7.62	8.67	9.70	10.75	11.81		13.41	6 / 3			
reaction time 0.151	interval	7 steps	1.07	1.05	1.04	1.03	1.03	1.05	1.03	1.05	1.06	1.60				3.16	3.11	3.14
	velocity		5.72	8.54	8.70	8.79	8.87	8.87	8.70	8.87	8.70	8.62	8.76	8.20		8.68	8.82	8.73
Martinez, Asier (ESP) (2000)	time		2.46	3.56	4.62	5.65	6.69	7.73	8.77	9.82	10.86	11.92		13.47	5 / 4			
reaction time 0.141	interval	7 steps	1.10	1.06	1.03	1.04	1.04	1.04	1.05	1.04	1.06	1.55				3.19	3.12	3.15
	velocity		5.58	8.31	8.62	8.87	8.79	8.79	8.79	8.70	8.79	8.62	9.05	8.17		8.60	8.79	8.70
Bouanani, Amine (ALG) (1997)	time		2.49	3.58	4.63	5.67	6.71	7.74	8.78	9.84	10.91	11.99		13.58	8 / 5			
reaction time 0.163	interval	7 steps	1.09	1.05	1.04	1.04	1.03	1.04	1.06	1.07	1.08	1.59				3.18	3.11	3.21
	velocity		5.51	8.39	8.70	8.79	8.79	8.87	8.79	8.62	8.54	8.46	8.82	8.10		8.62	8.82	8.54
Diessl, Enzo (AUT) (2004)	time		2.50	3.60	4.65	5.69	6.75	7.79	8.84	9.91	10.96	12.04		13.63	2 / 6			
reaction time 0.203	interval	7 steps	1.10	1.05	1.04	1.06	1.04	1.05	1.07	1.05	1.08	1.59				3.19	3.15	3.20
	velocity		5.49	8.31	8.70	8.79	8.62	8.79	8.70	8.54	8.70	8.46	8.82	8.07		8.60	8.70	8.57
Yefremov, David (KAZ) (1999)	time		2.44	3.54	4.63	5.69	6.75	7.82	8.91	10.00	11.11	12.23		13.88	4 / 7			
reaction time 0.170	interval	7 steps	1.10	1.09	1.06	1.06	1.07	1.09	1.09	1.11	1.12	1.65				3.25	3.22	3.32
	velocity		5.62	8.31	8.39	8.62	8.62	8.54	8.39	8.39	8.23	8.16	8.50	7.93		8.44	8.52	8.26
Crittenden, Freddie (USA) (199	time		2.69	3.98	5.31	6.84	8.39	9.92	11.41	12.93	14.42	15.94		18.27	3 / 8			
reaction time 0.157	interval			1.29	1.33	1.53	1.55	1.53	1.49	1.52	1.49	1.52	2.33			4.15	4.57	4.53
	velocity		5.10	7.09	6.87	5.97	5.90	5.97	6.13	6.01	6.13	6.01	6.02	6.02		6.61	6.00	6.05

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

Heat 1

date 04-Aug-24 wind 0.1 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)	time		2.58	3.62	4.63	5.65	6.66	7.66	8.69	9.73	10.78	11.85		13.22	8 / 1		*Shibayama (2024)*	
reaction time 0.139	interval	7 steps	1.04	1.01	1.02	1.01	1.00	1.03	1.04	1.05	1.07	1.37				3.07	3.04	3.16
	velocity		5.32	8.79	9.05	8.96	9.05	9.14	8.87	8.79	8.70	8.54	10.23	8.32		8.93	9.02	8.68
Llopis, Enrique (ESP) (2000)	time		2.41	3.48	4.51	5.51	6.51	7.51	8.53	9.56	10.61	11.67		13.28	9 / 2			
reaction time 0.143	interval	7 steps	1.07	1.03	1.00	1.00	1.00	1.02	1.03	1.05	1.06	1.61				3.10	3.02	3.14
	velocity		5.69	8.54	8.87	9.14	9.14	9.14	8.96	8.87	8.70	8.62	8.71	8.28		8.85	9.08	8.73
Rodrigues, Eduardo (BRA) (19	time		2.48	3.57	4.59	5.60	6.60	7.60	8.61	9.63	10.69	11.77		13.37	4 / 3			
reaction time 0.165	interval			1.09	1.02	1.01	1.00	1.00	1.01	1.02	1.06	1.08	1.60			3.12	3.01	3.16
	velocity		5.53	8.39	8.96	9.05	9.14	9.14	9.05	8.96	8.62	8.46	8.76	8.23		8.79	9.11	8.68
Mordi, Manuel (GER) (2003)	time		2.46	3.54	4.58	5.59	6.61	7.62	8.66	9.72	10.79	11.86		13.48	6 / 4			

reaction time 0.159	interval	7 steps	1.08	1.04	1.01	1.02	1.01	1.04	1.06	1.07	1.07	1.62			3.13	3.07	3.20
	velocity	5.58	8.46	8.79	9.05	8.96	9.05	8.79	8.62	8.54	8.54	8.65	8.16		8.76	8.93	8.57
Mohamed, Raphaël (FRA) (199	time	2.47	3.57	4.62	5.65	6.66	7.69	8.78	9.89	10.96	12.02		13.61	7 / 5			
reaction time 0.162	interval	7 steps	1.10	1.05	1.03	1.01	1.03	1.09	1.11	1.07	1.06	1.59			3.18	3.13	3.24
	velocity	5.55	8.31	8.70	8.87	9.05	8.87	8.39	8.23	8.54	8.62	8.82	8.08		8.62	8.76	8.46
Cabang, John (PHI) (2001)	time	2.45	3.53	4.56	5.60	6.63	7.69	8.76	9.84	10.92	12.01		13.66	3 / 6			
reaction time 0.154	interval		1.08	1.03	1.04	1.03	1.06	1.07	1.08	1.08	1.09	1.65			3.15	3.16	3.25
	velocity	5.60	8.46	8.87	8.79	8.87	8.62	8.54	8.46	8.46	8.39	8.50	8.05		8.70	8.68	8.44
Szymański, Jakub (POL) (2002)	time	2.42	3.50	4.51	5.52	6.53	7.57	8.63	9.72	10.84	11.99		13.75	5 / 7			
reaction time 0.161	interval	7 steps	1.08	1.01	1.01	1.01	1.04	1.06	1.09	1.12	1.15	1.76			3.10	3.11	3.36
	velocity	5.67	8.46	9.05	9.05	9.05	8.79	8.62	8.39	8.16	7.95	7.97	8.00		8.85	8.82	8.16
Sáenz, Martín (CHI) (2001)	time	2.48	3.60	4.66	5.68	6.72	7.76	8.83	9.93	11.06	12.17		13.83	2 / 8			
reaction time 0.144	interval		1.12	1.06	1.02	1.04	1.04	1.07	1.10	1.13	1.11	1.66			3.20	3.15	3.34
	velocity	5.53	8.16	8.62	8.96	8.79	8.79	8.54	8.31	8.09	8.23	8.45	7.95		8.57	8.70	8.21

Decathlon - Heat 3

date 03-Aug-24 wind 0.7 m/s *Paris 2024 Olympic Games - Results Book (2024)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Warner, Damian (CAN) (1989)	time	2.44	3.53	4.57	5.63	6.67	7.71	8.76	9.83	10.92	12.00		13.62	3 / 1			
reaction time 0.144	interval	7 steps	1.09	1.04	1.06	1.04	1.04	1.05	1.07	1.09	1.08	1.62			3.19	3.13	3.24
	velocity	5.62	8.39	8.79	8.62	8.79	8.79	8.70	8.54	8.39	8.46	8.65	8.08		8.60	8.76	8.46
Mullings, Ken (BAH) (1997)	time	2.44	3.53	4.59	5.64	6.68	7.74	8.79	9.85	10.95	12.05		13.70	8 / 2			
reaction time 0.154	interval	7 steps	1.09	1.06	1.05	1.04	1.06	1.05	1.06	1.10	1.10	1.65			3.20	3.15	3.26
	velocity	5.62	8.39	8.62	8.70	8.79	8.62	8.70	8.62	8.31	8.31	8.50	8.03		8.57	8.70	8.41
Gletty, Makenson (FRA) (1999)	time	2.47	3.57	4.65	5.71	6.76	7.84	8.93	10.02	11.14	12.27		13.96	2 / 3			
reaction time 0.144	interval	7 steps	1.10	1.08	1.06	1.05	1.08	1.09	1.09	1.12	1.13	1.69			3.24	3.22	3.34
	velocity	5.55	8.31	8.46	8.62	8.70	8.46	8.39	8.39	8.16	8.09	8.30	7.88		8.46	8.52	8.21
Roosen, Sven (NED) (2001)	time	2.50	3.60	4.70	5.77	6.84	7.91	8.99	10.10	11.21	12.32		13.99	6 / 4			
reaction time 0.148	interval		1.10	1.10	1.07	1.07	1.07	1.08	1.11	1.11	1.11	1.67			3.27	3.22	3.33
	velocity	5.49	8.31	8.31	8.54	8.54	8.54	8.46	8.23	8.23	8.23	8.40	7.86		8.39	8.52	8.23
Fernando Santana, José (BRA	time	2.50	3.62	4.70	5.77	6.83	7.90	8.99	10.11	11.24	12.36		14.00	9 / 5			
reaction time 0.150	interval	7 steps	1.12	1.08	1.07	1.06	1.07	1.09	1.12	1.13	1.12	1.64			3.27	3.22	3.37
	velocity	5.49	8.16	8.46	8.54	8.62	8.54	8.39	8.16	8.09	8.16	8.55	7.86		8.39	8.52	8.14
Baldwin, Heath (USA) (2001)	time	2.57	3.66	4.74	5.81	6.88	7.97	9.06	10.15	11.27	12.38		14.04	7 / 6			
reaction time 0.145	interval	7 steps	1.09	1.08	1.07	1.07	1.09	1.09	1.09	1.12	1.11	1.66			3.24	3.25	3.32
	velocity	5.34	8.39	8.46	8.54	8.54	8.39	8.39	8.39	8.16	8.23	8.45	7.83		8.46	8.44	8.26
Owens-Delerme, Ayden (PUR)	time	2.47	3.57	4.66	5.76	6.85	7.94	9.04	10.16	11.30	12.42		14.09	4 / 7			
reaction time 0.160	interval	7 steps	1.10	1.09	1.10	1.09	1.09	1.10	1.12	1.14	1.12	1.67			3.29	3.28	3.38
	velocity	5.55	8.31	8.39	8.31	8.39	8.39	8.31	8.16	8.02	8.16	8.40	7.81		8.33	8.36	8.11
Williams, Harrison (USA) (1996	time	2.56	3.67	4.80	5.85	6.97	8.08	9.21	10.33	11.46	12.60		14.28	5 / 8			
reaction time 0.155	interval	7 steps	1.11	1.13	1.05	1.12	1.11	1.13	1.12	1.13	1.14	1.68			3.29	3.36	3.39
	velocity	5.36	8.23	8.09	8.70	8.16	8.23	8.09	8.16	8.09	8.02	8.35	7.70		8.33	8.16	8.09

Decathlon - Heat 2

date 03-Aug-24 wind 0.2 m/s *Paris 2024 Olympic Games - Results Book (2024)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Skotheim, Sander (NOR) (2002	time	2.50	3.65	4.78	5.87	6.97	8.06	9.16	10.24	11.34	12.46		14.15	8 / 1			
reaction time 0.161	interval		1.15	1.13	1.09	1.10	1.09	1.10	1.08	1.10	1.12	1.69			3.37	3.29	3.30
	velocity	5.49	7.95	8.09	8.39	8.31	8.39	8.31	8.46	8.31	8.16	8.30	7.77		8.14	8.33	8.31
Ureña, Jorge (ESP) (1993)	time	2.48	3.63	4.74	5.84	6.93	8.04	9.14	10.28	11.43	12.58		14.29	3 / 2			
reaction time 0.136	interval		1.15	1.11	1.10	1.09	1.11	1.10	1.14	1.15	1.15	1.71			3.36	3.30	3.44
	velocity	5.53	7.95	8.23	8.31	8.39	8.23	8.31	8.02	7.95	7.95	8.20	7.70		8.16	8.31	7.97
Erm, Johannes (EST) (1998)	time	2.63	3.77	4.89	5.99	7.07	8.15	9.27	10.38	11.53	12.68		14.35	7 / 3			
reaction time 0.208	interval	7 steps	1.14	1.12	1.10	1.08	1.08	1.12	1.11	1.15	1.15	1.67			3.36	3.28	3.41
	velocity	5.22	8.02	8.16	8.31	8.46	8.46	8.16	8.23	7.95	7.95	8.40	7.67		8.16	8.36	8.04
Steinforth, Till (GER) (2002)	time	2.48	3.63	4.75	5.86	6.97	8.08	9.21	10.34	11.49	12.65		14.37	6 / 4			
reaction time 0.103	interval	7 steps	1.15	1.12	1.11	1.11	1.11	1.13	1.13	1.15	1.16	1.72			3.38	3.35	3.44
	velocity	5.53	7.95	8.16	8.23	8.23	8.23	8.09	8.09	7.95	7.88	8.15	7.65		8.11	8.19	7.97
Neugebauer, Leo (GER) (2000)	time	2.53	3.68	4.81	5.91	7.06	8.18	9.32	10.45	11.61	12.78		14.51	2 / 5			
reaction time 0.134	interval	7 steps	1.15	1.13	1.10	1.15	1.12	1.14	1.13	1.16	1.17	1.73			3.38	3.41	3.46
	velocity	5.42	7.95	8.09	8.31	7.95	8.16	8.02	8.09	7.88	7.81	8.10	7.58		8.11	8.04	7.92
Kaul, Niklas (GER) (1998)	time	2.63	3.79	4.91	6.02	7.13	8.24	9.36	10.49	11.62	12.78		14.53	5 / 6			

reaction time	0.158	interval	7 steps	1.16	1.12	1.11	1.11	1.11	1.12	1.13	1.13	1.16	1.75			3.39	3.34	3.42
		velocity		5.22	7.88	8.16	8.23	8.23	8.23	8.16	8.09	8.09	7.88	8.01	7.57		8.09	8.21	8.02
Golubovic, Daniel (AUS) (1993)		time		2.60	3.80	4.98	6.15	7.30	8.46	9.64	10.84	12.04	13.25		15.15	4 / 7			
reaction time	0.166	interval			1.20	1.18	1.17	1.15	1.16	1.18	1.20	1.20	1.21	1.90			3.55	3.49	3.61
		velocity		5.28	7.62	7.75	7.81	7.95	7.88	7.75	7.62	7.62	7.55	7.38	7.26		7.72	7.86	7.60

Decathlon - Heat 1

date 03-Aug-24 wind 0.2 m/s

Paris 2024 Olympic Games - Results Book (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Rooth, Markus (NOR) (2001)		time	2.46	3.60	4.71	5.80	6.91	8.01	9.15	10.25	11.38	12.55		14.25	6 / 1			
reaction time	0.143	interval		1.14	1.11	1.09	1.11	1.10	1.14	1.10	1.13	1.17	1.70			3.34	3.35	3.40
		velocity	5.58	8.02	8.23	8.39	8.23	8.31	8.02	8.31	8.09	7.81	8.25	7.72		8.21	8.19	8.06
Õiglane, Janek (EST) (1994)		time	2.53	3.69	4.81	5.93	7.05	8.16	9.31	10.42	11.58	12.75		14.45	5 / 2			
reaction time	0.162	interval		1.16	1.12	1.12	1.12	1.11	1.15	1.11	1.16	1.17	1.70			3.40	3.38	3.44
		velocity	5.42	7.88	8.16	8.16	8.16	8.23	7.95	8.23	7.88	7.81	8.25	7.61		8.06	8.11	7.97
Victor, Lindon (GRN) (1993)		time	2.49	3.67	4.83	6.00	7.16	8.31	9.47	10.60	11.77	12.93		14.62	4 / 3			
reaction time	0.147	interval	7 steps	1.18	1.16	1.17	1.16	1.15	1.16	1.13	1.17	1.16	1.69			3.51	3.47	3.46
		velocity	5.51	7.75	7.88	7.81	7.88	7.95	7.88	8.09	7.81	7.88	8.30	7.52		7.81	7.90	7.92
Tilga, Karel (EST) (1998)		time	2.57	3.74	4.86	5.99	7.10	8.24	9.44	10.59	11.80	12.98		14.66	2 / 4			
reaction time	0.163	interval	7 steps	1.17	1.12	1.13	1.11	1.14	1.20	1.15	1.21	1.18	1.68			3.42	3.45	3.54
		velocity	5.34	7.81	8.16	8.09	8.23	8.02	7.62	7.95	7.55	7.75	8.35	7.50		8.02	7.95	7.75
Taam, Rik (NED) (1997)		time	2.56	3.72	4.85	5.98	7.13	8.31	9.50	10.66	11.86	13.06		14.78	3 / 5			
reaction time	0.181	interval		1.16	1.13	1.13	1.15	1.18	1.19	1.16	1.20	1.20	1.72			3.42	3.52	3.56
		velocity	5.36	7.88	8.09	8.09	7.95	7.75	7.68	7.88	7.62	7.62	8.15	7.44		8.02	7.79	7.70
Ziemek, Zachery (USA) (1993)		time	2.56	3.79	4.96	6.13	7.32	8.51	9.72	10.90	12.13	13.35		15.11	7 / 6			
reaction time	0.145	interval	7 steps	1.23	1.17	1.17	1.19	1.19	1.21	1.18	1.23	1.22	1.76			3.57	3.59	3.63
		velocity	5.36	7.43	7.81	7.81	7.68	7.68	7.55	7.75	7.43	7.49	7.97	7.28		7.68	7.64	7.55

2024 Japanese National High School Championsips (Fukuoka, JPN)

FINAL

date 01-Aug-24 wind -0.7 m/s

Takashima (2024) - national high school sports festival - biomechanics data

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Koga, Jieremi (JPN) (2007)		time	2.57	3.64	4.68	5.75	6.77	7.83	8.90	9.96	11.04	12.14		13.59	7 / 1			
reaction time	0.152	interval		1.07	1.04	1.07	1.02	1.06	1.07	1.06	1.08	1.10	1.45	PB		3.18	3.15	3.24
		velocity	5.34	8.54	8.79	8.54	8.96	8.62	8.54	8.62	8.46	8.31	9.67	8.09		8.62	8.70	8.46
Takajo, Koki (JPN) (2008)		time	2.64	3.70	4.77	5.81	6.84	7.90	8.97	10.03	11.12	12.20		13.68	5 / 2			
reaction time	0.136	interval		1.06	1.07	1.04	1.03	1.06	1.07	1.06	1.09	1.08	1.48	PB		3.17	3.16	3.23
		velocity	5.20	8.62	8.54	8.79	8.87	8.62	8.54	8.62	8.39	8.46	9.47	8.04		8.65	8.68	8.49
Asai, Seira (JPN) (2006)		time	2.69	3.79	4.87	5.97	7.04	8.13	9.22	10.32	11.45	12.58		14.05	6 / 3			
reaction time	0.159	interval		1.10	1.08	1.10	1.07	1.09	1.09	1.10	1.13	1.13	1.47	PB		3.28	3.25	3.36
		velocity	5.10	8.31	8.46	8.31	8.54	8.39	8.39	8.31	8.09	8.09	9.54	7.83		8.36	8.44	8.16
Oguchi, Aoba (JPN) (2006)		time	2.70	3.82	4.89	5.98	7.05	8.14	9.23	10.34	11.47	12.59		14.07	8 / 4			
reaction time	0.134	interval		1.12	1.07	1.09	1.07	1.09	1.09	1.11	1.13	1.12	1.48	PB		3.28	3.25	3.36
		velocity	5.08	8.16	8.54	8.39	8.54	8.39	8.39	8.23	8.09	8.16	9.47	7.82		8.36	8.44	8.16
Matsumae, Taiga (JPN) (2007)		time	2.68	3.80	4.89	5.97	7.06	8.15	9.27	10.37	11.48	12.63		14.16	4 / 5			
reaction time	0.161	interval		1.12	1.09	1.08	1.09	1.09	1.12	1.10	1.11	1.15	1.53	=PB		3.29	3.30	3.36
		velocity	5.12	8.16	8.39	8.46	8.39	8.39	8.16	8.31	8.23	7.95	9.16	7.77		8.33	8.31	8.16
Hashizume, Rento (JPN) (2006		time	2.69	3.78	4.88	5.99	7.08	8.18	9.29	10.43	11.56	12.72		14.18	3 / 5			
reaction time	0.143	interval		1.09	1.10	1.11	1.09	1.10	1.11	1.14	1.13	1.16	1.46	PB		3.30	3.30	3.43
		velocity	5.10	8.39	8.31	8.23	8.39	8.31	8.23	8.02	8.09	7.88	9.60	7.76		8.31	8.31	7.99
Kawasaki, Kousuke (JPN) (200		time	2.74	3.84	4.95	6.04	7.14	8.24	9.34	10.46	11.58	12.72		14.19	9 / 6			
reaction time	0.156	interval		1.10	1.11	1.09	1.10	1.10	1.10	1.12	1.12	1.14	1.47	PB		3.30	3.30	3.38
		velocity	5.01	8.31	8.23	8.39	8.31	8.31	8.31	8.16	8.16	8.02	9.54	7.75		8.31	8.31	8.11
Tamura, Eita (JPN) (2006)		time	2.75	3.86	4.96	6.06	7.16	8.27	9.41	10.53	11.68	12.85		14.30	2 / 8			
reaction time	0.213	interval		1.11	1.10	1.10	1.10	1.11	1.14	1.12	1.15	1.17	1.45			3.31	3.35	3.44
		velocity	4.99	8.23	8.31	8.31	8.31	8.23	8.02	8.16	7.95	7.81	9.67	7.69		8.28	8.19	7.97

2024 Herculis Meeting International d'Athlétisme (Monaco, MON)

FINAL

date 12-Jul-24 wind -0.7 m/s

Omega Timing (2024) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.37	3.39	4.35	5.33	6.31	7.30	8.30	9.33	10.37	11.45		13.01	6 / 1			
reaction time	0.132	interval	7 steps	1.02	0.96	0.98	0.98	0.99	1.00	1.03	1.04	1.08	1.56			2.96	2.97	3.15
		velocity	5.79	8.96	9.52	9.33	9.33	9.23	9.14	8.87	8.79	8.46	8.99	8.46		9.26	9.23	8.70

Simonelli, Lorenzo Ndele (ITA)	time	2.38	3.44	4.46	5.46	6.46	7.47	8.47	9.49	10.51	11.56		13.08	3 / 2			
reaction time 0.140	interval	7 steps	1.06	1.02	1.00	1.00	1.01	1.00	1.02	1.02	1.05	1.52			3.08	3.01	3.09
	velocity	5.76	8.62	8.96	9.14	9.14	9.05	9.14	8.96	8.96	8.70	9.22	8.41		8.90	9.11	8.87
Tinch, Cordell (USA) (2000)	time	2.40	3.44	4.44	5.44	6.45	7.45	8.46	9.48	10.52	11.57		13.10	7 / 3			
reaction time 0.161	interval	7 steps	1.04	1.00	1.00	1.01	1.00	1.01	1.02	1.04	1.05	1.53			3.04	3.02	3.11
	velocity	5.72	8.79	9.14	9.14	9.05	9.14	9.05	8.96	8.79	8.70	9.16	8.40		9.02	9.08	8.82
Cunningham, Trey (USA) (199	time	2.38	3.41	4.40	5.39	6.39	7.40	8.43	9.47	10.51	11.56		13.13	4 / 4			
reaction time 0.134	interval	7 steps	1.03	0.99	0.99	1.00	1.01	1.03	1.04	1.04	1.05	1.57			3.01	3.04	3.13
	velocity	5.76	8.87	9.23	9.23	9.14	9.05	8.87	8.79	8.79	8.70	8.93	8.38		9.11	9.02	8.76
Zhoya, Sasha (FRA) (2002)	time	2.42	3.49	4.52	5.55	6.57	7.59	8.62	9.64	10.68	11.72		13.25	5 / 5			
reaction time 0.137	interval	7 steps	1.07	1.03	1.03	1.02	1.02	1.03	1.02	1.04	1.04	1.53			3.13	3.07	3.10
	velocity	5.67	8.54	8.87	8.87	8.96	8.96	8.87	8.96	8.79	8.79	9.16	8.30		8.76	8.93	8.85
Joseph, Jason (SUI) (1998)	time	2.54	3.62	4.64	5.66	6.68	7.71	8.74	9.78	10.85	11.93		13.54	1 / 6			
reaction time 0.154	interval	7 steps	1.08	1.02	1.02	1.02	1.03	1.03	1.04	1.07	1.08	1.61			3.12	3.08	3.19
	velocity	5.40	8.46	8.96	8.96	8.96	8.87	8.87	8.79	8.54	8.46	8.71	8.12		8.79	8.90	8.60
Izumiya, Shunsuke (JPN) (2000	time	2.41	3.48	4.52	5.53	6.57	7.59	8.60	9.62				dnf	8 / --			
reaction time 0.156	interval	7 steps	1.07	1.04	1.01	1.04	1.02	1.01	1.02						3.12	3.07	
	velocity	5.69	8.54	8.79	9.05	8.79	8.96	9.05	8.96						8.79	8.93	

2024 Meeting de Paris (Paris, FRA)

FINAL

date 07-Jul-24 wind -0.6 m/s *Omega Timing (2024) - diamond league race analysis*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)	time	2.40	3.44	4.46	5.45	6.45	7.45	8.47	9.50	10.53	11.58		13.15	8 / 1			
reaction time 0.142	interval	7 steps	1.04	1.02	0.99	1.00	1.00	1.02	1.03	1.03	1.05	1.57	=PB		3.05	3.02	3.11
	velocity	5.72	8.79	8.96	9.23	9.14	9.14	8.96	8.87	8.87	8.70	8.93	8.37		8.99	9.08	8.82
Cunningham, Trey (USA) (199	time	2.35	3.38	4.39	5.38	6.39	7.41	8.43	9.46	10.52	11.59		13.15	5 / 2			
reaction time 0.148	interval	7 steps	1.03	1.01	0.99	1.01	1.02	1.02	1.03	1.06	1.07	1.56			3.03	3.05	3.16
	velocity	5.84	8.87	9.05	9.23	9.05	8.96	8.96	8.87	8.62	8.54	8.99	8.37		9.05	8.99	8.68
Izumiya, Shunsuke (JPN) (2000	time	2.32	3.37	4.40	5.44	6.47	7.48	8.49	9.50	10.53	11.59		13.16	6 / 3			
reaction time 0.145	interval	7 steps	1.05	1.03	1.04	1.03	1.01	1.01	1.01	1.03	1.06	1.57			3.12	3.05	3.10
	velocity	5.91	8.70	8.87	8.79	8.87	9.05	9.05	9.05	8.87	8.62	8.93	8.36		8.79	8.99	8.85
Llopis, Enrique (ESP) (2000)	time	2.39	3.47	4.47	5.49	6.49	7.50	8.52	9.55	10.58	11.63		13.21	1 / 4			
reaction time 0.146	interval	7 steps	1.08	1.00	1.02	1.00	1.01	1.02	1.03	1.03	1.05	1.58			3.10	3.03	3.11
	velocity	5.74	8.46	9.14	8.96	9.14	9.05	8.96	8.87	8.87	8.70	8.87	8.33		8.85	9.05	8.82
Beard, Dylan (USA) (1998)	time	2.39	3.44	4.45	5.46	6.46	7.45	8.46	9.48	10.53	11.60		13.21	3 / 5			
reaction time 0.156	interval		1.05	1.01	1.01	1.00	0.99	1.01	1.02	1.05	1.07	1.61			3.07	3.00	3.14
	velocity	5.74	8.70	9.05	9.05	9.14	9.23	9.05	8.96	8.70	8.54	8.71	8.33		8.93	9.14	8.73
Obasuyi, Michael (BEL) (1999)	time	2.41	3.47	4.49	5.50	6.51	7.54	8.56	9.59	10.64	11.70		13.29	7 / 6			
reaction time 0.151	interval	7 steps	1.06	1.02	1.01	1.01	1.03	1.02	1.03	1.05	1.06	1.59			3.09	3.06	3.14
	velocity	5.69	8.62	8.96	9.05	9.05	8.87	8.96	8.87	8.70	8.62	8.82	8.28		8.87	8.96	8.73
Martínez, Asier (ESP) (2000)	time	2.43	3.51	4.55	5.58	6.60	7.61	8.63	9.67	10.72	11.77		13.35	2 / 7			
reaction time 0.139	interval	7 steps	1.08	1.04	1.03	1.02	1.01	1.02	1.04	1.05	1.05	1.58			3.15	3.05	3.14
	velocity	5.65	8.46	8.79	8.87	8.96	9.05	8.96	8.79	8.70	8.70	8.87	8.24		8.70	8.99	8.73

Heat 2

date 07-Jul-24 wind 0.4 m/s *Omega Timing (2024) - diamond league race analysis*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000	time	2.36	3.43	4.45	5.46	6.47	7.50	8.52	9.54	10.58	11.61		13.16	7 / 1			
reaction time 0.137	interval	7 steps	1.07	1.02	1.01	1.01	1.03	1.02	1.02	1.04	1.03	1.55			3.10	3.06	3.09
	velocity	5.81	8.54	8.96	9.05	9.05	8.87	8.96	8.96	8.79	8.87	9.05	8.36		8.85	8.96	8.87
Beard, Dylan (USA) (1998)	time	2.39	3.44	4.45	5.44	6.44	7.44	8.47	9.51	10.57	11.65		13.25	3 / 2			
reaction time 0.164	interval		1.05	1.01	0.99	1.00	1.00	1.03	1.04	1.06	1.08	1.60			3.05	3.03	3.18
	velocity	5.74	8.70	9.05	9.23	9.14	9.14	8.87	8.79	8.62	8.46	8.76	8.30		8.99	9.05	8.62
Martínez, Asier (ESP) (2000)	time	2.43	3.52	4.55	5.57	6.58	7.60	8.63	9.66	10.71	11.76		13.32	8 / 3			
reaction time 0.140	interval	7 steps	1.09	1.03	1.02	1.01	1.02	1.03	1.03	1.05	1.05	1.56			3.14	3.06	3.13
	velocity	5.65	8.39	8.87	8.96	9.05	8.96	8.87	8.87	8.70	8.70	8.99	8.26		8.73	8.96	8.76
Zhoya, Sasha (FRA) (2002)	time	2.37	3.46	4.49	5.51	6.55	7.57	8.60	9.65	10.71	11.75		13.33	6 / 4			
reaction time 0.135	interval	7 steps	1.09	1.03	1.02	1.04	1.02	1.03	1.05	1.06	1.04	1.58			3.14	3.09	3.15
	velocity	5.79	8.39	8.87	8.96	8.79	8.96	8.87	8.70	8.62	8.79	8.87	8.25		8.73	8.87	8.70
Simonelli, Lorenzo Ndele (ITA)	time	2.34	3.40	4.42	5.44	6.46	7.49	8.53	9.58	10.64	11.72		13.33	4 / 5			
reaction time 0.140	interval	7 steps	1.06	1.02	1.02	1.02	1.03	1.04	1.05	1.06	1.08	1.61			3.10	3.09	3.19
	velocity	5.86	8.62	8.96	8.96	8.96	8.87	8.79	8.70	8.62	8.46	8.71	8.25		8.85	8.87	8.60

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Dickson, Michael (USA) (1997)		time	2.45	3.54	4.58	5.61	6.66	7.70	8.75	9.83	10.90	11.99		13.60	2 / 6			
reaction time	0.192	interval	7 steps	1.09	1.04	1.03	1.05	1.04	1.05	1.08	1.07	1.09	1.61			3.16	3.14	3.24
		velocity	5.60	8.39	8.79	8.87	8.70	8.79	8.70	8.46	8.54	8.39	8.71	8.09		8.68	8.73	8.46
Czykier, Damian (POL) (1992)		time	2.43	3.53	4.56	5.59	6.62	7.67	8.72	9.80	10.89	12.00		13.67	1 / 7			
reaction time	0.152	interval	7 steps	1.10	1.03	1.03	1.03	1.05	1.05	1.08	1.09	1.11	1.67			3.16	3.13	3.28
		velocity	5.65	8.31	8.87	8.87	8.87	8.70	8.70	8.46	8.39	8.23	8.40	8.05		8.68	8.76	8.36
Britt, Jamal (USA) (1998)		time	2.42	3.50	4.53	5.56	6.57	7.60	8.64	9.72	10.88	12.30		15.73	5 / 8			
reaction time	0.153	interval	7 steps	1.08	1.03	1.03	1.01	1.03	1.04	1.08	1.16	1.42	3.43			3.14	3.08	3.66
		velocity	5.67	8.46	8.87	8.87	9.05	8.87	8.79	8.46	7.88	6.44	4.09	6.99		8.73	8.90	7.49

Heat 1

date 07-Jul-24 wind 0.1 m/s

Omega Timing (2024) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)		time	2.41	3.46	4.47	5.48	6.48	7.49	8.51	9.54	10.59	11.64		13.15	6 / 1			
reaction time	0.149	interval	7 steps	1.05	1.01	1.01	1.00	1.01	1.02	1.03	1.05	1.05	1.51			3.07	3.03	3.13
		velocity	5.69	8.70	9.05	9.05	9.14	9.05	8.96	8.87	8.70	8.70	9.28	8.37		8.93	9.05	8.76
Cunningham, Trey (USA) (199		time	2.42	3.48	4.51	5.52	6.52	7.53	8.56	9.59	10.63	11.69		13.20	4 / 2			
reaction time	0.165	interval	7 steps	1.06	1.03	1.01	1.00	1.01	1.03	1.03	1.04	1.06	1.51			3.10	3.04	3.13
		velocity	5.67	8.62	8.87	9.05	9.14	9.05	8.87	8.87	8.79	8.62	9.28	8.33		8.85	9.02	8.76
Obasuyi, Michael (BEL) (1999)		time	2.43	3.50	4.53	5.53	6.54	7.56	8.58	9.60	10.64	11.68		13.22	7 / 3			
reaction time	0.129	interval	7 steps	1.07	1.03	1.00	1.01	1.02	1.02	1.02	1.04	1.04	1.54			3.10	3.05	3.10
		velocity	5.65	8.54	8.87	9.14	9.05	8.96	8.96	8.96	8.79	8.79	9.10	8.32		8.85	8.99	8.85
Llopis, Enrique (ESP) (2000)		time	2.46	3.52	4.51	5.54	6.54	7.55	8.57	9.60	10.63	11.67		13.23	3 / 4			
reaction time	0.144	interval	7 steps	1.06	0.99	1.03	1.00	1.01	1.02	1.03	1.03	1.04	1.56			3.08	3.03	3.10
		velocity	5.58	8.62	9.23	8.87	9.14	9.05	8.96	8.87	8.87	8.79	8.99	8.31		8.90	9.05	8.85
Tinch, Cordell (USA) (2000)		time	2.46	3.53	4.54	5.54	6.54	7.56	8.58	9.62	10.68	11.75		13.33	5 / 5			
reaction time	0.174	interval	7 steps	1.07	1.01	1.00	1.00	1.02	1.02	1.04	1.06	1.07	1.58			3.08	3.04	3.17
		velocity	5.58	8.54	9.05	9.14	9.14	8.96	8.96	8.79	8.62	8.54	8.87	8.25		8.90	9.02	8.65
Joseph, Jason (SUI) (1998)		time	2.52	3.60	4.62	5.63	6.65	7.67	8.71	9.74	10.80	11.86		13.41	2 / 6			
reaction time	0.158	interval	7 steps	1.08	1.02	1.01	1.02	1.02	1.04	1.03	1.06	1.06	1.55			3.11	3.08	3.15
		velocity	5.44	8.46	8.96	9.05	8.96	8.96	8.79	8.87	8.62	8.62	9.05	8.20		8.82	8.90	8.70
Mohamed, Raphaël (FRA) (199		time	2.52	3.61	4.66	5.70	6.76	7.80	8.83	9.86	10.88	11.93		13.45	8 / 7			
reaction time	0.155	interval	7 steps	1.09	1.05	1.04	1.06	1.04	1.03	1.03	1.02	1.05	1.52			3.18	3.13	3.10
		velocity	5.44	8.39	8.70	8.79	8.62	8.79	8.87	8.87	8.96	8.70	9.22	8.18		8.62	8.76	8.85
Lecoeur, Romain (FRA) (1997)		time	2.51	3.60	4.62	5.63	6.66	7.69	8.72	9.75	10.80	11.86		13.47	1 / 8			
reaction time	0.177	interval	7 steps	1.09	1.02	1.01	1.03	1.03	1.03	1.03	1.05	1.06	1.61			3.12	3.09	3.14
		velocity	5.47	8.39	8.96	9.05	8.87	8.87	8.87	8.87	8.70	8.62	8.71	8.17		8.79	8.87	8.73

2024 Chinese National Grand Prix Final (Rizhao, CHN)

FINAL

date 30-Jun-24 wind 0.9 m/s

Shandong Athletics Sport Science (2024)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Qin Weibo (CHN) (2002)		time	2.62	3.65	4.69	5.71	6.72	7.74	8.76	9.79	10.83	11.96		13.38	7 / 1			
reaction time	0.156	interval	7 steps	1.03	1.04	1.02	1.01	1.02	1.02	1.03	1.04	1.13	1.42			3.09	3.05	3.20
		velocity	5.24	8.87	8.79	8.96	9.05	8.96	8.96	8.87	8.79	8.09	9.87	8.22		8.87	8.99	8.57
Xu Zhuoyi (CHN) (2003)		time	2.64	3.72	4.74	5.75	6.77	7.80	8.84	9.89	10.94	12.04		13.47	6 / 2			
reaction time	0.147	interval	7 steps	1.08	1.02	1.01	1.02	1.03	1.04	1.05	1.05	1.10	1.43			3.11	3.09	3.20
		velocity	5.20	8.46	8.96	9.05	8.96	8.87	8.79	8.70	8.70	8.31	9.80	8.17		8.82	8.87	8.57
Zhang Zijun (CHN) (2004)		time	2.60	3.69	4.73	5.78	6.82	7.86	8.91	9.98	11.04	12.10		13.52	8 / 3			
reaction time	0.148	interval		1.09	1.04	1.05	1.04	1.04	1.05	1.07	1.06	1.06	1.42	PB		3.18	3.13	3.19
		velocity	5.28	8.39	8.79	8.70	8.79	8.79	8.70	8.54	8.62	8.62	9.87	8.14		8.62	8.76	8.60
Chen Yuanjiang (CHN) (2006)		time	2.63	3.69	4.74	5.78	6.84	7.87	8.91	9.98	11.04	12.12		13.53	4 / 4			
reaction time	0.155	interval	7 steps	1.06	1.05	1.04	1.06	1.03	1.04	1.07	1.06	1.08	1.41	PB		3.15	3.13	3.21
		velocity	5.22	8.62	8.70	8.79	8.62	8.87	8.79	8.54	8.62	8.46	9.94	8.13		8.70	8.76	8.54
Ning Xiaohan (CHN) (2000)		time	2.60	3.65	4.71	5.73	6.76	7.80	8.86	9.91	10.99	12.11		13.60	9 / 5			
reaction time	0.127	interval		1.05	1.06	1.02	1.03	1.04	1.06	1.05	1.08	1.12	1.49			3.13	3.13	3.25
		velocity	5.28	8.70	8.62	8.96	8.87	8.79	8.62	8.70	8.46	8.16	9.41	8.09		8.76	8.76	8.44
Zhu Shenglong (CHN) (2000)		time	2.62	3.67	4.69	5.72	6.74	7.80	8.86	9.93	11.02	12.13		13.62	5 / 6			
reaction time	0.148	interval	7 steps	1.05	1.02	1.03	1.02	1.06	1.06	1.07	1.09	1.11	1.49			3.10	3.14	3.27
		velocity	5.24	8.70	8.96	8.87	8.96	8.62	8.62	8.54	8.39	8.23	9.41	8.08		8.85	8.73	8.39
Abudoula Afuzileasimu (CHN)		time	2.64	3.70	4.77	5.82	6.87	7.91	8.97	10.04	11.12	12.25		13.66	2 / 7			
reaction time	0.136	interval		1.06	1.07	1.05	1.05	1.04	1.06	1.07	1.08	1.13	1.41	=PB		3.18	3.15	3.28

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
		velocity	5.20	8.62	8.54	8.70	8.70	8.79	8.62	8.54	8.46	8.09	9.94	8.05		8.62	8.70	8.36
Xie Wenjun (CHN) (1990)		time	2.65	3.74	4.79	5.82	6.87	7.93	8.96	10.02	11.09	12.19		13.67	3 / 8			
reaction time	0.156	interval	7 steps	1.09	1.05	1.03	1.05	1.06	1.03	1.06	1.07	1.10	1.48			3.17	3.14	3.23
		velocity	5.18	8.39	8.70	8.87	8.70	8.62	8.87	8.62	8.54	8.31	9.47	8.05		8.65	8.73	8.49

2024 Japanese National Championsips (Niigata, JPN)

FINAL date 30-Jun-24 wind 0.2 m/s

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)		time	2.58	3.60	4.61	5.62	6.60	7.60	8.61	9.63	10.66	11.70		13.07	7 / 1			
reaction time	0.162	interval	7 steps	1.02	1.01	1.01	0.98	1.00	1.01	1.02	1.03	1.04	1.37			3.04	2.99	3.09
		velocity	5.32	8.96	9.05	9.05	9.33	9.14	9.05	8.96	8.87	8.79	10.23	8.42		9.02	9.17	8.87
Takayama, Shunya (JPN) (1994)		time	2.56	3.59	4.59	5.59	6.61	7.63	8.65	9.71	10.78	11.85		13.31	6 / 2			
reaction time	0.147	interval		1.03	1.00	1.00	1.02	1.02	1.02	1.06	1.07	1.07	1.46			3.03	3.06	3.20
		velocity	5.36	8.87	9.14	9.14	8.96	8.96	8.96	8.62	8.54	8.54	9.60	8.26		9.05	8.96	8.57
Yokochi, Taiga (JPN) (2000)		time	2.64	3.70	4.73	5.73	6.76	7.78	8.81	9.86	10.91	12.00		13.39	9 / 3			
reaction time	0.159	interval	7 steps	1.06	1.03	1.00	1.03	1.02	1.03	1.05	1.05	1.09	1.39			3.09	3.08	3.19
		velocity	5.20	8.62	8.87	9.14	8.87	8.96	8.87	8.70	8.70	8.39	10.09	8.22		8.87	8.90	8.60
Abe, Tatsuki (JPN) (2003)		time	2.64	3.70	4.72	5.76	6.79	7.81	8.85	9.90	10.95	12.02		13.41	4 / 4			
reaction time	0.158	interval	7 steps	1.06	1.02	1.04	1.03	1.02	1.04	1.05	1.05	1.07	1.39			3.12	3.09	3.17
		velocity	5.20	8.62	8.96	8.79	8.87	8.96	8.79	8.70	8.70	8.54	10.09	8.20		8.79	8.87	8.65
Nomoto, Syuusei (JPN) (1995)		time	2.52	3.59	4.63	5.64	6.66	7.70	8.72	9.81	10.89	11.98		13.43	8 / 5			
reaction time	0.145	interval	7 steps	1.07	1.04	1.01	1.02	1.04	1.02	1.09	1.08	1.09	1.45			3.12	3.08	3.26
		velocity	5.44	8.54	8.79	9.05	8.96	8.79	8.96	8.39	8.46	8.39	9.67	8.19		8.79	8.90	8.41
Ishikawa, Shuhei (JPN) (1995)		time	2.55	3.60	4.63	5.67	6.71	7.74	8.79	9.85	10.92	12.02		13.47	3 / 6			
reaction time	0.132	interval	7 steps	1.05	1.03	1.04	1.04	1.03	1.05	1.06	1.07	1.10	1.45			3.12	3.12	3.23
		velocity	5.38	8.70	8.87	8.79	8.79	8.87	8.70	8.62	8.54	8.31	9.67	8.17		8.79	8.79	8.49
Fujii, Ryota (JPN) (1996)		time	2.58	3.62	4.66	5.68	6.70	7.73	8.80	9.86	10.93	12.02		13.48	2 / 7			
reaction time	0.159	interval		1.04	1.04	1.02	1.02	1.03	1.07	1.06	1.07	1.09	1.46			3.10	3.12	3.22
		velocity	5.32	8.79	8.79	8.96	8.96	8.87	8.54	8.62	8.54	8.39	9.60	8.16		8.85	8.79	8.52
Machi, Ryota (JPN) (2001)		time	2.61	3.69	4.73	5.75	6.81	7.85	8.90	9.96	11.04	12.12		13.55	5 / 8			
reaction time	0.135	interval	7 steps	1.08	1.04	1.02	1.06	1.04	1.05	1.06	1.08	1.08	1.43			3.14	3.15	3.22
		velocity	5.26	8.46	8.79	8.96	8.62	8.79	8.70	8.62	8.46	8.46	9.80	8.12		8.73	8.70	8.52

2024 Japanese National U20 Championsips (Niigata, JPN) (99.1cm)

FINAL date 30-Jun-24 wind 0.1 m/s

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takajo, Koki (JPN) (2008)		time	2.64	3.73	4.76	5.82	6.86	7.88	8.92	9.95	11.00	12.05		13.52	3 / 1			
reaction time	0.141	interval		1.09	1.03	1.06	1.04	1.02	1.04	1.03	1.05	1.05	1.47	=PB		3.18	3.10	3.13
		velocity	5.20	8.39	8.87	8.62	8.79	8.96	8.79	8.87	8.70	8.70	9.54	8.14		8.62	8.85	8.76
Yamanaka, Kyousuke (JPN) (20		time	2.68	3.73	4.75	5.78	6.83	7.86	8.88	9.93	11.01	12.06		13.52	4 / 2			
reaction time	0.127	interval		1.05	1.02	1.03	1.05	1.03	1.02	1.05	1.08	1.05	1.46			3.10	3.10	3.18
		velocity	5.12	8.70	8.96	8.87	8.70	8.87	8.96	8.70	8.46	8.70	9.60	8.14		8.85	8.85	8.62
Hashimoto, Yu (JPN) (2006)		time	2.60	3.66	4.71	5.75	6.78	7.82	8.86	9.93	10.98	12.08		13.53	2 / 3			
reaction time	0.149	interval	7 steps	1.06	1.05	1.04	1.03	1.04	1.04	1.07	1.05	1.10	1.45	PB		3.15	3.11	3.22
		velocity	5.28	8.62	8.70	8.79	8.87	8.79	8.79	8.54	8.70	8.31	9.67	8.13		8.70	8.82	8.52
Hojo, Yuki (JPN) (2005)		time	2.65	3.73	4.78	5.81	6.86	7.90	8.94	10.00	11.05	12.14		13.59	6 / 4			
reaction time	0.158	interval	7 steps	1.08	1.05	1.03	1.05	1.04	1.04	1.06	1.05	1.09	1.45	PB		3.16	3.13	3.20
		velocity	5.18	8.46	8.70	8.87	8.70	8.79	8.79	8.62	8.70	8.39	9.67	8.09		8.68	8.76	8.57
Tanaka, Yuga (JPN) (2005)		time	2.65	3.73	4.83	5.90	6.92	7.98	9.05	10.13	11.22	12.30		13.72	8 / 5			
reaction time	0.143	interval	7 steps	1.08	1.10	1.07	1.02	1.06	1.07	1.08	1.09	1.08	1.42			3.25	3.15	3.25
		velocity	5.18	8.46	8.31	8.54	8.96	8.62	8.54	8.46	8.39	8.46	9.87	8.02		8.44	8.70	8.44
Kozima, Keiichirou (JPN) (200		time	2.69	3.76	4.82	5.86	6.90	7.93	9.00	10.08	11.15	12.25		13.74	5 / 6			
reaction time	0.155	interval	7 steps	1.07	1.06	1.04	1.04	1.03	1.07	1.08	1.07	1.10	1.49	PB		3.17	3.14	3.25
		velocity	5.10	8.54	8.62	8.79	8.79	8.87	8.54	8.46	8.54	8.31	9.41	8.01		8.65	8.73	8.44
Koga, Jieremi (JPN) (2007)		time	2.61	3.68	4.75	5.76	6.84	7.91	8.97	10.07	11.16	12.27		13.75	7 / 7			
reaction time	0.171	interval	7 steps	1.07	1.07	1.01	1.08	1.07	1.06	1.10	1.09	1.11	1.48			3.15	3.21	3.30
		velocity	5.26	8.54	8.54	9.05	8.46	8.54	8.62	8.31	8.39	8.23	9.47	8.00		8.70	8.54	8.31
Kudo, Haruto (JPN) (2005)		time	2.64	3.73	4.78	5.83	6.87	7.94	9.00	10.08	11.18	12.27		13.78	9 / 8			
reaction time	0.152	interval	7 steps	1.09	1.05	1.05	1.04	1.07	1.06	1.08	1.10	1.09	1.51			3.19	3.17	3.27
		velocity	5.20	8.39	8.70	8.70	8.79	8.54	8.62	8.46	8.31	8.39	9.28	7.98		8.60	8.65	8.39

2024 USA Olympic Trials (Eugene, OR) (TV Analysis)

FINAL

date 28-Jun-24 wind 2.0 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.44	3.42	4.40	5.37	6.34	7.32	8.31	9.32	10.36	11.42		12.86	6 / 1			
reaction time	interval	7 steps	0.98	0.98	0.97	0.97	0.98	0.99	1.01	1.04	1.06	1.44			2.93	2.94	3.11
	velocity	5.62	9.33	9.33	9.42	9.42	9.33	9.23	9.05	8.79	8.62	9.74	8.55		9.36	9.33	8.82
Crittenden, Freddie (USA) (199	time	2.54	3.56	4.54	5.54	6.54	7.52	8.52	9.51	10.52	11.56		12.93	7 / 2			
reaction time	interval		1.02	0.98	1.00	1.00	0.98	1.00	0.99	1.01	1.04	1.37	PB		3.00	2.98	3.04
	velocity	5.40	8.96	9.33	9.14	9.14	9.33	9.14	9.23	9.05	8.79	10.23	8.51		9.14	9.20	9.02
Roberts, Daniel (USA) (1998)	time	2.46	3.48	4.48	5.47	6.48	7.50	8.51	9.53	10.55	11.58		12.96	4 / 3			
reaction time	interval	7 steps	1.02	1.00	0.99	1.01	1.02	1.01	1.02	1.02	1.03	1.38	PB		3.01	3.04	3.07
	velocity	5.58	8.96	9.14	9.23	9.05	8.96	9.05	8.96	8.96	8.87	10.16	8.49		9.11	9.02	8.93
Tinch, Cordell (USA) (2000)	time	2.50	3.54	4.52	5.50	6.50	7.50	8.50	9.52	10.56	11.65		13.03	3 / 4			
reaction time	interval	7 steps	1.04	0.98	0.98	1.00	1.00	1.00	1.02	1.04	1.09	1.38			3.00	3.00	3.15
	velocity	5.49	8.79	9.33	9.33	9.14	9.14	9.14	8.96	8.79	8.39	10.16	8.44		9.14	9.14	8.70
Scott, Ja'Qualon (USA) (2001)	time	2.54	3.59	4.61	5.61	6.62	7.64	8.65	9.66	10.68	11.70		13.09	8 / 5			
reaction time	interval	7 steps	1.05	1.02	1.00	1.01	1.02	1.01	1.01	1.02	1.02	1.39	PB		3.07	3.04	3.05
	velocity	5.40	8.70	8.96	9.14	9.05	8.96	9.05	9.05	8.96	8.96	10.09	8.40		8.93	9.02	8.99
Murray, Cameron (USA) (1999)	time	2.56	3.60	4.61	5.63	6.64	7.65	8.66	9.68	10.72	11.76		13.15	1 / 6			
reaction time	interval	7 steps	1.04	1.01	1.02	1.01	1.01	1.01	1.02	1.04	1.04	1.39	PB		3.07	3.03	3.10
	velocity	5.36	8.79	9.05	8.96	9.05	9.05	9.05	8.96	8.79	8.79	10.09	8.37		8.93	9.05	8.85
Dickson, Michael (USA) (1997)	time	2.54	3.60	4.64	5.64	6.64	7.66	8.68	9.71	10.75	11.80		13.21	5 / 7			
reaction time	interval	7 steps	1.06	1.04	1.00	1.00	1.02	1.02	1.03	1.04	1.05	1.41			3.10	3.04	3.12
	velocity	5.40	8.62	8.79	9.14	9.14	8.96	8.96	8.87	8.79	8.70	9.94	8.33		8.85	9.02	8.79
Wilson, De'vion (USA) (2000)	time	2.56	3.64	4.67	5.71	6.72	7.74	8.76	9.78	10.81	11.86		13.28	9 / 8			
reaction time	interval	7 steps	1.08	1.03	1.04	1.01	1.02	1.02	1.02	1.03	1.05	1.42			3.15	3.05	3.10
	velocity	5.36	8.46	8.87	8.79	9.05	8.96	8.96	8.96	8.87	8.70	9.87	8.28		8.70	8.99	8.85
Cunningham, Trey (USA) (199	time	2.54	3.54	4.56	5.54	6.58	7.61	8.68	9.69	10.76	11.85		13.39	2 / 9			
reaction time	interval	7 steps	1.00	1.02	0.98	1.04	1.03	1.07	1.01	1.07	1.09	1.54			3.00	3.14	3.17
	velocity	5.40	9.14	8.96	9.33	8.79	8.87	8.54	9.05	8.54	8.39	9.10	8.22		9.14	8.73	8.65

Semi-Final 3

date 27-Jun-24 wind 1.1 m/s

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	no information available											13.11	4 / 1			
Dickson, Michael (USA) (1997)	no information available											13.19	8 / 2			
Wilson, De'vion (USA) (2000)	no information available											13.23	6 / 3			
Hunter, Myles (USA) (1995)	no information available											13.28	5 / 4			
Britt, Jamal (USA) (1998)	no information available											13.32	7 / 5			
Schulman, Connor (USA) (2001)	no information available											13.43	3 / 6			
Dunning, Robert (USA) (1997)	no information available											13.46	2 / 7			
Morris, Eli (USA) (2000)	no information available											13.54	1 / 8			
Brown, Darius (USA) (2002)	no information available											13.78	9 / 9			

Semi-Final 2

date 27-Jun-24 wind -0.2 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Crittenden, Freddie (USA) (199	time	2.53	3.56	4.56	5.57	6.56	7.55	8.56	9.56	10.58	11.62		13.05	7 / 1			
reaction time	interval		1.03	1.00	1.01	0.99	0.99	1.01	1.00	1.02	1.04	1.43			3.04	2.99	3.06
	velocity	5.42	8.87	9.14	9.05	9.23	9.23	9.05	9.14	8.96	8.79	9.80	8.43		9.02	9.17	8.96
Scott, Ja'Qualon (USA) (2001)	time	2.57	3.60	4.62	5.62	6.63	7.65	8.67	9.70	10.72	11.78		13.23	6 / 2			
reaction time	interval	7 steps	1.03	1.02	1.00	1.01	1.02	1.02	1.03	1.02	1.06	1.45			3.05	3.05	3.11
	velocity	5.34	8.87	8.96	9.14	9.05	8.96	8.96	8.87	8.96	8.62	9.67	8.31		8.99	8.99	8.82
Cunningham, Trey (USA) (199	time	2.53	3.56	4.58	5.57	6.59	7.59	8.63	9.68	10.73	11.83		13.26	4 / 3			
reaction time	interval	7 steps	1.03	1.02	0.99	1.02	1.00	1.04	1.05	1.05	1.10	1.43			3.04	3.06	3.20
	velocity	5.42	8.87	8.96	9.23	8.96	9.14	8.79	8.70	8.70	8.31	9.80	8.30		9.02	8.96	8.57
Edwards, Eric (USA) (2000)	time	2.59	3.63	4.67	5.70	6.70	7.70	8.73	9.80	10.86	11.93		13.36	8 / 4			
reaction time	interval		1.04	1.04	1.03	1.00	1.00	1.03	1.07	1.06	1.07	1.43			3.11	3.03	3.20
	velocity	5.30	8.79	8.79	8.87	9.14	9.14	8.87	8.54	8.62	8.54	9.80	8.23		8.82	9.05	8.57
Luff, Darius (USA) (2001)	time	2.57	3.61	4.63	5.63	6.65	7.70	8.72	9.78	10.84	11.90		13.37	5 / 5			
reaction time	interval		1.04	1.02	1.00	1.02	1.05	1.02	1.06	1.06	1.06	1.47			3.06	3.09	3.18
	velocity	5.34	8.79	8.96	9.14	8.96	8.70	8.96	8.62	8.62	8.62	9.54	8.23		8.96	8.87	8.62
Young, Ahmad (USA) (2000)	time	2.60	3.65	4.73	5.77	6.80	7.83	8.86	9.93	10.98	12.08		13.58	9 / 6			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval	7 steps	1.05	1.08	1.04	1.03	1.03	1.03	1.07	1.05	1.10	1.50			3.17	3.09	3.22
	velocity	5.28	8.70	8.46	8.79	8.87	8.87	8.87	8.54	8.70	8.31	9.35	8.10		8.65	8.87	8.52
Bates, Di'Niko (USA) (2003)	time	2.63	3.73	4.80	5.84	6.88	7.92	8.96	10.03	11.13	12.23		13.72	2 / 7			
reaction time	interval	7 steps	1.10	1.07	1.04	1.04	1.04	1.04	1.07	1.10	1.10	1.49			3.21	3.12	3.27
	velocity	5.22	8.31	8.54	8.79	8.79	8.79	8.79	8.54	8.31	8.31	9.41	8.02		8.54	8.79	8.39
Williams, Tyson (USA) (2002)	time	2.60	3.67	4.77	5.86	6.93	8.00	9.07	10.16	11.26	12.38		13.88	1 / 8			
reaction time	interval	7 steps	1.07	1.10	1.09	1.07	1.07	1.07	1.09	1.10	1.12	1.50			3.26	3.21	3.31
	velocity	5.28	8.54	8.31	8.39	8.54	8.54	8.54	8.39	8.31	8.16	9.35	7.93		8.41	8.54	8.28

Semi-Final 1

date 27-Jun-24 wind 0.3 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.44	3.42	4.41	5.37	6.35	7.34	8.34	9.34	10.41	11.48		12.96	7 / 1			
reaction time	interval	7 steps	0.98	0.99	0.96	0.98	0.99	1.00	1.00	1.07	1.07	1.48			2.93	2.97	3.14
	velocity	5.62	9.33	9.23	9.52	9.33	9.23	9.14	9.14	8.54	8.54	9.47	8.49		9.36	9.23	8.73
Tinch, Cordell (USA) (2000)	time	2.50	3.54	4.56	5.57	6.57	7.57	8.57	9.58	10.64	11.71		13.19	6 / 2			
reaction time	interval	7 steps	1.04	1.02	1.01	1.00	1.00	1.00	1.01	1.06	1.07	1.48			3.07	3.00	3.14
	velocity	5.49	8.79	8.96	9.05	9.14	9.14	9.14	9.05	8.62	8.54	9.47	8.34		8.93	9.14	8.73
Murray, Cameron (USA) (1999)	time	2.57	3.60	4.64	5.67	6.69	7.72	8.75	9.79	10.81	11.88		13.27	8 / 3			
reaction time	interval	7 steps	1.03	1.04	1.03	1.02	1.03	1.03	1.04	1.02	1.07	1.39			3.10	3.08	3.13
	velocity	5.34	8.87	8.79	8.87	8.96	8.87	8.87	8.79	8.96	8.54	10.09	8.29		8.85	8.90	8.76
Rollins, Louis (USA) (1996)	time	2.50	3.55	4.60	5.64	6.67	7.71	8.75	9.81	10.85	11.94		13.33	3 / 4			
reaction time	interval		1.05	1.05	1.04	1.03	1.04	1.04	1.06	1.04	1.09	1.39			3.14	3.11	3.19
	velocity	5.49	8.70	8.70	8.79	8.87	8.79	8.79	8.62	8.79	8.39	10.09	8.25		8.73	8.82	8.60
Beard, Dylan (USA) (1998)	time	2.51	3.54	4.54	5.56	6.54	7.57	8.61	9.65	10.74	11.85		13.38	5 / 5			
reaction time	interval		1.03	1.00	1.02	0.98	1.03	1.04	1.04	1.09	1.11	1.53			3.05	3.05	3.24
	velocity	5.47	8.87	9.14	8.96	9.33	8.87	8.79	8.79	8.39	8.23	9.16	8.22		8.99	8.99	8.46
Smith, Jayden (USA) (2003)	time	2.49	3.55	4.60	5.64	6.67	7.71	8.75	9.81	10.88	11.96		13.41	4 / 6			
reaction time	interval	7 steps	1.06	1.05	1.04	1.03	1.04	1.04	1.06	1.07	1.08	1.45			3.15	3.11	3.21
	velocity	5.51	8.62	8.70	8.79	8.87	8.79	8.79	8.62	8.54	8.46	9.67	8.20		8.70	8.82	8.54
Vick, Brahmir (USA) (2002)	time	2.57	3.65	4.69	5.74	6.78	7.84	8.90	9.98	11.05	12.18		13.67	1 / 7			
reaction time	interval		1.08	1.04	1.05	1.04	1.06	1.06	1.08	1.07	1.13	1.49			3.17	3.16	3.28
	velocity	5.34	8.46	8.79	8.70	8.79	8.62	8.62	8.46	8.54	8.09	9.41	8.05		8.65	8.68	8.36
Harrold, Daniel (USA) (2000)	time	2.54	3.60	4.64	5.67	6.71	7.77	8.81	9.88	10.96	12.05		13.76	9 / 8			
reaction time	interval	7 steps	1.06	1.04	1.03	1.04	1.06	1.04	1.07	1.08	1.09	1.71			3.13	3.14	3.24
	velocity	5.40	8.62	8.79	8.87	8.79	8.62	8.79	8.54	8.46	8.39	8.20	7.99		8.76	8.73	8.46
Williams, Paris (USA) (1998)	time	2.61	3.68	4.74	5.79	6.82	7.86	8.91	9.99	11.07	12.31		13.97	2 / 9			
reaction time	interval	7 steps	1.07	1.06	1.05	1.03	1.04	1.05	1.08	1.08	1.24	1.66			3.18	3.12	3.40
	velocity	5.26	8.54	8.62	8.70	8.87	8.79	8.70	8.46	8.46	7.37	8.45	7.87		8.62	8.79	8.06

Heat 4

date 24-Jun-24 wind 1.2 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Britt, Jamal (USA) (1998)	time	2.53	3.56	4.62	5.63	6.61	7.60	8.60	9.62	10.64	11.70		13.07	4 / 1			
reaction time	interval	7 steps	1.03	1.06	1.01	0.98	0.99	1.00	1.02	1.02	1.06	1.37	PB		3.10	2.97	3.10
	velocity	5.42	8.87	8.62	9.05	9.33	9.23	9.14	8.96	8.96	8.62	10.23	8.42		8.85	9.23	8.85
Roberts, Daniel (USA) (1998)	time	2.47	3.53	4.57	5.56	6.56	7.56	8.58	9.62	10.66	11.72		13.14	5 / 2			
reaction time	interval	7 steps	1.06	1.04	0.99	1.00	1.00	1.02	1.04	1.04	1.06	1.42			3.09	3.02	3.14
	velocity	5.55	8.62	8.79	9.23	9.14	9.14	8.96	8.79	8.79	8.62	9.87	8.37		8.87	9.08	8.73
Scott, Ja'Qualon (USA) (2001)	time	2.55	3.60	4.63	5.66	6.66	7.66	8.65	9.68	10.73	11.80		13.15	2 / 3			
reaction time	interval	7 steps	1.05	1.03	1.03	1.00	1.00	0.99	1.03	1.05	1.07	1.35	PB		3.11	2.99	3.15
	velocity	5.38	8.70	8.87	8.87	9.14	9.14	9.23	8.87	8.70	8.54	10.39	8.37		8.82	9.17	8.70
Murray, Cameron (USA) (1999)	time	2.55	3.60	4.63	5.66	6.65	7.63	8.66	9.68	10.73	11.80		13.23	7 / 4			
reaction time	interval	7 steps	1.05	1.03	1.03	0.99	0.98	1.03	1.02	1.05	1.07	1.43			3.11	3.00	3.14
	velocity	5.38	8.70	8.87	8.87	9.23	9.33	8.87	8.96	8.70	8.54	9.80	8.31		8.82	9.14	8.73
Rollins, Louis (USA) (1996)	time	2.53	3.60	4.65	5.68	6.70	7.72	8.76	9.83	10.90	11.96		13.38	3 / 5			
reaction time	interval		1.07	1.05	1.03	1.02	1.02	1.04	1.07	1.07	1.06	1.42	PB		3.15	3.08	3.20
	velocity	5.42	8.54	8.70	8.87	8.96	8.96	8.79	8.54	8.54	8.62	9.87	8.22		8.70	8.90	8.57
Bates, Di'Niko (USA) (2003)	time	2.56	3.60	4.67	5.76	6.76	7.78	8.80	9.88	11.00	12.08		13.56	8 / 6			
reaction time	interval	7 steps	1.04	1.07	1.09	1.00	1.02	1.02	1.08	1.12	1.08	1.48			3.20	3.04	3.28
	velocity	5.36	8.79	8.54	8.39	9.14	8.96	8.96	8.46	8.16	8.46	9.47	8.11		8.57	9.02	8.36
Morris, Eli (USA) (2000)	time	2.62	3.67	4.70	5.78	6.80	7.83	8.87	9.93	11.00	12.08		13.57	9 / 7			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval		1.05	1.03	1.08	1.02	1.03	1.04	1.06	1.07	1.08	1.49			3.16	3.09	3.21
	velocity	5.24	8.70	8.87	8.46	8.96	8.87	8.79	8.62	8.54	8.46	9.41	8.11		8.68	8.87	8.54
Hairston, Max (USA) (1994)	time	2.62	3.69	4.75	5.83	6.86	7.95	9.00						6 / --			
reaction time	interval	7 steps	1.07	1.06	1.08	1.03	1.09	1.05					DQ		3.21	3.17	
	velocity	5.24	8.54	8.62	8.46	8.87	8.39	8.70							8.54	8.65	
Wearing, Giovanni (USA) (2004	time	2.60	3.63	4.65	5.76								dnf	1 / --			
reaction time	interval		1.03	1.02	1.11										3.16		
	velocity	5.28	8.87	8.96	8.23										8.68		

Heat 3

date 24-Jun-24 wind 1.8 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cunningham, Trey (USA) (199	time	2.50	3.56	4.54	5.54	6.54	7.55	8.57	9.59	10.62	11.73		13.12	3 / 1			
reaction time	interval	7 steps	1.06	0.98	1.00	1.00	1.01	1.02	1.02	1.03	1.11	1.39			3.04	3.03	3.16
	velocity	5.49	8.62	9.33	9.14	9.14	9.05	8.96	8.96	8.87	8.23	10.09	8.38		9.02	9.05	8.68
Beard, Dylan (USA) (1998)	time	2.48	3.50	4.53	5.53	6.53	7.54	8.57	9.60	10.63	11.76		13.19	4 / 2			
reaction time	interval		1.02	1.03	1.00	1.00	1.01	1.03	1.03	1.03	1.13	1.43			3.05	3.04	3.19
	velocity	5.53	8.96	8.87	9.14	9.14	9.05	8.87	8.87	8.87	8.09	9.80	8.34		8.99	9.02	8.60
Wilson, De'vion (USA) (2000)	time	2.54	3.63	4.66	5.67	6.70	7.73	8.73	9.78	10.83	11.93		13.34	6 / 3			
reaction time	interval	7 steps	1.09	1.03	1.01	1.03	1.03	1.00	1.05	1.05	1.10	1.41			3.13	3.06	3.20
	velocity	5.40	8.39	8.87	9.05	8.87	8.87	9.14	8.70	8.70	8.31	9.94	8.25		8.76	8.96	8.57
Dickson, Michael (USA) (1997)	time	2.53	3.60	4.63	5.64	6.66	7.70	8.73	9.75	10.78	11.93		13.36	2 / 4			
reaction time	interval	7 steps	1.07	1.03	1.01	1.02	1.04	1.03	1.02	1.03	1.15	1.43			3.11	3.09	3.20
	velocity	5.42	8.54	8.87	9.05	8.96	8.79	8.87	8.96	8.87	7.95	9.80	8.23		8.82	8.87	8.57
Harrold, Daniel (USA) (2000)	time	2.53	3.57	4.61	5.65	6.63	7.66	8.70	9.76	10.83	12.00		13.41	8 / 5			
reaction time	interval	7 steps	1.04	1.04	1.04	0.98	1.03	1.04	1.06	1.07	1.17	1.41	PB		3.12	3.05	3.30
	velocity	5.42	8.79	8.79	8.79	9.33	8.87	8.79	8.62	8.54	7.81	9.94	8.20		8.79	8.99	8.31
Young, Ahmad (USA) (2000)	time	2.60	3.65	4.70	5.75	6.77	7.80	8.83	9.87	10.93	12.06		13.46	9 / 6			
reaction time	interval	7 steps	1.05	1.05	1.05	1.02	1.03	1.03	1.04	1.06	1.13	1.40	=PB		3.15	3.08	3.23
	velocity	5.28	8.70	8.70	8.70	8.96	8.87	8.87	8.79	8.62	8.09	10.01	8.17		8.70	8.90	8.49
Vick, Brahmir (USA) (2002)	time	2.56	3.62	4.66	5.70	6.73	7.77	8.83	9.87	10.96	12.08		13.54	7 / 7			
reaction time	interval		1.06	1.04	1.04	1.03	1.04	1.06	1.04	1.09	1.12	1.46	PB		3.14	3.13	3.25
	velocity	5.36	8.62	8.79	8.79	8.87	8.79	8.62	8.79	8.39	8.16	9.60	8.12		8.73	8.76	8.44
Olsen, Derrick (USA) (1998)	time	2.56	3.62	4.66	5.70	6.73	7.80	8.86	9.87	11.16	12.35		13.97	5 / 8			
reaction time	interval		1.06	1.04	1.04	1.03	1.07	1.06	1.01	1.29	1.19	1.62			3.14	3.16	3.49
	velocity	5.36	8.62	8.79	8.79	8.87	8.54	8.62	9.05	7.09	7.68	8.65	7.87		8.73	8.68	7.86
Lewis-Banks, Matthew (USA) (	time	2.63	3.72	4.79	5.86	6.92	8.05	9.20	10.30	11.56	12.73		14.31	1 / 9			
reaction time	interval		1.09	1.07	1.07	1.06	1.13	1.15	1.10	1.26	1.17	1.58			3.23	3.34	3.53
	velocity	5.22	8.39	8.54	8.54	8.62	8.09	7.95	8.31	7.25	7.81	8.87	7.69		8.49	8.21	7.77

Heat 2

date 24-Jun-24 wind -0.3 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Crittenden, Freddie (USA) (199	time	2.56	3.58	4.58	5.58	6.60	7.60	8.63	9.64	10.67	11.72		13.16	2 / 1			
reaction time	interval		1.02	1.00	1.00	1.02	1.00	1.03	1.01	1.03	1.05	1.44			3.02	3.05	3.09
	velocity	5.36	8.96	9.14	9.14	8.96	9.14	8.87	9.05	8.87	8.70	9.74	8.36		9.08	8.99	8.87
Tinch, Cordell (USA) (2000)	time	2.54	3.56	4.57	5.58	6.60	7.60	8.62	9.63	10.67	11.75		13.33	6 / 2			
reaction time	interval	7 steps	1.02	1.01	1.01	1.02	1.00	1.02	1.01	1.04	1.08	1.58			3.04	3.04	3.13
	velocity	5.40	8.96	9.05	9.05	8.96	9.14	8.96	9.05	8.79	8.46	8.87	8.25		9.02	9.02	8.76
Smith, Jayden (USA) (2003)	time	2.50	3.53	4.56	5.58	6.62	7.66	8.72	9.76	10.82	11.92		13.37	1 / 3			
reaction time	interval	7 steps	1.03	1.03	1.02	1.04	1.04	1.06	1.04	1.06	1.10	1.45	PB		3.08	3.14	3.20
	velocity	5.49	8.87	8.87	8.96	8.79	8.79	8.62	8.79	8.62	8.31	9.67	8.23		8.90	8.73	8.57
Edwards, Eric (USA) (2000)	time	2.63	3.66	4.72	5.74	6.74	7.77	8.79	9.82	10.85	11.92		13.37	8 / 4			
reaction time	interval		1.03	1.06	1.02	1.00	1.03	1.02	1.03	1.03	1.07	1.45			3.11	3.05	3.13
	velocity	5.22	8.87	8.62	8.96	9.14	8.87	8.96	8.87	8.87	8.54	9.67	8.23		8.82	8.99	8.76
Dunning, Robert (USA) (1997)	time	2.60	3.63	4.66	5.67	6.69	7.72	8.74	9.77	10.82	11.92		13.44	9 / 5			
reaction time	interval		1.03	1.03	1.01	1.02	1.03	1.02	1.03	1.05	1.10	1.52			3.07	3.07	3.18
	velocity	5.28	8.87	8.87	9.05	8.96	8.87	8.96	8.87	8.70	8.31	9.22	8.18		8.93	8.93	8.62
Williams, Paris (USA) (1998)	time	2.63	3.70	4.73	5.79	6.81	7.86	8.92	10.00	11.07	12.16		13.60	7 / 6			
reaction time	interval	7 steps	1.07	1.03	1.06	1.02	1.05	1.06	1.08	1.07	1.09	1.44			3.16	3.13	3.24
	velocity	5.22	8.54	8.87	8.62	8.96	8.70	8.62	8.46	8.54	8.39	9.74	8.09		8.68	8.76	8.46
Bowden, Parker (USA) (1996)	time	2.60	3.63	4.66	5.73	6.78	7.83	8.90	9.95	11.03	12.13		13.63	3 / 7			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
reaction time	interval	7 steps	1.03	1.03	1.07	1.05	1.05	1.07	1.05	1.08	1.10	1.50				3.13	3.17	3.23
	velocity		5.28	8.87	8.87	8.54	8.70	8.70	8.54	8.70	8.46	8.31	9.35	8.07		8.76	8.65	8.49
Reed, Gratt (USA) (2000)	time		2.63	3.70	4.76	5.84	6.93	8.02	9.12	10.20	11.30	12.43		13.95	5 / 8			
reaction time	interval	7 steps	1.07	1.06	1.08	1.09	1.09	1.10	1.08	1.10	1.13	1.52				3.21	3.28	3.31
	velocity		5.22	8.54	8.62	8.46	8.39	8.39	8.31	8.46	8.31	8.09	9.22	7.89		8.54	8.36	8.28
Hunt, Riley (USA) (2001)	time		2.67	3.76	4.83	5.90	6.97	8.03	9.16	10.23	11.36	12.48		13.98	4 / 9			
reaction time	interval			1.09	1.07	1.07	1.07	1.06	1.13	1.07	1.13	1.12	1.50			3.23	3.26	3.32
	velocity		5.14	8.39	8.54	8.54	8.54	8.62	8.09	8.54	8.09	8.16	9.35	7.87		8.49	8.41	8.26

Heat 1

date 24-Jun-24 wind 0.8 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time		2.43	3.48	4.43	5.41	6.38	7.35	8.35	9.38	10.40	11.46		12.92	4 / 1			
reaction time	interval	7 steps	1.05	0.95	0.98	0.97	0.97	1.00	1.03	1.02	1.06	1.46				2.98	2.94	3.11
	velocity		5.65	8.70	9.62	9.33	9.42	9.42	9.14	8.87	8.96	8.62	9.60	8.51		9.20	9.33	8.82
Hunter, Myles (USA) (1995)	time		2.56	3.65	4.70	5.72	6.73	7.75	8.78	9.80	10.83	11.88		13.33	6 / 2			
reaction time	interval			1.09	1.05	1.02	1.01	1.02	1.03	1.02	1.03	1.05	1.45	PB		3.16	3.06	3.10
	velocity		5.36	8.39	8.70	8.96	9.05	8.96	8.87	8.96	8.87	8.70	9.67	8.25		8.68	8.96	8.85
Luff, Darius (USA) (2001)	time		2.56	3.63	4.66	5.64	6.65	7.68	8.72	9.78	10.83	11.90		13.33	1 / 3			
reaction time	interval			1.07	1.03	0.98	1.01	1.03	1.04	1.06	1.05	1.07	1.43			3.08	3.08	3.18
	velocity		5.36	8.54	8.87	9.33	9.05	8.87	8.79	8.62	8.70	8.54	9.80	8.25		8.90	8.90	8.62
Tharp, Jakobe (USA) (2005)	time		2.56	3.63	4.68	5.70	6.70	7.72	8.75	9.81	10.86	11.92		13.37	3 / 4			
reaction time	interval			1.07	1.05	1.02	1.00	1.02	1.03	1.06	1.05	1.06	1.45			3.14	3.05	3.17
	velocity		5.36	8.54	8.70	8.96	9.14	8.96	8.87	8.62	8.70	8.62	9.67	8.23		8.73	8.99	8.65
Schulman, Connor (USA) (200	time		2.53	3.63	4.68	5.68	6.70	7.72	8.74	9.80	10.83	11.90		13.38	2 / 5			
reaction time	interval	7 steps	1.10	1.05	1.00	1.02	1.02	1.02	1.06	1.03	1.07	1.48				3.15	3.06	3.16
	velocity		5.42	8.31	8.70	9.14	8.96	8.96	8.96	8.62	8.87	8.54	9.47	8.22		8.70	8.96	8.68
Brown, Darius (USA) (2002)	time		2.55	3.66	4.70	5.72	6.76	7.82	8.86	9.95	11.04	12.14		13.56	8 / 6			
reaction time	interval			1.11	1.04	1.02	1.04	1.06	1.04	1.09	1.09	1.10	1.42			3.17	3.14	3.28
	velocity		5.38	8.23	8.79	8.96	8.79	8.62	8.79	8.39	8.39	8.31	9.87	8.11		8.65	8.73	8.36
Williams, Tyson (USA) (2002)	time		2.53	3.65	4.70	5.77	6.82	7.86	8.92	9.96	11.05	12.13		13.58	7 / 7			
reaction time	interval	7 steps	1.12	1.05	1.07	1.05	1.04	1.06	1.04	1.09	1.08	1.45				3.24	3.15	3.21
	velocity		5.42	8.16	8.70	8.54	8.70	8.79	8.62	8.79	8.39	8.46	9.67	8.10		8.46	8.70	8.54
Williams, Daylin (USA) (2002)	time		2.56	3.66	4.70	5.75	6.80	7.88	8.95	10.02	11.10	12.23		13.71	9 / 8			
reaction time	interval	7 steps	1.10	1.04	1.05	1.05	1.08	1.07	1.07	1.08	1.13	1.48				3.19	3.20	3.28
	velocity		5.36	8.31	8.79	8.70	8.70	8.46	8.54	8.54	8.46	8.09	9.47	8.02		8.60	8.57	8.36

2024 Japanese National Multi-Event Championships (Gifu, JPN)

Decathlon - Heat 2

date 23-Jun-24 wind 0.4 m/s

Matsubayashi (2024) - performance analysis of decathlon athletes in the 2024 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Maruyama, Yuma (JPN) (1998)	time		2.74	3.87	4.98	6.06	7.16	8.22	9.36	10.50	11.63	12.76		14.27	7 / 1			
reaction time	interval			1.13	1.11	1.08	1.10	1.06	1.14	1.14	1.13	1.13	1.51			3.32	3.30	3.40
	velocity		5.01	8.09	8.23	8.46	8.31	8.62	8.02	8.02	8.09	8.09	9.28	7.71		8.26	8.31	8.06

Decathlon - Heat 1

date 23-Jun-24 wind 0.4 m/s

Matsubayashi (2024) - performance analysis of decathlon athletes in the 2024 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Okuda, Keisuke (JPN) (1996)	time		2.81	3.98	5.12	6.28	7.41	8.56	9.70	10.84	12.01	13.15		14.65	1 / 1			
reaction time	interval			1.17	1.14	1.16	1.13	1.15	1.14	1.14	1.17	1.14	1.50			3.47	3.42	3.45
	velocity		4.88	7.81	8.02	7.88	8.09	7.95	8.02	8.02	7.81	8.02	9.35	7.51		7.90	8.02	7.95

2024 European Athletics Championships (Roma, ITA) (TV Analysis)

FINAL

date 08-Jun-24 wind 0.6 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Simonelli, Lorenzo Ndele (ITA)	time		2.53	3.55	4.56	5.56	6.56	7.56	8.56	9.57	10.62	11.64		13.05	5 / 1			
reaction time 0.145	interval	7 steps	1.02	1.01	1.00	1.00	1.00	1.00	1.01	1.05	1.02	1.41		NR PB		3.03	3.00	3.08
	velocity		5.42	8.96	9.05	9.14	9.14	9.14	9.14	9.05	8.70	8.96	9.94	8.43		9.05	9.14	8.90
Llopis, Enrique (ESP) (2000)	time		2.57	3.58	4.58	5.59	6.58	7.59	8.60	9.62	10.65	11.75		13.16	7 / 2			
reaction time 0.144	interval	7 steps	1.01	1.00	1.01	0.99	1.01	1.01	1.02	1.03	1.10	1.41		PB		3.02	3.01	3.15
	velocity		5.34	9.05	9.14	9.05	9.23	9.05	9.05	8.96	8.87	8.31	9.94	8.36		9.08	9.11	8.70
Joseph, Jason (SUI) (1998)	time		2.60	3.63	4.65	5.70	6.74	7.78	8.82	9.86	10.95	12.00		13.43	6 / 3			
reaction time 0.155	interval	7 steps	1.03	1.02	1.05	1.04	1.04	1.04	1.04	1.04	1.09	1.05	1.43			3.10	3.12	3.18
	velocity		5.28	8.87	8.96	8.70	8.79	8.79	8.79	8.79	8.39	8.70	9.80	8.19		8.85	8.79	8.62
Mohamed, Raphaël (FRA) (199	time		2.63	3.70	4.76	5.80	6.83	7.86	8.88	9.95	11.00	12.13		13.45	3 / =4			
reaction time 0.171	interval	7 steps	1.07	1.06	1.04	1.03	1.03	1.02	1.07	1.05	1.13	1.32				3.17	3.08	3.25

		velocity	5.22	8.54	8.62	8.79	8.87	8.87	8.96	8.54	8.70	8.09	10.62	8.18		8.65	8.90	8.44
Martínez, Asier (ESP) (2000)		time	2.60	3.66	4.67	5.67	6.68	7.72	8.76	9.80	10.86	11.95		13.45	4 / =4			
reaction time	0.165	interval	7 steps	1.06	1.01	1.00	1.01	1.04	1.04	1.04	1.06	1.09	1.50			3.07	3.09	3.19
		velocity	5.28	8.62	9.05	9.14	9.05	8.79	8.79	8.79	8.62	8.39	9.35	8.18		8.93	8.87	8.60
Obasuyi, Michael (BEL) (1999)		time	2.60	3.73	4.78	5.80	6.83	7.83	8.85	9.88	10.93	12.00		13.46	8 / 6			
reaction time	0.170	interval	7 steps	1.13	1.05	1.02	1.03	1.00	1.02	1.03	1.05	1.07	1.46			3.20	3.05	3.15
		velocity	5.28	8.09	8.70	8.96	8.87	9.14	8.96	8.87	8.70	8.54	9.60	8.17		8.57	8.99	8.70
Kuusiniemi, Santeri (FIN) (1998		time	2.65	3.76	4.78	5.83	6.86	7.96	9.00	10.07	11.20	12.33		13.84	1 / 7			
reaction time	0.157	interval		1.11	1.02	1.05	1.03	1.10	1.04	1.07	1.13	1.13	1.51			3.18	3.17	3.33
		velocity	5.18	8.23	8.96	8.70	8.87	8.31	8.79	8.54	8.09	8.09	9.28	7.95		8.62	8.65	8.23
Bacari, Elie (BEL) (2003)		time	2.53	3.58	4.60	5.63	6.65	7.68	8.75	9.83	10.87	12.00		13.88	2 / ~~8~~	*no official time given*		
reaction time	0.115	interval	7 steps	1.05	1.02	1.03	1.02	1.03	1.07	1.08	1.04	1.13	1.88	DQ		3.10	3.12	3.25
		velocity	5.42	8.70	8.96	8.87	8.96	8.87	8.54	8.46	8.79	8.09	7.46	7.93		8.85	8.79	8.44
Czykier, Damian (POL) (1992)		time	2.56	3.60	4.60	5.60	6.67	7.70						dnf	9 / --			
reaction time	0.151	interval	7 steps	1.04	1.00	1.00	1.07	1.03								3.04		
		velocity	5.36	8.79	9.14	9.14	8.54	8.87								9.02		

2024 NCAA Championships (Eugene, OR) (TV Analysis)

FINAL date 07-Jun-24 wind 0.1 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Luff, Darius (USA) (2001)		time	2.53	3.57	4.60	5.60	6.60	7.61	8.64	9.67	10.71	11.77		13.19	6 / 1			
reaction time		interval		1.04	1.03	1.00	1.00	1.01	1.03	1.03	1.04	1.06	1.42	PB		3.07	3.04	3.13
		velocity	5.42	8.79	8.87	9.14	9.14	9.05	8.87	8.87	8.79	8.62	9.87	8.34		8.93	9.02	8.76
Tharp, Jakobe (USA) (2005)		time	2.57	3.60	4.67	5.67	6.70	7.71	8.74	9.76	10.78	11.81		13.20	5 / 2			
reaction time		interval		1.03	1.07	1.00	1.03	1.01	1.03	1.02	1.02	1.03	1.39			3.10	3.07	3.07
		velocity	5.34	8.87	8.54	9.14	8.87	9.05	8.87	8.96	8.96	8.87	10.09	8.33		8.85	8.93	8.93
Scott, Ja'Qualon (USA) (2001)		time	2.60	3.67	4.70	5.74	6.77	7.81	8.84	9.86	10.88	11.91		13.27	3 / 3			
reaction time		interval	7 steps	1.07	1.03	1.04	1.03	1.04	1.03	1.02	1.02	1.03	1.36	PB		3.14	3.10	3.07
		velocity	5.28	8.54	8.87	8.79	8.87	8.79	8.87	8.96	8.96	8.87	10.31	8.29		8.73	8.85	8.93
Snow, Malachi (USA) (		time	2.57	3.60	4.67	5.71	6.74	7.77	8.81	9.88	10.91	11.98		13.33	8 / 4			
reaction time		interval	7 steps	1.03	1.07	1.04	1.03	1.03	1.04	1.07	1.03	1.07	1.35	PB		3.14	3.10	3.17
		velocity	5.34	8.87	8.54	8.79	8.87	8.87	8.79	8.54	8.87	8.54	10.39	8.25		8.73	8.85	8.65
Wilson, De'vion (USA) (2000)		time	2.53	3.58	4.60	5.60	6.61	7.61	8.62	9.74	10.84	11.91		13.36	4 / 5			
reaction time		interval	7 steps	1.05	1.02	1.00	1.01	1.00	1.01	1.12	1.10	1.07	1.45			3.07	3.02	3.29
		velocity	5.42	8.70	8.96	9.14	9.05	9.14	9.05	8.16	8.31	8.54	9.67	8.23		8.93	9.08	8.33
Bennett, Sam (GBR) (2001)		time	2.57	3.70	4.74	5.77	6.81	7.84	8.86	9.91	10.94	12.00		13.45	1 / 6			
reaction time		interval	7 steps	1.13	1.04	1.03	1.04	1.03	1.02	1.05	1.03	1.06	1.45	PB		3.20	3.09	3.14
		velocity	5.34	8.09	8.79	8.87	8.79	8.87	8.96	8.70	8.87	8.62	9.67	8.18		8.57	8.87	8.73
Campbell, Jerome (JAM) (2002		time	2.50	3.58	4.67	5.71	6.77	7.81	8.84	9.91	10.98	12.05		13.49	9 / 7			
reaction time		interval		1.08	1.09	1.04	1.06	1.04	1.03	1.07	1.07	1.07	1.44			3.21	3.13	3.21
		velocity	5.49	8.46	8.39	8.79	8.62	8.79	8.87	8.54	8.54	8.54	9.74	8.15		8.54	8.76	8.54
Sophia, Matthew (NED) (2003)		time	2.57	3.64	4.70	5.74	6.77	7.81	8.87	9.94	10.98	12.08		13.53	2 / 8			
reaction time		interval		1.07	1.06	1.04	1.03	1.04	1.06	1.07	1.04	1.10	1.45			3.17	3.13	3.21
		velocity	5.34	8.54	8.62	8.79	8.87	8.79	8.62	8.54	8.79	8.31	9.67	8.13		8.65	8.76	8.54
Brackins, Johnny (USA) (2003)		time	2.53	3.60	4.64	5.71	6.77	7.82	8.91	10.01	11.06	12.18		13.63	7 / 9			
reaction time		interval	7 steps	1.07	1.04	1.07	1.06	1.05	1.09	1.10	1.05	1.12	1.45			3.18	3.20	3.27
		velocity	5.42	8.54	8.79	8.54	8.62	8.70	8.39	8.31	8.70	8.16	9.67	8.07		8.62	8.57	8.39

2024 Fuse Sprint (Tottori, JPN)

FINAL date 02-Jun-24 wind 1.3 m/s

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xu Zhuoyi (CHN) (2003)		time	2.61	3.65	4.70	5.72	6.72	7.74	8.75	9.76	10.79	11.83		13.22	7 / 1			
reaction time	0.163	interval	7 steps	1.04	1.05	1.02	1.00	1.02	1.01	1.01	1.03	1.04	1.39	=PB		3.11	3.03	3.08
		velocity	5.26	8.79	8.70	8.96	9.14	8.96	9.05	9.05	8.87	8.79	10.09	8.32		8.82	9.05	8.90
Qin Weibo (CHN) (2002)		time	2.60	3.64	4.67	5.68	6.68	7.70	8.72	9.75	10.80	11.85		13.29	5 / 2			
reaction time	0.157	interval	7 steps	1.04	1.03	1.01	1.00	1.02	1.02	1.03	1.05	1.05	1.44	PB		3.08	3.04	3.13
		velocity	5.28	8.79	8.87	9.05	9.14	8.96	8.96	8.87	8.70	8.70	9.74	8.28		8.90	9.02	8.76
Abe, Tatsuki (JPN) (2003)		time	2.63	3.70	4.75	5.78	6.81	7.83	8.86	9.89	10.92	11.97		13.35	4 / 3			
reaction time	0.147	interval	7 steps	1.07	1.05	1.03	1.03	1.02	1.03	1.03	1.03	1.05	1.38	PB		3.15	3.08	3.11
		velocity	5.22	8.54	8.70	8.87	8.87	8.96	8.87	8.87	8.87	8.70	10.16	8.24		8.70	8.90	8.82

Ishikawa, Shuhei (JPN) (1995)	time	2.57	3.63	4.66	5.69	6.73	7.78	8.83	9.89	10.96	12.05		13.48	3 / 4			
reaction time 0.138	interval	7 steps	1.06	1.03	1.03	1.04	1.05	1.05	1.06	1.07	1.09	1.43			3.12	3.14	3.22
	velocity	5.34	8.62	8.87	8.87	8.79	8.70	8.70	8.62	8.54	8.39	9.80	8.16		8.79	8.73	8.52
Fujii, Ryota (JPN) (1996)	time	2.61	3.65	4.70	5.74	6.79	7.83	8.88	9.94	11.00	12.08		13.51	8 / 5			
reaction time 0.165	interval		1.04	1.05	1.04	1.05	1.04	1.05	1.06	1.06	1.08	1.43			3.13	3.14	3.20
	velocity	5.26	8.79	8.70	8.79	8.70	8.79	8.70	8.62	8.62	8.46	9.80	8.14		8.76	8.73	8.57
Machi, Ryota (JPN) (2001)	time	2.63	3.70	4.75	5.80	6.84	7.88	8.92	9.97	11.03	12.11		13.51	2 / 6			
reaction time 0.167	interval	7 steps	1.07	1.05	1.05	1.04	1.04	1.04	1.05	1.06	1.08	1.40			3.17	3.12	3.19
	velocity	5.22	8.54	8.70	8.70	8.79	8.79	8.79	8.70	8.62	8.46	10.01	8.14		8.65	8.79	8.60
Kotani, Arata (JPN) (2000)	time	2.61	3.66	4.73	5.78	6.84	7.90	8.93	10.05	11.14	12.24		13.68	9 / 7			
reaction time 0.148	interval		1.05	1.07	1.05	1.06	1.06	1.03	1.12	1.09	1.10	1.44			3.17	3.15	3.31
	velocity	5.26	8.70	8.54	8.70	8.62	8.62	8.87	8.16	8.39	8.31	9.74	8.04		8.65	8.70	8.28
Yokochi, Taiga (JPN) (2000)	time	2.65	3.75	4.80	5.85	6.88	7.92	9.01	10.11	11.25	12.37		13.83	6 / 8			
reaction time 0.167	interval	7 steps	1.10	1.05	1.05	1.03	1.04	1.09	1.10	1.14	1.12	1.46			3.20	3.16	3.36
	velocity	5.18	8.31	8.70	8.70	8.87	8.79	8.39	8.31	8.02	8.16	9.60	7.95		8.57	8.68	8.16

2024 Shimane High School Championships (Izumo, JPN)

FINAL date 26-May-24 wind 0.3 m/s

Shimizu (2024) - shimane high school championships 2024 - biomechanics data analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ueda, Koki (JPN) (2007)	time	2.75	3.93	5.13	6.30	7.53	8.78	10.02	11.25	12.47	13.70		15.22	6 / 1			
reaction time	interval		1.18	1.20	1.17	1.23	1.25	1.24	1.23	1.22	1.23	1.52			3.55	3.72	3.68
	velocity	4.99	7.75	7.62	7.81	7.43	7.31	7.37	7.43	7.49	7.43	9.22	7.23		7.72	7.37	7.45
Sakamoto, Kazuki (JPN)	time	2.90	4.13	5.40	6.63	7.87	9.12	10.35	11.62	12.87	14.15		15.79	8 / 2			
reaction time	interval		1.23	1.27	1.23	1.24	1.25	1.23	1.27	1.25	1.28	1.64			3.73	3.72	3.80
	velocity	4.73	7.43	7.20	7.43	7.37	7.31	7.43	7.20	7.31	7.14	8.55	6.97		7.35	7.37	7.22
Ueda, Wataru (JPN)	time	2.83	4.02	5.23	6.48	7.70	8.95	10.18	11.45	12.87	14.23		15.89	3 / 3			
reaction time	interval		1.19	1.21	1.25	1.22	1.25	1.23	1.27	1.42	1.36	1.66			3.65	3.70	4.05
	velocity	4.85	7.68	7.55	7.31	7.49	7.31	7.43	7.20	6.44	6.72	8.45	6.92		7.51	7.41	6.77
Yoshimoto, Hinata (JPN)	time	2.83	4.07	5.28	6.53	7.77	9.03	10.27	11.62	12.95	14.30		15.94	5 / 4			
reaction time	interval		1.24	1.21	1.25	1.24	1.26	1.24	1.35	1.33	1.35	1.64			3.70	3.74	4.03
	velocity	4.85	7.37	7.55	7.31	7.37	7.25	7.37	6.77	6.87	6.77	8.55	6.90		7.41	7.33	6.80
Sato, Ushio (JPN)	time	2.88	4.12	5.37	6.65	7.95	9.22	10.53	11.87	13.20	14.58		16.29	7 / 5			
reaction time	interval		1.24	1.25	1.28	1.30	1.27	1.31	1.34	1.33	1.38	1.71			3.77	3.88	4.05
	velocity	4.76	7.37	7.31	7.14	7.03	7.20	6.98	6.82	6.87	6.62	8.20	6.75		7.27	7.07	6.77
Matsubara, Haruta (JPN)	time	2.88	4.17	5.47	6.77	8.08	9.38	10.73	12.10	13.45	14.80		16.55	2 / 6			
reaction time	interval		1.29	1.30	1.30	1.31	1.30	1.35	1.37	1.35	1.35	1.75			3.89	3.96	4.07
	velocity	4.76	7.09	7.03	7.03	6.98	7.03	6.77	6.67	6.77	6.77	8.01	6.65		7.05	6.92	6.74
Nagasawa, Rui (JPN)	time	3.00	4.37	5.70	7.05	8.35	9.65	10.98	12.28	13.57	14.92		16.57	9 / 7			
reaction time	interval		1.37	1.33	1.35	1.30	1.30	1.33	1.30	1.29	1.35	1.65			4.05	3.93	3.94
	velocity	4.57	6.67	6.87	6.77	7.03	7.03	6.87	7.03	7.09	6.77	8.50	6.64		6.77	6.98	6.96

2024 Prefontaine Classic (Eugene, OR)

FINAL date 25-May-24 wind -0.1 m/s

Omega Timing (2024) - diamond league race analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.35	3.35	4.33	5.30	6.28	7.28	8.28	9.32	10.36	11.44		13.03	5 / 1			
reaction time 0.132	interval	7 steps	1.00	0.98	0.97	0.98	1.00	1.00	1.04	1.04	1.08	1.59			2.95	2.98	3.16
	velocity	5.84	9.14	9.33	9.42	9.33	9.14	9.14	8.79	8.79	8.46	8.82	8.44		9.29	9.20	8.68
Roberts, Daniel (USA) (1998)	time	2.36	3.43	4.45	5.46	6.46	7.48	8.51	9.54	10.57	11.62		13.13	4 / 2			
reaction time 0.148	interval	7 steps	1.07	1.02	1.01	1.00	1.02	1.03	1.03	1.03	1.05	1.51			3.10	3.05	3.11
	velocity	5.81	8.54	8.96	9.05	9.14	8.96	8.87	8.87	8.87	8.70	9.28	8.38		8.85	8.99	8.82
Crittenden, Freddie (USA) (199	time	2.42	3.47	4.48	5.47	6.47	7.48	8.50	9.53	10.57	11.62		13.16	8 / 3			
reaction time 0.140	interval		1.05	1.01	0.99	1.00	1.01	1.02	1.03	1.04	1.05	1.54			3.05	3.03	3.12
	velocity	5.67	8.70	9.05	9.23	9.14	9.05	8.96	8.87	8.79	8.70	9.10	8.36		8.99	9.05	8.79
Parchment, Hansle (JAM) (199	time	2.51	3.56	4.59	5.59	6.59	7.59	8.60	9.61	10.64	11.70		13.28	6 / 4			
reaction time 0.151	interval	7 steps	1.05	1.03	1.00	1.00	1.00	1.01	1.01	1.03	1.06	1.58			3.08	3.01	3.10
	velocity	5.47	8.70	8.87	9.14	9.14	9.14	9.05	9.05	8.87	8.62	8.87	8.28		8.90	9.11	8.85
Cunningham, Trey (USA) (199	time	2.40	3.44	4.45	5.45	6.46	7.48	8.51	9.57	10.63	11.72		13.29	2 / 5			
reaction time 0.134	interval	7 steps	1.04	1.01	1.00	1.01	1.02	1.03	1.06	1.06	1.09	1.57			3.05	3.06	3.21
	velocity	5.72	8.79	9.05	9.14	9.05	8.96	8.87	8.62	8.62	8.39	8.93	8.28		8.99	8.96	8.54

Martínez, Asier (ESP) (1998)		time	2.46	3.53	4.56	5.57	6.59	7.61	8.63	9.66	10.70	11.75		13.31	1 / 6			
reaction time	0.136	interval	7 steps	1.07	1.03	1.01	1.02	1.02	1.02	1.03	1.04	1.05	1.56			3.11	3.06	3.12
		velocity	5.58	8.54	8.87	9.05	8.96	8.96	8.96	8.87	8.79	8.70	8.99	8.26		8.82	8.96	8.79
Izumiya, Shunsuke (JPN) (2000		time	2.36	3.41	4.41	5.43	6.45	7.48	8.52	9.56	10.62	11.72		13.33	7 / 7			
reaction time	0.131	interval	7 steps	1.05	1.00	1.02	1.02	1.03	1.04	1.04	1.06	1.10	1.61			3.07	3.09	3.20
		velocity	5.81	8.70	9.14	8.96	8.96	8.87	8.79	8.79	8.62	8.31	8.71	8.25		8.93	8.87	8.57
Britt, Jamal (USA) (1998)		time	2.44	3.50	4.53	5.54	6.55	7.58	8.62	9.67	10.71	11.79		13.36	9 / 8			
reaction time	0.149	interval	7 steps	1.06	1.03	1.01	1.01	1.03	1.04	1.05	1.04	1.08	1.57			3.10	3.08	3.17
		velocity	5.62	8.62	8.87	9.05	9.05	8.87	8.79	8.70	8.79	8.46	8.93	8.23		8.85	8.90	8.65
Tinch, Cordell (USA) (2000)		time	2.43	3.51	4.56	5.58	6.59	7.61	8.64	9.67	10.71	11.79		13.38	3 / 9			
reaction time	0.164	interval	7 steps	1.08	1.05	1.02	1.01	1.02	1.03	1.03	1.04	1.08	1.59			3.15	3.06	3.15
		velocity	5.65	8.46	8.70	8.96	9.05	8.96	8.87	8.87	8.79	8.46	8.82	8.22		8.70	8.96	8.70

2024 Seiko Golden Grand Prix (Tokyo, JPN)

FINAL date 19-May-24 wind -0.6 m/s

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)		time	2.60	3.65	4.65	5.68	6.68	7.69	8.73	9.75	10.80	11.83		13.22	6 / 1			
reaction time	0.144	interval	7 steps	1.05	1.00	1.03	1.00	1.01	1.04	1.02	1.05	1.03	1.39			3.08	3.05	3.10
		velocity	5.28	8.70	9.14	8.87	9.14	9.05	8.79	8.96	8.70	8.87	10.09	8.32		8.90	8.99	8.85
Mendy, Louis François (SEN) (		time	2.68	3.75	4.78	5.82	6.84	7.87	8.89	9.93	11.01	12.08		13.50	8 / 2			
reaction time	0.214	interval		1.07	1.03	1.04	1.02	1.03	1.02	1.04	1.08	1.07	1.42			3.14	3.07	3.19
		velocity	5.12	8.54	8.87	8.79	8.96	8.87	8.96	8.79	8.46	8.54	9.87	8.15		8.73	8.93	8.60
Edwards, Eric (USA) (2000)		time	2.63	3.68	4.73	5.75	6.80	7.84	8.88	9.94	11.03	12.10		13.55	4 / 3			
reaction time	0.158	interval		1.05	1.05	1.02	1.05	1.04	1.04	1.06	1.09	1.07	1.45			3.12	3.13	3.22
		velocity	5.22	8.70	8.70	8.96	8.70	8.79	8.79	8.62	8.39	8.54	9.67	8.12		8.79	8.76	8.52
Takayama, Shunya (JPN) (1994		time	2.56	3.60	4.62	5.66	6.71	7.76	8.81	9.88	10.98	12.09		13.56	5 / 4			
reaction time	0.130	interval		1.04	1.02	1.04	1.05	1.05	1.05	1.07	1.10	1.11	1.47			3.10	3.15	3.28
		velocity	5.36	8.79	8.96	8.79	8.70	8.70	8.70	8.54	8.31	8.23	9.54	8.11		8.85	8.70	8.36
Bennett, Orlando (JAM) (1999)		time	2.64	3.70	4.75	5.78	6.81	7.86	8.91	9.96	11.05	12.15		13.60	7 / 5			
reaction time	0.129	interval		1.06	1.05	1.03	1.03	1.05	1.05	1.05	1.09	1.10	1.45			3.14	3.13	3.24
		velocity	5.20	8.62	8.70	8.87	8.87	8.70	8.70	8.70	8.39	8.31	9.67	8.09		8.73	8.76	8.46
Abe, Tatsuki (JPN) (2003)		time	2.61	3.69	4.77	5.83	6.88	7.95	9.00	10.09	11.14	12.25		13.63	2 / 6			
reaction time	0.140	interval	7 steps	1.08	1.08	1.06	1.05	1.07	1.05	1.09	1.05	1.11	1.38			3.22	3.17	3.25
		velocity	5.26	8.46	8.46	8.62	8.70	8.54	8.70	8.39	8.70	8.23	10.16	8.07		8.52	8.65	8.44
Yokochi, Taiga (JPN) (2000)		time	2.67	3.76	4.78	5.83	6.85	7.90	8.95	10.01	11.08	12.18		13.65	1 / 7			
reaction time	0.171	interval	7 steps	1.09	1.02	1.05	1.02	1.05	1.05	1.06	1.07	1.10	1.47			3.16	3.12	3.23
		velocity	5.14	8.39	8.96	8.70	8.96	8.70	8.70	8.62	8.54	8.31	9.54	8.06		8.68	8.79	8.49
Ishikawa, Shuhei (JPN) (1995)		time	2.62	3.68	4.74	5.80	6.87	7.92	8.99	10.06	11.16	12.26		13.71	3 / 8			
reaction time	0.169	interval	7 steps	1.06	1.06	1.06	1.07	1.05	1.07	1.07	1.10	1.10	1.45			3.18	3.19	3.27
		velocity	5.24	8.62	8.62	8.62	8.54	8.70	8.54	8.54	8.31	8.31	9.67	8.02		8.62	8.60	8.39
Cabang, John (PHI) (2001)		time	2.62	3.70	4.73	5.79	6.85	7.92	8.97	10.04	11.13	12.23		13.72	9 / 9			
reaction time	0.162	interval		1.08	1.03	1.06	1.06	1.07	1.05	1.07	1.09	1.10	1.49			3.17	3.18	3.26
		velocity	5.24	8.46	8.87	8.62	8.62	8.54	8.70	8.54	8.39	8.31	9.41	8.02		8.65	8.62	8.41

2024 Atlanta City Cames (Atlanta, GA) (Street Race) (TV Analysis)

FINAL date 18-May-24 wind -0.7 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.45	3.45	4.44	5.42	6.42	7.42	8.42	9.44	10.48	11.58		13.07	3 / 1			
reaction time		interval	7 steps	1.00	0.99	0.98	1.00	1.00	1.00	1.02	1.04	1.10	1.49			2.97	3.00	3.16
		velocity	5.60	9.14	9.23	9.33	9.14	9.14	9.14	8.96	8.79	8.31	9.41	8.42		9.23	9.14	8.68
Dunning, Robert (USA) (1997)		time	2.55	3.61	4.65	5.68	6.68	7.71	8.71	9.75	10.81	11.90		13.40	1 / 2			
reaction time		interval	7 steps	1.06	1.04	1.03	1.00	1.03	1.00	1.04	1.06	1.09	1.50			3.13	3.03	3.19
		velocity	5.38	8.62	8.79	8.87	9.14	8.87	9.14	8.79	8.62	8.39	9.35	8.21		8.76	9.05	8.60
Dickson, Michael (USA) (1997)		time	2.58	3.65	4.68	5.75	6.77	7.79	8.82	9.88	10.95	12.01		13.50	4 / 3			
reaction time		interval	7 steps	1.07	1.03	1.07	1.02	1.02	1.03	1.06	1.07	1.06	1.49			3.17	3.07	3.19
		velocity	5.32	8.54	8.87	8.54	8.96	8.96	8.87	8.62	8.54	8.62	9.41	8.15		8.65	8.93	8.60
Rollins, Louis (USA) (1996)		time	2.56	3.61	4.65	5.68	6.72	7.80	8.85	9.92	10.98	12.06		13.55	2 / 4			
reaction time		interval		1.05	1.04	1.03	1.04	1.08	1.05	1.07	1.06	1.08	1.49			3.12	3.17	3.21
		velocity	5.36	8.70	8.79	8.87	8.79	8.46	8.70	8.54	8.62	8.46	9.41	8.12		8.79	8.65	8.54
Hunter, Myles (USA) (1995)		time	2.55	3.64	4.71	5.75	6.80	7.84	8.88	9.92	10.96	12.05		13.60	5 / 5			

reaction time	interval		1.09	1.07	1.04	1.05	1.04	1.04	1.04	1.04	1.09	1.55			3.20	3.13	3.17
	velocity	5.38	8.39	8.54	8.79	8.70	8.79	8.79	8.79	8.79	8.39	9.05	8.09		8.57	8.76	8.65

2024 Michitaka Kinami Memorial (Osaka, JPN)

FINAL

date 12-May-24 wind 0.9 m/s

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Machi, Ryota (JPN) (2001)	time	2.63	3.68	4.73	5.74	6.76	7.79	8.84	9.88	10.94	12.03		13.45	5 / 1			
reaction time 0.169	interval		1.05	1.05	1.01	1.02	1.03	1.05	1.04	1.06	1.09	1.42			3.11	3.10	3.19
	velocity	5.22	8.70	8.70	9.05	8.96	8.87	8.70	8.79	8.62	8.39	9.87	8.18		8.82	8.85	8.60
Yokochi, Taiga (JPN) (2000)	time	2.67	3.73	4.78	5.82	6.83	7.85	8.87	9.93	10.98	12.07		13.47	7 / 2			
reaction time 0.179	interval		1.06	1.05	1.04	1.01	1.02	1.02	1.06	1.05	1.09	1.40			3.15	3.05	3.20
	velocity	5.14	8.62	8.70	8.79	9.05	8.96	8.96	8.62	8.70	8.39	10.01	8.17		8.70	8.99	8.57
Ishida Thomas, Higashi (JPN) (	time	2.60	3.64	4.67	5.71	6.75	7.78	8.82	9.88	10.97	12.08		13.55	3 / 3			
reaction time 0.188	interval		1.04	1.03	1.04	1.04	1.03	1.04	1.06	1.09	1.11	1.47			3.11	3.11	3.26
	velocity	5.28	8.79	8.87	8.79	8.79	8.87	8.79	8.62	8.39	8.23	9.54	8.12		8.82	8.82	8.41
Fujii, Ryota (JPN) (1996)	time	2.58	3.63	4.65	5.68	6.71	7.76	8.81	9.87	10.95	12.06		13.56	4 / 4			
reaction time 0.173	interval		1.05	1.02	1.03	1.03	1.05	1.05	1.06	1.08	1.11	1.50			3.10	3.13	3.25
	velocity	5.32	8.70	8.96	8.87	8.87	8.70	8.70	8.62	8.46	8.23	9.35	8.11		8.85	8.76	8.44
Kim Kyung-Tae (KOR) (1997)	time	2.59	3.66	4.69	5.75	6.80	7.85	8.90	9.96	11.04	12.12		13.62	2 / 5			
reaction time 0.156	interval		1.07	1.03	1.06	1.05	1.05	1.05	1.06	1.08	1.08	1.50	PB		3.16	3.15	3.22
	velocity	5.30	8.54	8.87	8.62	8.70	8.70	8.70	8.62	8.46	8.46	9.35	8.08		8.68	8.70	8.52
Ishikawa, Shuhei (JPN) (1995)	time	2.62	3.68	4.73	5.78	6.83	7.88	8.95	10.03	11.10	12.21		13.69	8 / 6			
reaction time 0.161	interval		1.06	1.05	1.05	1.05	1.05	1.07	1.08	1.07	1.11	1.48			3.16	3.17	3.26
	velocity	5.24	8.62	8.70	8.70	8.70	8.70	8.54	8.46	8.54	8.23	9.47	8.04		8.68	8.65	8.41
Kotani, Arata (JPN) (2000)	time	2.64	3.69	4.74	5.81	6.85	7.93	9.01	10.10	11.20	12.31		13.76	9 / 7			
reaction time 0.175	interval		1.05	1.05	1.07	1.04	1.08	1.08	1.09	1.10	1.11	1.45	PB		3.17	3.20	3.30
	velocity	5.20	8.70	8.70	8.54	8.79	8.46	8.46	8.39	8.31	8.23	9.67	7.99		8.65	8.57	8.31

2024 Mikio Oda Memorial (Hiroshima, JPN)

FINAL

date 29-Apr-24 wind -0.6 m/s

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)	time	2.64	3.69	4.71	5.71	6.72	7.73	8.75	9.79	10.84	11.90		13.29	3 / 1			
reaction time 0.191	interval	7 steps	1.05	1.02	1.00	1.01	1.01	1.02	1.04	1.05	1.06	1.39			3.07	3.04	3.15
	velocity	4.92	8.10	8.33	8.50	8.42	8.42	8.33	8.17	8.10	8.02	10.09	8.28		8.93	9.02	8.70
Abe, Tatsuki (JPN) (2003)	time	2.65	3.73	4.78	5.80	6.85	7.89	8.94	9.99	11.06	12.14		13.52	5 / 2			
reaction time 0.147	interval	7 steps	1.08	1.05	1.02	1.05	1.04	1.05	1.05	1.07	1.08	1.38	PB		3.15	3.14	3.20
	velocity	4.91	7.87	8.10	8.33	8.10	8.17	8.10	8.10	7.94	7.87	10.16	8.14		8.70	8.73	8.57
Liu Junxi (CHN) (2003)	time	2.64	3.72	4.74	5.78	6.81	7.85	8.90	9.95	11.04	12.12		13.56	2 / 3			
reaction time 0.201	interval	7 steps	1.08	1.02	1.04	1.03	1.04	1.05	1.05	1.09	1.08	1.44			3.14	3.12	3.22
	velocity	4.92	7.87	8.33	8.17	8.25	8.17	8.10	8.10	7.80	7.87	9.74	8.11		8.73	8.79	8.52
Ishikawa, Shuhei (JPN) (1995)	time	2.63	3.71	4.75	5.80	6.85	7.90	8.95	10.03	11.09	12.18		13.62	7 / 4			
reaction time 0.177	interval	7 steps	1.08	1.04	1.05	1.05	1.05	1.05	1.08	1.06	1.09	1.44			3.17	3.15	3.23
	velocity	4.94	7.87	8.17	8.10	8.10	8.10	8.10	7.87	8.02	7.80	9.74	8.08		8.65	8.70	8.49
Yokochi, Taiga (JPN) (2000)	time	2.68	3.78	4.80	5.86	6.92	7.96	9.00	10.05	11.13	12.23		13.63	8 / 5			
reaction time 0.204	interval	7 steps	1.10	1.02	1.06	1.06	1.04	1.04	1.05	1.08	1.10	1.40			3.18	3.14	3.23
	velocity	4.85	7.73	8.33	8.02	8.02	8.17	8.17	8.10	7.87	7.73	10.01	8.07		8.62	8.73	8.49
Takayama, Shunya (JPN) (1994)	time	2.58	3.65	4.68	5.73	6.76	7.81	8.86	9.96	11.04	12.15		13.64	6 / 6			
reaction time 0.149	interval		1.07	1.03	1.05	1.03	1.05	1.05	1.10	1.08	1.11	1.49			3.15	3.13	3.29
	velocity	5.04	7.94	8.25	8.10	8.25	8.10	8.10	7.73	7.87	7.66	9.41	8.06		8.70	8.76	8.33
Machi, Ryota (JPN) (2001)	time	2.63	3.72	4.77	5.82	6.85	7.88	8.94	10.01	11.09	12.20		13.65	4 / 7			
reaction time 0.159	interval	7 steps	1.09	1.05	1.05	1.03	1.03	1.06	1.07	1.08	1.11	1.45			3.19	3.12	3.26
	velocity	5.22	8.39	8.70	8.70	8.87	8.87	8.62	8.54	8.46	8.23	9.67	8.06		8.60	8.79	8.41
Nishi, Tetsuro (JPN) (2004)	time	2.73	3.83	4.92	6.01	7.08	8.18	9.28	10.40	11.53	12.68		14.25	1 / 8			
reaction time 0.179	interval	7 steps	1.10	1.09	1.09	1.07	1.10	1.10	1.12	1.13	1.15	1.57			3.28	3.27	3.40
	velocity	5.03	8.31	8.39	8.39	8.54	8.31	8.31	8.16	8.09	7.95	8.93	7.72		8.36	8.39	8.06

B FINAL

date 29-Apr-24 wind -0.7 m/s

Shibayama (2024) - race analysis of domestic and international men's 110m hurdles in the 2024 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)	time	2.65	3.73	4.78	5.82	6.87	7.94	9.00	10.08	11.15	12.25		13.77	4 / 1			
reaction time 0.154	interval		1.08	1.05	1.04	1.05	1.07	1.06	1.08	1.07	1.10	1.52			3.17	3.18	3.25
	velocity	5.18	8.46	8.70	8.79	8.70	8.54	8.62	8.46	8.54	8.31	9.22	7.99		8.65	8.62	8.44

Kim Kyung-Tae (KOR) (1997)	time	2.63	3.70	4.76	5.81	6.87	7.94	9.03	10.13	11.23	12.34		13.81	5 / 2				
reaction time 0.155	interval		1.07	1.06	1.05	1.06	1.07	1.09	1.10	1.10	1.11	1.47			3.18	3.22	3.31	
	velocity	5.22	8.54	8.62	8.70	8.62	8.54	8.39	8.31	8.31	8.23	9.54	7.97		8.62	8.52	8.28	
McCorry, Jacob (AUS) (1997)	time	2.65	3.76	4.81	5.88	6.94	8.03	9.09	10.16	11.28	12.41		13.85	6 / 3				
reaction time 0.146	interval	7 steps	1.11	1.05	1.07	1.06	1.09	1.06	1.07	1.12	1.13	1.44			3.23	3.21	3.32	
	velocity	5.18	8.23	8.70	8.54	8.62	8.39	8.62	8.54	8.16	8.09	9.74	7.94		8.49	8.54	8.26	
Koike, Ryo (JPN) (2003)	time	2.75	3.84	4.89	5.94	6.99	8.05	9.11	10.19	11.30	12.41		13.93	8 / 4				
reaction time 0.196	interval	7 steps	1.09	1.05	1.05	1.05	1.06	1.06	1.08	1.11	1.11	1.52			3.19	3.17	3.30	
	velocity	4.99	8.39	8.70	8.70	8.70	8.62	8.62	8.46	8.23	8.23	9.22	7.90		8.60	8.65	8.31	
Yoshima, Kaito (JPN) (1998)	time	2.65	3.74	4.83	5.90	7.00	8.08	9.20	10.32	11.45	12.61		14.12	2 / 5				
reaction time 0.161	interval	7 steps	1.09	1.09	1.07	1.10	1.08	1.12	1.12	1.13	1.16	1.51			3.25	3.30	3.41	
	velocity	5.18	8.39	8.39	8.54	8.31	8.46	8.16	8.16	8.09	7.88	9.28	7.79		8.44	8.31	8.04	
Chen Kuei-Ru (TPE) (1993)	time	2.67	3.77	4.84	5.89	6.98	8.05	9.17	10.28	11.41	12.56		14.15	1 / 6				
reaction time 0.171	interval	7 steps	1.10	1.07	1.05	1.09	1.07	1.12	1.11	1.13	1.15	1.59			3.22	3.28	3.39	
	velocity	5.14	8.31	8.54	8.70	8.39	8.54	8.16	8.23	8.09	7.95	8.82	7.77		8.52	8.36	8.09	
Ishida Thomas, Higashi (JPN) (	time	2.67	3.73	4.81	5.90	7.02	8.13	9.25	10.38	11.50	12.68		14.18	3 / 7				
reaction time 0.167	interval	7 steps	1.06	1.08	1.09	1.12	1.11	1.12	1.13	1.12	1.18	1.50			3.23	3.35	3.43	
	velocity	5.14	8.62	8.46	8.39	8.16	8.23	8.16	8.09	8.16	7.75	9.35	7.76		8.49	8.19	7.99	

2024 Yangtze River Delta Athletics Diamond Gala (Suzhou, CHN) (TV Analysis)

FINAL date 27-Apr-24 wind 0.8 m/s

Henson (2024) - Athlete First: 2024 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.49	3.53	4.55	5.55	6.55	7.55	8.56	9.62	10.67	11.71		13.12	4 / 1			
reaction time 0.147	interval	7 steps	1.04	1.02	1.00	1.00	1.00	1.01	1.06	1.05	1.04	1.41			3.06	3.01	3.15	
	velocity	5.51	8.79	8.96	9.14	9.14	9.14	9.05	8.62	8.70	8.79	9.94	8.38		8.96	9.11	8.70	
Izumiya, Shunsuke (JPN) (2000	time	2.57	3.62	4.65	5.67	6.65	7.65	8.72	9.76	10.81	11.87		13.23	3 / 2				
reaction time 0.146	interval	7 steps	1.05	1.03	1.02	0.98	1.00	1.07	1.04	1.05	1.06	1.36			3.10	3.05	3.15	
	velocity	5.34	8.70	8.87	8.96	9.33	9.14	8.54	8.79	8.70	8.62	10.31	8.31		8.85	8.99	8.70	
Parchment, Hansle (JAM) (199	time	2.54	3.62	4.65	5.65	6.65	7.65	8.66	9.69	10.74	11.80		13.26	5 / 3				
reaction time 0.143	interval	7 steps	1.08	1.03	1.00	1.00	1.00	1.01	1.03	1.05	1.06	1.46			3.11	3.01	3.14	
	velocity	5.40	8.46	8.87	9.14	9.14	9.14	9.05	8.87	8.70	8.62	9.60	8.30		8.82	9.11	8.73	
Tinch, Cordell (USA) (2000)	time	2.54	3.60	4.64	5.64	6.66	7.67	8.67	9.71	10.77	11.84		13.26	6 / 4				
reaction time 0.151	interval	7 steps	1.06	1.04	1.00	1.02	1.01	1.00	1.04	1.06	1.07	1.42			3.10	3.03	3.17	
	velocity	5.40	8.62	8.79	9.14	8.96	9.05	9.14	8.79	8.62	8.54	9.87	8.30		8.85	9.05	8.65	
Edwards, Eric (USA) (2000)	time	2.54	3.59	4.64	5.65	6.67	7.68	8.70	9.77	10.86	11.97		13.37	7 / 5				
reaction time 0.139	interval		1.05	1.05	1.01	1.02	1.01	1.02	1.07	1.09	1.11	1.40			3.11	3.05	3.27	
	velocity	5.40	8.70	8.70	9.05	8.96	9.05	8.96	8.54	8.39	8.23	10.01	8.23		8.82	8.99	8.39	
Xu Zhuoyi (CHN) (2003)	time	2.67	3.74	4.80	5.84	6.86	7.91	8.89	9.91	10.96	12.01		13.43	2 / 6				
reaction time 0.155	interval	7 steps	1.07	1.06	1.04	1.02	1.05	0.98	1.02	1.05	1.05	1.42			3.17	3.05	3.12	
	velocity	5.14	8.54	8.62	8.79	8.96	8.70	9.33	8.96	8.70	8.70	9.87	8.19		8.65	8.99	8.79	
Zhu Shenglong (CHN) (2000)	time	2.63	3.69	4.75	5.75	6.79	7.81	8.84	9.88	10.96	12.02		13.45	8 / 7				
reaction time 0.150	interval	7 steps	1.06	1.06	1.00	1.04	1.02	1.03	1.04	1.08	1.06	1.43			3.12	3.09	3.18	
	velocity	5.22	8.62	8.62	9.14	8.79	8.96	8.87	8.79	8.46	8.62	9.80	8.18		8.79	8.87	8.62	
Britt, Jamal (USA) (1998)	time	2.54	3.60	4.67	5.70	6.74	7.77	8.84	9.91	10.96	12.08		13.58	1 / 8				
reaction time 0.128	interval	7 steps	1.06	1.07	1.03	1.04	1.03	1.07	1.07	1.05	1.12	1.50			3.16	3.14	3.24	
	velocity	5.40	8.62	8.54	8.87	8.79	8.87	8.54	8.54	8.70	8.16	9.35	8.10		8.68	8.73	8.46	

2024 Xiamen Diamond League (Xiamen, CHN)

FINAL date 20-Apr-24 wind -0.3 m/s

Omega Timing (2024) - diamond league race analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.38	3.42	4.44	5.45	6.47	7.48	8.49	9.51	10.53	11.59		13.11	6 / 1			
reaction time 0.156	interval	7 steps	1.04	1.02	1.01	1.02	1.01	1.01	1.02	1.02	1.06	1.52			3.07	3.04	3.10	
	velocity	5.76	8.79	8.96	9.05	8.96	9.05	9.05	8.96	8.96	8.62	9.22	8.39		8.93	9.02	8.85	
Tinch, Cordell (USA) (2000)	time	2.44	3.48	4.49	5.50	6.50	7.50	8.51	9.53	10.57	11.63		13.16	3 / 2				
reaction time 0.176	interval	7 steps	1.04	1.01	1.01	1.00	1.00	1.01	1.02	1.04	1.06	1.53			3.06	3.01	3.12	
	velocity	5.62	8.79	9.05	9.05	9.14	9.14	9.05	8.96	8.79	8.62	9.16	8.36		8.96	9.11	8.79	
Izumiya, Shunsuke (JPN) (2000	time	2.41	3.46	4.48	5.48	6.48	7.48	8.50	9.53	10.58	11.63		13.17	4 / 3				
reaction time 0.172	interval	7 steps	1.05	1.02	1.00	1.00	1.00	1.02	1.03	1.05	1.05	1.54			3.07	3.02	3.13	
	velocity	5.69	8.70	8.96	9.14	9.14	9.14	8.96	8.87	8.70	8.70	9.10	8.35		8.93	9.08	8.76	
Crittenden, Freddie (USA) (199	time	2.44	3.49	4.51	5.54	6.54	7.56	8.58	9.61	10.67	11.73		13.30	7 / 4				

reaction time	0.166	interval		1.05	1.02	1.03	1.00	1.02	1.02	1.03	1.06	1.06	1.57			3.10	3.04	3.15
		velocity	5.62	8.70	8.96	8.87	9.14	8.96	8.96	8.87	8.62	8.62	8.93	8.27		8.85	9.02	8.70
Edwards, Eric (USA) (2000)		time	2.42	3.47	4.50	5.51	6.54	7.57	8.59	9.63	10.68	11.75		13.31	9 / 5			
reaction time	0.143	interval		1.05	1.03	1.01	1.03	1.03	1.02	1.04	1.05	1.07	1.56			3.09	3.08	3.16
		velocity	5.67	8.70	8.87	9.05	8.87	8.87	8.96	8.79	8.70	8.54	8.99	8.26		8.87	8.90	8.68
Parchment, Hansle (JAM) (199(		time	2.50	3.57	4.59	5.61	6.61	7.63	8.64	9.66	10.70	11.75		13.33	5 / 6			
reaction time	0.157	interval	7 steps	1.07	1.02	1.02	1.00	1.02	1.01	1.02	1.04	1.05	1.58			3.11	3.03	3.11
		velocity	5.49	8.54	8.96	8.96	9.14	8.96	9.05	8.96	8.79	8.70	8.87	8.25		8.82	9.05	8.82
Liu Junxi (CHN) (2003)		time	2.44	3.51	4.55	5.57	6.63	7.65	8.68	9.72	10.78	11.86		13.48	10 / 7			
reaction time	0.159	interval	7 steps	1.07	1.04	1.02	1.06	1.02	1.03	1.04	1.06	1.08	1.62			3.13	3.11	3.18
		velocity	5.62	8.54	8.79	8.96	8.62	8.96	8.87	8.79	8.62	8.46	8.65	8.16		8.76	8.82	8.62
Bennett, Orlando (JAM) (1999)		time	2.49	3.57	4.62	5.65	6.69	7.72	8.75	9.80	10.86	11.95		13.58	2 / 8			
reaction time	0.182	interval		1.08	1.05	1.03	1.04	1.03	1.03	1.05	1.06	1.09	1.63			3.16	3.10	3.20
		velocity	5.51	8.46	8.70	8.87	8.79	8.87	8.87	8.70	8.62	8.39	8.60	8.10		8.68	8.85	8.57
Britt, Jamal (USA) (1998)		0.144	7 steps			no information available								13.88	8 / 9			

2024 World Athletics Indoor Championships (Glasgow, GBR) (TV Analysis)

FINAL

date 02-Mar-24

Henson (2024) Athlete First: Grant Holloway 2024 Men's 60m Hurdles World Indoor Record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.48	3.50	4.47	5.42	6.40		7.29	5 / 1			
reaction time	0.153	interval	7 steps	1.02	0.97	0.95	0.98	0.89	=CR		2.94		
		velocity	5.53	8.96	9.42	9.62	9.33	10.92	8.23		9.33		
Simonelli, Lorenzo Ndele (ITA)		time	2.51	3.55	4.57	5.57	6.54		7.43	1 / 2			
reaction time	0.152	interval	7 steps	1.04	1.02	1.00	0.97	0.89	NR		3.06		
		velocity	5.47	8.79	8.96	9.14	9.42	10.92	8.08		8.96		
Kwaou-Mathey, Just (FRA) (19		time	2.56	3.57	4.59	5.58	6.59		7.47	7 / 3			
reaction time	0.149	interval	7 steps	1.01	1.02	0.99	1.01	0.88			3.02		
		velocity	5.36	9.05	8.96	9.23	9.05	11.05	8.03		9.08		
Llopis, Enrique (ESP) (2000)		time	2.57	3.60	4.62	5.62	6.61		7.53	2 / 4			
reaction time	0.137	interval	7 steps	1.03	1.02	1.00	0.99	0.92			3.05		
		velocity	5.34	8.87	8.96	9.14	9.23	10.57	7.97		8.99		
Szymański, Jakub (POL) (2002)		time	2.56	3.59	4.60	5.58	6.60		7.53	6 / 5			
reaction time	0.163	interval	7 steps	1.03	1.01	0.98	1.02	0.93			3.02		
		velocity	5.36	8.87	9.05	9.33	8.96	10.45	7.97		9.08		
Cunningham, Trey (USA) (199(		time	2.57	3.60	4.62	5.62	6.61		7.53	3 / 6			
reaction time	0.168	interval	7 steps	1.03	1.02	1.00	0.99	0.92			3.05		
		velocity	5.34	8.87	8.96	9.14	9.23	10.57	7.97		8.99		
Obasuyi, Michael (BEL) (1999)		time	2.57	3.61	4.64	5.66	6.65		7.55	8 / 7			
reaction time	0.144	interval	7 steps	1.04	1.03	1.02	0.99	0.90			3.09		
		velocity	5.34	8.79	8.87	8.96	9.23	10.80	7.95		8.87		
Trajkovic, Milan (CYP) (1992)		time	2.60	3.65	4.68	5.70	6.72		7.59	4 / 8			
reaction time	0.163	interval	7 steps	1.05	1.03	1.02	1.02	0.87			3.10		
		velocity	5.28	8.70	8.87	8.96	8.96	11.17	7.91		8.85		

Heat 1

date 02-Mar-24

Henson (2024) Athlete First: Grant Holloway 2024 Men's 60m Hurdles World Indoor Record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.48	3.50	4.45	5.45	6.47		7.43	3 / 1			
reaction time	0.155	interval	7 steps	1.02	0.95	1.00	1.02	0.96			2.97		
		velocity	5.53	8.96	9.62	9.14	8.96	10.13	8.08		9.23		
Zhu Shenglong (CHN) (2000)		time	2.58	3.66	4.74	5.79	6.77		7.76	5 / 2			
reaction time	0.149	interval	7 steps	1.08	1.08	1.05	0.98	0.99			3.21		
		velocity	5.32	8.46	8.46	8.70	9.33	9.82	7.73		8.54		

2024 Chinese Indoor Grand Prix I (Chengdu, CHN)

Heat 3

date 27-Feb-24

Shandong Athletics Sport Science (2024)

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Yuanjiang (CHN) (2006)		time	2.67	3.75	4.79	5.84	6.89		7.79	3 / 2			
reaction time		interval		1.08	1.04	1.05	1.05	0.90	PB		3.17		
		velocity	5.14	8.46	8.79	8.70	8.70	10.80	7.70		8.65		

Heat 2

date 27-Feb-24

Shandong Athletics Sport Science (2024)

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Sun Zhenjiang (CHN) (1999)	time	2.69	3.80	4.89	5.97	7.07			8.00	6 / 2		
reaction time	interval	7 steps	1.11	1.09	1.08	1.10	0.93				3.28	
	velocity	5.10	8.23	8.39	8.46	8.31	10.45	7.50			8.36	

2024 USATF National Indoor Championships (Albuquerque, NM) (Altitude) (TV Analysis)

FINAL

date 16-Feb-24

Henson (2024) Athlete First: Grant Holloway 2024 Men's 60m Hurdles World Indoor Record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cunningham, Trey (USA) (199	time		2.54	3.57	4.56	5.54	6.54		7.39	5 / 1			
reaction time 0.152	interval	7 steps	1.03	0.99	0.98	1.00	0.85				3.00		
	velocity		5.40	8.87	9.23	9.33	9.14	11.44	8.12		9.14		
Murray, Cameron (USA) (1999)	time		2.52	3.56	4.57	5.57	6.58		7.45	4 / 2			
reaction time 0.146	interval	7 steps	1.04	1.01	1.00	1.01	0.87		PB		3.05		
	velocity		5.44	8.79	9.05	9.14	9.05	11.17	8.05		8.99		
Roberts, Daniel (USA) (1997)	time		2.52	3.56	4.57	5.57	6.60		7.48	2 / 3			
reaction time 0.154	interval	7 steps	1.04	1.01	1.00	1.03	0.88				3.05		
	velocity		5.44	8.79	9.05	9.14	8.87	11.05	8.02		8.99		
Rollins, Louis (USA) (1996)	time		2.52	3.58	4.63	5.65	6.67		7.56	6 / 4			
reaction time 0.154	interval			1.06	1.05	1.02	1.02	0.89	=PB		3.13		
	velocity		5.44	8.62	8.70	8.96	8.96	10.92	7.94		8.76		
Dickson, Michael (USA) (1997)	time		2.57	3.63	4.65	5.67	6.67		7.57	1 / 5			
reaction time 0.181	interval	7 steps	1.06	1.02	1.02	1.00	0.90				3.10		
	velocity		5.34	8.62	8.96	8.96	9.14	10.80	7.93		8.85		
Tinch, Cordell (USA) (2000)	time		2.56	3.60	4.64	5.67	6.67		7.58	3 / 6			
reaction time 0.132	interval	7 steps	1.04	1.04	1.03	1.00	0.91				3.11		
	velocity		5.36	8.79	8.79	8.87	9.14	10.68	7.92		8.82		
Crittenden, Freddie (USA) (199	time		2.60	3.64	4.65	5.67	6.71		7.58	7 / 7			
reaction time 0.158	interval			1.04	1.01	1.02	1.04	0.87			3.07		
	velocity		5.28	8.79	9.05	8.96	8.79	11.17	7.92		8.93		
Holloway, Grant (USA) (1997)									dns	8 / --			

Heat 1

date 16-Feb-24

Henson (2024) Athlete First: Grant Holloway 2024 Men's 60m Hurdles World Indoor Record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time		2.44	3.46	4.42	5.38	6.37		7.27	6 / 1			
reaction time 0.141	interval	7 steps	1.02	0.96	0.96	0.99	0.90		WR		2.94		
	velocity		5.62	8.96	9.52	9.52	9.23	10.80	8.25		9.33		
Murray, Cameron (USA) (1999)	time		2.55	3.59	4.61	5.61	6.62		7.51	1 / 2			
reaction time 0.143	interval	7 steps	1.04	1.02	1.00	1.01	0.89		PB		3.06		
	velocity		5.38	8.79	8.96	9.14	9.05	10.92	7.99		8.96		
Roberts, Daniel (USA) (1998)	time		2.50	3.54	4.55	5.54	6.62		7.58	4 / 3			
reaction time 0.150	interval	7 steps	1.04	1.01	0.99	1.08	0.96				3.04		
	velocity		5.49	8.79	9.05	9.23	8.46	10.13	7.92		9.02		
Crittenden, Freddie (USA) (199	time		2.57	3.61	4.64	5.65	6.69		7.59	3 / 4			
reaction time 0.149	interval			1.04	1.03	1.01	1.04	0.90			3.08		
	velocity		5.34	8.79	8.87	9.05	8.79	10.80	7.91		8.90		

2024 Meeting Hauts-de-France Pas-de-Calais (Liévin, FRA) (TV Analysis)

FINAL

date 10-Feb-24

Henson (2024) Athlete First: Grant Holloway 2024 Men's 60m Hurdles World Indoor Record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time		2.40	3.38	4.36	5.36	6.32		7.32	5 / 1			
reaction time 0.169	interval	7 steps	0.98	0.98	1.00	0.96	1.00				2.96		
	velocity		5.72	9.33	9.33	9.14	9.52	9.72	8.20		9.26		
Kwaou-Mathey, Just (FRA) (19	time		2.44	3.48	4.47	5.46	6.46		7.43	4 / 2			
reaction time 0.181	interval	7 steps	1.04	0.99	0.99	1.00	0.97		PB		3.02		
	velocity		5.62	8.79	9.23	9.23	9.14	10.02	8.08		9.08		
Szymański, Jakub (POL) (2002)	time		2.42	3.45	4.42	5.42	6.42		7.48	6 / 3			
reaction time 0.183	interval	7 steps	1.03	0.97	1.00	1.00	1.06				3.00		
	velocity		5.67	8.87	9.42	9.14	9.14	9.17	8.02		9.14		
Simonelli, Lorenzo Ndele (ITA)	time		2.42	3.46	4.49	5.50	6.50		7.52	3 / 4			
reaction time 0.157	interval	7 steps	1.04	1.03	1.01	1.00	1.02				3.08		
	velocity		5.67	8.79	8.87	9.05	9.14	9.53	7.98		8.90		
Obasuyi, Michael (BEL) (1999)	time		2.50	3.52	4.52	5.56	6.58		7.61	1 / 5			

reaction time	0.159	interval	7 steps	1.02	1.00	1.04	1.02				1.03			3.06		
		velocity		5.49	8.96	9.14	8.79	8.96			9.44	7.88		8.96		
Llopis, Enrique (ESP) (2000)		time		2.50	3.55	4.58	5.57	6.58				7.62	2 / 6			
reaction time	0.148	interval	7 steps	1.05	1.03	0.99	1.01				1.04	=NR		3.07		
		velocity		5.49	8.70	8.87	9.23	9.05			9.35	7.87		8.93		
Geerds, Job (NED) (2002)		time		2.48	3.52	4.58	5.60	6.58				7.65	8 / 7			
reaction time	0.185	interval	7 steps	1.04	1.06	1.02	0.98				1.07			3.12		
		velocity		5.53	8.79	8.62	8.96	9.33			9.08	7.84		8.79		
Bacari, Elie (BEL) (2003)		time		2.44	3.52	4.58	5.60	6.60				7.73	7 / 8			
reaction time	0.149	interval	7 steps	1.08	1.06	1.02	1.00				1.13			3.16		
		velocity		5.62	8.46	8.62	8.96	9.14			8.60	7.76		8.68		

Heat 2

date 10-Feb-24

Henson (2024) Athlete First: Grant Holloway 2024 Men's 60m Hurdles World Indoor Record

				H1	H2	H3	H4	H5			Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.46	3.48	4.48	5.44	6.44				7.39	5 / 1			
reaction time	0.168	interval	7 steps	1.02	1.00	0.96	1.00				0.95			2.98		
		velocity		5.58	8.96	9.14	9.52	9.14			10.23	8.12		9.20		
Simonelli, Lorenzo Ndele (ITA)		time		2.48	3.52	4.56	5.58	6.58				7.51	4 / 2			
reaction time	0.165	interval	7 steps	1.04	1.04	1.02	1.00				0.93			3.10		
		velocity		5.53	8.79	8.79	8.96	9.14			10.45	7.99		8.85		
Bacari, Elie (BEL) (2003)		time		2.46	3.50	4.56	5.58	6.60				7.61	7 / 3			
reaction time	0.138	interval	7 steps	1.04	1.06	1.02	1.02				1.01	PB		3.12		
		velocity		5.58	8.79	8.62	8.96	8.96			9.62	7.88		8.79		
Czykier, Damian (POL) (1992)		time		2.60	3.64	4.68	5.70	6.72				7.65	2 / 4			
reaction time	0.168	interval	7 steps	1.04	1.04	1.02	1.02				0.93			3.10		
		velocity		5.28	8.79	8.79	8.96	8.96			10.45	7.84		8.85		

2024 New Balance Indoor Grand Prix (Boston, MA) (TV Analysis)

FINAL

date 04-Feb-24

Henson (2024) Athlete First: Grant Holloway 2024 Men's 60m Hurdles World Indoor Record

				H1	H2	H3	H4	H5			Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.50	3.50	4.48	5.43	6.43				7.35	4 / 1			
reaction time	0.166	interval	7 steps	1.00	0.98	0.95	1.00				0.92			2.93		
		velocity		5.49	9.14	9.33	9.62	9.14			10.57	8.16		9.36		
Cunningham, Trey (USA) (199		time		2.52	3.54	4.54	5.54	6.58				7.49	5 / 2			
reaction time	0.152	interval	7 steps	1.02	1.00	1.00	1.04				0.91			3.02		
		velocity		5.44	8.96	9.14	9.14	8.79			10.68	8.01		9.08		
Roberts, Daniel (USA) (1998)		time		2.50	3.54	4.57	5.58	6.60				7.49	3 / 3			
reaction time	0.167	interval	7 steps	1.04	1.03	1.01	1.02				0.89			3.08		
		velocity		5.49	8.79	8.87	9.05	8.96			10.92	8.01		8.90		
Tinch, Cordell (USA) (2000)		time		2.52	3.54	4.58	5.60	6.62				7.55	6 / 4			
reaction time	0.174	interval	7 steps	1.02	1.04	1.02	1.02				0.93			3.08		
		velocity		5.44	8.96	8.79	8.96	8.96			10.45	7.95		8.90		
Dickson, Michael (USA) (1997)		time		2.56	3.60	4.60	5.62	6.67				7.57	2 / 5			
reaction time	0.194	interval	7 steps	1.04	1.00	1.02	1.05				0.90			3.06		
		velocity		5.36	8.79	9.14	8.96	8.70			10.80	7.93		8.96		
Campbell, Lafranz (JAM) (1997		time		2.54	3.60	4.62	5.68	6.72				7.66	1 / 6			
reaction time	0.130	interval	7 steps	1.06	1.02	1.06	1.04				0.94			3.14		
		velocity		5.40	8.62	8.96	8.62	8.79			10.34	7.83		8.73		
Korbmacher, Andre (USA) (20(		time		2.54	3.58	4.62	5.68	6.72				7.67	8 / 7			
reaction time	0.148	interval			1.04	1.04	1.06	1.04			0.95	PB		3.14		
		velocity		5.40	8.79	8.79	8.62	8.79			10.23	7.82		8.73		
Rollins, Louis (USA) (1996)		time		2.52	3.60	4.64	5.72	6.75				7.70	7 / 8			
reaction time	0.182	interval			1.08	1.04	1.08	1.03			0.95			3.20		
		velocity		5.44	8.46	8.79	8.46	8.87			10.23	7.79		8.57		

2023 Prefontaine Classic (Eugene, OR)

FINAL

date 17-Sep-23 wind 0.9 m/s

Omega Timing (2023) - diamond league race analysis

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Parchment, Hansle (JAM) (199(		time		2.47	3.50	4.48	5.47	6.45	7.42	8.40	9.40	10.40	11.41		12.93	5 / 1			
reaction time	0.168	interval	7 steps	1.03	0.98	0.99	0.98	0.97	0.98	1.00	1.00	1.01	1.52		PB		3.00	2.93	3.01
		velocity		5.55	8.87	9.33	9.23	9.33	9.42	9.33	9.14	9.14	9.05	9.22	8.51		9.14	9.36	9.11

Holloway, Grant (USA) (1997)	time	2.33	3.35	4.34	5.34	6.34	7.34	8.35	9.38	10.41	11.47		13.06	6 / 2				
reaction time 0.153	interval	7 steps	1.02	0.99	1.00	1.00	1.00	1.01	1.03	1.03	1.06	1.59			3.01	3.01	3.12	
	velocity	5.89	8.96	9.23	9.14	9.14	9.14	9.05	8.87	8.87	8.62	8.82	8.42		9.11	9.11	8.79	
Roberts, Daniel (USA) (1998)	time	2.34	3.37	4.37	5.38	6.39	7.40	8.42	9.46	10.50	11.55		13.07	3 / 3				
reaction time 0.149	interval		1.03	1.00	1.01	1.01	1.01	1.02	1.04	1.04	1.05	1.52			3.04	3.04	3.13	
	velocity	5.86	8.87	9.14	9.05	9.05	9.05	8.96	8.79	8.79	8.70	9.22	8.42		9.02	9.02	8.76	
Izumiya, Shunsuke (JPN) (2000	time	2.34	3.38	4.38	5.40	6.41	7.41	8.44	9.48	10.51	11.55		13.10	7 / 4				
reaction time 0.136	interval	7 steps	1.04	1.00	1.02	1.01	1.00	1.03	1.04	1.03	1.04	1.55			3.06	3.04	3.11	
	velocity	5.86	8.79	9.14	8.96	9.05	9.14	8.87	8.79	8.87	8.79	9.05	8.40		8.96	9.02	8.82	
Joseph, Jason (SUI) (1998)	time	2.43	3.49	4.52	5.52	6.51	7.50	8.51	9.52	10.54	11.57		13.12	8 / 5				
reaction time 0.156	interval	7 steps	1.06	1.03	1.00	0.99	0.99	1.01	1.01	1.02	1.03	1.55			3.09	2.99	3.06	
	velocity	5.65	8.62	8.87	9.14	9.23	9.23	9.05	9.05	8.96	8.87	9.05	8.38		8.87	9.17	8.96	
Crittenden, Freddie (USA) (199	time	2.39	3.45	4.46	5.46	6.47	7.47	8.47	9.49	10.54	11.60		13.15	4 / 6				
reaction time 0.146	interval		1.06	1.01	1.00	1.01	1.00	1.00	1.02	1.05	1.06	1.55			3.07	3.01	3.13	
	velocity	5.74	8.62	9.05	9.14	9.05	9.14	9.14	8.96	8.70	8.62	9.05	8.37		8.93	9.11	8.76	
Tinch, Cordell (USA) (2000)	time	2.36	3.41	4.41	5.41	6.41	7.42	8.43	9.47	10.52	11.60		13.21	2 / 7				
reaction time 0.148	interval	7 steps	1.05	1.00	1.00	1.00	1.01	1.01	1.04	1.05	1.08	1.61			3.05	3.02	3.17	
	velocity	5.81	8.70	9.14	9.14	9.14	9.05	9.05	8.79	8.70	8.46	8.71	8.33		8.99	9.08	8.65	
Britt, Jamal (USA) (1998)	time	2.41	3.49	4.52	5.55	6.58	7.59	8.62	9.66	10.71	11.78		13.36	9 / 8				
reaction time 0.140	interval	7 steps	1.08	1.03	1.03	1.03	1.01	1.03	1.04	1.05	1.07	1.58			3.14	3.07	3.16	
	velocity	5.69	8.46	8.87	8.87	8.87	9.05	8.87	8.79	8.70	8.54	8.87	8.23		8.73	8.93	8.68	
Kwaou-Mathey, Just (FRA) (19	time	2.45	3.53	4.56	5.57	6.59	7.60	8.63	9.69	10.75	11.85		13.46	1 / 9				
reaction time 0.159	interval	7 steps	1.08	1.03	1.01	1.02	1.01	1.03	1.06	1.06	1.10	1.61			3.12	3.06	3.22	
	velocity	5.60	8.46	8.87	9.05	8.96	9.05	8.87	8.62	8.62	8.31	8.71	8.17		8.79	8.96	8.52	

2023 Xiamen Diamond League (Xiamen, CHN)

FINAL date 02-Sep-23 wind 0.0 m/s

Omega Timing (2023) - diamond league race analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Parchment, Hansle (JAM) (199(	time	2.40	3.40	4.40	5.40	6.40	7.40	8.40	9.40	10.40	11.40		12.96	5 / 1			
reaction time 0.163	interval	7 steps	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.56			3.00	3.00	3.00	
	velocity	5.72	9.14	9.14	9.14	9.14	9.14	9.14	9.14	9.14	9.14	8.99	8.49		9.14	9.14	9.14	
Roberts, Daniel (USA) (1998)	time	2.33	3.37	4.37	5.35	6.35	7.35	8.36	9.39	10.43	11.48		13.03	4 / 2				
reaction time 0.140	interval		1.04	1.00	0.98	1.00	1.00	1.01	1.03	1.04	1.05	1.55			3.02	3.01	3.12	
	velocity	5.89	8.79	9.14	9.33	9.14	9.14	9.05	8.87	8.79	8.70	9.05	8.44		9.08	9.11	8.79	
Holloway, Grant (USA) (1997)	time	2.32	3.34	4.32	5.30	6.29	7.28	8.28	9.31	10.36	11.43		13.12	6 / 3				
reaction time 0.141	interval	7 steps	1.02	0.98	0.98	0.99	0.99	1.00	1.03	1.05	1.07	1.69			2.98	2.98	3.15	
	velocity	5.91	8.96	9.33	9.33	9.23	9.23	9.14	8.87	8.70	8.54	8.30	8.38		9.20	9.20	8.70	
Belocian, Wilhem (FRA (1995)	time	2.38	3.43	4.44	5.44	6.45	7.45	8.47	9.51	10.56	11.62		13.17	3 / 4				
reaction time 0.130	interval		1.05	1.01	1.00	1.01	1.00	1.02	1.04	1.05	1.06	1.55			3.06	3.03	3.15	
	velocity	5.76	8.70	9.05	9.14	9.05	9.14	8.96	8.79	8.70	8.62	9.05	8.35		8.96	9.05	8.70	
Muratake, Rachiddo (JPN) (200	time	2.37	3.42	4.43	5.44	6.46	7.47	8.51	9.54	10.59	11.65		13.19	2 / 5				
reaction time 0.153	interval	7 steps	1.05	1.01	1.01	1.02	1.01	1.04	1.03	1.05	1.06	1.54			3.07	3.07	3.14	
	velocity	5.79	8.70	9.05	9.05	8.96	9.05	8.79	8.87	8.70	8.62	9.10	8.34		8.93	8.93	8.73	
Crittenden, Freddie (USA) (199	time	2.42	3.48	4.49	5.49	6.50	7.51	8.53	9.56	10.61	11.66		13.26	7 / 6				
reaction time 0.148	interval		1.06	1.01	1.00	1.01	1.01	1.02	1.03	1.05	1.05	1.60			3.07	3.04	3.13	
	velocity	5.67	8.62	9.05	9.14	9.05	9.05	8.96	8.87	8.70	8.70	8.76	8.30		8.93	9.02	8.76	
Tinch, Cordell (USA) (2000)	time	2.41	3.43	4.45	5.47	6.48	7.51	8.54	9.59	10.66	11.74		13.38	8 / 7				
reaction time 0.170	interval	7 steps	1.02	1.02	1.02	1.01	1.03	1.03	1.05	1.07	1.08	1.64			3.06	3.07	3.20	
	velocity	5.69	8.96	8.96	8.96	9.05	8.87	8.87	8.70	8.54	8.46	8.55	8.22		8.96	8.93	8.57	
Pereira, Rafael (BRA) (1997)	0.130	no information available										13.42	10 / 8					
Zeller, Joshua (GBR) (2000)	time	2.47	3.56	4.59	5.62	6.64	7.68	8.72	9.75	10.81	11.88		13.45	1 / 9				
reaction time 0.147	interval		1.09	1.03	1.03	1.02	1.04	1.04	1.03	1.06	1.07	1.57			3.15	3.10	3.16	
	velocity	5.55	8.39	8.87	8.87	8.96	8.79	8.79	8.87	8.62	8.54	8.93	8.18		8.70	8.85	8.68	
Xu Zhuoyi (CHN) (2003)	time	2.49	3.56	4.63	5.68	6.72	7.75	8.80	9.85	10.92	11.98		13.56	9 / 10				
reaction time 0.166	interval	7 steps	1.07	1.07	1.05	1.04	1.03	1.05	1.05	1.07	1.06	1.58			3.19	3.12	3.18	
	velocity	5.51	8.54	8.54	8.70	8.79	8.87	8.70	8.70	8.54	8.62	8.87	8.11		8.60	8.79	8.62	

2023 Weltklasse (Zürich, SUI)

FINAL date 31-Aug-23 wind -0.1 m/s

Omega Timing (2023) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Joseph, Jason (SUI) (1998)		time	2.40	3.46	4.46	5.45	6.45	7.45	8.46	9.46	10.49	11.54		13.08	5 / 1			
reaction time	0.137	interval	7 steps	1.06	1.00	0.99	1.00	1.00	1.01	1.00	1.03	1.05	1.54	NR PB		3.05	3.01	3.08
		velocity	5.72	8.62	9.14	9.23	9.14	9.14	9.05	9.14	8.87	8.70	9.10	8.41		8.99	9.11	8.90
Llopis, Enrique (ESP) (2000)		time	2.43	3.51	4.53	5.55	6.55	7.57	8.58	9.63	10.67	11.74		13.31	3 / 2			
reaction time	0.117	interval	7 steps	1.08	1.02	1.02	1.00	1.02	1.01	1.05	1.04	1.07	1.57			3.12	3.03	3.16
		velocity	5.65	8.46	8.96	8.96	9.14	8.96	9.05	8.70	8.79	8.54	8.93	8.26		8.79	9.05	8.68
Edwards, Eric (USA) (2000)		time	2.36	3.43	4.47	5.49	6.50	7.54	8.57	9.61	10.70	11.83		13.45	6 / 3			
reaction time	0.125	interval		1.07	1.04	1.02	1.01	1.04	1.03	1.04	1.09	1.13	1.62			3.13	3.08	3.26
		velocity	5.81	8.54	8.79	8.96	9.05	8.79	8.87	8.79	8.39	8.09	8.65	8.18		8.76	8.90	8.41
King, David (GBR) (1994)		time	2.44	3.51	4.55	5.57	6.61	7.66	8.72	9.79	10.87	11.98		13.60	8 / 4			
reaction time	0.122	interval	7 steps	1.07	1.04	1.02	1.04	1.05	1.06	1.07	1.08	1.11	1.62			3.13	3.15	3.26
		velocity	5.62	8.54	8.79	8.96	8.79	8.70	8.62	8.54	8.46	8.23	8.65	8.09		8.76	8.70	8.41
Simonelli, Lorenzo Ndele (ITA)		time	2.43	3.50	4.50	5.50	6.50	7.56	8.60	9.60	10.70	11.80		13.60	4 / 5			
reaction time	0.142	interval	7 steps	1.07	1.00	1.00	1.00	1.06	1.04	1.00	1.10	1.10	1.80			3.07	3.10	3.20
		velocity	5.65	8.54	9.14	9.14	9.14	8.62	8.79	9.14	8.31	8.31	7.79	8.09		8.93	8.85	8.57
Czykier, Damian (POL) (1992)		time	2.42	3.52	4.56	5.59	6.62	7.66	8.73	9.81	10.90	12.01		13.64	7 / 6			
reaction time	0.144	interval	7 steps	1.10	1.04	1.03	1.03	1.04	1.07	1.08	1.09	1.11	1.63			3.17	3.14	3.28
		velocity	5.67	8.31	8.79	8.87	8.87	8.79	8.54	8.46	8.39	8.23	8.60	8.06		8.65	8.73	8.36
Thorne, Craig (CAN) (2001)		time	2.47	3.55	4.60	5.64	6.68	7.74	8.79	9.87	10.96	12.08		13.70	2 / 7			
reaction time	0.148	interval		1.08	1.05	1.04	1.04	1.06	1.05	1.08	1.09	1.12	1.62			3.17	3.15	3.29
		velocity	5.55	8.46	8.70	8.79	8.79	8.62	8.70	8.46	8.39	8.16	8.65	8.03		8.65	8.70	8.33
Gaio, Finley (SUI) (1999)		time	2.45	3.55	4.63	5.69	6.74	7.81	8.92	10.01	11.10	12.18		13.77	9 / 8			
reaction time	0.154	interval	7 steps	1.10	1.08	1.06	1.05	1.07	1.11	1.09	1.09	1.08	1.59			3.24	3.23	3.26
		velocity	5.60	8.31	8.46	8.62	8.70	8.54	8.23	8.39	8.39	8.46	8.82	7.99		8.46	8.49	8.41

2023 World Athletics Championships (Budapest, HUN)

Decathlon - Heat 3

date 26-Aug-23 wind 0.2 m/s

Henson (2024) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Warner, Damian (CAN) (1989)		time	2.62	3.68	4.76	5.82	6.85	7.90	8.98	10.03	11.10	12.25		13.67	4 / 1			
reaction time	0.151	interval	7 steps	1.06	1.08	1.06	1.03	1.05	1.08	1.05	1.07	1.15	1.42			3.20	3.16	3.27
		velocity	5.24	8.62	8.46	8.62	8.87	8.70	8.46	8.70	8.54	7.95	9.87	8.05		8.57	8.68	8.39
LePage, Pierce (CAN) (1996)		time	2.65	3.76	4.82	5.90	6.98	8.02	9.08	10.16	11.25	12.36		13.77	3 / 2			
reaction time	0.183	interval	7 steps	1.11	1.06	1.08	1.08	1.04	1.06	1.08	1.09	1.11	1.41	PB		3.25	3.18	3.28
		velocity	5.18	8.23	8.62	8.46	8.46	8.79	8.62	8.46	8.39	8.23	9.94	7.99		8.44	8.62	8.36
Garland, Kyle (USA) (2000)		time	2.62	3.68	4.78	5.86	6.96	8.03	9.10	10.22	11.28	12.42		13.93	5 / 3			
reaction time	0.137	interval	7 steps	1.06	1.10	1.08	1.10	1.07	1.07	1.12	1.06	1.14	1.51			3.24	3.24	3.32
		velocity	5.24	8.62	8.31	8.46	8.31	8.54	8.54	8.16	8.62	8.02	9.28	7.90		8.46	8.46	8.26
Owens-Delerme, Ayden (PUR)		time	2.64	3.74	4.83	5.92	7.02	8.08	9.18	10.28	11.42	12.56		14.04	7 / 4			
reaction time	0.073	interval	7 steps	1.10	1.09	1.09	1.10	1.06	1.10	1.10	1.14	1.14	1.48			3.28	3.26	3.38
		velocity	5.20	8.31	8.39	8.39	8.31	8.62	8.31	8.31	8.02	8.02	9.47	7.83		8.36	8.41	8.11
Williams, Harrison (USA) (1996		time	2.76	3.85	4.96	6.02	7.15	8.18	9.26	10.42	11.60	12.80		14.33	8 / 5			
reaction time	0.182	interval	7 steps	1.09	1.11	1.06	1.13	1.03	1.08	1.16	1.18	1.20	1.53			3.26	3.24	3.54
		velocity	4.97	8.39	8.23	8.62	8.09	8.87	8.46	7.88	7.75	7.62	9.16	7.68		8.41	8.46	7.75
Skotheim, Sander (NOR) (2002		time	2.78	3.90	5.06	6.18	7.36	8.55	9.78	10.96	12.18	13.38		14.96	6 / 6			
reaction time	0.169	interval		1.12	1.16	1.12	1.18	1.19	1.23	1.18	1.22	1.20	1.58			3.40	3.60	3.60
		velocity	4.94	8.16	7.88	8.16	7.75	7.68	7.43	7.75	7.49	7.62	8.87	7.35		8.06	7.62	7.62

Henson (2024) - Athlete First: 2023 year end hurdle report

Decathlon - Heat 2

date 26-Aug-23 wind 0.1 m/s

Matsubayashi (2024) - performance analysis of decathlon athletes in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Santana, José Fernando (BRA		time	2.73	3.84	4.93	6.00	7.06	8.15	9.22	10.31	11.38	12.52		13.94	4 / 1			
reaction time	0.158	interval	7 steps	1.11	1.09	1.07	1.06	1.09	1.07	1.09	1.07	1.14	1.42	PB		3.27	3.22	3.30
		velocity	5.03	8.23	8.39	8.54	8.62	8.39	8.54	8.39	8.54	8.02	9.87	7.89		8.39	8.52	8.31
Golubovic, Daniel (AUS) (1993)		time	2.76	3.92	5.00	6.06	7.18	8.23	9.34	10.41	11.51	12.61		14.18	6 / 2			
reaction time	0.178	interval		1.16	1.08	1.06	1.12	1.05	1.11	1.07	1.10	1.10	1.57			3.30	3.28	3.27
		velocity	4.97	7.88	8.46	8.62	8.16	8.70	8.23	8.54	8.31	8.31	8.93	7.76		8.31	8.36	8.39
Maruyama, Yuma (JPN) (1998)		time	2.74	3.88	4.98	6.06	7.16	8.24	9.35	10.48	11.59	12.70		14.18	7 / 2		*Matsubayashi (2024)*	
reaction time	0.192	interval	7 steps	1.14	1.10	1.08	1.10	1.08	1.11	1.13	1.11	1.11	1.48			3.32	3.29	3.35
		velocity	5.01	8.02	8.31	8.46	8.31	8.46	8.23	8.09	8.23	8.23	9.47	7.76		8.26	8.33	8.19
Eitel, Manuel (GER) (1997)		time	2.72	3.83	4.95	6.05	7.16	8.26	9.42	10.55	11.72	12.85		14.39	3 / 4			
reaction time	0.172	interval		1.11	1.12	1.10	1.11	1.10	1.16	1.13	1.17	1.13	1.54			3.33	3.37	3.43

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	5.04	8.23	8.16	8.31	8.23	8.31	7.88	8.09	7.81	8.09	9.10	7.64		8.23	8.14	7.99
Rooth, Markus (NOR) (2001)		time	2.63	3.75	4.85	5.94	7.02	8.16	9.33	10.52	11.67	12.85		14.47	8 / 5			
reaction time	0.156	interval		1.12	1.10	1.09	1.08	1.14	1.17	1.19	1.15	1.18	1.62			3.31	3.39	3.52
		velocity	5.22	8.16	8.31	8.39	8.46	8.02	7.81	7.68	7.95	7.75	8.65	7.60		8.28	8.09	7.79
Neugebauer, Leo (GER) (2000)		time	2.76	3.92	5.12	6.24	7.40	8.56	9.65	10.82	12.02	13.22		14.75	5 / 6			
reaction time	0.169	interval	7 steps	1.16	1.20	1.12	1.16	1.16	1.09	1.17	1.20	1.20	1.53			3.48	3.41	3.57
		velocity	4.97	7.88	7.62	8.16	7.88	7.88	8.39	7.81	7.62	7.62	9.16	7.46		7.88	8.04	7.68

Decathlon - Heat 1

date 26-Aug-23 wind 0.2 m/s

Henson (2024) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Victor, Lindon (GRN) (1993)		time	2.70	3.83	5.00	6.10	7.26	8.38	9.50	10.65	11.81	13.01		14.47	7 / 1			
reaction time	0.149	interval	7 steps	1.13	1.17	1.10	1.16	1.12	1.12	1.15	1.16	1.20	1.46			3.40	3.40	3.51
		velocity	5.08	8.09	7.81	8.31	7.88	8.16	8.16	7.95	7.88	7.62	9.60	7.60		8.06	8.06	7.81
Õiglane, Janek (EST) (1994)		time	2.70	3.83	5.00	6.10	7.26	8.40	9.58	10.70	11.85	12.98		14.51	6 / 2			
reaction time	0.143	interval		1.13	1.17	1.10	1.16	1.14	1.18	1.12	1.15	1.13	1.53			3.40	3.48	3.40
		velocity	5.08	8.09	7.81	8.31	7.88	8.02	7.75	8.16	7.95	8.09	9.16	7.58		8.06	7.88	8.06
Tilga, Karel (EST) (1998)		time	2.73	3.88	5.04	6.21	7.32	8.50	9.65	10.83	12.01	13.21		14.68	8 / 3			
reaction time	0.166	interval	7 steps	1.15	1.16	1.17	1.11	1.18	1.15	1.18	1.18	1.20	1.47			3.48	3.44	3.56
		velocity	5.03	7.95	7.88	7.81	8.23	7.75	7.95	7.75	7.75	7.62	9.54	7.49		7.88	7.97	7.70
Taam, Rik (NED) (1997)		time	2.80	3.92	5.06	6.23	7.40	8.58	9.70	10.88	12.07	13.27		14.80	3 / 4			
reaction time	0.158	interval	7 steps	1.12	1.14	1.17	1.17	1.18	1.12	1.18	1.19	1.20	1.53			3.43	3.47	3.57
		velocity	4.90	8.16	8.02	7.81	7.81	7.75	8.16	7.75	7.68	7.62	9.16	7.43		7.99	7.90	7.68
Erm, Johannes (EST) (1998)		time	2.82	3.99	5.10	6.28	7.46	8.63	9.80	10.93	12.18	13.40		14.90	4 / 5			
reaction time	0.179	interval		1.17	1.11	1.18	1.18	1.17	1.17	1.13	1.25	1.22	1.50			3.46	3.52	3.60
		velocity	4.87	7.81	8.23	7.75	7.75	7.81	7.81	8.09	7.31	7.49	9.35	7.38		7.92	7.79	7.62
Nilsson, Marcus (SWE) (1991)		time	2.86	4.07	5.23	6.40	7.53	8.70	9.88	11.06	12.25	13.45		15.06	5 / 6			
reaction time	0.183	interval		1.21	1.16	1.17	1.13	1.17	1.18	1.18	1.19	1.20	1.61			3.54	3.48	3.57
		velocity	4.80	7.55	7.88	7.81	8.09	7.81	7.75	7.75	7.68	7.62	8.71	7.30		7.75	7.88	7.68

FINAL

date 21-Aug-23 wind 0.0 m/s

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.45	3.45	4.42	5.38	6.37	7.36	8.37	9.39	10.43	11.53		12.96	5 / 1			
reaction time	0.135	interval	7 steps	1.00	0.97	0.96	0.99	0.99	1.01	1.02	1.04	1.10	1.43			2.93	2.99	3.16
		velocity	5.60	9.14	9.42	9.52	9.23	9.23	9.05	8.96	8.79	8.31	9.80	8.49		9.36	9.17	8.68
Parchment, Hansle (JAM) (199		time	2.58	3.64	4.64	5.62	6.61	7.63	8.63	9.62	10.63	11.66		13.07	8 / 2			
reaction time	0.169	interval	7 steps	1.06	1.00	0.98	0.99	1.02	1.00	0.99	1.01	1.03	1.41			3.04	3.01	3.03
		velocity	5.32	8.62	9.14	9.33	9.23	8.96	9.14	9.23	9.05	8.87	9.94	8.42		9.02	9.11	9.05
Roberts, Daniel (USA) (1998)		time	2.48	3.52	4.52	5.53	6.52	7.56	8.57	9.61	10.65	11.70		13.09	3 / 3			
reaction time	0.143	interval		1.04	1.00	1.01	0.99	1.04	1.01	1.04	1.04	1.05	1.39			3.05	3.04	3.13
		velocity	5.53	8.79	9.14	9.05	9.23	8.79	9.05	8.79	8.79	8.70	10.09	8.40		8.99	9.02	8.76
Crittenden, Freddie (USA) (19		time	2.54	3.57	4.59	5.59	6.61	7.62	8.64	9.68	10.71	11.76		13.16	4 / 4			
reaction time	0.140	interval		1.03	1.02	1.00	1.02	1.01	1.02	1.04	1.03	1.05	1.40			3.05	3.05	3.12
		velocity	5.40	8.87	8.96	9.14	8.96	9.05	8.96	8.79	8.87	8.70	10.01	8.36		8.99	8.99	8.79
Izumiya, Shunsuke (JPN) (2000		time	2.55	3.58	4.61	5.65	6.66	7.68	8.69	9.73	10.78	11.85		13.19	6 / 5			
reaction time	0.143	interval	7 steps	1.03	1.03	1.04	1.01	1.02	1.01	1.04	1.05	1.07	1.34			3.10	3.04	3.16
		velocity	5.38	8.87	8.87	8.79	9.05	8.96	9.05	8.79	8.70	8.54	10.46	8.34		8.85	9.02	8.68
Zhoya, Sasha (FRA) (2002)		time	2.60	3.64	4.66	5.68	6.69	7.72	8.75	9.75	10.78	11.86		13.26	7 / 6			
reaction time	0.166	interval	7 steps	1.04	1.02	1.02	1.01	1.03	1.03	1.00	1.03	1.08	1.40			3.08	3.07	3.11
		velocity	5.28	8.79	8.96	8.96	9.05	8.87	8.87	9.14	8.87	8.46	10.01	8.30		8.90	8.93	8.82
Joseph, Jason (SUI) (1998)		time	2.56	3.58	4.57	5.59	6.61	7.66	8.70	9.75	10.78	11.84		13.28	9 / 7			
reaction time	0.143	interval	7 steps	1.02	0.99	1.02	1.02	1.05	1.04	1.05	1.03	1.06	1.44			3.03	3.11	3.14
		velocity	5.36	8.96	9.23	8.96	8.96	8.70	8.79	8.70	8.87	8.62	9.74	8.28		9.05	8.82	8.73
Belocian, Wilhem (FRA) (1995)		time	2.58	3.60	4.62	5.62	6.64	7.70	8.72	9.75	10.80	11.87		13.32	2 / 8			
reaction time	0.158	interval		1.02	1.02	1.00	1.02	1.06	1.02	1.03	1.05	1.07	1.45			3.04	3.10	3.15
		velocity	5.32	8.96	8.96	9.14	8.96	8.62	8.96	8.87	8.70	8.54	9.67	8.26		9.02	8.85	8.70

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

Semi-Final 3 (TV A

date 21-Aug-23 wind -0.1 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Crittenden, Freddie (USA) (19		time	2.54	3.58	4.58	5.58	6.61	7.60	8.63	9.68	10.68	11.73		13.17	6 / 1			
reaction time	0.156	interval		1.04	1.00	1.00	1.03	0.99	1.03	1.05	1.00	1.05	1.44			3.04	3.05	3.10
		velocity	5.40	8.79	9.14	9.14	8.87	9.23	8.87	8.70	9.14	8.70	9.74	8.35		9.02	8.99	8.85

Parchment, Hansle (JAM) (199(	time	2.52	3.55	4.55	5.53	6.56	7.56	8.60	9.63	10.66	11.73		13.18	5 / 2				
reaction time 0.138	interval	7 steps	1.03	1.00	0.98	1.03	1.00	1.04	1.03	1.03	1.07	1.45			3.01	3.07	3.13	
	velocity	5.44	8.87	9.14	9.33	8.87	9.14	8.79	8.87	8.87	8.54	9.67	8.35		9.11	8.93	8.76	
Belocian, Wilhem (FRA) (1995)	time	2.50	3.52	4.53	5.53	6.55	7.56	8.60	9.63	10.72	11.77		13.23	4 / 3				
reaction time 0.140	interval		1.02	1.01	1.00	1.02	1.01	1.04	1.03	1.09	1.05	1.46			3.03	3.07	3.17	
	velocity	5.49	8.96	9.05	9.14	8.96	9.05	8.79	8.87	8.39	8.70	9.60	8.31		9.05	8.93	8.65	
Joseph, Jason (SUI) (1998)	time	2.56	3.66	4.68	5.70	6.72	7.73	8.73	9.73	10.77	11.80		13.25	8 / 4				
reaction time 0.163	interval	7 steps	1.10	1.02	1.02	1.02	1.01	1.00	1.00	1.04	1.03	1.45			3.14	3.03	3.07	
	velocity	5.36	8.31	8.96	8.96	8.96	9.05	9.14	9.14	8.79	8.87	9.67	8.30		8.73	9.05	8.93	
Takayama, Shunya (JPN) (1994	time	2.54	3.56	4.60	5.60	6.63	7.65	8.70	9.75	10.82	11.89		13.34	7 / 5				*Shibayama (2024)*
reaction time 0.135	interval		1.02	1.04	1.00	1.03	1.02	1.05	1.05	1.07	1.07	1.45			3.06	3.10	3.19	
	velocity	5.40	8.96	8.79	9.14	8.87	8.96	8.70	8.70	8.54	8.54	9.67	8.25		8.96	8.85	8.60	
Al-Yoha, Yaqoub (KUW) (1993	time	2.58	3.63	4.66	5.68	6.70	7.70	8.73	9.80	10.86	11.95		13.44	2 / 6				
reaction time 0.157	interval	7 steps	1.05	1.03	1.02	1.02	1.00	1.03	1.07	1.06	1.09	1.49			3.10	3.05	3.22	
	velocity	5.32	8.70	8.87	8.96	8.96	9.14	8.87	8.54	8.62	8.39	9.41	8.18		8.85	8.99	8.52	
Fofana, Hassane (ITA) (1992)	time	2.56	3.66	4.73	5.75	6.78	7.82	8.88	9.92	10.96	12.03		13.50	9 / 7				
reaction time 0.147	interval	7 steps	1.10	1.07	1.02	1.03	1.04	1.06	1.04	1.04	1.07	1.47			3.19	3.13	3.15	
	velocity	5.36	8.31	8.54	8.96	8.87	8.79	8.62	8.79	8.79	8.54	9.54	8.15		8.60	8.76	8.70	
Pereira, Rafael (BRA) (1997)	time	2.56	3.60	4.70	5.70	6.74	7.76	8.80	9.86	10.93	12.00		13.52	3 / 8				
reaction time 0.160	interval	7 steps	1.04	1.10	1.00	1.04	1.02	1.04	1.06	1.07	1.07	1.52			3.14	3.10	3.20	
	velocity	5.36	8.79	8.31	9.14	8.79	8.96	8.79	8.62	8.54	8.54	9.22	8.14		8.73	8.85	8.57	

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

Semi-Final 2 (TV A

date 21-Aug-23 wind -0.2 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.44	3.44	4.42	5.40	6.38	7.38	8.40	9.42	10.46	11.53		13.02	5 / 1			
reaction time 0.137	interval	7 steps	1.00	0.98	0.98	0.98	1.00	1.02	1.02	1.04	1.07	1.49			2.96	3.00	3.13	
	velocity	5.62	9.14	9.33	9.33	9.33	9.14	8.96	8.96	8.79	8.54	9.41	8.45		9.26	9.14	8.76	
Zhoya, Sasha (FRA) (2002)	time	2.50	3.53	4.56	5.56	6.58	7.58	8.62	9.64	10.66	11.73		13.15	7 / 2			
reaction time 0.129	interval	7 steps	1.03	1.03	1.00	1.02	1.00	1.04	1.02	1.02	1.07	1.42	PB		3.06	3.06	3.11	
	velocity	5.49	8.87	8.87	9.14	8.96	9.14	8.79	8.96	8.96	8.54	9.87	8.37		8.96	8.96	8.82	
Llopis, Enrique (ESP) (2000)	time	2.56	3.62	4.64	5.62	6.63	7.65	8.67	9.70	10.76	11.86		13.30	6 / 3			
reaction time 0.146	interval	7 steps	1.06	1.02	0.98	1.01	1.02	1.02	1.03	1.06	1.10	1.44	PB		3.06	3.05	3.19	
	velocity	5.36	8.62	8.96	9.33	9.05	8.96	8.96	8.87	8.62	8.31	9.74	8.27		8.96	8.99	8.60	
Tinch, Cordell (USA) (2000)	time	2.50	3.58	4.60	5.60	6.62	7.65	8.67	9.70	10.76	11.83		13.31	3 / 4			
reaction time 0.168	interval	7 steps	1.08	1.02	1.00	1.02	1.03	1.02	1.03	1.06	1.07	1.48			3.10	3.07	3.16	
	velocity	5.49	8.46	8.96	9.14	8.96	8.87	8.96	8.87	8.62	8.54	9.47	8.26		8.85	8.93	8.68	
Trajkovic, Milan (CYP) (1992)	time	2.50	3.56	4.58	5.56	6.58	7.60	8.64	9.68	10.78	11.85		13.33	4 / 5			
reaction time 0.137	interval	7 steps	1.06	1.02	0.98	1.02	1.02	1.04	1.04	1.10	1.07	1.48			3.06	3.08	3.21	
	velocity	5.49	8.62	8.96	9.33	8.96	8.96	8.79	8.79	8.31	8.54	9.47	8.25		8.96	8.90	8.54	
Rodrigues, Eduardo (BRA) (19	time	2.66	3.75	4.80	5.80	6.82	7.83	8.83	9.86	10.93	12.03		13.52	8 / 6			
reaction time 0.142	interval	7 steps	1.09	1.05	1.00	1.02	1.01	1.00	1.03	1.07	1.10	1.49			3.14	3.03	3.20	
	velocity	5.16	8.39	8.70	9.14	8.96	9.05	9.14	8.87	8.54	8.31	9.41	8.14		8.73	9.05	8.57	
Cherubin, Yves (HAI) (1999)	time	2.63	3.70	4.73	5.80	6.83	7.86	8.93	9.98	11.05	12.14		13.66	9 / 7			
reaction time 0.178	interval		1.07	1.03	1.07	1.03	1.03	1.07	1.05	1.07	1.09	1.52			3.17	3.13	3.21	
	velocity	5.22	8.54	8.87	8.54	8.87	8.87	8.54	8.70	8.54	8.39	9.22	8.05		8.65	8.76	8.54	
Simonelli, Lorenzo Ndele (ITA)	time	2.53	3.60	4.62	5.65	6.70	7.78	8.85	9.93	11.02	12.13		13.69	2 / 8			
reaction time 0.151	interval	7 steps	1.07	1.02	1.03	1.05	1.08	1.07	1.08	1.09	1.11	1.56			3.12	3.20	3.28	
	velocity	5.42	8.54	8.96	8.87	8.70	8.46	8.54	8.46	8.39	8.23	8.99	8.04		8.79	8.57	8.36	
Yokochi, Taiga (JPN) (2000)	time	2.63	3.75	4.83	5.95	7.08	8.18	9.35	10.53	11.79	13.08		14.93	1 / 9				*Shibayama (2024)*
reaction time 0.173	interval	7 steps	1.12	1.08	1.12	1.13	1.10	1.17	1.18	1.26	1.29	1.85			3.32	3.40	3.73	
	velocity	5.22	8.16	8.46	8.16	8.09	8.31	7.81	7.75	7.25	7.09	7.58	7.37		8.26	8.06	7.35	

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

Semi-Final 1 (TV A

date 21-Aug-23 wind -0.2 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000	time	2.56	3.63	4.63	5.65	6.68	7.70	8.72	9.75	10.76	11.83		13.16	6 / 1				*Shibayama (2024)*
reaction time 0.129	interval	7 steps	1.07	1.00	1.02	1.03	1.02	1.02	1.03	1.01	1.07	1.33			3.09	3.07	3.11	
	velocity	5.36	8.54	9.14	8.96	8.87	8.96	8.96	8.87	9.05	8.54	10.54	8.36		8.87	8.93	8.82	
Roberts, Daniel (USA) (1998)	time	2.46	3.48	4.52	5.54	6.56	7.60	8.62	9.63	10.66	11.70		13.19	5 / 2			
reaction time 0.144	interval		1.02	1.04	1.02	1.02	1.04	1.02	1.01	1.03	1.04	1.49			3.08	3.08	3.08	
	velocity	5.58	8.96	8.79	8.96	8.96	8.79	8.96	9.05	8.87	8.79	9.41	8.34		8.90	8.90	8.90	

Kwaou-Mathey, Just (FRA) (19	time	2.52	3.56	4.60	5.62	6.62	7.65	8.65	9.69	10.73	11.84		13.31	2 / 3				
reaction time 0.165	interval	7 steps	1.04	1.04	1.02	1.00	1.03	1.00	1.04	1.04	1.11	1.47			3.10	3.03	3.19	
	velocity	5.44	8.79	8.79	8.96	9.14	8.87	9.14	8.79	8.79	8.23	9.54	8.26		8.85	9.05	8.60	
Bennett, Orlando (JAM) (1999)	time	2.54	3.62	4.65	5.67	6.70	7.70	8.73	9.78	10.83	11.90		13.34	9 / 4				
reaction time 0.144	interval		1.08	1.03	1.02	1.03	1.00	1.03	1.05	1.05	1.07	1.44			3.13	3.06	3.17	
	velocity	5.40	8.46	8.87	8.96	8.87	9.14	8.87	8.70	8.70	8.54	9.74	8.25		8.76	8.96	8.65	
Ojora, Tade (GBR) (1999)	time	2.58	3.63	4.67	5.70	6.72	7.78	8.80	9.83	10.87	11.93		13.43	7 / 5				
reaction time 0.144	interval	7 steps	1.05	1.04	1.03	1.02	1.06	1.02	1.03	1.04	1.06	1.50			3.12	3.10	3.13	
	velocity	5.32	8.70	8.79	8.87	8.96	8.62	8.96	8.87	8.79	8.62	9.35	8.19		8.79	8.85	8.76	
Hrelja, Max (SWE) (1998)	time	2.63	3.70	4.80	5.85	6.88	7.93	9.00	10.03	11.07	12.15		13.60	8 / 6				
reaction time 0.162	interval	7 steps	1.07	1.10	1.05	1.03	1.05	1.07	1.03	1.04	1.08	1.45			3.22	3.15	3.15	
	velocity	5.22	8.54	8.31	8.70	8.87	8.70	8.54	8.87	8.79	8.46	9.67	8.09		8.52	8.70	8.70	
Czykier, Damian (POL) (1992)	time	2.58	3.62	4.65	5.66	6.68	7.68	8.80	9.92	11.13	12.26		13.97	3 / 7				
reaction time 0.162	interval	7 steps	1.04	1.03	1.01	1.02	1.00	1.12	1.12	1.21	1.13	1.71			3.08	3.14	3.46	
	velocity	5.32	8.79	8.87	9.05	8.96	9.14	8.16	8.16	7.55	8.09	8.20	7.87		8.90	8.73	7.92	

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

Heat 5 (TV Analysis)

date 20-Aug-23 wind -0.9 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ojora, Tade (GBR) (1999)	time	2.58	3.62	4.68	5.70	6.72	7.74	8.77	9.82	10.88	11.92		13.32	2 / 1			
reaction time 0.148	interval	7 steps	1.04	1.06	1.02	1.02	1.02	1.03	1.05	1.06	1.04	1.40			3.12	3.07	3.15	
	velocity	5.32	8.79	8.62	8.96	8.96	8.96	8.87	8.70	8.62	8.79	10.01	8.26		8.79	8.93	8.70	
Takayama, Shunya (JPN) (1994)	time	2.56	3.60	4.62	5.64	6.66	7.70	8.74	9.79	10.85	11.93		13.35	9 / 2			
reaction time 0.146	interval		1.04	1.02	1.02	1.02	1.04	1.04	1.05	1.06	1.08	1.42			3.08	3.10	3.19	
	velocity	5.36	8.79	8.96	8.96	8.96	8.79	8.79	8.70	8.62	8.46	9.87	8.24		8.90	8.85	8.60	
Roberts, Daniel (USA) (1998)	time	2.53	3.55	4.57	5.60	6.62	7.70	8.74	9.79	10.88	11.94		13.36	5 / 3			
reaction time 0.155	interval		1.02	1.02	1.03	1.02	1.08	1.04	1.05	1.09	1.06	1.42			3.07	3.14	3.20	
	velocity	5.42	8.96	8.96	8.87	8.96	8.46	8.79	8.70	8.39	8.62	9.87	8.23		8.93	8.73	8.57	
Hrelja, Max (SWE) (1998)	time	2.63	3.71	4.74	5.76	6.78	7.81	8.86	9.91	10.95	12.05		13.42	7 / 4			
reaction time 0.138	interval	7 steps	1.08	1.03	1.02	1.02	1.03	1.05	1.05	1.04	1.10	1.37	PB		3.13	3.10	3.19	
	velocity	5.22	8.46	8.87	8.96	8.96	8.87	8.70	8.70	8.79	8.31	10.23	8.20		8.76	8.85	8.60	
Kwaou-Mathey, Just (FRA) (19	time	2.55	3.57	4.60	5.60	6.66	7.71	8.75	9.78	10.90	11.94		13.42	3 / 5			
reaction time 0.160	interval	7 steps	1.02	1.03	1.00	1.06	1.05	1.04	1.03	1.12	1.04	1.48			3.05	3.15	3.19	
	velocity	5.38	8.96	8.87	9.14	8.62	8.70	8.79	8.87	8.16	8.79	9.47	8.20		8.99	8.70	8.60	

Heat 4 (TV Analysis)

date 20-Aug-23 wind -0.6 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.45	3.47	4.47	5.47	6.47	7.47	8.50	9.57	10.63	11.68		13.18	5 / 1			
reaction time 0.153	interval	7 steps	1.02	1.00	1.00	1.00	1.00	1.03	1.07	1.06	1.05	1.50			3.02	3.03	3.18	
	velocity	5.60	8.96	9.14	9.14	9.14	9.14	8.87	8.54	8.62	8.70	9.35	8.35		9.08	9.05	8.62	
Trajkovic, Milan (CYP) (1992)	time	2.50	3.55	4.58	5.60	6.62	7.65	8.67	9.70	10.78	11.85		13.33	4 / 2			
reaction time 0.164	interval	7 steps	1.05	1.03	1.02	1.02	1.03	1.02	1.03	1.08	1.07	1.48			3.10	3.07	3.18	
	velocity	5.49	8.70	8.87	8.96	8.96	8.87	8.96	8.87	8.46	8.54	9.47	8.25		8.85	8.93	8.62	
Rodrigues, Eduardo (BRA) (19	time	2.63	3.68	4.70	5.70	6.70	7.72	8.74	9.77	10.83	11.88		13.37	1 / 3			
reaction time 0.150	interval	7 steps	1.05	1.02	1.00	1.00	1.02	1.02	1.03	1.06	1.05	1.49			3.07	3.04	3.14	
	velocity	5.22	8.70	8.96	9.14	9.14	8.96	8.96	8.87	8.62	8.70	9.41	8.23		8.93	9.02	8.73	
Joseph, Jason (SUI) (1998)	time	2.53	3.60	4.62	5.64	6.68	7.72	8.78	9.82	10.86	11.90		13.38	2 / 4			
reaction time 0.159	interval	7 steps	1.07	1.02	1.02	1.04	1.04	1.06	1.04	1.04	1.04	1.48			3.11	3.14	3.12	
	velocity	5.42	8.54	8.96	8.96	8.79	8.79	8.62	8.79	8.79	8.79	9.47	8.22		8.82	8.73	8.79	
Bennett, Orlando (JAM) (1999)	time	2.53	3.62	4.66	5.70	6.73	7.76	8.80	9.83	10.88	11.93		13.39	9 / 5			
reaction time 0.140	interval		1.09	1.04	1.04	1.03	1.03	1.04	1.03	1.05	1.05	1.46			3.17	3.10	3.13	
	velocity	5.42	8.39	8.79	8.79	8.87	8.87	8.79	8.87	8.70	8.70	9.60	8.22		8.65	8.85	8.76	
Cherubin, Yves (HAI) (1999)	time	2.52	3.60	4.64	5.67	6.70	7.72	8.80	9.83	10.93	12.05		13.56	6 / 6			
reaction time 0.180	interval		1.08	1.04	1.03	1.03	1.02	1.08	1.03	1.10	1.12	1.51	PB		3.15	3.13	3.25	
	velocity	5.44	8.46	8.79	8.87	8.87	8.96	8.46	8.87	8.31	8.16	9.28	8.11		8.70	8.76	8.44	

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

Heat 3 (TV Analysis)

date 20-Aug-23 wind 0.0 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mendy, Louis François (SEN) (	time	2.56	3.60	4.60	5.61	6.61	7.64	8.66	9.72	10.76	11.83		13.24	6 / 1			
reaction time 0.176	interval		1.04	1.00	1.01	1.00	1.03	1.02	1.06	1.04	1.07	1.41			3.05	3.05	3.17	
	velocity	5.36	8.79	9.14	9.05	9.14	8.87	8.96	8.62	8.79	8.54	9.94	8.31		8.99	8.99	8.65	
Crittenden, Freddie (USA) (199	time	2.56	3.60	4.63	5.65	6.66	7.72	8.75	9.80	10.86	11.95		13.40	3 / 2			
reaction time 0.148	interval		1.04	1.03	1.02	1.01	1.06	1.03	1.05	1.06	1.09	1.45			3.09	3.10	3.20	

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
		velocity	5.36	8.79	8.87	8.96	9.05	8.62	8.87	8.70	8.62	8.39	9.67	8.21		8.87	8.85	8.57
Czykier, Damian (POL) (1992)		time	2.56	3.60	4.62	5.63	6.65	7.70	8.73	9.82	10.92	12.00		13.49	7 / 3			
reaction time	0.152	interval	7 steps	1.04	1.02	1.01	1.02	1.05	1.03	1.09	1.10	1.08	1.49			3.07	3.10	3.27
		velocity	5.36	8.79	8.96	9.05	8.96	8.70	8.87	8.39	8.31	8.46	9.41	8.15		8.93	8.85	8.39
Simonelli, Lorenzo Ndele (ITA)		time	2.53	3.58	4.63	5.65	6.72	7.76	8.80	9.86	10.95	12.03		13.50	4 / 4			
reaction time	0.152	interval	7 steps	1.05	1.05	1.02	1.07	1.04	1.04	1.06	1.09	1.08	1.47			3.12	3.15	3.23
		velocity	5.42	8.70	8.70	8.96	8.54	8.79	8.79	8.62	8.39	8.46	9.54	8.15		8.79	8.70	8.49
Yokochi, Taiga (JPN) (2000)		time	2.66	3.74	4.79	5.81	6.90	7.97	9.02	10.09	11.18			14.39	9 / 8			
reaction time	0.170	interval	7 steps	1.08	1.05	1.02	1.09	1.07	1.05	1.07	1.09					3.15	3.21	
		velocity	5.16	8.46	8.70	8.96	8.39	8.54	8.70	8.54	8.39			7.64		8.70	8.54	

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

Heat 2 (TV Analysis

date 20-Aug-23 wind 0.5 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)		time	2.55	3.58	4.63	5.63	6.64	7.65	8.69	9.75	10.81	11.87		13.31	9 / 1			
reaction time	0.156	interval		1.03	1.05	1.00	1.01	1.01	1.04	1.06	1.06	1.06	1.44			3.08	3.06	3.18
		velocity	5.38	8.87	8.70	9.14	9.05	9.05	8.79	8.62	8.62	8.62	9.74	8.26		8.90	8.96	8.62
Izumiya, Shunsuke (JPN) (2000		time	2.57	3.62	4.64	5.68	6.69	7.75	8.80	9.86	10.90	11.96		13.33	6 / 2			
reaction time	0.146	interval	7 steps	1.05	1.02	1.04	1.01	1.06	1.05	1.06	1.04	1.06	1.37			3.11	3.12	3.16
		velocity	5.34	8.70	8.96	8.79	9.05	8.62	8.70	8.62	8.79	8.62	10.23	8.25		8.82	8.79	8.68
Pereira, Rafael (BRA) (1997)		time	2.58	3.63	4.66	5.66	6.68	7.74	8.78	9.82	10.92	12.02		13.52	4 / 3			
reaction time	0.146	interval		1.05	1.03	1.00	1.02	1.06	1.04	1.04	1.10	1.10	1.50			3.08	3.12	3.24
		velocity	5.32	8.70	8.87	9.14	8.96	8.62	8.79	8.79	8.31	8.31	9.35	8.14		8.90	8.79	8.46
Fofana, Hassane (ITA) (1992)		time	2.63	3.68	4.78	5.83	6.86	7.90	8.95	10.00	11.04	12.10		13.53	5 / 4			
reaction time	0.141	interval	7 steps	1.05	1.10	1.05	1.03	1.04	1.05	1.05	1.04	1.06	1.43			3.20	3.12	3.15
		velocity	5.22	8.70	8.31	8.70	8.87	8.79	8.70	8.70	8.79	8.62	9.80	8.13		8.57	8.79	8.70

Heat 1 (TV Analysis

date 20-Aug-23 wind -0.3 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Parchment, Hansle (JAM) (199(		time	2.58	3.63	4.63	5.65	6.63	7.66	8.70	9.73	10.77	11.80		13.30	3 / 1			
reaction time	0.195	interval	7 steps	1.05	1.00	1.02	0.98	1.03	1.04	1.03	1.04	1.03	1.50			3.07	3.05	3.10
		velocity	5.32	8.70	9.14	8.96	9.33	8.87	8.79	8.87	8.79	8.87	9.35	8.27		8.93	8.99	8.85
Llopis, Enrique (ESP) (2000)		time	2.56	3.60	4.60	5.62	6.63	7.68	8.70	9.73	10.80	11.88		13.33	2 / 2			
reaction time	0.136	interval	7 steps	1.04	1.00	1.02	1.01	1.05	1.02	1.03	1.07	1.08	1.45			3.06	3.08	3.18
		velocity	5.36	8.79	9.14	8.96	9.05	8.70	8.96	8.87	8.54	8.46	9.67	8.25		8.96	8.90	8.62
Zhoya, Sasha (FRA) (2002)		time	2.56	3.63	4.70	5.72	6.73	7.75	8.78	9.80	10.88	11.93		13.35	7 / 3			
reaction time	0.157	interval	7 steps	1.07	1.07	1.02	1.01	1.02	1.03	1.02	1.08	1.05	1.42			3.16	3.06	3.15
		velocity	5.36	8.54	8.54	8.96	9.05	8.96	8.87	8.96	8.46	8.70	9.87	8.24		8.68	8.96	8.70
Tinch, Cordell (USA) (2000)		time	2.50	3.55	4.56	5.58	6.60	7.63	8.72	9.78	10.88	11.96		13.49	9 / 4			
reaction time	0.170	interval	7 steps	1.05	1.01	1.02	1.02	1.03	1.09	1.06	1.10	1.08	1.53			3.08	3.14	3.24
		velocity	5.49	8.70	9.05	8.96	8.96	8.87	8.39	8.62	8.31	8.46	9.16	8.15		8.90	8.73	8.46
Al-Yoha, Yaqoub (KUW) (1993		time	2.60	3.68	4.72	5.75	6.77	7.80	8.86	9.92	10.96	12.06		13.56	1 / 5			
reaction time	0.140	interval	7 steps	1.08	1.04	1.03	1.02	1.03	1.06	1.06	1.04	1.10	1.50			3.15	3.11	3.20
		velocity	5.28	8.46	8.79	8.87	8.96	8.87	8.62	8.62	8.79	8.31	9.35	8.11		8.70	8.82	8.57

2023 Japanese National High School Championsips (Sapporo, JPN)

FINAL

date 06-Aug-23 wind 0.8 m/s

Takashima (2023) - national high school sports festival - biomechanics data

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yamanaka, Kyousuke (JPN) (20		time	2.72	3.79	4.88	5.97	7.05	8.15	9.23	10.33	11.44	12.55		14.01	4 / 1			
reaction time	0.187	interval		1.07	1.09	1.09	1.08	1.10	1.08	1.10	1.11	1.11	1.46			3.25	3.26	3.32
		velocity	5.04	8.54	8.39	8.39	8.46	8.31	8.46	8.31	8.23	8.23	9.60	7.85		8.44	8.41	8.26
Kojima, Keiichiro (JPN)		time	2.75	3.86	4.95	6.05	7.13	8.24	9.33	10.44	11.57	12.70		14.15	5 / 2			
reaction time	0.228	interval		1.11	1.09	1.10	1.08	1.11	1.09	1.11	1.13	1.13	1.45			3.30	3.28	3.37
		velocity	4.99	8.23	8.39	8.31	8.46	8.23	8.39	8.23	8.09	8.09	9.67	7.77		8.31	8.36	8.14
Takahashi, Daishi (JPN)		time	2.69	3.76	4.85	5.96	7.07	8.17	9.29	10.40	11.52	12.66		14.17	2 / 3			
reaction time	0.180	interval		1.07	1.09	1.11	1.11	1.10	1.12	1.11	1.12	1.14	1.51			3.27	3.33	3.37
		velocity	5.10	8.54	8.39	8.23	8.23	8.31	8.16	8.23	8.16	8.02	9.28	7.76		8.39	8.23	8.14
Hojo, Yuki (JPN) (2005)		time	2.73	3.82	4.93	6.02	7.12	8.20	9.30	10.45	11.59	12.73		14.29	8 / 4			
reaction time	0.188	interval		1.09	1.11	1.09	1.10	1.08	1.10	1.15	1.14	1.14	1.56			3.29	3.28	3.43
		velocity	5.03	8.39	8.23	8.39	8.31	8.46	8.31	7.95	8.02	8.02	8.99	7.70		8.33	8.36	7.99
Yokoyama, Masaya (JPN)		time	2.77	3.91	5.02	6.13	7.23	8.33	9.45	10.57	11.70	12.89		14.33	3 / 5			
reaction time	0.201	interval		1.14	1.11	1.11	1.10	1.10	1.12	1.12	1.13	1.19	1.44			3.36	3.32	3.44

		velocity	4.95	8.02	8.23	8.23	8.31	8.31	8.16	8.16	8.09	7.68	9.74	7.68			8.16	8.26	7.97
Senryu, Asai (JPN)		time	2.77	3.91	5.01	6.11	7.21	8.31	9.46	10.59	11.75	12.89		14.38	9 / 6				
reaction time	0.212	interval		1.14	1.10	1.10	1.10	1.10	1.15	1.13	1.16	1.14	1.49				3.34	3.35	3.43
		velocity	4.95	8.02	8.31	8.31	8.31	8.31	7.95	8.09	7.88	8.02	9.41	7.65			8.21	8.19	7.99
Miyamoto, Koju (JPN)		time	2.74	3.86	4.95	6.08	7.17	8.29	9.39	10.57	11.74	12.94		14.41	7 / 7				
reaction time	0.197	interval		1.12	1.09	1.13	1.09	1.12	1.10	1.18	1.17	1.20	1.47				3.34	3.31	3.55
		velocity	5.01	8.16	8.39	8.09	8.39	8.16	8.31	7.75	7.81	7.62	9.54	7.63			8.21	8.28	7.72
Tateyama, Masama (JPN)		time	2.73	3.84	4.96	6.09	7.24	8.34	9.48	10.62	11.78	12.96		14.46	6 / 8				
reaction time	0.171	interval		1.11	1.12	1.13	1.15	1.10	1.14	1.14	1.16	1.18	1.50				3.36	3.39	3.48
		velocity	5.03	8.23	8.16	8.09	7.95	8.31	8.02	8.02	7.88	7.75	9.35	7.61			8.16	8.09	7.88

2023 French National Championships (Albi, FRA) (TV Analysis)

FINAL

date 29-Jul-23 wind 2.3 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)		time	2.50	3.54	4.54	5.52	6.50	7.50	8.52	9.52	10.54	11.58		13.01	6 / 1			
reaction time	0.187	interval	7 steps	1.04	1.00	0.98	0.98	1.00	1.02	1.00	1.02	1.04	1.43			3.02	3.00	3.06
		velocity	5.49	8.79	9.14	9.33	9.33	9.14	8.96	9.14	8.96	8.79	9.80	8.46		9.08	9.14	8.96
Belocian, Wilhem (FRA (1995)		time	2.46	3.50	4.50	5.50	6.48	7.50	8.52	9.52	10.56	11.60		13.07	5 / 2			
reaction time	0.168	interval		1.04	1.00	1.00	0.98	1.02	1.02	1.00	1.04	1.04	1.47			3.04	3.02	3.08
		velocity	5.58	8.79	9.14	9.14	9.33	8.96	8.96	9.14	8.79	8.79	9.54	8.42		9.02	9.08	8.90
Kwaou-Mathey, Just (FRA) (19		time	2.54	3.56	4.56	5.56	6.58	7.60	8.60	9.64	10.70	11.74		13.19	3 / 3			
reaction time	0.206	interval	7 steps	1.02	1.00	1.00	1.02	1.02	1.00	1.04	1.06	1.04	1.45			3.02	3.04	3.14
		velocity	5.40	8.96	9.14	9.14	8.96	8.96	9.14	8.79	8.62	8.79	9.67	8.34		9.08	9.02	8.73
Martinot-Lagarde, Pascal (FRA		time	2.52	3.56	4.58	5.60	6.60	7.62	8.64	9.66	10.70	11.76		13.25	2 / 4			
reaction time	0.180	interval	7 steps	1.04	1.02	1.02	1.00	1.02	1.02	1.02	1.04	1.06	1.49			3.08	3.04	3.12
		velocity	5.44	8.79	8.96	8.96	9.14	8.96	8.96	8.96	8.79	8.62	9.41	8.30		8.90	9.02	8.79
Manga, Aurel (FRA) (1992)		time	2.52	3.56	4.62	5.62	6.64	7.64	8.68	9.72	10.78	11.84		13.39	7 / 5			
reaction time	0.166	interval	7 steps	1.04	1.06	1.00	1.02	1.00	1.04	1.04	1.06	1.06	1.55			3.10	3.06	3.16
		velocity	5.44	8.79	8.62	9.14	8.96	9.14	8.79	8.79	8.62	8.62	9.05	8.22		8.85	8.96	8.68
Lecoeur, Romain (FRA) (1997)		time	2.56	3.60	4.64	5.68	6.70	7.74	8.78	9.82	10.90	12.00		13.51	1 / 6			
reaction time	0.203	interval	7 steps	1.04	1.04	1.04	1.02	1.04	1.04	1.04	1.08	1.10	1.51			3.12	3.10	3.22
		velocity	5.36	8.79	8.79	8.79	8.96	8.79	8.79	8.79	8.46	8.31	9.28	8.14		8.79	8.85	8.52

Heat 2

date 29-Jul-23 wind 5.3 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)		time	2.52	3.56	4.58	5.56	6.52	7.52	8.52	9.52	10.54	11.58		13.01	6 / 1			
reaction time	0.173	interval	7 steps	1.04	1.02	0.98	0.96	1.00	1.00	1.00	1.02	1.04	1.43			3.04	2.96	3.06
		velocity	5.44	8.79	8.96	9.33	9.52	9.14	9.14	9.14	8.96	8.79	9.80	8.46		9.02	9.26	8.96
Bascou, Dimitri (FRA) (1987)		time	2.54	3.58	4.58	5.56	6.54	7.54	8.54	9.58	10.66	11.70		13.14	3 / 2			
reaction time	0.162	interval	7 steps	1.04	1.00	0.98	0.98	1.00	1.00	1.04	1.08	1.04	1.44			3.02	2.98	3.16
		velocity	5.40	8.79	9.14	9.33	9.33	9.14	9.14	8.79	8.46	8.79	9.74	8.37		9.08	9.20	8.68

2023 London Athletics Meet (London, GBR)

FINAL

date 23-Jul-23 wind 1.3 m/s

Omega Timing (2023) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.36	3.35	4.33	5.30	6.29	7.28	8.29	9.32	10.37	11.43		13.01	5 / 1			
reaction time	0.165	interval	7 steps	0.99	0.98	0.97	0.99	0.99	1.01	1.03	1.05	1.06	1.58			2.94	2.99	3.14
		velocity	5.81	9.23	9.33	9.42	9.23	9.23	9.05	8.87	8.70	8.62	8.87	8.46		9.33	9.17	8.73
Izumiya, Shunsuke (JPN) (2000		time	2.35	3.39	4.41	5.42	6.41	7.41	8.42	9.45	10.49	11.54		13.06	3 / 2			
reaction time	0.138	interval	7 steps	1.04	1.02	1.01	0.99	1.00	1.01	1.03	1.04	1.05	1.52			3.07	3.00	3.12
		velocity	5.84	8.79	8.96	9.05	9.23	9.14	9.05	8.87	8.79	8.70	9.22	8.42		8.93	9.14	8.79
Britt, Jamal (USA) (1998)		time	2.39	3.46	4.50	5.50	6.51	7.52	8.54	9.57	10.62	11.68		13.25	6 / 3			
reaction time	0.145	interval	7 steps	1.07	1.04	1.00	1.01	1.01	1.02	1.03	1.05	1.06	1.57			3.11	3.04	3.14
		velocity	5.74	8.54	8.79	9.14	9.05	9.05	8.96	8.87	8.70	8.62	8.93	8.30		8.82	9.02	8.73
Parchment, Hansle (JAM) (199(		time	2.41	3.45	4.44	5.43	6.44	7.45	8.46	9.49	10.56	11.63		13.26	4 / 4			
reaction time	0.135	interval	7 steps	1.04	0.99	0.99	1.01	1.01	1.01	1.03	1.07	1.07	1.63			3.02	3.03	3.17
		velocity	5.69	8.79	9.23	9.23	9.05	9.05	9.05	8.87	8.54	8.54	8.60	8.30		9.08	9.05	8.65
Ojora, Tade (GBR) (1999)		time	2.42	3.51	4.54	5.54	6.54	7.55	8.57	9.61	10.66	11.70		13.27	8 / 5			
reaction time	0.148	interval	7 steps	1.09	1.03	1.00	1.00	1.01	1.02	1.04	1.05	1.04	1.57			3.12	3.03	3.13
		velocity	5.67	8.39	8.87	9.14	9.14	9.05	8.96	8.79	8.70	8.79	8.93	8.29		8.79	9.05	8.76
Zeller, Joshua (GBR) (2000)		time	2.49	3.57	4.60	5.61	6.67	7.75	8.81	9.89	10.99	12.10		13.82	1 / 6			

reaction time	0.144	interval		1.08	1.03	1.01	1.06	1.08	1.06	1.08	1.10	1.11	1.72			3.12	3.20	3.29
		velocity	5.51	8.46	8.87	9.05	8.62	8.46	8.62	8.46	8.31	8.23	8.15	7.96		8.79	8.57	8.33
Crittenden, Freddie (USA) (199		time	2.39	3.44	4.47	5.50	6.53	7.61	8.78	10.04	11.35	12.67		14.83	2 / 7			
reaction time	0.132	interval		1.05	1.03	1.03	1.03	1.08	1.17	1.26	1.31	1.32	2.16			3.11	3.28	3.89
		velocity	5.74	8.70	8.87	8.87	8.87	8.46	7.81	7.25	6.98	6.92	6.49	7.42		8.82	8.36	7.05

2023 Kamila Skolimowska Memorial (Silesia, POL)

FINAL

date 16-Jul-23 wind 0.3 m/s

Omega Timing (2023) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Iribarne, Roger (CUB) (1996)		time	2.37	3.42	4.45	5.46	6.47	7.49	8.52	9.56	10.61	11.68		13.25	4 / 1			
reaction time	0.147	interval	7 steps	1.05	1.03	1.01	1.01	1.02	1.03	1.04	1.05	1.07	1.57			3.09	3.06	3.16
		velocity	5.79	8.70	8.87	9.05	9.05	8.96	8.87	8.79	8.70	8.54	8.93	8.30		8.87	8.96	8.68
Kwaou-Mathey, Just (FRA) (19		time	2.39	3.46	4.50	5.53	6.55	7.57	8.59	9.62	10.65	11.71		13.26	7 / 2			
reaction time	0.157	interval	7 steps	1.07	1.04	1.03	1.02	1.02	1.02	1.03	1.03	1.06	1.55			3.14	3.06	3.12
		velocity	5.74	8.54	8.79	8.87	8.96	8.96	8.96	8.87	8.87	8.62	9.05	8.30		8.73	8.96	8.79
Mason, Tyler (JAM) (1995)		time	2.38	3.45	4.50	5.53	6.55	7.57	8.59	9.63	10.67	11.72		13.29	5 / 3			
reaction time	0.138	interval	7 steps	1.07	1.05	1.03	1.02	1.02	1.02	1.04	1.04	1.05	1.57			3.15	3.06	3.13
		velocity	5.76	8.54	8.70	8.87	8.96	8.96	8.96	8.79	8.79	8.70	8.93	8.28		8.70	8.96	8.76
Cunningham, Trey (USA) (199		time	2.41	3.46	4.48	5.49	6.50	7.52	8.54	9.58	10.63	11.70		13.36	3 / 4			
reaction time	0.147	interval	7 steps	1.05	1.02	1.01	1.01	1.02	1.02	1.04	1.05	1.07	1.66			3.08	3.05	3.16
		velocity	5.69	8.70	8.96	9.05	9.05	8.96	8.96	8.79	8.70	8.54	8.45	8.23		8.90	8.99	8.68
Zeller, Joshua (GBR) (2000)		time	2.49	3.56	4.59	5.62	6.64	7.65	8.68	9.72	10.77	11.84		13.43	1 / 5			
reaction time	0.158	interval		1.07	1.03	1.03	1.02	1.01	1.03	1.04	1.05	1.07	1.59			3.13	3.06	3.16
		velocity	5.51	8.54	8.87	8.87	8.96	9.05	8.87	8.79	8.70	8.54	8.82	8.19		8.76	8.96	8.68
Edwards, Eric (USA) (2000)		time	2.38	3.46	4.51	5.57	6.61	7.65	8.69	9.75	10.82	11.92		13.54	9 / 6			
reaction time	0.130	interval		1.08	1.05	1.06	1.04	1.04	1.04	1.06	1.07	1.10	1.62			3.19	3.12	3.23
		velocity	5.76	8.46	8.70	8.62	8.79	8.79	8.79	8.62	8.54	8.31	8.65	8.12		8.60	8.79	8.49
Roberts, Daniel (USA) (1998)		time	2.33	3.39	4.43	5.45	6.48	7.50	8.57	9.73	10.92	12.10		13.90	6 / 7			
reaction time	0.159	interval		1.06	1.04	1.02	1.03	1.02	1.07	1.16	1.19	1.18	1.80			3.12	3.12	3.53
		velocity	5.89	8.62	8.79	8.96	8.87	8.96	8.54	7.88	7.68	7.75	7.79	7.91		8.79	8.79	7.77
Trajkovic, Milan (CYP) (1992)		time	2.40	3.48	4.53	5.58	6.62	7.67	8.74	10.06	12.38	20.77			8 / --			
reaction time	0.159	interval	7 steps	1.08	1.05	1.05	1.04	1.05	1.07	1.32	2.32	8.39		DQ		3.18	3.16	12.03
		velocity	5.72	8.46	8.70	8.70	8.79	8.70	8.54	6.92	3.94	1.09				8.62	8.68	2.28

Heat 2

date 16-Jul-23 wind -0.2 m/s

Omega Timing (2023) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)		time	2.33	3.39	4.42	5.44	6.46	7.49	8.51	9.55	10.59	11.64		13.24	5 / 1			
reaction time	0.146	interval		1.06	1.03	1.02	1.02	1.03	1.02	1.04	1.04	1.05	1.60			3.11	3.07	3.13
		velocity	5.89	8.62	8.87	8.96	8.96	8.87	8.96	8.79	8.79	8.70	8.76	8.31		8.82	8.93	8.76
Mason, Tyler (JAM) (1995)		time	2.40	3.46	4.49	5.52	6.53	7.57	8.60	9.64	10.67	11.71		13.28	4 / 2			
reaction time	0.152	interval	7 steps	1.06	1.03	1.03	1.01	1.04	1.03	1.04	1.03	1.04	1.57			3.12	3.08	3.11
		velocity	5.72	8.62	8.87	8.87	9.05	8.79	8.87	8.79	8.87	8.79	8.93	8.28		8.79	8.90	8.82
Trajkovic, Milan (CYP) (1992)		time	2.42	3.47	4.50	5.52	6.53	7.55	8.59	9.63	10.68	11.76		13.34	9 / 3			
reaction time	0.160	interval	7 steps	1.05	1.03	1.02	1.01	1.02	1.04	1.04	1.05	1.08	1.58			3.10	3.07	3.17
		velocity	5.67	8.70	8.87	8.96	9.05	8.96	8.79	8.79	8.70	8.46	8.87	8.25		8.85	8.93	8.65
Manga, Aurel (FRA) (1992)		time	2.45	3.55	4.59	5.63	6.66	7.69	8.72	9.76	10.82	11.88		13.45	1 / 4			
reaction time	0.156	interval	7 steps	1.10	1.04	1.04	1.03	1.03	1.03	1.04	1.06	1.06	1.57			3.18	3.09	3.16
		velocity	5.60	8.31	8.79	8.79	8.87	8.87	8.87	8.79	8.62	8.62	8.93	8.18		8.62	8.87	8.68
Pereira, Rafael (BRA) (1997)		time	2.43	3.52	4.57	5.61	6.66	7.70	8.74	9.78	10.83	11.89		13.50	7 / 5			
reaction time	0.136	interval		1.09	1.05	1.04	1.05	1.04	1.04	1.04	1.05	1.06	1.61			3.18	3.13	3.15
		velocity	5.65	8.39	8.70	8.79	8.70	8.79	8.79	8.79	8.70	8.62	8.71	8.15		8.62	8.76	8.70
Dickson, Michael (USA) (1997)		time	2.46	3.55	4.60	5.65	6.69	7.74	8.81	9.87	10.93	12.01		13.57	8 / 6			
reaction time	0.183	interval	7 steps	1.09	1.05	1.05	1.04	1.05	1.07	1.06	1.06	1.08	1.56			3.19	3.16	3.20
		velocity	5.58	8.39	8.70	8.70	8.79	8.70	8.54	8.62	8.62	8.46	8.99	8.11		8.60	8.68	8.57
Martinot-Lagarde, Pascal (FRA		time	2.45	3.55	4.60	5.64	6.69	7.74	8.79	9.85	10.91	11.99		13.59	3 / 7			
reaction time	0.153	interval	7 steps	1.10	1.05	1.04	1.05	1.05	1.05	1.06	1.06	1.08	1.60			3.19	3.15	3.20
		velocity	5.60	8.31	8.70	8.79	8.70	8.70	8.70	8.62	8.62	8.46	8.76	8.09		8.60	8.70	8.57
Ishikawa, Shuhei (JPN) (1995)		time	2.41	3.48	4.53	5.58	6.62	7.67	8.74	9.82	10.91	12.00		13.64	2 / 8			
reaction time	0.133	interval	7 steps	1.07	1.05	1.05	1.04	1.05	1.07	1.08	1.09	1.09	1.64			3.17	3.16	3.26
		velocity	5.69	8.54	8.70	8.70	8.79	8.70	8.54	8.46	8.39	8.39	8.55	8.06		8.65	8.68	8.41

Heat 1

date 16-Jul-23 wind 0.3 m/s

Omega Timing (2023) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Iribarne, Roger (CUB) (1996)		time	2.40	3.45	4.47	5.48	6.48	7.49	8.52	9.55	10.59	11.66		13.21	2 / 1			
reaction time	0.157	interval	7 steps	1.05	1.02	1.01	1.00	1.01	1.03	1.03	1.04	1.07	1.55	PB		3.08	3.04	3.14
		velocity	5.72	8.70	8.96	9.05	9.14	9.05	8.87	8.87	8.79	8.54	9.05	8.33		8.90	9.02	8.73
Kwaou-Mathey, Just (FRA) (19		time	2.47	3.56	4.59	5.60	6.61	7.62	8.63	9.65	10.68	11.72		13.27	6 / 2			
reaction time	0.169	interval	7 steps	1.09	1.03	1.01	1.01	1.01	1.01	1.02	1.03	1.04	1.55			3.13	3.03	3.09
		velocity	5.55	8.39	8.87	9.05	9.05	9.05	9.05	8.96	8.87	8.79	9.05	8.29		8.76	9.05	8.87
Cunningham, Trey (USA) (199		time	2.41	3.46	4.47	5.48	6.49	7.51	8.54	9.59	10.66	11.73		13.31	5 / 3			
reaction time	0.153	interval	7 steps	1.05	1.01	1.01	1.01	1.02	1.03	1.05	1.07	1.07	1.58			3.07	3.06	3.19
		velocity	5.69	8.70	9.05	9.05	9.05	8.96	8.87	8.70	8.54	8.54	8.87	8.26		8.93	8.96	8.60
Edwards, Eric (USA) (2000)		time		3.46	4.50	5.53	6.57	7.62	8.64	9.68	10.73	11.80		13.36	3 / 4			
reaction time	0.137	interval			1.04	1.03	1.04	1.05	1.02	1.04	1.05	1.07	1.56				3.11	3.16
		velocity		6.61	8.79	8.87	8.79	8.70	8.96	8.79	8.70	8.54	8.99	8.23			8.82	8.68
Dunning, Robert (USA) (1997)		time	2.51	3.59	4.63	5.65	6.66	7.67	8.69	9.72	10.76	11.81		13.38	4 / 5			
reaction time	0.140	interval	7 steps	1.08	1.04	1.02	1.01	1.01	1.02	1.03	1.04	1.05	1.57			3.14	3.04	3.12
		velocity	5.47	8.46	8.79	8.96	9.05	9.05	8.96	8.87	8.79	8.70	8.93	8.22		8.73	9.02	8.79
Zeller, Joshua (GBR) (2000)		time	2.49	3.57	4.61	5.64	6.65	7.67	8.70	9.74	10.78	11.83		13.40	8 / 6			
reaction time	0.156	interval		1.08	1.04	1.03	1.01	1.02	1.03	1.04	1.04	1.05	1.57			3.15	3.06	3.13
		velocity	5.51	8.46	8.79	8.87	9.05	8.96	8.87	8.79	8.79	8.70	8.93	8.21		8.70	8.96	8.76
Alkana, Antonio (RSA) (1990)		time	2.44	3.51	4.55	5.58	6.60	7.63	8.67	9.71	10.77	11.84		13.44	1 / 7			
reaction time	0.132	interval		1.07	1.04	1.03	1.02	1.03	1.04	1.04	1.06	1.07	1.60			3.14	3.09	3.17
		velocity	5.62	8.54	8.79	8.87	8.96	8.87	8.79	8.79	8.62	8.54	8.76	8.18		8.73	8.87	8.65
Thomas, Damion (JAM) (1999)		time	2.47	3.55	4.59	5.62	6.65	7.69	8.73	9.78	10.85	11.93		13.53	9 / 8			
reaction time	0.147	interval	7 steps	1.08	1.04	1.03	1.03	1.04	1.04	1.05	1.07	1.08	1.60			3.15	3.11	3.20
		velocity	5.55	8.46	8.79	8.87	8.87	8.79	8.79	8.70	8.54	8.46	8.76	8.13		8.70	8.82	8.57
Czykier, Damian (POL) (1992)		time	2.48	3.57	4.62	5.65	6.70	7.75	8.80	9.85	10.93	12.03		13.65	7 / 9			
reaction time	0.154	interval	7 steps	1.09	1.05	1.03	1.05	1.05	1.05	1.05	1.08	1.10	1.62			3.17	3.15	3.23
		velocity	5.53	8.39	8.70	8.87	8.70	8.70	8.70	8.70	8.46	8.31	8.65	8.06		8.65	8.70	8.49

2023 USATF National Championshps (Eugene, OR) (TV Analysis)

FINAL

date 09-Jul-23 wind -0.2 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)		time	2.46	3.47	4.47	5.47	6.47	7.47	8.48	9.51	10.55	11.63		13.05	6 / 1			
reaction time		interval		1.01	1.00	1.00	1.00	1.00	1.01	1.03	1.04	1.08	1.42			3.01	3.01	3.15
		velocity	5.58	9.05	9.14	9.14	9.14	9.14	9.05	8.87	8.79	8.46	9.87	8.43		9.11	9.11	8.70
Tinch, Cordell (USA) (2000)		time	2.47	3.49	4.50	5.50	6.48	7.48	8.50	9.52	10.55	11.62		13.08	3 / 2			
reaction time		interval	7 steps	1.02	1.01	1.00	0.98	1.00	1.02	1.02	1.03	1.07	1.46			3.03	3.00	3.12
		velocity	5.55	8.96	9.05	9.14	9.33	9.14	8.96	8.96	8.87	8.54	9.60	8.41		9.05	9.14	8.79
Crittenden, Freddie (USA) (199		time	2.53	3.57	4.60	5.60	6.60	7.61	8.63	9.66	10.73	11.77		13.23	7 / 3			
reaction time		interval		1.04	1.03	1.00	1.00	1.01	1.02	1.03	1.07	1.04	1.46			3.07	3.03	3.14
		velocity	5.42	8.79	8.87	9.14	9.14	9.05	8.96	8.87	8.54	8.79	9.60	8.31		8.93	9.05	8.73
Edwards, Eric (USA) (2000)		time	2.53	3.58	4.60	5.60	6.62	7.65	8.68	9.71	10.75	11.81		13.26	1 / 4			
reaction time		interval		1.05	1.02	1.00	1.02	1.03	1.03	1.03	1.04	1.06	1.45			3.07	3.08	3.13
		velocity	5.42	8.70	8.96	9.14	8.96	8.87	8.87	8.87	8.79	8.62	9.67	8.30		8.93	8.90	8.76
Cunningham, Trey (USA) (199		time	2.51	3.56	4.57	5.58	6.60	7.62	8.66	9.70	10.76	11.82		13.29	4 / 5			
reaction time		interval	7 steps	1.05	1.01	1.01	1.02	1.02	1.04	1.04	1.06	1.06	1.47			3.07	3.08	3.16
		velocity	5.47	8.70	9.05	9.05	8.96	8.96	8.79	8.79	8.62	8.62	9.54	8.28		8.93	8.90	8.68
Britt, Jamal (USA) (1998)		time	2.52	3.57	4.60	5.62	6.64	7.66	8.69	9.72	10.76	11.84		13.31	8 / 6			
reaction time		interval	7 steps	1.05	1.03	1.02	1.02	1.02	1.03	1.03	1.04	1.08	1.47			3.10	3.07	3.15
		velocity	5.44	8.70	8.87	8.96	8.96	8.96	8.87	8.87	8.79	8.46	9.54	8.26		8.85	8.93	8.70
Dunning, Robert (USA) (1997)		time	2.53	3.59	4.60	5.62	6.64	7.67	8.71	9.75	10.81	11.89		13.40	2 / 7			
reaction time		interval	7 steps	1.06	1.01	1.02	1.02	1.03	1.04	1.04	1.06	1.08	1.51			3.09	3.09	3.18
		velocity	5.42	8.62	9.05	8.96	8.96	8.87	8.79	8.79	8.62	8.46	9.28	8.21		8.87	8.87	8.62

2023 Jamaican National Championships (Kingston, JAM) (TV Analysis)

FINAL

date 09-Jul-23 wind 0.7 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Broadbell, Rasheed (JAM) (200		time	2.50	3.55	4.55	5.53	6.53	7.53	8.50	9.50	10.48	11.48		12.94	3 / 1			
reaction time		interval	7 steps	1.05	1.00	0.98	1.00	1.00	0.97	1.00	0.98	1.00	1.46	PB		3.03	2.97	2.98
		velocity	5.49	8.70	9.14	9.33	9.14	9.14	9.42	9.14	9.33	9.14	9.60	8.50		9.05	9.23	9.20

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Parchment, Hansle (JAM) (199(	time	2.53	3.58	4.60	5.58	6.56	7.56	8.54	9.56	10.58	11.62		13.12	4 / 2			
reaction time	interval	7 steps	1.05	1.02	0.98	0.98	1.00	0.98	1.02	1.02	1.04	1.50			3.05	2.96	3.08
	velocity	5.42	8.70	8.96	9.33	9.33	9.14	9.33	8.96	8.96	8.79	9.35	8.38		8.99	9.26	8.90
Bennett, Orlando (JAM) (1999)	time	2.50	3.56	4.58	5.60	6.58	7.58	8.60	9.60	10.63	11.70		13.19	6 / 3			
reaction time	interval		1.06	1.02	1.02	0.98	1.00	1.02	1.00	1.03	1.07	1.49			3.10	3.00	3.10
	velocity	5.49	8.62	8.96	8.96	9.33	9.14	8.96	9.14	8.87	8.54	9.41	8.34		8.85	9.14	8.85
Mason, Tyler (JAM) (1995)	time	2.53	3.58	4.62	5.62	6.60	7.60	8.62	9.65	10.67	11.72		13.22	5 / 4			
reaction time	interval	7 steps	1.05	1.04	1.00	0.98	1.00	1.02	1.03	1.02	1.05	1.50			3.09	3.00	3.10
	velocity	5.42	8.70	8.79	9.14	9.33	9.14	8.96	8.87	8.96	8.70	9.35	8.32		8.87	9.14	8.85

2023 Athletissima (Lausanne, SUI)

FINAL date 30-Jun-23 wind -1.0 m/s *Omega Timing (2023) - diamond league race analysis*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000	time		2.33	3.40	4.42	5.45	6.46	7.47	8.50	9.55	10.60	11.67		13.22	4 / 1			
reaction time 0.101	interval	7 steps	1.07	1.02	1.03	1.01	1.01	1.03	1.05	1.05	1.07	1.55				3.12	3.05	3.17
	velocity		5.89	8.54	8.96	8.87	9.05	9.05	8.87	8.70	8.70	8.54	9.05	8.32		8.79	8.99	8.65
Joseph, Jason (SUI) (1998)	time		2.40	3.47	4.49	5.50	6.50	7.50	8.52	9.58	10.63	11.68		13.23	5 / 2			
reaction time 0.153	interval	7 steps	1.07	1.02	1.01	1.00	1.00	1.02	1.06	1.05	1.05	1.55				3.10	3.02	3.16
	velocity		5.72	8.54	8.96	9.05	9.14	9.14	8.96	8.62	8.70	8.70	9.05	8.31		8.85	9.08	8.68
Kwaou-Mathey, Just (FRA) (19	time		2.43	3.50	4.53	5.53	6.55	7.56	8.60	9.65	10.70	11.79		13.37	3 / 3			
reaction time 0.134	interval	7 steps	1.07	1.03	1.00	1.02	1.01	1.04	1.05	1.05	1.09	1.58				3.10	3.07	3.19
	velocity		5.65	8.54	8.87	9.14	8.96	9.05	8.79	8.70	8.70	8.39	8.87	8.23		8.85	8.93	8.60
Simonelli, Lorenzo Ndele (ITA)	time		2.39	3.46	4.50	5.53	6.57	7.60	8.64	9.68	10.74	11.82		13.41	1 / 4			
reaction time 0.136	interval	7 steps	1.07	1.04	1.03	1.04	1.03	1.04	1.04	1.06	1.08	1.59				3.14	3.11	3.18
	velocity		5.74	8.54	8.79	8.87	8.79	8.87	8.79	8.79	8.62	8.46	8.82	8.20		8.73	8.82	8.62
Llopis, Enrique (ESP) (2000)	time		2.44	3.52	4.54	5.56	6.57	7.59	8.62	9.67	10.74	11.82		13.43	7 / 5			
reaction time 0.135	interval	7 steps	1.08	1.02	1.02	1.01	1.02	1.03	1.05	1.07	1.08	1.61				3.12	3.06	3.20
	velocity		5.62	8.46	8.96	8.96	9.05	8.96	8.87	8.70	8.54	8.46	8.71	8.19		8.79	8.96	8.57
Pereira, Rafael (BRA) (1997)	time		2.43	3.50	4.55	5.58	6.61	7.64	8.69	9.75	10.83	11.92		13.56	2 / 6			
reaction time 0.153	interval			1.07	1.05	1.03	1.03	1.03	1.05	1.06	1.08	1.09	1.64			3.15	3.11	3.23
	velocity		5.65	8.54	8.70	8.87	8.87	8.87	8.70	8.62	8.46	8.39	8.55	8.11		8.70	8.82	8.49
Zeller, Joshua (GBR) (2000)	time		2.47	3.56	4.60	5.64	6.66	7.69	8.73	9.79	10.87	11.96		13.58	8 / 7			
reaction time 0.153	interval			1.09	1.04	1.04	1.02	1.03	1.04	1.06	1.08	1.09	1.62			3.17	3.09	3.23
	velocity		5.55	8.39	8.79	8.79	8.96	8.87	8.79	8.62	8.46	8.39	8.65	8.10		8.65	8.87	8.49

2023 Fuse Sprint (Tottori, JPN)

FINAL date 25-Jun-23 wind 1.1 m/s *Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nomoto, Syuusei (JPN) (1995)	time		2.53	3.58	4.64	5.66	6.69	7.71	8.76	9.80	10.84	11.90		13.28	7 / 1			
reaction time 0.148	interval	7 steps	1.05	1.06	1.02	1.03	1.02	1.05	1.04	1.04	1.06	1.38		**PB**		3.13	3.10	3.14
	velocity		5.42	8.70	8.62	8.96	8.87	8.96	8.70	8.79	8.79	8.62	10.16	8.28		8.76	8.85	8.73
Takayama, Shunya (JPN) (1994	time		2.54	3.55	4.58	5.59	6.62	7.63	8.68	9.73	10.79	11.86		13.28	4 / 2			
reaction time 0.136	interval			1.01	1.03	1.01	1.03	1.01	1.05	1.05	1.06	1.07	1.42			3.05	3.09	3.18
	velocity		5.40	9.05	8.87	9.05	8.87	9.05	8.70	8.70	8.62	8.54	9.87	8.28		8.99	8.87	8.62
Fujii, Ryota (JPN) (1996)	time		2.57	3.64	4.67	5.70	6.73	7.77	8.83	9.88	10.97	12.05		13.51	5 / 3			
reaction time 0.147	interval			1.07	1.03	1.03	1.03	1.04	1.06	1.05	1.09	1.08	1.46			3.13	3.13	3.22
	velocity		5.34	8.54	8.87	8.87	8.87	8.79	8.62	8.70	8.39	8.46	9.60	8.14		8.76	8.76	8.52
Ishida Thomas, Higashi (JPN) (	time		2.60	3.65	4.69	5.73	6.78	7.84	8.89	9.95	11.05	12.17		13.64	6 / 4			
reaction time 0.152	interval	7 steps	1.05	1.04	1.04	1.05	1.06	1.05	1.06	1.10	1.12	1.47				3.13	3.16	3.28
	velocity		5.28	8.70	8.79	8.79	8.70	8.62	8.70	8.62	8.31	8.16	9.54	8.06		8.76	8.68	8.36
Takahashi, Yusuke (JPN) (1996	time		2.62	3.70	4.78	5.84	6.92	7.98	9.05	10.15	11.25	12.41		13.84	9 / 5			
reaction time 0.128	interval			1.08	1.08	1.06	1.08	1.06	1.07	1.10	1.10	1.16	1.43			3.22	3.21	3.36
	velocity		5.24	8.46	8.46	8.62	8.46	8.62	8.54	8.31	8.31	7.88	9.80	7.95		8.52	8.54	8.16
Nishi, Kyohei (JPN) (1995)	time		2.66	3.77	4.85	5.95	7.03	8.11	9.20	10.31	11.40	12.49		13.98	2 / 6			
reaction time 0.179	interval			1.11	1.08	1.10	1.08	1.08	1.09	1.11	1.09	1.09	1.49			3.29	3.25	3.29
	velocity		5.16	8.23	8.46	8.31	8.46	8.46	8.39	8.23	8.39	8.39	9.41	7.87		8.33	8.44	8.33
Kani, Shota (JPN) (2000)	time		2.60	3.71	4.83	5.90	6.98	8.07	9.16	10.27	11.38	12.50		14.00	8 / 7			
reaction time 0.133	interval			1.11	1.12	1.07	1.08	1.09	1.09	1.11	1.11	1.12	1.50			3.30	3.26	3.34
	velocity		5.28	8.23	8.16	8.54	8.46	8.39	8.39	8.23	8.23	8.16	9.35	7.86		8.31	8.41	8.21

2023 USATF New York City Grand Prix (Randalls Island, NY) (TV Analysis)

FINAL

date 24-Jun-23 wind 1.6 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)		time	2.47	3.50	4.50	5.50	6.54	7.54	8.56	9.58	10.60	11.61		13.01	3 / 1			
	reaction time 0.159	interval		1.03	1.00	1.00	1.04	1.00	1.02	1.02	1.02	1.01	1.40			3.03	3.06	3.05
		velocity	5.55	8.87	9.14	9.14	8.79	9.14	8.96	8.96	8.96	9.05	10.01	8.46		9.05	8.96	8.99
Allen, Devon (USA) (1994)		time	2.57	3.62	4.64	5.62	6.61	7.61	8.61	9.62	10.64	11.66		13.04	5 / 2			
	reaction time 0.173	interval	7 steps	1.05	1.02	0.98	0.99	1.00	1.00	1.01	1.02	1.02	1.38			3.05	2.99	3.05
		velocity	5.34	8.70	8.96	9.33	9.23	9.14	9.14	9.05	8.96	8.96	10.16	8.44		8.99	9.17	8.99
Britt, Jamal (USA) (1998)		time	2.52	3.57	4.60	5.61	6.61	7.65	8.67	9.71	10.74	11.79		13.19	7 / 3			
	reaction time 0.169	interval	7 steps	1.05	1.03	1.01	1.00	1.04	1.02	1.04	1.03	1.05	1.40			3.09	3.06	3.12
		velocity	5.44	8.70	8.87	9.05	9.14	8.79	8.96	8.79	8.87	8.70	10.01	8.34		8.87	8.96	8.79
Edwards, Eric (USA) (2000)		time	2.50	3.54	4.59	5.61	6.62	7.64	8.67	9.71	10.76	11.83		13.23	8 / 4			
	reaction time 0.127	interval		1.04	1.05	1.02	1.01	1.02	1.03	1.04	1.05	1.07	1.40			3.11	3.06	3.16
		velocity	5.49	8.79	8.70	8.96	9.05	8.96	8.87	8.79	8.70	8.54	10.01	8.31		8.82	8.96	8.68
Dickson, Michael (USA) (1997)		time	2.53	3.59	4.61	5.63	6.64	7.67	8.71	9.74	10.78	11.85		13.26	1 / 5			
	reaction time 0.212	interval	7 steps	1.06	1.02	1.02	1.01	1.03	1.04	1.03	1.04	1.07	1.41			3.10	3.08	3.14
		velocity	5.42	8.62	8.96	8.96	9.05	8.87	8.79	8.87	8.79	8.54	9.94	8.30		8.85	8.90	8.73
Dunning, Robert (USA) (1997)		time	2.53	3.57	4.61	5.61	6.62	7.64	8.66	9.68	10.74	11.83		13.29	6 / 6			
	reaction time 0.181	interval	7 steps	1.04	1.04	1.00	1.01	1.02	1.02	1.02	1.06	1.09	1.46			3.08	3.05	3.17
		velocity	5.42	8.79	8.79	9.14	9.05	8.96	8.96	8.96	8.62	8.39	9.60	8.28		8.90	8.99	8.65
Bennett, Orlando (JAM) (1999)		time	2.58	3.64	4.67	5.70	6.72	7.74	8.76	9.79	10.84	11.91		13.34	2 / 7			
	reaction time 0.150	interval		1.06	1.03	1.03	1.02	1.02	1.02	1.03	1.05	1.07	1.43			3.12	3.06	3.15
		velocity	5.32	8.62	8.87	8.87	8.96	8.96	8.96	8.87	8.70	8.54	9.80	8.25		8.79	8.96	8.70
Thomas, Damion (JAM) (1999)		time	2.57	3.60	4.65	5.68	6.71	7.73	8.77	9.83	10.92	12.02		13.53	9 / 8			
	reaction time 0.163	interval	7 steps	1.03	1.05	1.03	1.03	1.02	1.04	1.06	1.09	1.10	1.51			3.11	3.09	3.25
		velocity	5.34	8.87	8.70	8.87	8.87	8.96	8.79	8.62	8.39	8.31	9.28	8.13		8.82	8.87	8.44
Cunningham, Trey (USA) (199		time	2.53	3.59	4.61	5.64	6.67	7.71	8.77	9.85	10.94	12.05		13.57	4 / 9			
	reaction time 0.157	interval	7 steps	1.06	1.02	1.03	1.03	1.04	1.06	1.08	1.09	1.11	1.52			3.11	3.13	3.28
		velocity	5.42	8.62	8.96	8.87	8.87	8.79	8.62	8.46	8.39	8.23	9.22	8.11		8.82	8.76	8.36

2023 Japanese Multi-Event National Championsips (Akita, JPN)

Decathlon - Heat 2

date 11-Jun-23 wind -0.1 m/s

Matsubayashi (2024) - performance analysis of decathlon athletes in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Maruyama, Yuma (JPN) (1998)		time	2.72	3.88	5.03	6.15	7.24	8.34	9.47	10.60	11.75	12.90		14.41	7 / 2			
	reaction time	interval		1.16	1.15	1.12	1.09	1.10	1.13	1.13	1.15	1.15	1.51			3.43	3.32	3.43
		velocity	5.04	7.88	7.95	8.16	8.39	8.31	8.09	8.09	7.95	7.95	9.28	7.63		7.99	8.26	7.99
Nakamura, Akihiko (JPN) (1990		time	2.81	3.97	5.13	6.27	7.40	8.54	9.70	10.86	12.04	13.22		14.73	9 / 4			
	reaction time	interval		1.16	1.16	1.14	1.13	1.14	1.16	1.16	1.18	1.18	1.51			3.46	3.43	3.52
		velocity	4.88	7.88	7.88	8.02	8.09	8.02	7.88	7.88	7.75	7.75	9.28	7.47		7.92	7.99	7.79
Taue, Shun (JPN) (1997)		time	2.85	4.00	5.21	6.39	7.55	8.74	9.93	11.13	12.34	13.62		15.27	6 / 6			
	reaction time	interval		1.15	1.21	1.18	1.16	1.19	1.19	1.20	1.21	1.28	1.65			3.54	3.54	3.69
		velocity	4.81	7.95	7.55	7.75	7.88	7.68	7.68	7.62	7.55	7.14	8.50	7.20		7.75	7.75	7.43

Decathlon - Heat 1

date 11-Jun-23 wind -1.6 m/s

Matsubayashi (2024) - performance analysis of decathlon athletes in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)		time	2.83	4.05	5.25	6.48	7.70	8.94	10.20	11.50	12.80	14.13		15.90	9 / 5			
	reaction time	interval		1.22	1.20	1.23	1.22	1.24	1.26	1.30	1.30	1.33	1.77			3.65	3.72	3.93
		velocity	4.85	7.49	7.62	7.43	7.49	7.37	7.25	7.03	7.03	6.87	7.92	6.92		7.51	7.37	6.98

2023 NCAA Championships (Austin, TX) (TV Analysis)

FINAL

date 09-Jun-23 wind 1.8 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Lemonious, Phillip (JAM) (199		time	2.50	3.54	4.57	5.57	6.60	7.61	8.65	9.69	10.72	11.76		13.24	5 / 1			
	reaction time	interval	7 steps	1.04	1.03	1.00	1.03	1.01	1.04	1.04	1.03	1.04	1.48			3.07	3.08	3.11
		velocity	5.49	8.79	8.87	9.14	8.87	9.05	8.79	8.79	8.87	8.79	9.47	8.31		8.93	8.90	8.82
Wilson, De'vion (USA) (2000)		time	2.50	3.57	4.60	5.64	6.64	7.64	8.65	9.69	10.72	11.78		13.26	2 / 2			
	reaction time	interval	7 steps	1.07	1.03	1.04	1.00	1.00	1.01	1.04	1.03	1.06	1.48	PB		3.14	3.01	3.13
		velocity	5.49	8.54	8.87	8.79	9.14	9.14	9.05	8.79	8.87	8.62	9.47	8.30		8.73	9.11	8.76
Hayles, Jaheem (JAM) (2001)		time	2.57	3.62	4.66	5.70	6.71	7.72	8.74	9.77	10.79	11.84		13.28	9 / 3			
	reaction time	interval		1.05	1.04	1.04	1.01	1.01	1.02	1.03	1.02	1.05	1.44	PB		3.13	3.04	3.10
		velocity	5.34	8.70	8.79	8.79	9.05	9.05	8.96	8.87	8.96	8.70	9.74	8.28		8.76	9.02	8.85

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Ojora, Tade (GBR) (1999)	time	2.57	3.63	4.65	5.67	6.69	7.71	8.74	9.77	10.80	11.86		13.29	3 / 4			
reaction time	interval	7 steps	1.06	1.02	1.02	1.02	1.02	1.03	1.03	1.03	1.06	1.43	PB		3.10	3.07	3.12
	velocity	5.34	8.62	8.96	8.96	8.96	8.96	8.87	8.87	8.87	8.62	9.80	8.28		8.85	8.93	8.79
Roberts, Giano (JAM) (2000)	time	2.50	3.57	4.60	5.63	6.64	7.68	8.72	9.77	10.80	11.83		13.31	7 / 5			
reaction time	interval		1.07	1.03	1.03	1.01	1.04	1.04	1.05	1.03	1.03	1.48	PB		3.13	3.09	3.11
	velocity	5.49	8.54	8.87	8.87	9.05	8.79	8.79	8.70	8.87	8.87	9.47	8.26		8.76	8.87	8.82
Luff, Darius (USA) (2001)	time	2.53	3.57	4.60	5.63	6.64	7.66	8.68	9.72	10.76	11.83		13.38	8 / 6			
reaction time	interval		1.04	1.03	1.03	1.01	1.02	1.02	1.04	1.04	1.07	1.55			3.10	3.05	3.15
	velocity	5.42	8.79	8.87	8.87	9.05	8.96	8.96	8.79	8.79	8.54	9.05	8.22		8.85	8.99	8.70
Shulman, Connor (USA) (2001	time	2.53	3.57	4.62	5.64	6.66	7.72	8.79	9.84	10.89	11.97		13.47	6 / 7			
reaction time	interval	7 steps	1.04	1.05	1.02	1.02	1.06	1.07	1.05	1.05	1.08	1.50			3.11	3.15	3.18
	velocity	5.42	8.79	8.70	8.96	8.96	8.62	8.54	8.70	8.70	8.46	9.35	8.17		8.82	8.70	8.62
Brown, Rasheem (CAY) (2000)	time	2.57	3.62	4.67	5.71	6.74	7.78	8.84	9.90	10.96	12.01		13.50	1 / 8			
reaction time	interval		1.05	1.05	1.04	1.03	1.04	1.06	1.06	1.06	1.05	1.49	PB		3.14	3.13	3.17
	velocity	5.34	8.70	8.70	8.79	8.87	8.79	8.62	8.62	8.62	8.70	9.41	8.15		8.73	8.76	8.65
Murray, Cameron (USA) (1999)	time	2.67											dnf	4 / --			
reaction time	interval	7 steps															
	velocity	5.14															

2023 Meeting de Paris (Paris, FRA)

FINAL

date 09-Jun-23 wind -0.5 m/s

Omega Timing (2023) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.30	3.30	4.28	5.25	6.24	7.23	8.24	9.26	10.30	11.36		12.98	6 / 1			
reaction time 0.157	interval	7 steps	1.00	0.98	0.97	0.99	0.99	1.01	1.02	1.04	1.06	1.62			2.95	2.99	3.12
	velocity	5.97	9.14	9.33	9.42	9.23	9.23	9.05	8.96	8.79	8.62	8.65	8.47		9.29	9.17	8.79
Kwaou-Mathey, Just (FRA) (19	time	2.40	3.45	4.45	5.43	6.43	7.43	8.44	9.46	10.50	11.55		13.09	7 / 2			
reaction time 0.171	interval	7 steps	1.05	1.00	0.98	1.00	1.00	1.01	1.02	1.04	1.05	1.54	PB		3.03	3.01	3.11
	velocity	5.72	8.70	9.14	9.33	9.14	9.14	9.05	8.96	8.79	8.70	9.10	8.40		9.05	9.11	8.82
Britt, Jamal (USA) (1998)	time	2.37	3.43	4.46	5.46	6.47	7.47	8.48	9.50	10.52	11.57		13.14	5 / 3			
reaction time 0.141	interval	7 steps	1.06	1.03	1.00	1.01	1.00	1.01	1.02	1.02	1.05	1.57			3.09	3.02	3.09
	velocity	5.79	8.62	8.87	9.14	9.05	9.14	9.05	8.96	8.96	8.70	8.93	8.37		8.87	9.08	8.87
Roberts, Daniel (USA) (1998)	time	2.30	3.34	4.34	5.34	6.35	7.39	8.42	9.46	10.49	11.54		13.14	4 / 3			
reaction time 0.154	interval		1.04	1.00	1.00	1.01	1.04	1.03	1.04	1.03	1.05	1.60			3.04	3.08	3.12
	velocity	5.97	8.79	9.14	9.14	9.05	8.79	8.87	8.79	8.87	8.70	8.76	8.37		9.02	8.90	8.79
Belocian, Wilhem (FRA (1995)	time	2.35	3.40	4.42	5.43	6.45	7.47	8.50	9.53	10.57	11.62		13.20	8 / 5			
reaction time 0.142	interval		1.05	1.02	1.01	1.02	1.02	1.03	1.03	1.04	1.05	1.58			3.08	3.07	3.12
	velocity	5.84	8.70	8.96	9.05	8.96	8.96	8.87	8.87	8.79	8.70	8.87	8.33		8.90	8.93	8.79
Crittenden, Freddie (USA) (199	time	2.37	3.43	4.46	5.48	6.49	7.52	8.55	9.58	10.62	11.68		13.26	2 / 6			
reaction time 0.136	interval		1.06	1.03	1.02	1.01	1.03	1.03	1.03	1.04	1.06	1.58			3.11	3.07	3.13
	velocity	5.79	8.62	8.87	8.96	9.05	8.87	8.87	8.87	8.79	8.62	8.87	8.30		8.82	8.93	8.76
Joseph, Jason (SUI) (1998)	time	2.43	3.47	4.49	5.49	6.50	7.51	8.53	9.56	10.61	11.67		13.29	3 / 7			
reaction time 0.195	interval	7 steps	1.04	1.02	1.00	1.01	1.01	1.02	1.03	1.05	1.06	1.62			3.06	3.04	3.14
	velocity	5.65	8.79	8.96	9.14	9.05	9.05	8.96	8.87	8.70	8.62	8.65	8.28		8.96	9.02	8.73
Edwards, Eric (USA) (2000)	time	2.32	3.39	4.42	5.45	6.48	7.51	8.55	9.58	10.65	11.72		13.32	1 / 8			
reaction time 0.130	interval		1.07	1.03	1.03	1.03	1.03	1.04	1.03	1.07	1.07	1.60			3.13	3.10	3.17
	velocity	5.91	8.54	8.87	8.87	8.87	8.87	8.79	8.87	8.54	8.54	8.76	8.26		8.76	8.85	8.65

Heat 2

date 09-Jun-23 wind -0.6 m/s

Omega Timing (2023) - diamond league race analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.30	3.30	4.30	5.30	6.30	7.30	8.30	9.40	10.40	11.50		13.20	6 / 1			
reaction time 0.147	interval	7 steps	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.00	1.10	1.70			3.00	3.00	3.20
	velocity	5.97	9.14	9.14	9.14	9.14	9.14	9.14	8.31	9.14	8.31	8.25	8.33		9.14	9.14	8.57
Britt, Jamal (USA) (1998)	time	2.37	3.42	4.45	5.46	6.47	7.49	8.53	9.56	10.61	11.66		13.21	4 / 2			
reaction time 0.136	interval	7 steps	1.05	1.03	1.01	1.01	1.02	1.04	1.03	1.05	1.05	1.55			3.09	3.07	3.13
	velocity	5.79	8.70	8.87	9.05	9.05	8.96	8.79	8.87	8.70	8.70	9.05	8.33		8.87	8.93	8.76
Kwaou-Mathey, Just (FRA) (19	time	2.40	3.46	4.47	5.47	6.47	7.48	8.51	9.55	10.61	11.67		13.25	5 / 3			
reaction time 0.171	interval	7 steps	1.06	1.01	1.00	1.00	1.01	1.03	1.04	1.06	1.06	1.58	PB		3.07	3.04	3.16
	velocity	5.72	8.62	9.05	9.14	9.14	9.05	8.87	8.79	8.62	8.62	8.87	8.30		8.93	9.02	8.68
Crittenden, Freddie (USA) (199	time	2.36	3.43	4.46	5.47	6.48	7.50	8.54	9.59	10.66	11.73		13.34	7 / 4			
reaction time 0.136	interval		1.07	1.03	1.01	1.01	1.02	1.04	1.05	1.07	1.07	1.61			3.11	3.07	3.19
	velocity	5.81	8.54	8.87	9.05	9.05	8.96	8.79	8.70	8.54	8.54	8.71	8.25		8.82	8.93	8.60

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Martinot-Lagarde, Pascal (FRA	time	2.42	3.49	4.52	5.56	6.59	7.63	8.68	9.73	10.79	11.85		13.45	3 / 5				
reaction time 0.156	interval	7 steps	1.07	1.03	1.04	1.03	1.04	1.05	1.05	1.06	1.06	1.60			3.14	3.12	3.17	
	velocity	5.67	8.54	8.87	8.79	8.87	8.79	8.70	8.70	8.62	8.62	8.76	8.18		8.73	8.79	8.65	
Alkana, Antonio (RSA) (1990)	time	2.39	3.46	4.50	5.52	6.54	7.57	8.62	9.69	10.78	11.88		13.52	2 / 6				
reaction time 0.114	interval		1.07	1.04	1.02	1.02	1.03	1.05	1.07	1.09	1.10	1.64			3.13	3.10	3.26	
	velocity	5.74	8.54	8.79	8.96	8.96	8.87	8.70	8.54	8.39	8.31	8.55	8.14		8.76	8.85	8.41	
Manga, Aurel (FRA) (1992)	time	2.41	3.48	4.52	5.55	6.58	7.61	8.67	9.76	10.84	11.92		13.55	1 / 7				
reaction time 0.163	interval	7 steps	1.07	1.04	1.03	1.03	1.03	1.06	1.09	1.08	1.08	1.63			3.14	3.12	3.25	
	velocity	5.69	8.54	8.79	8.87	8.87	8.87	8.62	8.39	8.46	8.46	8.60	8.12		8.73	8.79	8.44	
Pereira, Rafael (BRA) (1997)	time	2.42	3.48	4.52	5.55	6.56	7.61	8.65	9.72	10.81	11.90		13.57	8 / 8				
reaction time 0.149	interval		1.06	1.04	1.03	1.01	1.05	1.04	1.07	1.09	1.09	1.67			3.13	3.10	3.25	
	velocity	5.67	8.62	8.79	8.87	9.05	8.70	8.79	8.54	8.39	8.39	8.40	8.11		8.76	8.85	8.44	

Heat 1

date 09-Jun-23 wind -2.0 m/s

Omega Timing (2023) - diamond league race analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.32	3.39	4.42	5.45	6.48	7.51	8.54	9.58	10.63	11.71		13.32	3 / 1			
reaction time 0.153	interval		1.07	1.03	1.03	1.03	1.03	1.03	1.04	1.05	1.08	1.61			3.13	3.09	3.17	
	velocity	5.91	8.54	8.87	8.87	8.87	8.87	8.87	8.79	8.70	8.46	8.71	8.26		8.76	8.87	8.65	
Joseph, Jason (SUI) (1998)	time	2.47	3.54	4.57	5.59	6.60	7.62	8.65	9.68	10.71	11.78		13.36	4 / 2			
reaction time 0.201	interval	7 steps	1.07	1.03	1.02	1.01	1.02	1.03	1.03	1.03	1.07	1.58			3.12	3.06	3.13	
	velocity	5.55	8.54	8.87	8.96	9.05	8.96	8.87	8.87	8.87	8.54	8.87	8.23		8.79	8.96	8.76	
Belocian, Wilhem (FRA (1995)	time	2.36	3.43	4.46	5.49	6.52	7.56	8.60	9.64	10.70	11.78		13.37	6 / 3			
reaction time 0.129	interval		1.07	1.03	1.03	1.03	1.04	1.04	1.04	1.06	1.08	1.59			3.13	3.11	3.18	
	velocity	5.81	8.54	8.87	8.87	8.87	8.79	8.79	8.79	8.62	8.46	8.82	8.23		8.76	8.82	8.62	
Edwards, Eric (USA) (2000)	time	2.39	3.46	4.50	5.53	6.56	7.60	8.64	9.69	10.75	11.81		13.39	2 / 4			
reaction time 0.149	interval		1.07	1.04	1.03	1.03	1.04	1.04	1.05	1.06	1.06	1.58			3.14	3.11	3.17	
	velocity	5.74	8.54	8.79	8.87	8.87	8.79	8.79	8.70	8.62	8.62	8.87	8.22		8.73	8.82	8.65	
Iribarne, Roger (CUB) (1996)	time	2.37	3.44	4.47	5.50	6.53	7.58	8.62	9.68	10.75	11.84		13.44	7 / 5			
reaction time 0.152	interval	7 steps	1.07	1.03	1.03	1.03	1.05	1.04	1.06	1.07	1.09	1.60			3.13	3.12	3.22	
	velocity	5.79	8.54	8.87	8.87	8.87	8.70	8.79	8.62	8.54	8.39	8.76	8.18		8.76	8.79	8.52	
Mohamed, Raphael (FRA) (199	time	2.48	3.56	4.62	5.66	6.70	7.75	8.82	9.89	10.97	12.05		13.65	1 / 6			
reaction time 0.165	interval	7 steps	1.08	1.06	1.04	1.04	1.05	1.07	1.07	1.08	1.08	1.60			3.18	3.16	3.23	
	velocity	5.53	8.46	8.62	8.79	8.79	8.70	8.54	8.54	8.46	8.46	8.76	8.06		8.62	8.68	8.49	
Bascou, Dimitri (FRA) (1987)	time	2.43	3.49	4.54	5.58	6.61	7.65	8.69	9.74	10.85	11.98		13.66	8 / 7			
reaction time 0.162	interval	7 steps	1.06	1.05	1.04	1.03	1.04	1.04	1.05	1.11	1.13	1.68			3.15	3.11	3.29	
	velocity	5.65	8.62	8.70	8.79	8.87	8.79	8.79	8.70	8.23	8.09	8.35	8.05		8.70	8.82	8.33	
Allen, Devon (USA) (1994)	time	2.44	4.48										dnf	5 / --				
reaction time 0.140	interval	7 steps	2.04															
	velocity	5.62	4.48															

2023 FBK Games (Hengelo, NED) (TV Analysis)

FINAL

date 04-Jun-23 wind 0.4 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.53	3.53	4.51	5.49	6.45	7.43	8.45	9.47	10.53	11.60		13.03	6 / 1			
reaction time 0.187	interval	7 steps	1.00	0.98	0.98	0.96	0.98	1.02	1.02	1.06	1.07	1.43			2.96	2.96	3.15	
	velocity	5.42	9.14	9.33	9.33	9.52	9.33	8.96	8.96	8.62	8.54	9.80	8.44		9.26	9.26	8.70	
Allen, Devon (USA) (1994)	time	2.56	3.61	4.62	5.63	6.62	7.62	8.64	9.68	10.72	11.78		13.12	5 / 2			
reaction time 0.137	interval	7 steps	1.05	1.01	1.01	0.99	1.00	1.02	1.04	1.04	1.06	1.34			3.07	3.01	3.14	
	velocity	5.36	8.70	9.05	9.05	9.23	9.14	8.96	8.79	8.79	8.62	10.46	8.38		8.93	9.11	8.73	
Edwards, Eric (USA) (2000)	time	2.56	3.60	4.64	5.67	6.70	7.73	8.76	9.80	10.83	11.93		13.29	3 / 3			
reaction time 0.129	interval		1.04	1.04	1.03	1.03	1.03	1.03	1.04	1.03	1.10	1.36			3.11	3.09	3.17	
	velocity	5.36	8.79	8.79	8.87	8.87	8.87	8.87	8.79	8.87	8.31	10.31	8.28		8.82	8.87	8.65	
Crittenden, Freddie (USA) (199	time	2.60	3.65	4.70	5.72	6.74	7.76	8.78	9.80	10.86	11.95		13.33	4 / 4			
reaction time 0.145	interval		1.05	1.05	1.02	1.02	1.02	1.02	1.02	1.06	1.09	1.38			3.12	3.06	3.17	
	velocity	5.28	8.70	8.70	8.96	8.96	8.96	8.96	8.96	8.62	8.39	10.16	8.25		8.79	8.96	8.65	
Trajkovic, Milan (CYP) (1992)	time	2.58	3.63	4.68	5.70	6.72	7.75	8.78	9.83	10.93	12.03		13.44	2 / 5			
reaction time 0.117	interval	7 steps	1.05	1.05	1.02	1.02	1.03	1.03	1.05	1.10	1.10	1.41			3.12	3.08	3.25	
	velocity	5.32	8.70	8.70	8.96	8.96	8.87	8.87	8.70	8.31	8.31	9.94	8.18		8.79	8.90	8.44	
Rodriques, Eduardo (BRA) (19	time	2.65	3.74	4.77	5.78	6.79	7.81	8.83	9.93	10.98	12.10		13.51	7 / 6			
reaction time 0.149	interval	7 steps	1.09	1.03	1.01	1.01	1.02	1.02	1.10	1.05	1.12	1.41			3.13	3.05	3.27	

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	5.18	8.39	8.87	9.05	9.05	8.96	8.96	8.31	8.70	8.16	9.94	8.14		8.76	8.99	8.39
Manga, Aurel (FRA) (1992)		time	2.58	3.66	4.72	5.75	6.77	7.82	8.86	9.95	11.03	12.14		13.58	8 / 7			
reaction time	0.151	interval	7 steps	1.08	1.06	1.03	1.02	1.05	1.04	1.09	1.08	1.11	1.44			3.17	3.11	3.28
		velocity	5.32	8.46	8.62	8.87	8.96	8.70	8.79	8.39	8.46	8.23	9.74	8.10		8.65	8.82	8.36
Koster, Timme (NED) (2002)		time	2.73	3.83	4.93	5.97	7.00	8.06	9.13	10.20	11.27	12.36		13.78	1 / 8			
reaction time	0.157	interval		1.10	1.10	1.04	1.03	1.06	1.07	1.07	1.07	1.09	1.42			3.24	3.16	3.23
		velocity	5.03	8.31	8.31	8.79	8.87	8.62	8.54	8.54	8.54	8.39	9.87	7.98		8.46	8.68	8.49
Smet, Koen (NED) (1992)		time	2.65	3.73	4.80	5.87	6.96	8.03	9.13	10.20	11.33	12.40		13.85	9 / 9			
reaction time	0.147	interval		1.08	1.07	1.07	1.09	1.07	1.10	1.07	1.13	1.07	1.45			3.22	3.26	3.27
		velocity	5.18	8.46	8.54	8.54	8.39	8.54	8.31	8.54	8.09	8.54	9.67	7.94		8.52	8.41	8.39

2023 Japanese National Championsips (Osaka, JPN)

FINAL date 04-Jun-23 wind -0.9 m/s

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000		time	2.56	3.59	4.62	5.61	6.61	7.63	8.62	9.63	10.66	11.68		13.04	5 / 1			
reaction time	0.132	interval	7 steps	1.03	1.03	0.99	1.00	1.02	0.99	1.01	1.03	1.02	1.36	NR PB		3.05	3.01	3.06
		velocity	5.36	8.87	8.87	9.23	9.14	8.96	9.23	9.05	8.87	8.96	10.31	8.44		8.99	9.11	8.96
Takayama, Shunya (JPN) (1994		time	2.53	3.54	4.56	5.58	6.61	7.63	8.67	9.73	10.78	11.86		13.30	4 / 2			
reaction time	0.128	interval		1.01	1.02	1.02	1.03	1.02	1.04	1.06	1.05	1.08	1.44			3.05	3.09	3.19
		velocity	5.42	9.05	8.96	8.96	8.87	8.96	8.79	8.62	8.70	8.46	9.74	8.27		8.99	8.87	8.60
Yokochi, Taiga (JPN) (2000)		time	2.64	3.73	4.77	5.80	6.85	7.87	8.92	9.97	11.03	12.10		13.51	8 / 3			
reaction time	0.177	interval	7 steps	1.09	1.04	1.03	1.05	1.02	1.05	1.05	1.06	1.07	1.41			3.16	3.12	3.18
		velocity	5.20	8.39	8.79	8.87	8.70	8.96	8.70	8.70	8.62	8.54	9.94	8.14		8.68	8.79	8.62
Ishikawa, Shuhei (JPN) (1995)		time	2.60	3.66	4.69	5.73	6.77	7.81	8.85	9.90	10.99	12.10		13.60	6 / 4			
reaction time	0.172	interval	7 steps	1.06	1.03	1.04	1.04	1.04	1.04	1.05	1.09	1.11	1.50			3.13	3.12	3.25
		velocity	5.28	8.62	8.87	8.79	8.79	8.79	8.79	8.70	8.39	8.23	9.35	8.09		8.76	8.79	8.44
Fujii, Ryota (JPN) (1996)		time	2.62	3.67	4.70	5.72	6.75	7.80	8.84	9.91	10.99	12.10		13.61	9 / 5			
reaction time	0.169	interval		1.05	1.03	1.02	1.03	1.05	1.04	1.07	1.08	1.11	1.51			3.10	3.12	3.26
		velocity	5.24	8.70	8.87	8.96	8.87	8.70	8.79	8.54	8.46	8.23	9.28	8.08		8.85	8.79	8.41
Miyazaki, Takumi (JPN) (2001)		time	2.61	3.69	4.76	5.82	6.88	7.96	9.05	10.15	11.27	12.40		13.88	2 / 6			
reaction time	0.157	interval		1.08	1.07	1.06	1.06	1.08	1.09	1.10	1.12	1.13	1.48			3.21	3.23	3.35
		velocity	5.26	8.46	8.54	8.62	8.62	8.46	8.39	8.31	8.16	8.09	9.47	7.93		8.54	8.49	8.19

2023 Golden Gala Pietro Mennea (Firenze, ITA) (TV Analysis)

FINAL date 02-Jun-23 wind -0.2 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.45	3.46	4.44	5.42	6.40	7.41	8.42	9.45	10.51	11.59		13.04	6 / 1			
reaction time	0.152	interval	7 steps	1.01	0.98	0.98	0.98	1.01	1.01	1.03	1.06	1.08	1.45			2.97	3.00	3.17
		velocity	5.60	9.05	9.33	9.33	9.33	9.05	9.05	8.87	8.62	8.46	9.67	8.44		9.23	9.14	8.65
Joseph, Jason (SUI) (1998)		time	2.53	3.56	4.54	5.52	6.54	7.54	8.54	9.57	10.60	11.66		13.10	3 / 2			
reaction time	0.164	interval	7 steps	1.03	0.98	0.98	1.02	1.00	1.00	1.03	1.03	1.06	1.44	NR		2.99	3.02	3.12
		velocity	5.42	8.87	9.33	9.33	8.96	9.14	9.14	8.87	8.87	8.62	9.74	8.40		9.17	9.08	8.79
Allen, Devon (USA) (1994)		time	2.56	3.61	4.65	5.65	6.65	7.65	8.66	9.68	10.72	11.76		13.19	5 / 3			
reaction time	0.136	interval	7 steps	1.05	1.04	1.00	1.00	1.00	1.01	1.02	1.04	1.04	1.43			3.09	3.01	3.10
		velocity	5.36	8.70	8.79	9.14	9.14	9.14	9.05	8.96	8.79	8.79	9.80	8.34		8.87	9.11	8.85
Britt, Jamal (USA) (1998)		time	2.48	3.56	4.54	5.56	6.60	7.62	8.65	9.72	10.77	11.83		13.26	7 / 4			
reaction time	0.134	interval	7 steps	1.08	0.98	1.02	1.04	1.02	1.03	1.07	1.05	1.06	1.43			3.08	3.09	3.18
		velocity	5.53	8.46	9.33	8.96	8.79	8.96	8.87	8.54	8.70	8.62	9.80	8.30		8.90	8.87	8.62
Kwaou-Mathey, Just (FRA) (19		time	2.54	3.57	4.60	5.63	6.63	7.66	8.68	9.74	10.78	11.84		13.35	1 / 5			
reaction time	0.161	interval	7 steps	1.03	1.03	1.03	1.00	1.03	1.02	1.06	1.04	1.06	1.51			3.09	3.05	3.16
		velocity	5.40	8.87	8.87	8.87	9.14	8.87	8.96	8.62	8.79	8.62	9.28	8.24		8.87	8.99	8.68
Crittenden, Freddie (USA) (19		time	2.54	3.57	4.58	5.60	6.62	7.66	8.68	9.74	10.80	11.90		13.38	4 / 6			
reaction time	0.132	interval		1.03	1.01	1.02	1.02	1.04	1.02	1.06	1.06	1.10	1.48			3.06	3.08	3.22
		velocity	5.40	8.87	9.05	8.96	8.96	8.79	8.96	8.62	8.62	8.31	9.47	8.22		8.96	8.90	8.52
Pereira, Rafael (BRA) (1997)		time	2.54	3.58	4.64	5.64	6.66	7.70	8.74	9.82	10.88	11.97		13.47	2 / 7			
reaction time	0.145	interval		1.04	1.06	1.00	1.02	1.04	1.04	1.08	1.06	1.09	1.50			3.10	3.10	3.23
		velocity	5.40	8.79	8.62	9.14	8.96	8.79	8.79	8.46	8.62	8.39	9.35	8.17		8.85	8.85	8.49
Simonelli, Lorenzo Ndele (ITA)		time	2.54	3.58	4.66	5.74	6.78	7.84	8.86	9.92	11.00	12.10		13.57	8 / 8			
reaction time	0.153	interval	7 steps	1.04	1.08	1.08	1.04	1.06	1.02	1.06	1.08	1.10	1.47	PB		3.20	3.12	3.24
		velocity	5.40	8.79	8.46	8.46	8.79	8.62	8.96	8.62	8.46	8.31	9.54	8.11		8.57	8.79	8.46

2023 Meeting International Mohammed VI d'Athlétisme (Rabat, MAR)

FINAL date 28-May-23 wind -1.3 m/s *Omega Timing (2023) - diamond league race analysis*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Broadbell, Rasheed (JAM) (200		time	2.41	3.46	4.47	5.48	6.49	7.50	8.51	9.51	10.53	11.55		13.08	5 / 1			
reaction time 0.161		interval	7 steps	1.05	1.01	1.01	1.01	1.01	1.01	1.00	1.02	1.02	1.53			3.07	3.03	3.04
		velocity	5.69	8.70	9.05	9.05	9.05	9.05	9.05	9.14	8.96	8.96	9.16	8.41		8.93	9.05	9.02
Holloway, Grant (USA) (1997)		time	2.35	3.36	4.34	5.33	6.32	7.34	8.36	9.40	10.45	11.52		13.12	6 / 2			
reaction time 0.177		interval	7 steps	1.01	0.98	0.99	0.99	1.02	1.02	1.04	1.05	1.07	1.60			2.98	3.03	3.16
		velocity	5.84	9.05	9.33	9.23	9.23	8.96	8.96	8.79	8.70	8.54	8.76	8.38		9.20	9.05	8.68
Parchment, Hansle (JAM) (199(		time	2.48	3.52	4.52	5.53	6.52	7.52	8.53	9.55	10.58	11.65		13.24	4 / 3			
reaction time 0.157		interval	7 steps	1.04	1.00	1.01	0.99	1.00	1.01	1.02	1.03	1.07	1.59			3.05	3.00	3.12
		velocity	5.53	8.79	9.14	9.05	9.23	9.14	9.05	8.96	8.87	8.54	8.82	8.31		8.99	9.14	8.79
Allen, Devon (USA) (1994)		time	2.38	3.45	4.47	5.48	6.49	7.51	8.54	9.57	10.62	11.68		13.25	3 / 4			
reaction time 0.152		interval	7 steps	1.07	1.02	1.01	1.01	1.02	1.03	1.03	1.05	1.06	1.57			3.10	3.06	3.14
		velocity	5.76	8.54	8.96	9.05	9.05	8.96	8.87	8.87	8.70	8.62	8.93	8.30		8.85	8.96	8.73
Crittenden, Freddie (USA) (199		time	2.39	3.44	4.49	5.52	6.55	7.57	8.62	9.67	10.73	11.80		13.43	7 / 5			
reaction time 0.166		interval		1.05	1.05	1.03	1.03	1.02	1.05	1.05	1.06	1.07	1.63			3.13	3.10	3.18
		velocity	5.74	8.70	8.70	8.87	8.87	8.96	8.70	8.70	8.62	8.54	8.60	8.19		8.76	8.85	8.62
Pereira, Rafael (BRA) (1997)		time	2.43	3.52	4.57	5.62	6.66	7.70	8.77	9.82	10.90	12.01		13.68	8 / 6			
reaction time 0.165		interval		1.09	1.05	1.05	1.04	1.04	1.07	1.05	1.08	1.11	1.67			3.19	3.15	3.24
		velocity	5.65	8.39	8.70	8.70	8.79	8.79	8.54	8.70	8.46	8.23	8.40	8.04		8.60	8.70	8.46
Martinot-Lagarde, Pascal (FRA		time	2.45	3.53	4.57	5.64	6.68	7.75	8.82	9.89	10.97	12.07		13.69	2 / 7			
reaction time 0.183		interval	7 steps	1.08	1.04	1.07	1.04	1.07	1.07	1.07	1.08	1.10	1.62			3.19	3.18	3.25
		velocity	5.60	8.46	8.79	8.54	8.79	8.54	8.54	8.54	8.46	8.31	8.65	8.04		8.60	8.62	8.44
Koussi, Mohamed (MAR) (199		time	2.42	3.49	4.53	5.59	6.64	7.71	8.78	9.85	10.92	12.02		13.70	1 / 8			
reaction time 0.141		interval		1.07	1.04	1.06	1.05	1.07	1.07	1.07	1.07	1.10	1.68			3.17	3.19	3.24
		velocity	5.67	8.54	8.79	8.62	8.70	8.54	8.54	8.54	8.54	8.31	8.35	8.03		8.65	8.60	8.46
Czykier, Damian (POL) (1992)		time	2.48	3.56	4.62	5.67	6.73	7.79	8.86	9.94	11.02	12.14		13.83	9 / 9			
reaction time 0.193		interval	7 steps	1.08	1.06	1.05	1.06	1.06	1.07	1.08	1.08	1.12	1.69			3.19	3.19	3.28
		velocity	5.53	8.46	8.62	8.70	8.62	8.62	8.54	8.46	8.46	8.16	8.30	7.95		8.60	8.60	8.36

2023 Shimane High School Championships (Izumo, JPN)

FINAL date 28-May-23 wind -0.1 m/s *Shimizu (2023) - shimane high school championships 2023 - biomechanics data analysis*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shinagawa, Yuto (JPN) (2005)	time	2.85	4.05	5.27	6.45	7.68	8.92	10.15	11.40	12.63	13.90		15.55	3 / 1			
reaction time	interval		1.20	1.22	1.18	1.23	1.24	1.23	1.25	1.23	1.27	1.65			3.60	3.70	3.75
	velocity	4.81	7.62	7.49	7.75	7.43	7.37	7.43	7.31	7.43	7.20	8.50	7.07		7.62	7.41	7.31
Takahashi, Yoshihito (JPN)	time	2.83	4.17	5.47	6.78	8.07	9.42	10.72	12.00	13.30	14.58		16.26	8 / 2			
reaction time	interval		1.34	1.30	1.31	1.29	1.35	1.30	1.28	1.30	1.28	1.68			3.95	3.94	3.86
	velocity	4.85	6.82	7.03	6.98	7.09	6.77	7.03	7.14	7.03	7.14	8.35	6.77		6.94	6.96	7.10
Sato, Ushio (JPN)	time	2.82	4.12	5.40	6.70	7.98	9.30	10.60	11.93	13.28	14.65		16.36	5 / 3			
reaction time	interval		1.30	1.28	1.30	1.28	1.32	1.30	1.33	1.35	1.37	1.71			3.88	3.90	4.05
	velocity	4.87	7.03	7.14	7.03	7.14	6.92	7.03	6.87	6.77	6.67	8.20	6.72		7.07	7.03	6.77
Ueda, Koki (JPN) (2007)	time	2.83	4.12	5.38	6.68	7.98	9.32	10.65	12.03	13.42	14.65		16.53	7 / 4			
reaction time	interval		1.29	1.26	1.30	1.30	1.34	1.33	1.38	1.39	1.23	1.88			3.85	3.97	4.00
	velocity	4.85	7.09	7.25	7.03	7.03	6.82	6.87	6.62	6.58	7.43	7.46	6.65		7.12	6.91	6.86
Yano, Hisho (JPN)	time	2.93	4.27	5.58	6.88	8.22	9.57	10.90	12.23	13.58	14.93		16.65	6 / 5			
reaction time	interval		1.34	1.31	1.30	1.34	1.35	1.33	1.33	1.35	1.35	1.72			3.95	4.02	4.03
	velocity	4.68	6.82	6.98	7.03	6.82	6.77	6.87	6.87	6.77	6.77	8.15	6.61		6.94	6.82	6.80
Teramoto, Soya (JPN)	time	2.85	4.13	5.42	6.72	8.02	9.33	10.65	12.00	13.42	14.82		16.72	4 / 6			
reaction time	interval		1.28	1.29	1.30	1.30	1.31	1.32	1.35	1.42	1.40	1.90			3.87	3.93	4.17
	velocity	4.81	7.14	7.09	7.03	7.03	6.98	6.92	6.77	6.44	6.53	7.38	6.58		7.09	6.98	6.58
Inoue, Tetsuya (JPN)	time	3.15	4.62	6.03	7.40	8.82	10.23	11.62	13.07	14.45	15.92		17.74	1 / 7			
reaction time	interval		1.47	1.41	1.37	1.42	1.41	1.39	1.45	1.38	1.47	1.82			4.25	4.22	4.30
	velocity	4.36	6.22	6.48	6.67	6.44	6.48	6.58	6.30	6.62	6.22	7.70	6.20		6.45	6.50	6.38

2023 NCAA Division II National Championships (Pueblo, CO) *(Altitude)* (TV Analysis)

FINAL date 27-May-23 wind 6.0 m/s *Henson (2023) - Athlete First: 2023 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tinch, Cordell (USA) (2000)	time	2.50	3.50	4.50	5.48	6.46	7.44	8.41	9.43	10.43	11.46		12.87	5 / 1			

reaction time	interval	7 steps	1.00	1.00	0.98	0.98	0.98	0.97	1.02	1.00	1.03	1.41			2.98	2.93	3.05
	velocity	5.49	9.14	9.14	9.33	9.33	9.33	9.42	8.96	9.14	8.87	9.94	8.55		9.20	9.36	8.99

2023 Trackwired Arkansas Grand Prix (Fayetteville, AR) (TV Analysis)

FINAL date 23-May-23 wind 1.3 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tinch, Cordell (USA) (2000)	time		2.46	3.50	4.50	5.50	6.48	7.46	8.43	9.47	10.47	11.49		12.96	5 / 1			
reaction time	interval	7 steps	1.04	1.00	1.00	0.98	0.98	0.97	1.04	1.00	1.02	1.47		PB		3.04	2.93	3.06
	velocity		5.58	8.79	9.14	9.14	9.33	9.33	9.42	8.79	9.14	8.96	9.54	8.49		9.02	9.36	8.96
Ojora, Tade (GBR) (1999)	time		2.58	3.65	4.67	5.69	6.69	7.69	8.67	9.70	10.76	11.82		13.26	6 / 2			
reaction time	interval	7 steps	1.07	1.02	1.02	1.00	1.00	0.98	1.03	1.06	1.06	1.44		PB		3.11	2.98	3.15
	velocity		5.32	8.54	8.96	8.96	9.14	9.14	9.33	8.87	8.62	8.62	9.74	8.30		8.82	9.20	8.70

2023 USATF Bermuda Grand Prix (Devonshire, BER) (TV Analysis)

FINAL date 21-May-23 wind 4.0 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Britt, Jamal (USA) (1998)	time		2.50	3.52	4.53	5.53	6.52	7.52	8.53	9.55	10.60	11.65		12.99	6 / 1			
reaction time 0.124	interval	7 steps	1.02	1.01	1.00	0.99	1.00	1.01	1.02	1.05	1.05	1.34				3.03	3.00	3.12
	velocity		5.49	8.96	9.05	9.14	9.23	9.14	9.05	8.96	8.70	8.70	10.46	8.47		9.05	9.14	8.79
Edwards, Eric (USA) (2000)	time		2.53	3.56	4.56	5.56	6.56	7.56	8.56	9.60	10.64	11.70		13.07	2 / 2			
reaction time 0.122	interval			1.03	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.06	1.37			3.03	3.00	3.14
	velocity		5.42	8.87	9.14	9.14	9.14	9.14	9.14	8.79	8.79	8.62	10.23	8.42		9.05	9.14	8.73
Crittenden, Freddie (USA) (199	time		2.60	3.65	4.67	5.66	6.66	7.66	8.67	9.68	10.71	11.74		13.13	4 / 3			
reaction time 0.162	interval			1.05	1.02	0.99	1.00	1.00	1.01	1.01	1.03	1.03	1.39			3.06	3.01	3.07
	velocity		5.28	8.70	8.96	9.23	9.14	9.14	9.05	9.05	8.87	8.87	10.09	8.38		8.96	9.11	8.93
Mason, Tyler (JAM) (1995)	time		2.56	3.66	4.67	5.66	6.66	7.66	8.68	9.72	10.75	11.86		13.30	3 / 4			
reaction time 0.155	interval	7 steps	1.10	1.01	0.99	1.00	1.00	1.02	1.04	1.03	1.11	1.44				3.10	3.02	3.18
	velocity		5.36	8.31	9.05	9.23	9.14	9.14	8.96	8.79	8.87	8.23	9.74	8.27		8.85	9.08	8.62
Thomas, Damion (JAM) (1999)	time		2.63	3.67	4.70	5.70	6.72	7.73	8.75	9.82	10.87	11.93		13.38	8 / 5			
reaction time 0.166	interval	7 steps	1.04	1.03	1.00	1.02	1.01	1.02	1.07	1.05	1.06	1.45				3.07	3.05	3.18
	velocity		5.22	8.79	8.87	9.14	8.96	9.05	8.96	8.54	8.70	8.62	9.67	8.22		8.93	8.99	8.62
Dickson, Michael (USA) (1997)	time		2.56	3.69	4.73	5.76	6.82	7.87	8.90	9.93	11.02	12.06		13.48	7 / 6			
reaction time 0.190	interval	7 steps	1.13	1.04	1.03	1.06	1.05	1.03	1.03	1.09	1.04	1.42				3.20	3.14	3.16
	velocity		5.36	8.09	8.79	8.87	8.62	8.70	8.87	8.87	8.39	8.79	9.87	8.16		8.57	8.73	8.68
Rollins, Louis (USA) (1996)	time		2.60	3.70	4.75	5.83	6.87	7.92	8.97	10.04	11.13	12.25		13.67	1 / 7			
reaction time 0.179	interval			1.10	1.05	1.08	1.04	1.05	1.05	1.07	1.09	1.12	1.42			3.23	3.14	3.28
	velocity		5.28	8.31	8.70	8.46	8.79	8.70	8.70	8.54	8.39	8.16	9.87	8.05		8.49	8.73	8.36
Dunning, Robert (USA) (1997)	time		2.56	3.62	4.63	5.63	6.66	7.66	8.68	9.76	10.83	12.00		22.28	5 / 8			
reaction time 0.152	interval	7 steps	1.06	1.01	1.00	1.03	1.00	1.02	1.08	1.07	1.17	10.28				3.07	3.05	3.32
	velocity		5.36	8.62	9.05	9.14	8.87	9.14	8.96	8.46	8.54	7.81	1.36	4.94		8.93	8.99	8.26

2023 Seiko Golden Grand Prix (Yokohama, JPN)

FINAL date 21-May-23 wind 0.8 m/s

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000	time		2.53	3.58	4.58	5.58	6.60	7.61	8.63	9.64	10.67	11.72		13.07	6 / 1			
reaction time 0.125	interval	7 steps	1.05	1.00	1.00	1.02	1.01	1.02	1.01	1.03	1.05	1.35				3.05	3.05	3.09
	velocity		5.42	8.70	9.14	9.14	8.96	9.05	8.96	9.05	8.87	8.70	10.39	8.42		8.99	8.99	8.87
Takayama, Shunya (JPN) (1994	time		2.56	3.60	4.60	5.62	6.64	7.65	8.69	9.72	10.76	11.83		13.25	5 / 2			
reaction time 0.144	interval			1.04	1.00	1.02	1.02	1.01	1.04	1.03	1.04	1.07	1.42			3.06	3.07	3.14
	velocity		5.36	8.79	9.14	8.96	8.96	9.05	8.79	8.87	8.79	8.54	9.87	8.30		8.96	8.93	8.73
Ishikawa, Shuhei (JPN) (1995)	time		2.56	3.61	4.63	5.65	6.68	7.72	8.75	9.80	10.86	11.95		13.36	7 / 3			
reaction time 0.129	interval	7 steps	1.05	1.02	1.02	1.03	1.04	1.03	1.05	1.06	1.09	1.41		PB		3.09	3.10	3.20
	velocity		5.36	8.70	8.96	8.96	8.87	8.79	8.87	8.70	8.62	8.39	9.94	8.23		8.87	8.85	8.57
Iribarne, Roger (CUB) (1996)	time		2.53	3.57	4.60	5.60	6.62	7.64	8.68	9.76	10.84	11.93		13.37	4 / 4			
reaction time 0.151	interval	7 steps	1.04	1.03	1.00	1.02	1.02	1.04	1.08	1.08	1.09	1.44				3.07	3.08	3.25
	velocity		5.42	8.79	8.87	9.14	8.96	8.96	8.79	8.46	8.46	8.39	9.74	8.23		8.93	8.90	8.44
Ishida Thomas, Higashi (JPN) (	time		2.60	3.65	4.68	5.70	6.73	7.76	8.81	9.86	10.93	12.02		13.42	3 / 5			
reaction time 0.136	interval	7 steps	1.05	1.03	1.02	1.03	1.03	1.05	1.05	1.07	1.09	1.40		PB		3.10	3.11	3.21
	velocity		5.28	8.70	8.87	8.96	8.87	8.87	8.70	8.70	8.54	8.39	10.01	8.20		8.85	8.82	8.54
Yokochi, Taiga (JPN) (2000)	time		2.63	3.73	4.75	5.76	6.80	7.82	8.83	9.90	10.97	12.05		13.46	1 / 6			
reaction time 0.156	interval	7 steps	1.10	1.02	1.01	1.04	1.02	1.01	1.07	1.07	1.08	1.41				3.13	3.07	3.22
	velocity		5.22	8.31	8.96	9.05	8.79	8.96	9.05	8.54	8.54	8.46	9.94	8.17		8.76	8.93	8.52

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

McCorry, Jacob (AUS) (1997)		time	2.60	3.67	4.70	5.74	6.78	7.81	8.86	9.93	10.99	12.06		13.48	9 / 7			
reaction time	0.117	interval	7 steps	1.07	1.03	1.04	1.04	1.03	1.05	1.07	1.06	1.07	1.42	PB		3.14	3.12	3.20
		velocity	5.28	8.54	8.87	8.79	8.79	8.87	8.70	8.54	8.62	8.54	9.87	8.16		8.73	8.79	8.57
Chen Kuei-Ru (TPE) (1993)		time	2.60	3.66	4.68	5.70	6.73	7.76	8.82	9.88	10.97	12.07		13.56	8 / 8			
reaction time	0.160	interval	7 steps	1.06	1.02	1.02	1.03	1.03	1.06	1.06	1.09	1.10	1.49			3.10	3.12	3.25
		velocity	5.28	8.62	8.96	8.96	8.87	8.87	8.62	8.62	8.39	8.31	9.41	8.11		8.85	8.79	8.44
Tokuoka, Ryo (JPN) (1999)		time	2.63	3.70	4.76	5.82	6.87	7.91	8.98	10.05	11.13	12.25		13.99	2 / 9			
reaction time	0.145	interval	7 steps	1.07	1.06	1.06	1.05	1.04	1.07	1.07	1.08	1.12	1.74			3.19	3.16	3.27
		velocity	5.22	8.54	8.62	8.62	8.70	8.79	8.54	8.54	8.46	8.16	8.06	7.86		8.60	8.68	8.39

2023 MIAA Championships (Jefferson City, MO) (TV Analysis)

FINAL

date 07-May-23 wind 3.0 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tinch, Cordell (USA) (2000)		time	2.40	3.40	4.40	5.37	6.34	7.31	8.34	9.34	10.36	11.40		12.97	4 / 1			
reaction time		interval	7 steps	1.00	1.00	0.97	0.97	0.97	1.03	1.00	1.02	1.04	1.57			2.97	2.97	3.06
		velocity	5.72	9.14	9.14	9.42	9.42	9.42	8.87	9.14	8.96	8.79	8.93	8.48		9.23	9.23	8.96

2023 Michitaka Kinami Memorial (Osaka, JPN)

Decathlon - Heat 2

date 08-May-23 wind -0.2 m/s

Matsubayashi (2024) - performance analysis of decathlon athletes in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Taue, Shun (JPN) (1997)		time	2.72	3.86	4.96	6.07	7.17	8.28	9.38	10.50	11.62	12.78		14.26	8 / 1			
reaction time	0.161	interval		1.14	1.10	1.11	1.10	1.11	1.10	1.12	1.12	1.16	1.48			3.35	3.31	3.40
		velocity	5.04	8.02	8.31	8.23	8.31	8.23	8.31	8.16	8.16	7.88	9.47	7.71		8.19	8.28	8.06

Decathlon - Heat 1

date 08-May-23 wind 0.1 m/s

Matsubayashi (2024) - performance analysis of decathlon athletes in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)		time	2.79	4.00	5.19	6.41	7.65	8.87	10.11	11.37	12.66	13.97		15.75	8 / 5			
reaction time	0.180	interval		1.21	1.19	1.22	1.24	1.22	1.24	1.26	1.29	1.31	1.78			3.62	3.70	3.86
		velocity	4.92	7.55	7.68	7.49	7.37	7.49	7.37	7.25	7.09	6.98	7.88	6.98		7.57	7.41	7.10

FINAL

date 07-May-23 wind -0.3 m/s

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000		time	2.61	3.65	4.68	5.70	6.71	7.71	8.77	9.78	10.84	11.91		13.25	6 / 1			
reaction time	0.138	interval	7 steps	1.04	1.03	1.02	1.01	1.00	1.06	1.01	1.06	1.07	1.34			3.09	3.07	3.14
		velocity	5.26	8.79	8.87	8.96	9.05	9.14	8.62	9.05	8.62	8.54	10.46	8.30		8.87	8.93	8.73
Ishikawa, Shuhei (JPN) (1995)		time	2.58	3.63	4.67	5.70	6.73	7.77	8.81	9.85	10.91	11.99		13.44	7 / 2			
reaction time	0.149	interval	7 steps	1.05	1.04	1.03	1.03	1.04	1.04	1.04	1.06	1.08	1.45			3.12	3.11	3.18
		velocity	5.32	8.70	8.79	8.87	8.87	8.79	8.79	8.79	8.62	8.46	9.67	8.18		8.79	8.82	8.62
Ishida Thomas, Higashi (JPN) (		time	2.59	3.63	4.67	5.69	6.72	7.75	8.81	9.86	10.94	12.02		13.46	2 / 3			
reaction time	0.142	interval	7 steps	1.04	1.04	1.02	1.03	1.03	1.06	1.05	1.08	1.08	1.44			3.10	3.12	3.21
		velocity	5.30	8.79	8.79	8.96	8.87	8.87	8.62	8.70	8.46	8.46	9.74	8.17		8.85	8.79	8.54
Yokochi, Taiga (JPN) (2000)		time	2.66	3.79	4.85	5.90	6.93	7.97	9.02	10.07	11.13	12.21		13.60	9 / 4			
reaction time	0.158	interval	7 steps	1.13	1.06	1.05	1.03	1.04	1.05	1.05	1.06	1.08	1.39			3.24	3.12	3.19
		velocity	5.16	8.09	8.62	8.70	8.87	8.79	8.70	8.70	8.62	8.46	10.09	8.09		8.46	8.79	8.60
Tokuoka, Ryo (JPN) (1999)		time	2.65	3.73	4.77	5.81	6.86	7.92	8.98	10.03	11.11	12.20		13.63	3 / 5			
reaction time	0.168	interval	7 steps	1.08	1.04	1.04	1.05	1.06	1.06	1.05	1.08	1.09	1.43			3.16	3.17	3.22
		velocity	5.18	8.46	8.79	8.79	8.70	8.62	8.62	8.70	8.46	8.39	9.80	8.07		8.68	8.65	8.52
Fujii, Ryota (JPN) (1996)		time	2.59	3.65	4.72	5.77	6.81	7.88	8.94	10.00	11.09	12.19		13.65	5 / 6			
reaction time	0.143	interval		1.06	1.07	1.05	1.04	1.07	1.06	1.06	1.09	1.10	1.46			3.18	3.17	3.25
		velocity	5.30	8.62	8.54	8.70	8.79	8.54	8.62	8.62	8.39	8.31	9.60	8.06		8.62	8.65	8.44
McCorry, Jacob (AUS) (1997)		time	2.63	3.70	4.76	5.83	6.88	7.92	9.00	10.08	11.15	12.27		13.71	4 / 7			
reaction time	0.147	interval	7 steps	1.07	1.06	1.07	1.05	1.04	1.08	1.08	1.07	1.12	1.44			3.20	3.17	3.27
		velocity	5.22	8.54	8.62	8.54	8.70	8.79	8.46	8.46	8.54	8.16	9.74	8.02		8.57	8.65	8.39
Ikeda, Kai (JPN) (2002)		time	2.67	3.89	5.05	6.15	7.25	8.33	9.43	10.53	11.62	12.74		14.23	8 / 8			
reaction time	0.164	interval	7 steps	1.22	1.16	1.10	1.10	1.08	1.10	1.10	1.09	1.12	1.49			3.48	3.28	3.31
		velocity	5.14	7.49	7.88	8.31	8.31	8.46	8.31	8.31	8.39	8.16	9.41	7.73		7.88	8.36	8.28

2023 Adidas Atlanta City Games (Atlanta, GA) *(street)* (TV Analysis)

FINAL

date 05-May-23 wind 0.0 m/s

Henson (2023) - Athlete First: 2023 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.50	3.48	4.48	5.48	6.45	7.45	8.47	9.50	10.53	11.60		13.01	3 / 1			
reaction time	0.181	interval	7 steps	0.98	1.00	1.00	0.97	1.00	1.02	1.03	1.03	1.07	1.41			2.98	2.99	3.13
		velocity	5.49	9.33	9.14	9.14	9.42	9.14	8.96	8.87	8.87	8.54	9.94	8.46		9.20	9.17	8.76
Dunning, Robert (USA) (1997)		time	2.57	3.63	4.65	5.65	6.65	7.65	8.65	9.65	10.68	11.73		13.09	1 / 2			

reaction time	0.187	interval	7 steps	1.06	1.02	1.00	1.00	1.00	1.00	1.00	1.03	1.05	1.36	PB		3.08	3.00	3.08
		velocity		5.34	8.62	8.96	9.14	9.14	9.14	9.14	9.14	8.87	8.70	10.31	8.40		8.90	9.14	8.90
Britt, Jamal (USA) (1998)		time		2.52	3.57	4.60	5.60	6.60	7.60	8.62	9.65	10.68	11.73		13.14	4 / 3			
reaction time	0.188	interval	7 steps	1.05	1.03	1.00	1.00	1.00	1.02	1.03	1.03	1.05	1.41				3.08	3.02	3.11
		velocity		5.44	8.70	8.87	9.14	9.14	9.14	8.96	8.87	8.87	8.70	9.94	8.37		8.90	9.08	8.82
Cunningham, Trey (USA) (199		time		2.58	3.62	4.64	5.66	6.66	7.68	8.73	9.80	10.87	11.98		13.41	2 / 4			
reaction time	0.174	interval	7 steps	1.04	1.02	1.02	1.00	1.02	1.05	1.07	1.07	1.11	1.43				3.08	3.07	3.25
		velocity		5.32	8.79	8.96	8.96	9.14	8.96	8.70	8.54	8.54	8.23	9.80	8.20		8.90	8.93	8.44
Crittenden, Freddie (USA) (19		time		2.62	3.68	4.72	5.75	6.75	7.78	8.80	9.85	10.93	12.01		13.43	5 / 5			
reaction time	0.159	interval			1.06	1.04	1.03	1.00	1.03	1.02	1.05	1.08	1.08	1.42			3.13	3.05	3.21
		velocity		5.24	8.62	8.79	8.87	9.14	8.87	8.96	8.70	8.46	8.46	9.87	8.19		8.76	8.99	8.54

2023 Mikio Oda Memorial (Hiroshima, JPN)

FINAL date 29-Apr-23 wind 0.3 m/s

Shibayama (2024) - race analysis of men's 110m hurdles in the 2023 season

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ishikawa, Shuhei (JPN) (1995)		time		2.60	3.64	4.68	5.71	6.73	7.78	8.81	9.85	10.92	11.98		13.43	5 / 1			
reaction time	0.168	interval	7 steps	1.04	1.04	1.03	1.02	1.05	1.03	1.04	1.07	1.06	1.45				3.11	3.10	3.17
		velocity		5.28	8.79	8.79	8.87	8.96	8.70	8.87	8.79	8.54	8.62	9.67	8.19		8.82	8.85	8.65
Takayama, Shunya (JPN) (1994		time		2.56	3.60	4.63	5.68	6.73	7.78	8.83	9.88	10.95	12.03		13.47	4 / 2			
reaction time	0.135	interval			1.04	1.03	1.05	1.05	1.05	1.05	1.05	1.07	1.08	1.44			3.12	3.15	3.20
		velocity		5.36	8.79	8.87	8.70	8.70	8.70	8.70	8.70	8.54	8.46	9.74	8.17		8.79	8.70	8.57
Tokuoka, Ryo (JPN) (1999)		time		2.64	3.70	4.73	5.78	6.84	7.88	8.92	9.99	11.05	12.14		13.57	2 / 3			
reaction time	0.169	interval	7 steps	1.06	1.03	1.05	1.06	1.04	1.04	1.07	1.06	1.09	1.43				3.14	3.14	3.22
		velocity		5.20	8.62	8.87	8.70	8.62	8.79	8.79	8.54	8.62	8.39	9.80	8.11		8.73	8.73	8.52
Yokochi, Taiga (JPN) (2000)		time		2.64	3.74	4.79	5.82	6.88	7.91	8.97	10.05	11.13	12.19		13.60	6 / 4			
reaction time	0.160	interval	7 steps	1.10	1.05	1.03	1.06	1.03	1.06	1.08	1.08	1.06	1.41				3.18	3.15	3.22
		velocity		5.20	8.31	8.70	8.87	8.62	8.87	8.62	8.46	8.46	8.62	9.94	8.09		8.62	8.70	8.52
Ishida Thomas, Higashi (JPN) (		time		2.59	3.64	4.70	5.73	6.79	7.84	8.92	9.97	11.07	12.17		13.62	3 / 5			
reaction time	0.146	interval	7 steps	1.05	1.06	1.03	1.06	1.05	1.08	1.05	1.10	1.10	1.45				3.14	3.19	3.25
		velocity		5.30	8.70	8.62	8.87	8.62	8.70	8.46	8.70	8.31	8.31	9.67	8.08		8.73	8.60	8.44
McCorry, Jacob (AUS) (1997)		time		2.62	3.69	4.74	5.80	6.83	7.88	8.95	10.03	11.08	12.19		13.65	1 / 6			
reaction time	0.110	interval	7 steps	1.07	1.05	1.06	1.03	1.05	1.07	1.08	1.05	1.11	1.46				3.18	3.15	3.24
		velocity		5.24	8.54	8.70	8.62	8.87	8.70	8.54	8.46	8.70	8.23	9.60	8.06		8.62	8.70	8.46
Chen Kuei-Ru (TPE) (1993)		time		2.61	3.68	4.73	5.77	6.81	7.87	8.94	10.01	11.13	12.27		13.82	8 / 7			
reaction time	0.173	interval	7 steps	1.07	1.05	1.04	1.04	1.06	1.07	1.07	1.12	1.14	1.55				3.16	3.17	3.33
		velocity		5.26	8.54	8.70	8.79	8.79	8.62	8.54	8.54	8.16	8.02	9.05	7.96		8.68	8.65	8.23
Takahashi, Yusuke (JPN) (1996		time		2.63	3.69	4.77	5.83	6.89	7.98	9.08	10.22	11.34	12.48		13.94	7 / 8			
reaction time	0.145	interval			1.06	1.08	1.06	1.06	1.09	1.10	1.14	1.12	1.14	1.46			3.20	3.25	3.40
		velocity		5.22	8.62	8.46	8.62	8.62	8.39	8.31	8.02	8.16	8.02	9.60	7.89		8.57	8.44	8.06

2022 Weltklasse (Zürich, SUI) (TV Analysis)

FINAL date 08-Sep-22 wind -1.0 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.44	3.44	4.41	5.37	6.34	7.34	8.34	9.38	10.44	11.51		13.02	6 / 1			
reaction time	0.140	interval	7 steps	1.00	0.97	0.96	0.97	1.00	1.00	1.04	1.06	1.07	1.51				2.93	2.97	3.17
		velocity		5.62	9.14	9.42	9.52	9.42	9.14	9.14	8.79	8.62	8.54	9.28	8.45		9.36	9.23	8.65
Broadbell, Rasheed (JAM) (200		time		2.44	3.47	4.48	5.47	6.45	7.48	8.50	9.52	10.61	11.64		13.06	7 / 2			
reaction time	0.149	interval	7 steps	1.03	1.01	0.99	0.98	1.03	1.02	1.02	1.09	1.03	1.42				3.03	3.03	3.14
		velocity		5.62	8.87	9.05	9.23	9.33	8.87	8.96	8.96	8.39	8.87	9.87	8.42		9.05	9.05	8.73
Parchment, Hansle (JAM) (199		time		2.53	3.60	4.64	5.64	6.64	7.64	8.65	9.67	10.71	11.75		13.26	5 / 3			
reaction time	0.153	interval	7 steps	1.07	1.04	1.00	1.00	1.00	1.01	1.02	1.04	1.04	1.51				3.11	3.01	3.10
		velocity		5.42	8.54	8.79	9.14	9.14	9.14	9.05	8.96	8.79	8.79	9.28	8.30		8.82	9.11	8.85
Martínez, Asier (ESP) (2000)		time		2.57	3.65	4.68	5.70	6.71	7.74	8.74	9.81	10.84	11.88		13.29	3 / 4			
reaction time	0.144	interval	7 steps	1.08	1.03	1.02	1.01	1.03	1.00	1.07	1.03	1.04	1.41				3.13	3.04	3.14
		velocity		5.34	8.46	8.87	8.96	9.05	8.87	9.14	8.54	8.87	8.79	9.94	8.28		8.76	9.02	8.73
Cunningham, Trey (USA) (199		time		2.50	3.50	4.50	5.50	6.54	7.54	8.64	9.66	10.74	11.81		13.30	4 / 5			
reaction time	0.153	interval	7 steps	1.00	1.00	1.00	1.04	1.00	1.10	1.02	1.08	1.07	1.49				3.00	3.14	3.17
		velocity		5.49	9.14	9.14	9.14	8.79	9.14	8.31	8.96	8.46	8.54	9.41	8.27		9.14	8.73	8.65
Joseph, Jason (SUI) (1998)		time		2.60	3.64	4.68	5.70	6.74	7.76	8.81	9.88	10.96	12.04		13.54	9 / 6			
reaction time	0.178	interval	7 steps	1.04	1.04	1.02	1.04	1.02	1.05	1.07	1.08	1.08	1.50				3.10	3.11	3.23

		velocity	5.28	8.79	8.79	8.96	8.79	8.96	8.70	8.54	8.46	8.46	9.35	8.12			8.85	8.82	8.49
Czykier, Damian (POL) (1992)		time	2.60	3.67	4.70	5.74	6.77	7.81	8.84	9.88	11.01	12.11		13.65	1 / 7				
reaction time	0.142	interval	7 steps	1.07	1.03	1.04	1.03	1.04	1.03	1.04	1.13	1.10	1.54				3.14	3.10	3.27
		velocity	5.28	8.54	8.87	8.79	8.87	8.79	8.87	8.79	8.09	8.31	9.10	8.06			8.73	8.85	8.39
Kwaou-Mathey, Just (FRA) (19		time	2.58	3.64	4.70	5.74	6.80	7.84	8.88	9.98	11.01	12.13		13.73	2 / 8				
reaction time	0.150	interval	7 steps	1.06	1.06	1.04	1.06	1.04	1.04	1.10	1.03	1.12	1.60				3.16	3.14	3.25
		velocity	5.32	8.62	8.62	8.79	8.62	8.79	8.79	8.31	8.87	8.16	8.76	8.01			8.68	8.73	8.44
Pereira, Rafael (BRA) (1997)		time	2.50	3.55	4.57	5.60	6.61	7.64	8.65	9.81	11.01	12.12		13.73	8 / 9				
reaction time	0.130	interval		1.05	1.02	1.03	1.01	1.03	1.01	1.16	1.20	1.11	1.61				3.10	3.05	3.47
		velocity	5.49	8.70	8.96	8.87	9.05	8.87	9.05	7.88	7.62	8.23	8.71	8.01			8.85	8.99	7.90

2022 ISTAF (Berlin, GER) (TV Analysis)

FINAL date 04-Sep-22 wind 0.6 m/s *Henson (2022) - Athlete First: 2022 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.42	3.44	4.40	5.36	6.34	7.34	8.36	9.40	10.44	11.56		13.05	4 / 1			
reaction time	0.140	interval	7 steps	1.02	0.96	0.96	0.98	1.00	1.02	1.04	1.04	1.12	1.49			2.94	3.00	3.20
		velocity	5.67	8.96	9.52	9.52	9.33	9.14	8.96	8.79	8.79	8.16	9.41	8.43		9.33	9.14	8.57
Crittenden, Freddie (USA) (199		time	2.48	3.50	4.50	5.50	6.50	7.52	8.52	9.54	10.58	11.62		13.07	5 / 2			
reaction time	0.142	interval		1.02	1.00	1.00	1.00	1.02	1.00	1.02	1.04	1.04	1.45			3.02	3.02	3.10
		velocity	5.53	8.96	9.14	9.14	9.14	8.96	9.14	8.96	8.79	8.79	9.67	8.42		9.08	9.08	8.85
Roberts, Daniel (USA) (1998)		time	2.50	3.52	4.54	5.56	6.56	7.60	8.62	9.66	10.70	11.78		13.25	6 / 3			
reaction time	0.145	interval		1.02	1.02	1.02	1.00	1.04	1.02	1.04	1.04	1.08	1.47			3.06	3.06	3.16
		velocity	5.49	8.96	8.96	8.96	9.14	8.79	8.96	8.79	8.79	8.46	9.54	8.30		8.96	8.96	8.68
Izumiya, Shunsuke (JPN) (2000		time	2.50	3.54	4.58	5.60	6.62	7.66	8.68	9.74	10.78	11.88		13.26	8 / 4			
reaction time	0.129	interval	7 steps	1.04	1.04	1.02	1.02	1.04	1.02	1.06	1.04	1.10	1.38			3.10	3.08	3.20
		velocity	5.49	8.79	8.79	8.96	8.96	8.79	8.96	8.62	8.79	8.31	10.16	8.30		8.85	8.90	8.57

2022 Athletissima (Lausanne, SUI) (TV Analysis)

FINAL date 26-Aug-22 wind 0.0 m/s *Henson (2022) - Athlete First: 2022 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Broadbell, Rasheed (JAM) (200		time	2.47	3.50	4.50	5.50	6.50	7.52	8.51	9.52	10.54	11.58		12.99	5 / 1			
reaction time	0.142	interval	7 steps	1.03	1.00	1.00	1.00	1.02	0.99	1.01	1.02	1.04	1.41	PB		3.03	3.01	3.07
		velocity	5.55	8.87	9.14	9.14	9.14	8.96	9.23	9.05	8.96	8.79	9.94	8.47		9.05	9.11	8.93
Cunningham, Trey (USA) (199		time	2.47	3.44	4.44	5.42	6.38	7.38	8.40	9.46	10.52	11.62		13.10	3 / 2			
reaction time	0.140	interval	7 steps	0.97	1.00	0.98	0.96	1.00	1.02	1.06	1.06	1.10	1.48			2.95	2.98	3.22
		velocity	5.55	9.42	9.14	9.33	9.52	9.14	8.96	8.62	8.62	8.31	9.47	8.40		9.29	9.20	8.52
Holloway, Grant (USA) (1997)		time	2.50	3.54	4.54	5.54	6.52	7.54	8.58	9.61	10.64	11.69		13.11	6 / 3			
reaction time	0.122	interval	7 steps	1.04	1.00	1.00	0.98	1.02	1.04	1.03	1.03	1.05	1.42			3.04	3.04	3.11
		velocity	5.49	8.79	9.14	9.14	9.33	8.96	8.79	8.87	8.87	8.70	9.87	8.39		9.02	9.02	8.82
Parchment, Hansle (JAM) (199		time	2.60	3.64	4.64	5.64	6.64	7.64	8.64	9.64	10.67	11.71		13.13	4 / 4			
reaction time	0.151	interval	7 steps	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.04	1.42			3.04	3.00	3.07
		velocity	5.28	8.79	9.14	9.14	9.14	9.14	9.14	9.14	8.87	8.79	9.87	8.38		9.02	9.14	8.93
Pereira, Rafael (BRA) (1997)		time	2.57	3.60	4.67	5.67	6.71	7.74	8.81	9.88	10.95	12.03		13.49	1 / 5			
reaction time	0.140	interval		1.03	1.07	1.00	1.04	1.03	1.07	1.07	1.07	1.08	1.46			3.10	3.14	3.22
		velocity	5.34	8.87	8.54	9.14	8.79	8.87	8.54	8.54	8.54	8.46	9.60	8.15		8.85	8.73	8.52
Czykier, Damian (POL) (1992)		time	2.64	3.70	4.74	5.74	6.77	7.81	8.87	9.94	11.01	12.11		13.58	8 / 6			
reaction time	0.166	interval	7 steps	1.06	1.04	1.00	1.03	1.04	1.06	1.07	1.07	1.10	1.47			3.10	3.13	3.24
		velocity	5.20	8.62	8.79	9.14	8.87	8.79	8.62	8.54	8.54	8.31	9.54	8.10		8.85	8.76	8.46
Martinot-Lagarde, Pascal (FRA		time	2.60	3.65	4.70	5.74	6.76	7.81	8.84	9.91	10.99	12.09		13.58	7 / 7			
reaction time	0.155	interval	7 steps	1.05	1.05	1.04	1.02	1.05	1.03	1.07	1.08	1.10	1.49			3.14	3.10	3.25
		velocity	5.28	8.70	8.70	8.79	8.96	8.70	8.87	8.54	8.46	8.31	9.41	8.10		8.73	8.85	8.44
Joseph, Jason (SUI) (1998)		time	2.58	3.65	4.72	5.77	6.81	7.84	8.91	9.98	11.08	12.18		13.66	2 / 8			
reaction time	0.158	interval	7 steps	1.07	1.07	1.05	1.04	1.03	1.07	1.07	1.10	1.10	1.48			3.19	3.14	3.27
		velocity	5.32	8.54	8.54	8.70	8.79	8.87	8.54	8.54	8.31	8.31	9.47	8.05		8.60	8.73	8.39

2022 NACAC Championships (Freeport, BAH) (TV Analysis)

FINAL date 20-Aug-22 wind 0.3 m/s *Henson (2022) - Athlete First: 2022 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Crittenden, Freddie (USA) (199		time	2.43	3.45	4.44	5.43	6.40	7.40	8.40	9.43	10.47	11.52		13.00	4 / 1			
reaction time		interval		1.02	0.99	0.99	0.97	1.00	1.00	1.03	1.04	1.05	1.48	PB		3.00	2.97	3.12
		velocity	5.65	8.96	9.23	9.23	9.42	9.14	9.14	8.87	8.79	8.70	9.47	8.46		9.14	9.23	8.79

Britt, Jamal (USA) (1998)	time	2.48	3.53	4.53	5.55	6.55	7.55	8.57	9.60	10.62	11.67		13.08	7 / 2			
reaction time	interval	7 steps	1.05	1.00	1.02	1.00	1.00	1.02	1.03	1.02	1.05	1.41	PB		3.07	3.02	3.10
	velocity	5.53	8.70	9.14	8.96	9.14	9.14	8.96	8.87	8.96	8.70	9.94	8.41		8.93	9.08	8.85
Bennett, Orlando (JAM) (1999)	time	2.47	3.53	4.56	5.55	6.55	7.55	8.57	9.62	10.64	11.69		13.18	6 / 3			
reaction time	interval		1.06	1.03	0.99	1.00	1.00	1.02	1.05	1.02	1.05	1.49	PB		3.08	3.02	3.12
	velocity	5.55	8.62	8.87	9.23	9.14	9.14	8.96	8.70	8.96	8.70	9.41	8.35		8.90	9.08	8.79
Brathwaite, Shane (BAR) (1990	time	2.50	3.56	4.56	5.57	6.60	7.60	8.63	9.70	10.76	11.83		13.42	5 / 4			
reaction time	interval		1.06	1.00	1.01	1.03	1.00	1.03	1.07	1.06	1.07	1.59			3.07	3.06	3.20
	velocity	5.49	8.62	9.14	9.05	8.87	9.14	8.87	8.54	8.62	8.54	8.82	8.20		8.93	8.96	8.57

2022 European Athletics Championships (Munich, GER) (TV Analysis)

FINAL date 17-Aug-22 wind -0.2 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Martínez, Asier (ESP) (2000)	time	2.56	3.60	4.60	5.60	6.62	7.62	8.64	9.66	10.68	11.74		13.14	4 / 1			
reaction time 0.149	interval	7 steps	1.04	1.00	1.00	1.02	1.00	1.02	1.02	1.02	1.06	1.40	PB		3.04	3.04	3.10
	velocity	5.36	8.79	9.14	9.14	8.96	9.14	8.96	8.96	8.96	8.62	10.01	8.37		9.02	9.02	8.85
Martinot-Lagarde, Pascal (FRA	time	2.52	3.54	4.58	5.58	6.56	7.58	8.60	9.62	10.64	11.70		13.14	5 / 2			
reaction time 0.167	interval	7 steps	1.02	1.04	1.00	0.98	1.02	1.02	1.02	1.02	1.06	1.44			3.06	3.02	3.10
	velocity	5.44	8.96	8.79	9.14	9.33	8.96	8.96	8.96	8.96	8.62	9.74	8.37		8.96	9.08	8.85
Kwaou-Mathey, Just (FRA) (19	time	2.56	3.58	4.58	5.58	6.58	7.58	8.64	9.70	10.76	11.86		13.33	3 / 3			
reaction time 0.178	interval	7 steps	1.02	1.00	1.00	1.00	1.00	1.06	1.06	1.06	1.10	1.47			3.02	3.06	3.22
	velocity	5.36	8.96	9.14	9.14	9.14	9.14	8.62	8.62	8.62	8.31	9.54	8.25		9.08	8.96	8.52
Joseph, Jason (SUI) (1998)	time	2.52	3.58	4.62	5.66	6.68	7.72	8.76	9.80	10.84	11.88		13.35	8 / 4			
reaction time 0.169	interval	7 steps	1.06	1.04	1.04	1.02	1.04	1.04	1.04	1.04	1.04	1.47			3.14	3.10	3.12
	velocity	5.44	8.62	8.79	8.79	8.96	8.79	8.79	8.79	8.79	8.79	9.54	8.24		8.73	8.85	8.79
Gaio, Finley (SUI) (1999)	time	2.58	3.64	4.70	5.72	6.74	7.78	8.82	9.86	10.94	12.02		13.50	2 / 5			
reaction time 0.172	interval	7 steps	1.06	1.06	1.02	1.02	1.04	1.04	1.04	1.08	1.08	1.48			3.14	3.10	3.20
	velocity	5.32	8.62	8.62	8.96	8.96	8.79	8.79	8.79	8.46	8.46	9.47	8.15		8.73	8.85	8.57
Pozzi, Andy (GBR) (1992)	time	2.52	3.58	4.64	5.68	6.72	7.76	8.82	9.92	11.02	12.14		13.66	1 / 6			
reaction time 0.166	interval	7 steps	1.06	1.06	1.04	1.04	1.04	1.06	1.10	1.10	1.12	1.52			3.16	3.14	3.32
	velocity	5.44	8.62	8.62	8.79	8.79	8.79	8.62	8.31	8.31	8.16	9.22	8.05		8.68	8.73	8.26
Llopis, Enrique (ESP) (2000)	time	2.56	3.64	4.84	6.00	7.20	8.36	9.52	10.68	11.84	13.06		14.81	6 / 7			
reaction time 0.145	interval	7 steps	1.08	1.20	1.16	1.20	1.16	1.16	1.16	1.16	1.22	1.75			3.44	3.52	3.54
	velocity	5.36	8.46	7.62	7.88	7.62	7.88	7.88	7.88	7.88	7.49	8.01	7.43		7.97	7.79	7.75
Zhoya, Sasha (FRA) (2002)	time	2.52	3.58	4.62	5.64	6.66	7.68	8.72	9.78	10.86	11.92		16.51	7 / 8			
reaction time 0.153	interval	7 steps	1.06	1.04	1.02	1.02	1.02	1.04	1.06	1.08	1.06	4.59			3.12	3.08	3.20
	velocity	5.44	8.62	8.79	8.96	8.96	8.96	8.79	8.62	8.46	8.62	3.05	6.66		8.79	8.90	8.57

2022 Herculis Meeting International d'Athlétisme (Monaco, MON) (TV Analysis)

FINAL date 10-Aug-22 wind 0.6 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.40	3.40	4.36	5.33	6.30	7.30	8.30	9.30	10.36	11.43		12.99	6 / 1			
reaction time 0.148	interval	7 steps	1.00	0.96	0.97	0.97	1.00	1.00	1.00	1.06	1.07	1.56			2.93	2.97	3.13
	velocity	5.72	9.14	9.52	9.42	9.42	9.14	9.14	9.14	8.62	8.54	8.99	8.47		9.36	9.23	8.76
Cunningham, Trey (USA) (199	time	2.43	3.43	4.40	5.40	6.40	7.43	8.46	9.46	10.53	11.60		13.03	4 / 2			
reaction time 0.141	interval	7 steps	1.00	0.97	1.00	1.00	1.03	1.03	1.00	1.07	1.07	1.43			2.97	3.06	3.14
	velocity	5.65	9.14	9.42	9.14	9.14	8.87	8.87	9.14	8.54	8.54	9.80	8.44		9.23	8.96	8.73
Parchment, Hansle (JAM) (199	time	2.50	3.53	4.53	5.53	6.53	7.53	8.53	9.56	10.56	11.60		13.08	5 / 3			
reaction time 0.128	interval	7 steps	1.03	1.00	1.00	1.00	1.00	1.00	1.03	1.00	1.04	1.48			3.03	3.00	3.07
	velocity	5.49	8.87	9.14	9.14	9.14	9.14	9.14	8.87	9.14	8.79	9.47	8.41		9.05	9.14	8.93
Roberts, Daniel (USA) (1998)	time	2.43	3.46	4.50	5.50	6.53	7.53	8.56	9.56	10.63	11.73		13.20	3 / 4			
reaction time 0.157	interval		1.03	1.04	1.00	1.03	1.00	1.03	1.00	1.07	1.10	1.47			3.07	3.06	3.17
	velocity	5.65	8.87	8.79	9.14	8.87	9.14	8.87	9.14	8.54	8.31	9.54	8.33		8.93	8.96	8.65
Zhoya, Sasha (FRA) (2002)	time	2.50	3.53	4.56	5.56	6.56	7.56	8.60	9.63	10.66	11.73		13.21	2 / 5			
reaction time 0.138	interval	7 steps	1.03	1.03	1.00	1.00	1.00	1.04	1.03	1.03	1.07	1.48			3.06	3.04	3.13
	velocity	5.49	8.87	8.87	9.14	9.14	9.14	8.79	8.87	8.87	8.54	9.47	8.33		8.96	9.02	8.76
Martinot-Lagarde, Pascal (FRA	time	2.46	3.53	4.53	5.53	6.53	7.56	8.60	9.63	10.66	11.76		13.26	8 / 6			
reaction time 0.137	interval	7 steps	1.07	1.00	1.00	1.00	1.03	1.04	1.03	1.03	1.10	1.50			3.07	3.07	3.16
	velocity	5.58	8.54	9.14	9.14	9.14	8.87	8.79	8.87	8.87	8.31	9.35	8.30		8.93	8.93	8.68
Czykier, Damian (POL) (1992)	time	2.53	3.56	4.56	5.60	6.63	7.66	8.73	9.76	10.83	11.93		13.46	7 / 7			

reaction time	0.156	interval	7 steps	1.03	1.00	1.04	1.03	1.03	1.07	1.03	1.07	1.10	1.53			3.07	3.13	3.20
		velocity		5.42	8.87	9.14	8.79	8.87	8.87	8.54	8.87	8.54	8.31	9.16	8.17	8.93	8.76	8.57
Kwaou-Mathey, Just (FRA) (19		time		2.53	3.63	4.73	5.73	6.76	7.83	8.90	10.00	11.06	12.16		13.78	1 / 8		
reaction time	0.144	interval	7 steps	1.10	1.10	1.00	1.03	1.07	1.07	1.10	1.06	1.10	1.62			3.20	3.17	3.26
		velocity		5.42	8.31	8.31	9.14	8.87	8.54	8.54	8.31	8.62	8.31	8.65	7.98	8.57	8.65	8.41

2022 Japanese National High School Championships (Naruto, JPN)

FINAL

date 07-Aug-22 wind -3.8 m/s

Kishima (2022) - national high school championships biomechanics data collection

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Konno, Ryoma (JPN) (2004)		time	2.69	3.82	4.96	6.08	7.20	8.32	9.47	10.66	11.82	13.06		14.57	4 / 1			
reaction time	0.147	interval		1.13	1.14	1.12	1.12	1.12	1.15	1.19	1.16	1.24	1.51			3.39	3.39	3.59
		velocity	5.10	8.09	8.02	8.16	8.16	8.16	7.95	7.68	7.88	7.37	9.28	7.55		8.09	8.09	7.64
Sotono, Haru (JPN) (2004)		time	2.66	3.80	4.94	6.08	7.19	8.35	9.51	10.68	11.89	13.09		14.61	6 / 2			
reaction time	0.150	interval		1.14	1.14	1.14	1.11	1.16	1.16	1.17	1.21	1.20	1.52	PB		3.42	3.43	3.58
		velocity	5.16	8.02	8.02	8.02	8.23	7.88	7.88	7.81	7.55	7.62	9.22	7.53		8.02	7.99	7.66
Imanishi, Ryota (JPN) (2004)		time	2.74	3.91	5.08	6.21	7.39	8.57	9.77	10.98	12.17	13.36		14.86	9 / 3			
reaction time	0.144	interval		1.17	1.17	1.13	1.18	1.18	1.20	1.21	1.19	1.19	1.50			3.47	3.56	3.59
		velocity	5.01	7.81	7.81	8.09	7.75	7.75	7.62	7.55	7.68	7.68	9.35	7.40		7.90	7.70	7.64
Uchida, Kaisei (JPN) (2004)		time	2.72	3.90	5.07	6.24	7.42	8.58	9.78	10.98	12.18	13.39		14.87	5 / 4			
reaction time	0.159	interval		1.18	1.17	1.17	1.18	1.16	1.20	1.20	1.20	1.21	1.48			3.52	3.54	3.61
		velocity	5.04	7.75	7.81	7.81	7.75	7.88	7.62	7.62	7.62	7.55	9.47	7.40		7.79	7.75	7.60
Miyata, Ryusei (JPN) (2004)		time	2.70	3.85	5.02	6.16	7.30	8.47	9.66	10.92	12.12	13.36		14.92	8 / 5			
reaction time	0.159	interval		1.15	1.17	1.14	1.14	1.17	1.19	1.26	1.20	1.24	1.56			3.46	3.50	3.70
		velocity	5.08	7.95	7.81	8.02	8.02	7.81	7.68	7.25	7.62	7.37	8.99	7.37		7.92	7.83	7.41
Takeuchi, Tomoki (JPN) (2004)		time	2.70	3.86	5.02	6.16	7.34	8.52	9.70	10.92	12.17	13.45		14.96	2 / 6			
reaction time	0.157	interval		1.16	1.16	1.14	1.18	1.18	1.18	1.22	1.25	1.28	1.51			3.46	3.54	3.75
		velocity	5.08	7.88	7.88	8.02	7.75	7.75	7.75	7.49	7.31	7.14	9.28	7.35		7.92	7.75	7.31
Asai, Seira (JPN) (2006)		time	2.74	3.88	5.03	6.19	7.35	8.50	9.70	10.92	12.17	13.40		14.97	3 / 7			
reaction time	0.145	interval		1.14	1.15	1.16	1.16	1.15	1.20	1.22	1.25	1.23	1.57			3.45	3.51	3.70
		velocity	5.01	8.02	7.95	7.88	7.88	7.95	7.62	7.49	7.31	7.43	8.93	7.35		7.95	7.81	7.41
Yoneyama, Aiki (JPN) (2004)		time	2.69	3.84	4.99	6.12	7.26	8.38	9.65	10.92	12.22	13.47		15.00	7 / 8			
reaction time	0.124	interval		1.15	1.15	1.13	1.14	1.12	1.27	1.27	1.30	1.25	1.53			3.43	3.53	3.82
		velocity	5.10	7.95	7.95	8.09	8.02	8.16	7.20	7.20	7.03	7.31	9.16	7.33		7.99	7.77	7.18

2022 World Athletics Championships (Eugene, OR)

Decathlon - Heat 3

date 24-Jul-22 wind 1.1 m/s

Henson (2024) - Athlete First: 2022 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
LePage, Pierce (CAN) (1996)		time	2.66	3.76	4.82	5.86	6.92	8.00	9.05	10.15	11.22	12.35		13.78	5 / 1			
reaction time	0.154	interval	7 steps	1.10	1.06	1.04	1.06	1.08	1.05	1.10	1.07	1.13	1.43	PB		3.20	3.19	3.30
		velocity		5.16	8.31	8.62	8.79	8.62	8.46	8.70	8.31	8.54	8.09	9.80	7.98	8.57	8.60	8.31
Owens-Delerme, Ayden (PUR)		time	2.60	3.73	4.78	5.83	6.92	7.98	9.05	10.20	11.26	12.40		13.88	7 / 2			
reaction time	0.133	interval		1.13	1.05	1.05	1.09	1.06	1.07	1.15	1.06	1.14	1.48			3.23	3.22	3.35
		velocity	5.28	8.09	8.70	8.70	8.39	8.62	8.54	7.95	8.62	8.02	9.47	7.93		8.49	8.52	8.19
Golubovic, Daniel (AUS) (1993)		time	2.66	3.76	4.83	5.93	6.96	8.03	9.12	10.20	11.26	12.40		13.92	6 / 3			
reaction time	0.150	interval		1.10	1.07	1.10	1.03	1.07	1.09	1.08	1.06	1.14	1.52	PB		3.27	3.19	3.28
		velocity	5.16	8.31	8.54	8.31	8.87	8.54	8.39	8.46	8.62	8.02	9.22	7.90		8.39	8.60	8.36
Mayer, Kevin (FRA) (1992)		time	2.60	3.68	4.76	5.83	6.92	8.01	9.12	10.22	11.30	12.44		13.92	4 / 4			
reaction time	0.129	interval		1.08	1.08	1.07	1.09	1.09	1.11	1.10	1.08	1.14	1.48			3.23	3.29	3.32
		velocity	5.28	8.46	8.46	8.54	8.39	8.39	8.23	8.31	8.46	8.02	9.47	7.90		8.49	8.33	8.26
Garland, Kyle (USA) (2000)		time	2.60	3.73	4.78	5.86	6.98	8.06	9.20	10.32	11.42	12.58		14.18	2 / 5			
reaction time	0.141	interval		1.13	1.05	1.08	1.12	1.08	1.14	1.12	1.10	1.16	1.60			3.26	3.34	3.38
		velocity	5.28	8.09	8.70	8.46	8.16	8.46	8.02	8.16	8.31	7.88	8.76	7.76		8.41	8.21	8.11
Dubler, Cedric (AUS) (1995)		time	2.66	3.80	4.86	5.96	7.05	8.20	9.32	10.41	11.54	12.73		14.28	3 / 6			
reaction time	0.129	interval		1.14	1.06	1.10	1.09	1.15	1.12	1.09	1.13	1.19	1.55			3.30	3.36	3.41
		velocity	5.16	8.02	8.62	8.31	8.39	7.95	8.16	8.39	8.09	7.68	9.05	7.70		8.31	8.16	8.04

Decathlon - Heat 2

date 24-Jul-22 wind 0.4 m/s

Henson (2024) - Athlete First: 2022 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mullings, Ken (BAH) (1997)		time	2.66	3.78	4.85	5.91	6.98	8.08	9.18	10.31	11.40	12.53		14.02	4 / 1			
reaction time	0.117	interval	7 steps	1.12	1.07	1.06	1.07	1.10	1.10	1.13	1.09	1.13	1.49	PB		3.25	3.27	3.35
		velocity		5.16	8.16	8.54	8.62	8.54	8.31	8.31	8.09	8.39	8.09	9.41	7.85	8.44	8.39	8.19

Sýkora, Jiří (CZE) (1995)	time	2.71	3.80	4.95	6.00	7.10	8.20	9.33	10.40	11.53	12.65		14.14	7 / 2			
reaction time 0.126	interval		1.09	1.15	1.05	1.10	1.10	1.13	1.07	1.13	1.12	1.49			3.29	3.33	3.32
	velocity	5.06	8.39	7.95	8.70	8.31	8.31	8.09	8.54	8.09	8.16	9.41	7.78		8.33	8.23	8.26
Kaul, Niklas (GER) (1998)	time	2.76	3.90	5.00	6.10	7.17	8.26	9.37	10.50	11.60	12.74		14.27	8 / 3			
reaction time 0.143	interval	7 steps	1.14	1.10	1.10	1.07	1.09	1.11	1.13	1.10	1.14	1.53	PB		3.34	3.27	3.37
	velocity	4.97	8.02	8.31	8.31	8.54	8.39	8.23	8.09	8.31	8.02	9.16	7.71		8.21	8.39	8.14
Kazmirek, Kai (GER) (1991)	time	2.76	3.88	5.00	6.10	7.20	8.32	9.46	10.58	11.73	12.92		14.43	3 / 4			
reaction time 0.150	interval		1.12	1.12	1.10	1.10	1.12	1.14	1.12	1.15	1.19	1.51			3.34	3.36	3.46
	velocity	4.97	8.16	8.16	8.31	8.31	8.16	8.02	8.16	7.95	7.68	9.28	7.62		8.21	8.16	7.92
Moloney, Ashley (AUS) (2000)	time	2.68	3.78	4.90	6.00	7.14	8.28	9.42	10.58	11.73	12.92		14.46	5 / 5			
reaction time 0.125	interval	7 steps	1.10	1.12	1.10	1.14	1.14	1.14	1.16	1.15	1.19	1.54			3.32	3.42	3.50
	velocity	5.12	8.31	8.16	8.31	8.02	8.02	8.02	7.88	7.95	7.68	9.10	7.61		8.26	8.02	7.83
Õiglane, Janek (EST) (1994)	time	2.73	3.86	4.98	6.15	7.28	8.40	9.56	10.73	11.88	13.06		14.69	6 / 6			
reaction time 0.181	interval		1.13	1.12	1.17	1.13	1.12	1.16	1.17	1.15	1.18	1.63			3.42	3.41	3.50
	velocity	5.03	8.09	8.16	7.81	8.09	8.16	7.88	7.81	7.95	7.75	8.60	7.49		8.02	8.04	7.83
Bastien, Steven (USA) (1994)	time	2.76	3.92	5.05	6.15	7.28	8.40	9.62	10.76	11.96	13.16		14.75	2 / 7			
reaction time 0.132	interval	7 steps	1.16	1.13	1.10	1.13	1.12	1.22	1.14	1.20	1.20	1.59			3.39	3.47	3.54
	velocity	4.97	7.88	8.09	8.31	8.09	8.16	7.49	8.02	7.62	7.62	8.82	7.46		8.09	7.90	7.75

Decathlon - Heat 1

date 24-Jul-22 wind 1.5 m/s

Henson (2024) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Erm, Johannes (EST) (1998)	time	2.78	3.96	5.06	6.20	7.30	8.43	9.55	10.62	11.75	12.87		14.38	6 / 1			
reaction time 0.171	interval	7 steps	1.18	1.10	1.14	1.10	1.13	1.12	1.07	1.13	1.12	1.51			3.42	3.35	3.32
	velocity	4.94	7.75	8.31	8.02	8.31	8.09	8.16	8.54	8.09	8.16	9.28	7.65		8.02	8.19	8.26
Ziemek, Zachery (USA) (1993)	time	2.76	3.87	5.00	6.16	7.25	8.40	9.50	10.67	11.83	13.00		14.47	3 / 2			
reaction time 0.116	interval	7 steps	1.11	1.13	1.16	1.09	1.15	1.10	1.17	1.16	1.17	1.47			3.40	3.34	3.50
	velocity	4.97	8.23	8.09	7.88	8.39	7.95	8.31	7.81	7.88	7.81	9.54	7.60		8.06	8.21	7.83
Uibo, Maicel (EST) (1992)	time	2.74	3.90	5.03	6.13	7.23	8.40	9.50	10.65	11.80	13.00		14.49	2 / 3			
reaction time 0.166	interval	7 steps	1.16	1.13	1.10	1.10	1.17	1.10	1.15	1.15	1.20	1.49			3.39	3.37	3.50
	velocity	5.01	7.88	8.09	8.31	8.31	7.81	8.31	7.95	7.95	7.62	9.41	7.59		8.09	8.14	7.83
Victor, Lindon (GRN) (1993)	time	2.78	3.90	5.06	6.20	7.36	8.50	9.63	10.83	12.00	13.20		14.76	4 / 4			
reaction time 0.149	interval	7 steps	1.12	1.16	1.14	1.16	1.14	1.13	1.20	1.17	1.20	1.56			3.42	3.43	3.57
	velocity	4.94	8.16	7.88	8.02	7.88	8.02	8.09	7.62	7.81	7.62	8.99	7.45		8.02	7.99	7.68
Neugebauer, Leo (GER) (2000)	time	2.83	4.02	5.22	6.36	7.50	8.66	9.83	11.00	12.16	13.35		14.86	8 / 5			
reaction time 0.170	interval	7 steps	1.19	1.20	1.14	1.14	1.16	1.17	1.17	1.16	1.19	1.51			3.53	3.47	3.52
	velocity	4.85	7.68	7.62	8.02	8.02	7.88	7.81	7.81	7.88	7.68	9.28	7.40		7.77	7.90	7.79
Nowak, Tim (GER) (1995)	time	2.85	4.00	5.16	6.30	7.43	8.58	9.73	10.86	12.10	13.25		14.91	5 / 6			
reaction time 0.169	interval		1.15	1.16	1.14	1.13	1.15	1.15	1.13	1.24	1.15	1.66			3.45	3.43	3.52
	velocity	4.81	7.95	7.88	8.02	8.09	7.95	7.95	8.09	7.37	7.95	8.45	7.38		7.95	7.99	7.79
Skotheim, Sander (NOR) (2002	time	2.83	4.03	5.24	6.40	7.60	8.76	9.95	11.10	12.28	13.48		15.05	7 / 7			
reaction time 0.138	interval		1.20	1.21	1.16	1.20	1.16	1.19	1.15	1.18	1.20	1.57			3.57	3.55	3.53
	velocity	4.85	7.62	7.55	7.88	7.62	7.88	7.68	7.95	7.75	7.62	8.93	7.31		7.68	7.72	7.77

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

FINAL

date 17-Jul-22 wind 1.2 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report (TV Analysis)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.44	3.43	4.41	5.38	6.38	7.38	8.38	9.38	10.44	11.54		13.03	4 / 1		*Shibayama (2023)*	
reaction time 0.124	interval	7 steps	0.99	0.98	0.97	1.00	1.00	1.00	1.00	1.06	1.10	1.49			2.94	3.00	3.16
	velocity	5.62	9.23	9.33	9.42	9.14	9.14	9.14	9.14	8.62	8.31	9.41	8.44		9.33	9.14	8.68
Cunningham, Trey (USA) (199	time	2.52	3.53	4.53	5.54	6.53	7.58	8.60	9.63	10.65	11.72		13.08	6 / 2		*Shibayama (2023)*	
reaction time 0.109	interval	7 steps	1.01	1.00	1.01	0.99	1.05	1.02	1.03	1.02	1.07	1.36			3.02	3.06	3.12
	velocity	5.44	9.05	9.14	9.05	9.23	8.70	8.96	8.87	8.96	8.54	10.31	8.41		9.08	8.96	8.79
Martínez, Asier (ESP) (2000)	time	2.62	3.70	4.72	5.73	6.73	7.74	8.75	9.75	10.78	11.83		13.17	8 / 3		*Shibayama (2023)*	
reaction time 0.126	interval	7 steps	1.08	1.02	1.01	1.00	1.01	1.01	1.00	1.03	1.05	1.34	PB		3.11	3.02	3.08
	velocity	5.24	8.46	8.96	9.05	9.14	9.05	9.05	9.14	8.87	8.70	10.46	8.35		8.82	9.08	8.90
Czykier, Damian (POL) (1992)	time	2.61	3.64	4.64	5.64	6.68	7.68	8.71	9.75	10.81	11.89		13.32	2 / 4		*Shibayama (2023)*	
reaction time 0.140	interval	7 steps	1.03	1.00	1.00	1.04	1.00	1.03	1.04	1.06	1.08	1.43			3.03	3.07	3.18
	velocity	5.26	8.87	9.14	9.14	8.79	9.14	8.87	8.79	8.62	8.46	9.80	8.26		9.05	8.93	8.62
Zeller, Joshua (GBR) (2000)	time	2.61	3.67	4.69	5.71	6.72	7.73	8.75	9.78	10.82	11.89		13.33	7 / 5		*Shibayama (2023)*	
reaction time 0.145	interval		1.06	1.02	1.02	1.01	1.01	1.02	1.03	1.04	1.07	1.44			3.10	3.04	3.14
	velocity	5.26	8.62	8.96	8.96	9.05	9.05	8.96	8.87	8.79	8.54	9.74	8.25		8.85	9.02	8.73

Brathwaite, Shane (BAR) (1990	time	2.48	3.56	4.60	5.60	6.63	7.65						dnf	1 / --			*Henson (2022)*
reaction time 0.108	interval	7 steps	1.08	1.04	1.00	1.03	1.02						**DQ**		3.12		
	velocity	5.53	8.46	8.79	9.14	8.87	8.96								8.79		
Allen, Devon (USA) (1994)	reaction time	0.099											**DQ**	3 / --			
Parchment, Hansle (JAM) (1990)													dns	5 / --			

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

Semi-Final 3

date 17-Jul-22 wind 2.5 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report (TV Analysis)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Parchment, Hansle (JAM) (199(	time	2.57	3.60	4.60	5.57	6.53	7.55	8.53	9.53	10.55	11.58		13.02	3 / 1			*Shibayama (2023)*
reaction time 0.128	interval	7 steps	1.03	1.00	0.97	0.96	1.02	0.98	1.00	1.02	1.03	1.44			3.00	2.96	3.05
	velocity	5.34	8.87	9.14	9.42	9.52	8.96	9.33	9.14	8.96	8.87	9.74	8.45		9.14	9.26	8.99
Allen, Devon (USA) (1994)	time	2.60	3.64	4.65	5.65	6.63	7.62	8.63	9.63	10.67	11.72		13.09	5 / 2			*Shibayama (2023)*
reaction time 0.101	interval	7 steps	1.04	1.01	1.00	0.98	0.99	1.01	1.00	1.04	1.05	1.37			3.05	2.98	3.09
	velocity	5.28	8.79	9.05	9.14	9.33	9.23	9.05	9.14	8.79	8.70	10.23	8.40		8.99	9.20	8.87
Brathwaite, Shane (BAR) (1990	time	2.55	3.58	4.60	5.60	6.59	7.60	8.63	9.65	10.71	11.76		13.21	8 / 3			*Shibayama (2023)*
reaction time 0.115	interval	7 steps	1.03	1.02	1.00	0.99	1.01	1.03	1.02	1.06	1.05	1.45			3.05	3.03	3.13
	velocity	5.38	8.87	8.96	9.14	9.23	9.05	8.87	8.96	8.62	8.70	9.67	8.33		8.99	9.05	8.76
Czykier, Damian (POL) (1992)	time	2.56	3.58	4.60	5.60	6.60	7.58	8.60	9.63	10.70	11.78		13.22	6 / 4			*Henson (2022)*
reaction time 0.135	interval	7 steps	1.02	1.02	1.00	1.00	0.98	1.02	1.03	1.07	1.08	1.44			3.04	3.00	3.18
	velocity	5.36	8.96	8.96	9.14	9.14	9.33	8.96	8.87	8.54	8.46	9.74	8.32		9.02	9.14	8.62
Kwaou-Mathey, Just (FRA) (19	time	2.60	3.63	4.65	5.65	6.67	7.67	8.67	9.70	10.76	11.83		13.25	4 / 5			*Henson (2022)*
reaction time 0.148	interval	7 steps	1.03	1.02	1.00	1.02	1.00	1.00	1.03	1.06	1.07	1.42			3.05	3.02	3.16
	velocity	5.28	8.87	8.96	9.14	8.96	9.14	9.14	8.87	8.62	8.54	9.87	8.30		8.99	9.08	8.68
Pozzi, Andy (GBR) (1992)	time	2.56	3.56	4.60	5.60	6.60	7.60	8.63	9.66	10.76	11.83		13.35	7 / 6			*Henson (2022)*
reaction time 0.141	interval	7 steps	1.00	1.04	1.00	1.00	1.00	1.03	1.03	1.10	1.07	1.52			3.04	3.03	3.20
	velocity	5.36	9.14	8.79	9.14	9.14	9.14	8.87	8.87	8.31	8.54	9.22	8.24		9.02	9.05	8.57
Hough, Nicholas (AUS) (1993)	time	2.63	3.70	4.73	5.76	6.76	7.80	8.83	9.86	10.90	11.96		13.42	1 / 7			*Henson (2022)*
reaction time 0.131	interval	7 steps	1.07	1.03	1.03	1.00	1.04	1.03	1.03	1.04	1.06	1.46			3.13	3.07	3.13
	velocity	5.22	8.54	8.87	8.87	9.14	8.79	8.87	8.87	8.79	8.62	9.60	8.20		8.76	8.93	8.76
Llopis, Enrique (ESP) (2000)	time	2.56	3.60	4.60	5.63	6.63	7.66	8.70	9.80	10.86	11.96		13.44	2 / 8			*Henson (2022)*
reaction time 0.113	interval	7 steps	1.04	1.00	1.03	1.00	1.03	1.04	1.10	1.06	1.10	1.48			3.07	3.07	3.26
	velocity	5.36	8.79	9.14	8.87	9.14	8.87	8.79	8.31	8.62	8.31	9.47	8.18		8.93	8.93	8.41

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

Semi-Final 2

date 17-Jul-22 wind 0.3 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report (TV Analysis)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cunningham, Trey (USA) (199!	time	2.48	3.50	4.50	5.50	6.50	7.53	8.53	9.56	10.60	11.66		13.07	3 / 1			*Henson (2022)*
reaction time 0.120	interval	7 steps	1.02	1.00	1.00	1.00	1.03	1.00	1.03	1.04	1.06	1.41			3.02	3.03	3.13
	velocity	5.53	8.96	9.14	9.14	9.14	8.87	9.14	8.87	8.79	8.62	9.94	8.42		9.08	9.05	8.76
Martínez, Asier (ESP) (2000)	time	2.66	3.70	4.74	5.76	6.80	7.80	8.83	9.83	10.83	11.87		13.26	6 / 2			*Henson (2022)*
reaction time 0.141	interval	7 steps	1.04	1.04	1.02	1.04	1.00	1.03	1.00	1.00	1.04	1.39			3.10	3.07	3.04
	velocity	5.16	8.79	8.79	8.96	8.79	9.14	8.87	9.14	9.14	8.79	10.09	8.30		8.85	8.93	9.02
Broadbell, Rasheed (JAM) (200	time	2.50	3.53	4.60	5.66	6.66	7.66	8.70	9.73	10.83	11.87		13.27	4 / 3			*Henson (2022)*
reaction time 0.129	interval	7 steps	1.03	1.07	1.06	1.00	1.00	1.04	1.03	1.10	1.04	1.40			3.16	3.04	3.17
	velocity	5.49	8.87	8.54	8.62	9.14	9.14	8.79	8.87	8.31	8.79	10.01	8.29		8.68	9.02	8.65
Martinot-Lagarde, Pascal (FRA	time	2.50	3.56	4.60	5.63	6.63	7.66	8.70	9.76	10.83	11.90		13.40	1 / 4			*Henson (2022)*
reaction time 0.129	interval	7 steps	1.06	1.04	1.03	1.00	1.03	1.04	1.06	1.07	1.07	1.50			3.13	3.07	3.20
	velocity	5.49	8.62	8.79	8.87	9.14	8.87	8.79	8.62	8.54	8.54	9.35	8.21		8.76	8.93	8.57
Izumiya, Shunsuke (JPN) (2000	time	2.59	3.65	4.68	5.72	6.77	7.81	8.85	9.91	10.97	12.04		13.42	8 / 5			*Shibayama (2023)*
reaction time 0.112	interval	7 steps	1.06	1.03	1.04	1.05	1.04	1.04	1.06	1.06	1.07	1.38			3.13	3.13	3.19
	velocity	5.30	8.62	8.87	8.79	8.70	8.79	8.79	8.62	8.62	8.54	10.16	8.20		8.76	8.76	8.60
Trajkovic, Milan (CYP) (1992)	time	2.56	3.63	4.70	5.70	6.73	7.76	8.83	9.88	10.93	12.03		13.49	5 / 6			*Henson (2022)*
reaction time 0.142	interval	7 steps	1.07	1.07	1.00	1.03	1.03	1.07	1.05	1.05	1.10	1.46			3.14	3.13	3.20
	velocity	5.36	8.54	8.54	9.14	8.87	8.87	8.54	8.70	8.70	8.31	9.60	8.15		8.73	8.76	8.57
King, David (GBR) (1994)	time	2.56	3.63	4.66	5.66	6.73	7.76	8.83	9.88	10.93	12.03		13.51	2 / 7			*Henson (2022)*
reaction time 0.120	interval	7 steps	1.07	1.03	1.00	1.07	1.03	1.07	1.05	1.05	1.10	1.48			3.10	3.17	3.20
	velocity	5.36	8.54	8.87	9.14	8.54	8.87	8.54	8.70	8.70	8.31	9.47	8.14		8.85	8.65	8.57
Rodrigues, Eduardo (BRA) (19	time	2.63	3.70	4.73	5.76	6.86	7.90	8.93	10.00	11.03	12.13		13.62	7 / 8			*Henson (2022)*
reaction time 0.130	interval	7 steps	1.07	1.03	1.03	1.10	1.04	1.03	1.07	1.03	1.10	1.49			3.13	3.17	3.20
	velocity	5.22	8.54	8.87	8.87	8.31	8.79	8.87	8.54	8.87	8.31	9.41	8.08		8.76	8.65	8.57

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

Semi-Final 1

date 17-Jul-22 wind -0.6 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report (TV Analysis)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.43	3.40	4.40	5.37	6.37	7.37	8.37	9.40	10.43	11.48		13.01	6 / 1			*Henson (2022)*
reaction time 0.128	interval	7 steps	0.97	1.00	0.97	1.00	1.00	1.00	1.03	1.03	1.05	1.53			2.94	3.00	3.11
	velocity	5.65	9.42	9.14	9.42	9.14	9.14	9.14	8.87	8.87	8.70	9.16	8.46		9.33	9.14	8.82
Zeller, Joshua (GBR) (2000)	time	2.56	3.60	4.63	5.63	6.65	7.67	8.70	9.73	10.80	11.86		13.31	5 / 2			*Henson (2022)*
reaction time 0.124	interval		1.04	1.03	1.00	1.02	1.02	1.03	1.03	1.07	1.06	1.45			3.07	3.07	3.16
	velocity	5.36	8.79	8.87	9.14	8.96	8.96	8.87	8.87	8.54	8.62	9.67	8.26		8.93	8.93	8.68
Bouanani, Amine (ALG) (1997)	time	2.60	3.66	4.70	5.70	6.70	7.76	8.80	9.83	10.87	11.96		13.37	3 / 3			*Henson (2022)*
reaction time 0.130	interval	7 steps	1.06	1.04	1.00	1.00	1.06	1.04	1.03	1.04	1.09	1.41	NR PB		3.10	3.10	3.16
	velocity	5.28	8.62	8.79	9.14	9.14	8.62	8.79	8.87	8.79	8.39	9.94	8.23		8.85	8.85	8.68
Pereira, Rafael (BRA) (1997)	time	2.50	3.63	4.66	5.70	6.70	7.76	8.80	9.83	10.87	11.96		13.46	4 / 4			*Henson (2022)*
reaction time 0.125	interval		1.13	1.03	1.04	1.00	1.06	1.04	1.03	1.04	1.09	1.50			3.20	3.10	3.16
	velocity	5.49	8.09	8.87	8.79	9.14	8.62	8.79	8.87	8.79	8.39	9.35	8.17		8.57	8.85	8.68
Zhoya, Sasha (FRA) (2002)	time	2.50	3.63	4.70	5.76	6.80	7.83	8.83	9.88	10.96	12.00		13.47	8 / 5			*Henson (2022)*
reaction time 0.154	interval	7 steps	1.13	1.07	1.06	1.04	1.03	1.00	1.05	1.08	1.04	1.47			3.26	3.07	3.17
	velocity	5.49	8.09	8.54	8.62	8.79	8.87	9.14	8.70	8.46	8.79	9.54	8.17		8.41	8.93	8.65
Bennett, Orlando (JAM) (1999)	time	2.56	3.60	4.70	5.76	6.80	7.85	8.90	9.96	11.06	12.17		13.67	2 / 6			*Henson (2022)*
reaction time 0.139	interval		1.04	1.10	1.06	1.04	1.05	1.05	1.06	1.10	1.11	1.50			3.20	3.14	3.27
	velocity	5.36	8.79	8.31	8.62	8.79	8.70	8.70	8.62	8.31	8.23	9.35	8.05		8.57	8.73	8.39
Joseph, Jason (SUI) (1998)	time	2.58	3.63	4.66	5.70	6.75	7.80	8.86	9.96	11.03	12.17		13.67	7 / 7			*Henson (2022)*
reaction time 0.149	interval	7 steps	1.05	1.03	1.04	1.05	1.05	1.06	1.10	1.07	1.14	1.50			3.12	3.16	3.31
	velocity	5.32	8.70	8.87	8.79	8.70	8.70	8.62	8.31	8.54	8.02	9.35	8.05		8.79	8.68	8.28
Ishikawa, Shuhei (JPN) (1995)	time	2.63	3.70	4.78	5.85	6.90	7.95	9.02	10.07	11.14	12.25		13.68	1 / 8			*Shibayama (2023)*
reaction time 0.144	interval	7 steps	1.07	1.08	1.07	1.05	1.05	1.07	1.05	1.07	1.11	1.43			3.22	3.17	3.23
	velocity	5.22	8.54	8.46	8.54	8.70	8.70	8.54	8.70	8.54	8.23	9.80	8.04		8.52	8.65	8.49

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

Heat 5

date 16-Jul-22 wind 0.4 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report (TV Analysis)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.56	3.58	4.63	5.63	6.66	7.70	8.76	9.83	10.93	12.00		13.47	3 / 1			*Henson (2022)*
reaction time 0.123	interval	7 steps	1.02	1.05	1.00	1.03	1.04	1.06	1.07	1.10	1.07	1.47			3.07	3.13	3.24
	velocity	5.36	8.96	8.70	9.14	8.87	8.79	8.62	8.54	8.31	8.54	9.54	8.17		8.93	8.76	8.46
Trajkovic, Milan (CYP) (1992)	time	2.53	3.60	4.60	5.66	6.70	7.73	8.76	9.83	10.90	11.98		13.52	4 / 2			*Henson (2022)*
reaction time 0.133	interval	7 steps	1.07	1.00	1.06	1.04	1.03	1.03	1.07	1.07	1.08	1.54			3.13	3.10	3.22
	velocity	5.42	8.54	9.14	8.62	8.79	8.87	8.87	8.54	8.54	8.46	9.10	8.14		8.76	8.85	8.52
Izumiya, Shunsuke (JPN) (2000	time	2.62	3.67	4.73	5.77	6.81	7.85	8.93	9.98	11.07	12.17		13.56	1 / 3			*Shibayama (2023)*
reaction time 0.128	interval	7 steps	1.05	1.06	1.04	1.04	1.04	1.08	1.05	1.09	1.10	1.39			3.15	3.16	3.24
	velocity	5.24	8.70	8.62	8.79	8.79	8.79	8.46	8.70	8.39	8.31	10.09	8.11		8.70	8.68	8.46
King, David (GBR) (1994)	time	2.58	3.66	4.73	5.73	6.76	7.83	8.90	9.93	11.00	12.10		13.57	5 / 4			*Henson (2022)*
reaction time 0.117	interval	7 steps	1.08	1.07	1.00	1.03	1.07	1.07	1.03	1.07	1.10	1.47			3.15	3.17	3.20
	velocity	5.32	8.46	8.54	9.14	8.87	8.54	8.54	8.87	8.54	8.31	9.54	8.11		8.70	8.65	8.57

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

Heat 4

date 16-Jul-22 wind 0.2 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report (TV Analysis)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Parchment, Hansle (JAM) (199(	time	2.53	3.56	4.63	5.63	6.66	7.66	8.66	9.66	10.66	11.70		13.17	4 / 1			*Henson (2022)*
reaction time 0.153	interval	7 steps	1.03	1.07	1.00	1.03	1.00	1.00	1.00	1.00	1.04	1.47			3.10	3.03	3.04
	velocity	5.42	8.87	8.54	9.14	8.87	9.14	9.14	9.14	9.14	8.79	9.54	8.35		8.85	9.05	9.02
Pereira, Rafael (BRA) (1997)	time	2.50	3.56	4.63	5.63	6.63	7.63	8.66	9.66	10.70	11.76		13.23	6 / 2			*Henson (2022)*
reaction time 0.140	interval		1.06	1.07	1.00	1.00	1.00	1.03	1.00	1.04	1.06	1.47			3.13	3.03	3.10
	velocity	5.49	8.62	8.54	9.14	9.14	9.14	8.87	9.14	8.79	8.62	9.54	8.31		8.76	9.05	8.85
Kwaou-Mathey, Just (FRA) (19	time	2.56	3.64	4.66	5.66	6.66	7.70	8.70	9.73	10.76	11.86		13.32	2 / 3			*Henson (2022)*
reaction time 0.150	interval	7 steps	1.08	1.02	1.00	1.00	1.04	1.00	1.03	1.03	1.10	1.46			3.10	3.04	3.16
	velocity	5.36	8.46	8.96	9.14	9.14	8.79	9.14	8.87	8.87	8.31	9.60	8.26		8.85	9.02	8.68
Brathwaite, Shane (BAR) (1990	time	2.56	3.66	4.70	5.73	6.73	7.76	8.80	9.83	10.90	11.96		13.47	3 / 4			*Henson (2022)*
reaction time 0.134	interval	7 steps	1.10	1.04	1.03	1.00	1.03	1.04	1.03	1.07	1.06	1.51			3.17	3.07	3.16
	velocity	5.36	8.31	8.79	8.87	9.14	8.87	8.79	8.87	8.54	8.62	9.28	8.17		8.65	8.93	8.68
Muratake, Rachid (JPN) (2002)	time	2.67	3.78	4.83	5.86	6.92	7.98	9.03	10.09	11.16	12.30		13.73	8 / 6			*Shibayama (2023)*
reaction time 0.182	interval	7 steps	1.11	1.05	1.03	1.06	1.06	1.05	1.06	1.07	1.14	1.43			3.19	3.17	3.27
	velocity	5.14	8.23	8.70	8.87	8.62	8.62	8.70	8.62	8.54	8.02	9.80	8.01		8.60	8.65	8.39

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

Heat 3

date 16-Jul-22 wind -0.3 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report (TV Analysis)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Martínez, Asier (ESP) (2000)	time	2.56	3.60	4.60	5.60	6.63	7.66	8.70	9.73	10.80	11.83		13.37	2 / 1		*Henson (2022)*	
reaction time 0.137	interval	7 steps	1.04	1.00	1.00	1.03	1.03	1.04	1.03	1.07	1.03	1.54			3.04	3.10	3.13
	velocity	5.36	8.79	9.14	9.14	8.87	8.87	8.79	8.87	8.54	8.87	9.10	8.23		9.02	8.85	8.76
Bouanani, Amine (ALG) (1997)	time	2.56	3.63	4.63	5.66	6.66	7.70	8.70	9.80	10.86	11.93		13.44	1 / 2		*Henson (2022)*	
reaction time 0.134	interval	7 steps	1.07	1.00	1.03	1.00	1.04	1.00	1.10	1.06	1.07	1.51			3.10	3.04	3.23
	velocity	5.36	8.54	9.14	8.87	9.14	8.79	9.14	8.31	8.62	8.54	9.28	8.18		8.85	9.02	8.49
Zhoya, Sasha (FRA) (2002)	time	2.46	3.53	4.60	5.60	6.63	7.66	8.70	9.80	10.86	12.00		13.48	6 / 3		*Henson (2022)*	
reaction time 0.132	interval	7 steps	1.07	1.07	1.00	1.03	1.03	1.04	1.10	1.06	1.14	1.48			3.14	3.10	3.30
	velocity	5.58	8.54	8.54	9.14	8.87	8.87	8.79	8.31	8.62	8.02	9.47	8.16		8.73	8.85	8.31
Ishikawa, Shuhei (JPN) (1995)	time	2.58	3.65	4.69	5.73	6.76	7.80	8.86	9.93	11.00	12.10		13.53	3 / 4		*Shibayama (2023)*	
reaction time 0.144	interval	7 steps	1.07	1.04	1.04	1.03	1.04	1.06	1.07	1.07	1.10	1.43			3.15	3.13	3.24
	velocity	5.32	8.54	8.79	8.79	8.87	8.79	8.62	8.54	8.54	8.31	9.80	8.13		8.70	8.76	8.46
Roberts, Daniel (USA) (1998)	time	2.50	3.50	4.50	5.50	6.53	7.56	8.60					dnf	4 / --		*Henson (2022)*	
reaction time 0.179	interval		1.00	1.00	1.00	1.03	1.03	1.04					DQ		3.00	3.10	
	velocity	5.49	9.14	9.14	9.14	8.87	8.87	8.79							9.14	8.85	

Heat 2 (TV Analysis)

date 16-Jul-22 wind 0.4 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.43	3.46	4.46	5.43	6.43	7.43	8.46	9.50	10.53	11.63		13.14	1 / 1			
reaction time 0.147	interval	7 steps	1.03	1.00	0.97	1.00	1.00	1.03	1.04	1.03	1.10	1.51			3.00	3.03	3.17
	velocity	5.65	8.87	9.14	9.42	9.14	9.14	8.87	8.79	8.87	8.31	9.28	8.37		9.14	9.05	8.65
Czykier, Damian (POL) (1992)	time	2.56	3.58	4.60	5.60	6.63	7.66	8.70	9.73	10.76	11.86		13.37	3 / 2			
reaction time 0.146	interval	7 steps	1.02	1.02	1.00	1.03	1.03	1.04	1.03	1.03	1.10	1.51			3.04	3.10	3.16
	velocity	5.36	8.96	8.96	9.14	8.87	8.87	8.79	8.87	8.87	8.31	9.28	8.23		9.02	8.85	8.68
Zeller, Joshua (GBR) (2000)	time	2.56	3.63	4.68	5.70	6.73	7.73	8.76	9.80	10.86	11.93		13.41	5 / 3			
reaction time 0.126	interval		1.07	1.05	1.02	1.03	1.00	1.03	1.04	1.06	1.07	1.48			3.14	3.06	3.17
	velocity	5.36	8.54	8.70	8.96	8.87	9.14	8.87	8.79	8.62	8.54	9.47	8.20		8.73	8.96	8.65
Rodrigues, Eduardo (BRA) (19	time	2.56	3.63	4.70	5.73	6.73	7.73	8.76	9.80	10.90	11.96		13.46	8 / 4			
reaction time 0.134	interval	7 steps	1.07	1.07	1.03	1.00	1.00	1.03	1.04	1.10	1.06	1.50			3.17	3.03	3.20
	velocity	5.36	8.54	8.54	8.87	9.14	9.14	8.87	8.79	8.31	8.62	9.35	8.17		8.65	9.05	8.57

Heat 1 (TV Analysis)

date 16-Jul-22 wind -0.5 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cunningham, Trey (USA) (199	time	2.50	3.53	4.56	5.56	6.58	7.60	8.63	9.66	10.76	11.80		13.28	4 / 1			
reaction time 0.115	interval	7 steps	1.03	1.03	1.00	1.02	1.02	1.03	1.03	1.10	1.04	1.48			3.06	3.07	3.17
	velocity	5.49	8.87	8.87	9.14	8.96	8.96	8.87	8.87	8.31	8.79	9.47	8.28		8.96	8.93	8.65
Broadbell, Rasheed (JAM) (200	time	2.46	3.53	4.56	5.56	6.60	7.63	8.73	9.80	10.83	11.86		13.36	8 / 2			
reaction time 0.139	interval	7 steps	1.07	1.03	1.00	1.04	1.03	1.10	1.07	1.03	1.03	1.50			3.10	3.17	3.13
	velocity	5.58	8.54	8.87	9.14	8.79	8.87	8.31	8.54	8.87	8.87	9.35	8.23		8.85	8.65	8.76
Pozzi, Andy (GBR) (1992)	time	2.46	3.53	4.53	5.56	6.58	7.60	8.63	9.70	10.80	11.86		13.45	2 / 3			
reaction time 0.120	interval	7 steps	1.07	1.00	1.03	1.02	1.02	1.03	1.07	1.10	1.06	1.59			3.10	3.07	3.23
	velocity	5.58	8.54	9.14	8.87	8.96	8.96	8.87	8.54	8.31	8.62	8.82	8.18		8.85	8.93	8.49
Joseph, Jason (SUI) (1998)	time	2.53	3.56	4.60	5.60	6.63	7.66	8.76	9.80	10.86	11.96		13.49	7 / 4			
reaction time 0.140	interval	7 steps	1.03	1.04	1.00	1.03	1.03	1.10	1.04	1.06	1.10	1.53			3.07	3.16	3.20
	velocity	5.42	8.87	8.79	9.14	8.87	8.87	8.31	8.79	8.62	8.31	9.16	8.15		8.93	8.68	8.57
Martinot-Lagarde, Pascal (FRA	time	2.53	3.56	4.60	5.63	6.66	7.70	8.76	9.80	10.86	11.96		13.49	1 / 5			
reaction time 0.134	interval	7 steps	1.03	1.04	1.03	1.03	1.04	1.06	1.04	1.06	1.10	1.53			3.10	3.13	3.20
	velocity	5.42	8.87	8.79	8.87	8.87	8.79	8.62	8.79	8.62	8.31	9.16	8.15		8.85	8.76	8.57

2022 Chinese National Grand Prix (Huangshi, CHN)

Heat 2

date 15-Jul-22 wind -0.2 m/s

Huo (2022) - research on the technical characteristics of elite chinese 110m hurdlers

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Junxi (CHN) (2003)	time	2.57	3.64	4.68	5.73	6.78	7.85	8.92	10.00	11.10	12.19		13.68	/ 1			
reaction time	interval		1.07	1.04	1.05	1.05	1.07	1.07	1.08	1.10	1.09	1.49	PB		3.16	3.19	3.27
	velocity	5.34	8.54	8.79	8.70	8.70	8.54	8.54	8.46	8.31	8.39	9.41	8.04		8.68	8.60	8.39
Ji Haohao (CHN) (2001)	time	2.66	3.76	4.86	5.94	7.04	8.16	9.28	10.41	11.53	12.66		14.16	/ 2			
reaction time	interval		1.10	1.10	1.08	1.10	1.12	1.12	1.13	1.12	1.13	1.50			3.28	3.34	3.38
	velocity	5.16	8.31	8.31	8.46	8.31	8.16	8.16	8.09	8.16	8.09	9.35	7.77		8.36	8.21	8.11
Yan Chenyu (CHN) (2003)	time	2.66	3.79	4.91	6.01	7.11	8.21	9.34	10.45	11.56	12.68		14.17	/ 3			
reaction time	interval		1.13	1.12	1.10	1.10	1.10	1.13	1.11	1.11	1.12	1.49	PB		3.35	3.33	3.34
	velocity	5.16	8.09	8.16	8.31	8.31	8.31	8.09	8.23	8.23	8.16	9.41	7.76		8.19	8.23	8.21

Wu Zhenhua (CHN) (1998)	time	2.63	3.74	4.84	5.94	7.05	8.15	9.27	10.39	11.50	12.63		14.17	/ 4			
reaction time	interval		1.11	1.10	1.10	1.11	1.10	1.12	1.12	1.11	1.13	1.54			3.31	3.33	3.36
	velocity	5.22	8.23	8.31	8.31	8.23	8.31	8.16	8.16	8.23	8.09	9.10	7.76		8.28	8.23	8.16

Heat 1

date 15-Jul-22 wind 0.2 m/s

Huo (2022) - research on the technical characteristics of elite chinese 110m hurdlers

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.66	3.72	4.78	5.85	6.90	7.96	9.03	10.12	11.20	12.32		13.83	/ 1			
reaction time	interval		1.06	1.06	1.07	1.05	1.06	1.07	1.09	1.08	1.12	1.51			3.19	3.18	3.29
	velocity	5.16	8.62	8.62	8.54	8.70	8.62	8.54	8.39	8.46	8.16	9.28	7.95		8.60	8.62	8.33
Yang Yuxuan (CHN) (2002)	time	2.69	3.81	4.91	6.00	7.07	8.17	9.28	10.39	11.51	12.67		14.19	/ 2			
reaction time	interval		1.12	1.10	1.09	1.07	1.10	1.11	1.11	1.12	1.16	1.52			3.31	3.28	3.39
	velocity	5.10	8.16	8.31	8.39	8.54	8.31	8.23	8.23	8.16	7.88	9.22	7.75		8.28	8.36	8.09

2022 USATF National Championships (Eugene, OR)

FINAL (TV Analysis)

date 26-Jun-22 wind 1.2 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.43	3.47	4.47	5.47	6.47	7.47	8.50	9.52	10.54	11.61		13.03	7 / 1			
reaction time	interval		1.04	1.00	1.00	1.00	1.00	1.03	1.02	1.02	1.07	1.42			3.04	3.03	3.11
	velocity	5.65	8.79	9.14	9.14	9.14	9.14	8.87	8.96	8.96	8.54	9.87	8.44		9.02	9.05	8.82
Cunningham, Trey (USA) (199	time	2.47	3.47	4.52	5.51	6.52	7.54	8.57	9.57	10.61	11.68		13.08	5 / 2			
reaction time	interval	7 steps	1.00	1.05	0.99	1.01	1.02	1.03	1.00	1.04	1.07	1.40			3.04	3.06	3.11
	velocity	5.55	9.14	8.70	9.23	9.05	8.96	8.87	9.14	8.79	8.54	10.01	8.41		9.02	8.96	8.82
Allen, Devon (USA) (1994)	time	2.53	3.56	4.55	5.58	6.57	7.57	8.59	9.61	10.64	11.70		13.09	4 / 3			
reaction time	interval	7 steps	1.03	0.99	1.03	0.99	1.00	1.02	1.02	1.03	1.06	1.39			3.05	3.01	3.11
	velocity	5.42	8.87	9.23	8.87	9.23	9.14	8.96	8.96	8.87	8.62	10.09	8.40		8.99	9.11	8.82
Britt, Jamal (USA) (1998)	time	2.50	3.55	4.55	5.55	6.55	7.55	8.56	9.57	10.62	11.66		13.09	3 / 4			
reaction time	interval	7 steps	1.05	1.00	1.00	1.00	1.00	1.01	1.01	1.05	1.04	1.43	PB		3.05	3.01	3.10
	velocity	5.49	8.70	9.14	9.14	9.14	9.14	9.05	9.05	8.70	8.79	9.80	8.40		8.99	9.11	8.85
Crittenden, Freddie (USA) (199	time	2.53	3.53	4.55	5.57	6.57	7.57	8.57	9.61	10.64	11.68		13.14	2 / 5			
reaction time	interval		1.00	1.02	1.02	1.00	1.00	1.00	1.04	1.03	1.04	1.46	PB		3.04	3.00	3.11
	velocity	5.42	9.14	8.96	8.96	9.14	9.14	9.14	8.79	8.87	8.79	9.60	8.37		9.02	9.14	8.82
Dunning, Robert (USA) (1997)	time	2.53	3.55	4.57	5.59	6.61	7.61	8.61	9.64	10.67	11.74		13.27	9 / 6			
reaction time	interval	7 steps	1.02	1.02	1.02	1.02	1.00	1.00	1.03	1.03	1.07	1.53			3.06	3.02	3.13
	velocity	5.42	8.96	8.96	8.96	8.96	9.14	9.14	8.87	8.87	8.54	9.16	8.29		8.96	9.08	8.76
Edwards Jr., Eric (USA) (2000)	time	2.57	3.63	4.70	5.74	6.78	7.82	8.87	9.94	11.02	12.11		13.76	8 / 7			
reaction time	interval		1.06	1.07	1.04	1.04	1.04	1.05	1.07	1.08	1.09	1.65			3.17	3.13	3.24
	velocity	5.34	8.62	8.54	8.79	8.79	8.79	8.70	8.54	8.46	8.39	8.50	7.99		8.65	8.76	8.46

Semi-Final 2

date 26-Jun-22 wind 0.1 m/s

USATF (2022) - Results powered by Karmarush.com

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cunningham, Trey (USA) (199	time	2.43	3.46	4.56	5.45	6.46	7.52	8.53	9.55	10.57	11.63		13.09	6 / 1			
reaction time	interval	7 steps	1.03	1.10	0.89	1.01	1.06	1.01	1.02	1.02	1.06	1.46			3.02	3.08	3.10
	velocity	5.65	8.87	8.31	10.27	9.05	8.62	9.05	8.96	8.96	8.62	9.60	8.40		9.08	8.90	8.85
Allen, Devon (USA) (1994)	time	2.45	3.52	4.55	5.54	6.55	7.61	8.55	9.61	10.63	11.64		13.14	5 / 2			
reaction time	interval	7 steps	1.07	1.03	0.99	1.01	1.06	0.94	1.06	1.02	1.01	1.50			3.09	3.01	3.09
	velocity	5.60	8.54	8.87	9.23	9.05	8.62	9.72	8.62	8.96	9.05	9.35	8.37		8.87	9.11	8.87
Britt, Jamal (USA) (1998)	time	2.51	3.53	4.57	5.60	6.61	7.64	8.65	9.72	10.67	11.77		13.25	7 / 3			
reaction time	interval	7 steps	1.02	1.04	1.03	1.01	1.03	1.01	1.07	0.95	1.10	1.48			3.09	3.05	3.12
	velocity	5.47	8.96	8.79	8.87	9.05	8.87	9.05	8.54	9.62	8.31	9.47	8.30		8.87	8.99	8.79
Crittenden, Freddie (USA) (199	time	2.50	3.57	4.60	5.64	6.70	7.69	8.70	9.77	10.78	11.86		13.35	4 / 4			
reaction time	interval		1.07	1.03	1.04	1.06	0.99	1.01	1.07	1.01	1.08	1.49			3.14	3.06	3.16
	velocity	5.49	8.54	8.87	8.79	8.62	9.23	9.05	8.54	9.05	8.46	9.41	8.24		8.73	8.96	8.68
Gilbert, Tre'Bien (USA) (1999)	time	2.54	3.58	4.62	5.65	6.66	7.68	8.71	9.77	10.85	11.95		13.51	8 / 5			
reaction time	interval		1.04	1.04	1.03	1.01	1.02	1.03	1.06	1.08	1.10	1.56			3.11	3.06	3.24
	velocity	5.40	8.79	8.79	8.87	9.05	8.96	8.87	8.62	8.46	8.31	8.99	8.14		8.82	8.96	8.46
Brockman, Joshua (USA) (200	time	2.47	3.56	4.60	5.60	6.62	7.69	8.76	9.85	10.92	12.00		13.55	2 / 6			
reaction time	interval		1.09	1.04	1.00	1.02	1.07	1.07	1.09	1.07	1.08	1.55	PB		3.13	3.16	3.24
	velocity	5.55	8.39	8.79	9.14	8.96	8.54	8.54	8.39	8.54	8.46	9.05	8.12		8.76	8.68	8.46
Anderson, Nick (USA) (1995)	time	2.50	3.56	4.61	5.66	6.66	7.78	8.82	9.90	10.94	12.04		13.69	3 / 7			
reaction time	interval		1.06	1.05	1.05	1.00	1.12	1.04	1.08	1.04	1.10	1.65			3.16	3.16	3.22
	velocity	5.49	8.62	8.70	8.70	9.14	8.16	8.79	8.46	8.79	8.31	8.50	8.04		8.68	8.68	8.52

Wilson, De'vion (USA) (2000)	time	2.58	3.70	4.77	5.80	6.87	7.94	9.01	10.10	11.17	12.28		13.86	9 / 8			
reaction time	interval		1.12	1.07	1.03	1.07	1.07	1.07	1.09	1.07	1.11	1.58			3.22	3.21	3.27
	velocity	5.32	8.16	8.54	8.87	8.54	8.54	8.54	8.39	8.54	8.23	8.87	7.94		8.52	8.54	8.39

Semi-Final 1

date 26-Jun-22 wind 0.4 m/s

USATF (2022) - Results powered by Karmarush.com

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.41	3.41	4.38	5.35	6.34	7.36	8.36	9.40	10.45	11.53		13.03	4 / 1			
reaction time	interval	7 steps	1.00	0.97	0.97	0.99	1.02	1.00	1.04	1.05	1.08	1.50			2.94	3.01	3.17
	velocity	5.69	9.14	9.42	9.42	9.23	8.96	9.14	8.79	8.70	8.46	9.35	8.44		9.33	9.11	8.65
Roberts, Daniel (USA) (1998)	time	2.40	3.45	4.55	5.43	6.46	7.52	8.54	9.57	10.60	11.65		13.17	6 / 2			
reaction time	interval		1.05	1.10	0.88	1.03	1.06	1.02	1.03	1.03	1.05	1.52			3.03	3.11	3.11
	velocity	5.72	8.70	8.31	10.39	8.87	8.62	8.96	8.87	8.87	8.70	9.22	8.35		9.05	8.82	8.82
Edwards Jr., Eric (USA) (2000)	time	2.42	3.45	4.53	5.51	6.54	7.60	8.61	9.64	10.56	11.66		13.29	5 / 3			
reaction time	interval		1.03	1.08	0.98	1.03	1.06	1.01	1.03	0.92	1.10	1.63			3.09	3.10	3.05
	velocity	5.67	8.87	8.46	9.33	8.87	8.62	9.05	8.87	9.93	8.31	8.60	8.28		8.87	8.85	8.99
Dunning, Robert (USA) (1997)	time	2.55	3.59	4.62	5.62	6.66	7.71	8.73	9.77	10.82	11.88		13.38	2 / 4			
reaction time	interval		1.04	1.03	1.00	1.04	1.05	1.02	1.04	1.05	1.06	1.50			3.07	3.11	3.15
	velocity	5.38	8.79	8.87	9.14	8.79	8.70	8.96	8.79	8.70	8.62	9.35	8.22		8.93	8.82	8.70
Mallett, Aaron (USA) (1994)	time	2.53	3.59	4.59	5.59	6.60	7.68	8.69	9.72	10.79	11.88		13.38	7 / 5			
reaction time	interval		1.06	1.00	1.00	1.01	1.08	1.01	1.03	1.07	1.09	1.50			3.06	3.10	3.19
	velocity	5.42	8.62	9.14	9.14	9.05	8.46	9.05	8.87	8.54	8.39	9.35	8.22		8.96	8.85	8.60
Braverman, Josh (USA) (1998)	time	2.49	3.52	4.63	5.59	6.66	7.70	8.73	9.80	10.86	11.89		13.43	8 / 6			
reaction time	interval		1.03	1.11	0.96	1.07	1.04	1.03	1.07	1.06	1.03	1.54			3.10	3.14	3.16
	velocity	5.51	8.87	8.23	9.52	8.54	8.79	8.87	8.54	8.62	8.87	9.10	8.19		8.85	8.73	8.68
Dickson, Michael (USA) (1997)	time	2.53	3.68	4.52	5.60	6.61	7.69	8.70	9.77	10.84	11.94		13.52	3 / 7			
reaction time	interval		1.15	0.84	1.08	1.01	1.08	1.01	1.07	1.07	1.10	1.58			3.07	3.10	3.24
	velocity	5.42	7.95	10.88	8.46	9.05	8.46	9.05	8.54	8.54	8.31	8.87	8.14		8.93	8.85	8.46
Rollins, Louis (USA) (1996)	time	2.47	3.51	4.60	5.61	6.69	7.72	8.77	9.82	10.95	12.03		13.58	9 / 8			
reaction time	interval		1.04	1.09	1.01	1.08	1.03	1.05	1.05	1.13	1.08	1.55			3.14	3.16	3.26
	velocity	5.55	8.79	8.39	9.05	8.46	8.87	8.70	8.70	8.09	8.46	9.05	8.10		8.73	8.68	8.41

2022 Meeting de Paris (Paris, FRA) (TV Analysis)

FINAL

date 18-Jun-22 wind -0.2 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.50	3.54	4.56	5.56	6.56	7.60	8.60	9.64	10.70	11.76		13.16	5 / 1			
reaction time 0.138	interval	7 steps	1.04	1.02	1.00	1.00	1.04	1.00	1.04	1.06	1.06	1.40			3.06	3.04	3.16
	velocity	5.49	8.79	8.96	9.14	9.14	8.79	9.14	8.79	8.62	8.62	10.01	8.36		8.96	9.02	8.68
Pereira, Rafael (BRA) (1997)	time	2.50	3.54	4.56	5.56	6.58	7.58	8.60	9.62	10.68	11.76		13.25	4 / 2			
reaction time 0.141	interval		1.04	1.02	1.00	1.02	1.00	1.02	1.02	1.06	1.08	1.49	**=PB**		3.06	3.04	3.16
	velocity	5.49	8.79	8.96	9.14	8.96	9.14	8.96	8.96	8.62	8.46	9.41	8.30		8.96	9.02	8.68
Kwaou-Mathey, Just (FRA) (19	time	2.56	3.60	4.62	5.62	6.62	7.66	8.66	9.70	10.74	11.80		13.27	2 / 3			
reaction time 0.169	interval	7 steps	1.04	1.02	1.00	1.00	1.04	1.00	1.04	1.04	1.06	1.47	**PB**		3.06	3.04	3.14
	velocity	5.36	8.79	8.96	9.14	9.14	8.79	9.14	8.79	8.79	8.62	9.54	8.29		8.96	9.02	8.73
Czykier, Damian (POL) (1992)	time	2.52	3.54	4.58	5.60	6.62	7.64	8.66	9.70	10.74	11.80		13.31	7 / 4			
reaction time 0.144	interval	7 steps	1.02	1.04	1.02	1.02	1.02	1.02	1.04	1.04	1.06	1.51			3.08	3.06	3.14
	velocity	5.44	8.96	8.79	8.96	8.96	8.96	8.96	8.79	8.79	8.62	9.28	8.26		8.90	8.96	8.73
Trajkovic, Milan (CYP) (1992)	time	2.50	3.56	4.58	5.58	6.60	7.64	8.68	9.72	10.80	11.86		13.39	8 / 5			
reaction time 0.154	interval	7 steps	1.06	1.02	1.00	1.02	1.04	1.04	1.04	1.08	1.06	1.53			3.08	3.10	3.18
	velocity	5.49	8.62	8.96	9.14	8.96	8.79	8.79	8.79	8.46	8.62	9.16	8.22		8.90	8.85	8.62
Pozzi, Andy (GBR) (1992)	time	2.50	3.54	4.58	5.60	6.62	7.66	8.70	9.76	10.84	11.94		13.49	1 / 6			
reaction time 0.126	interval	7 steps	1.04	1.04	1.02	1.02	1.04	1.04	1.06	1.08	1.10	1.55			3.10	3.10	3.24
	velocity	5.49	8.79	8.79	8.96	8.96	8.79	8.79	8.62	8.46	8.31	9.05	8.15		8.85	8.85	8.46
Martínez, Asier (ESP) (2000)	time	2.58	3.64	4.66	5.68	6.68	7.70	8.76	9.84	10.92	12.02		13.69	6 / 7			
reaction time 0.161	interval	7 steps	1.06	1.02	1.02	1.00	1.02	1.06	1.08	1.08	1.10	1.67			3.10	3.08	3.26
	velocity	5.32	8.62	8.96	8.96	9.14	8.96	8.62	8.46	8.46	8.31	8.40	8.04		8.85	8.90	8.41
Mallett, Aaron (USA) (1994)	time	2.50	3.56	4.58	5.62	6.62	7.62	8.66	9.68					3 / --			
reaction time 0.150	interval	7 steps	1.06	1.02	1.04	1.00	1.00	1.04	1.02				**DQ**		3.12	3.04	
	velocity	5.49	8.62	8.96	8.79	9.14	9.14	8.79	8.96						8.79	9.02	

2022 Bislett Games (Oslo, NOR) (TV Analysis)

FINAL date 16-Jun-22 wind -1.2 m/s *Henson (2022) - Athlete First: 2022 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.52	3.56	4.57	5.58	6.56	7.58	8.60	9.62	10.70	11.80		13.22	5 / 1			
reaction time 0.140	interval	7 steps	1.04	1.01	1.01	0.98	1.02	1.02	1.02	1.08	1.10	1.42			3.06	3.02	3.20
	velocity	5.44	8.79	9.05	9.05	9.33	8.96	8.96	8.96	8.46	8.31	9.87	8.32		8.96	9.08	8.57
Martínez, Asier (ESP) (2000)	time	2.56	3.62	4.64	5.66	6.68	7.70	8.72	9.76	10.80	11.84		13.30	6 / 2			
reaction time 0.137	interval	7 steps	1.06	1.02	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.46			3.10	3.06	3.12
	velocity	5.36	8.62	8.96	8.96	8.96	8.96	8.96	8.79	8.79	8.79	9.60	8.27		8.85	8.96	8.79
Pereira, Rafael (BRA) (1997)	time	2.48	3.54	4.58	5.62	6.62	7.66	8.68	9.74	10.78	11.86		13.37	3 / 3			
reaction time 0.137	interval		1.06	1.04	1.04	1.00	1.04	1.02	1.06	1.04	1.08	1.51			3.14	3.06	3.18
	velocity	5.53	8.62	8.79	8.79	9.14	8.79	8.96	8.62	8.79	8.46	9.28	8.23		8.73	8.96	8.62
Mallett, Aaron (USA) (1994)	time	2.52	3.58	4.62	5.62	6.62	7.66	8.68	9.74	10.80	11.88		13.40	1 / 4			
reaction time 0.173	interval	7 steps	1.06	1.04	1.00	1.00	1.04	1.02	1.06	1.06	1.08	1.52			3.10	3.06	3.20
	velocity	5.44	8.62	8.79	9.14	9.14	8.79	8.96	8.62	8.62	8.46	9.22	8.21		8.85	8.96	8.57
Joseph, Jason (SUI) (1998)	time	2.56	3.62	4.64	5.68	6.68	7.72	8.76	9.84	10.92	12.02		13.55	7 / 5			
reaction time 0.159	interval	7 steps	1.06	1.02	1.04	1.00	1.04	1.04	1.08	1.08	1.10	1.53			3.12	3.08	3.26
	velocity	5.36	8.62	8.96	8.79	9.14	8.79	8.79	8.46	8.46	8.31	9.16	8.12		8.79	8.90	8.41
Dal Molin, Paolo (ITA) (1987)	time	2.52	3.60	4.66	5.72	6.76	7.84	8.94	10.02	11.12	12.26		13.76	8 / 6			
reaction time 0.122	interval	7 steps	1.08	1.06	1.06	1.04	1.08	1.10	1.08	1.10	1.14	1.50			3.20	3.22	3.32
	velocity	5.44	8.46	8.62	8.62	8.79	8.46	8.31	8.46	8.31	8.02	9.35	7.99		8.57	8.52	8.26
Belocian, Wilhem (FRA) (1995)	time	2.48	3.52	4.58	5.64								dnf	1 / --			
reaction time 0.111	interval	7 steps	1.04	1.06	1.06										3.16		
	velocity	5.53	8.79	8.62	8.62										8.68		

2022 New York Grand Prix (New York, NY) (TV Analysis)

FINAL date 12-Jun-22 wind 1.6 m/s *Henson (2022) - Athlete First: 2022 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.42	3.44	4.43	5.42	6.38	7.38	8.36	9.38	10.38	11.42		12.84	5 / 1			
reaction time 0.128	interval	7 steps	1.02	0.99	0.99	0.96	1.00	0.98	1.02	1.00	1.04	1.42	PB		3.00	2.94	3.06
	velocity	5.67	8.96	9.23	9.23	9.52	9.14	9.33	8.96	9.14	8.79	9.87	8.57		9.14	9.33	8.96
Holloway, Grant (USA) (1997)	time	2.35	3.35	4.33	5.33	6.30	7.28	8.30	9.35	10.38	11.52		13.06	6 / 2			
reaction time 0.116	interval	7 steps	1.00	0.98	1.00	0.97	0.98	1.02	1.05	1.03	1.14	1.54			2.98	2.97	3.22
	velocity	5.84	9.14	9.33	9.14	9.42	9.33	8.96	8.70	8.87	8.02	9.10	8.42		9.20	9.23	8.52
Roberts, Daniel (USA) (1997)	time	2.40	3.43	4.45	5.47	6.50	7.52	8.52	9.56	10.60	11.67		13.17	4 / 3			
reaction time 0.156	interval		1.03	1.02	1.02	1.03	1.02	1.00	1.04	1.04	1.07	1.50	PB		3.07	3.05	3.15
	velocity	5.72	8.87	8.96	8.96	8.87	8.96	9.14	8.79	8.79	8.54	9.35	8.35		8.93	8.99	8.70
Britt, Jamal (USA) (1998)	time	2.43	3.52	4.53	5.55	6.55	7.58	8.62	9.65	10.72	11.76		13.22	3 / 4			
reaction time 0.139	interval	7 steps	1.09	1.01	1.02	1.00	1.03	1.04	1.03	1.07	1.04	1.46	PB		3.12	3.07	3.14
	velocity	5.65	8.39	9.05	8.96	9.14	8.87	8.79	8.87	8.54	8.79	9.60	8.32		8.79	8.93	8.73
Brathwaite, Shane (BAR) (1990	time	2.52	3.57	4.60	5.62	6.63	7.63	8.68	9.72	10.78	11.84		13.40	8 / 5			
reaction time 0.133	interval		1.05	1.03	1.02	1.01	1.00	1.05	1.04	1.06	1.06	1.56			3.10	3.06	3.16
	velocity	5.44	8.70	8.87	8.96	9.05	9.14	8.70	8.79	8.62	8.62	8.99	8.21		8.85	8.96	8.68
Thomas, Damion (JAM) (1999)	time	2.52	3.56	4.57	5.58	6.61	7.63	8.70	9.75	10.82	11.90		13.40	7 / 6			
reaction time 0.149	interval	7 steps	1.04	1.01	1.01	1.03	1.02	1.07	1.05	1.07	1.08	1.50			3.06	3.12	3.20
	velocity	5.44	8.79	9.05	9.05	8.87	8.96	8.54	8.70	8.54	8.46	9.35	8.21		8.96	8.79	8.57
Walters, Ruebin (TTO) (1995)	time	2.53	3.60	4.66	5.73	6.77	7.83	8.90	9.95	11.03	12.12		13.67	2 / 7			
reaction time 0.139	interval		1.07	1.06	1.07	1.04	1.06	1.07	1.05	1.08	1.09	1.55			3.20	3.17	3.22
	velocity	5.42	8.54	8.62	8.54	8.79	8.62	8.54	8.70	8.46	8.39	9.05	8.05		8.57	8.65	8.52

2022 Japanese National Championsips (Osaka, JPN)

FINAL date 12-Jun-22 wind -1.2 m/s *Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunzuke (JPN) (2000	time	2.52	3.55	4.58	5.60	6.63	7.54	8.66	9.71	10.77	11.83		13.21	5 / 1			
reaction time 0.142	interval	7 steps	1.03	1.03	1.02	1.03	0.91	1.12	1.05	1.06	1.06	1.38			3.08	3.06	3.17
	velocity	5.44	8.87	8.87	8.96	8.87	10.04	8.16	8.70	8.62	8.62	10.16	8.33		8.90	8.96	8.65
Muratake, Rachid (JPN) (2002)	time	2.62	3.65	4.67	5.68	6.70	7.72	8.73	9.78	10.83	11.89		13.31	7 / 2			
reaction time 0.174	interval	7 steps	1.03	1.02	1.01	1.02	1.02	1.01	1.05	1.05	1.06	1.42			3.06	3.05	3.16
	velocity	5.24	8.87	8.96	9.05	8.96	8.96	9.05	8.70	8.70	8.62	9.87	8.26		8.96	8.99	8.68
Ishikawa, Shuhei (JPN) (1995)	time	2.60	3.67	4.70	5.72	6.75	7.77	8.83	9.88	10.93	12.03		13.48	4 / 3			
reaction time 0.155	interval	7 steps	1.07	1.03	1.02	1.03	1.02	1.06	1.05	1.05	1.10	1.45			3.12	3.11	3.20
	velocity	5.28	8.54	8.87	8.96	8.87	8.96	8.62	8.70	8.70	8.31	9.67	8.16		8.79	8.82	8.57

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Takahashi, Yusuke (JPN) (1996	time	2.63	3.70	4.74	5.78	6.83	7.87	8.94	9.99	11.08	12.17		13.57	6 / 4				
reaction time 0.152	interval		1.07	1.04	1.04	1.05	1.04	1.07	1.05	1.09	1.09	1.40			3.15	3.16	3.23	
	velocity	5.22	8.54	8.79	8.79	8.70	8.79	8.54	8.70	8.39	8.39	10.01	8.11		8.70	8.68	8.49	
Takayama, Shunya (JPN) (1994	time	2.56	3.58	4.64	5.69	6.73	7.79	8.85	9.93	11.03	12.13		13.60	2 / 5				
reaction time 0.136	interval		1.02	1.06	1.05	1.04	1.06	1.06	1.08	1.10	1.10	1.47			3.13	3.16	3.28	
	velocity	5.36	8.96	8.62	8.70	8.79	8.62	8.62	8.46	8.31	8.31	9.54	8.09		8.76	8.68	8.36	
Fujii, Ryota (JPN) (1996)	time	2.58	3.65	4.70	5.73	6.76	7.82	8.89	9.97	11.05	12.15		13.63	9 / 6				
reaction time 0.145	interval		1.07	1.05	1.03	1.03	1.06	1.07	1.08	1.08	1.10	1.48			3.15	3.16	3.26	
	velocity	5.32	8.54	8.70	8.87	8.87	8.62	8.54	8.46	8.46	8.31	9.47	8.07		8.70	8.68	8.41	
Ishida Thomas, Higashi (JPN) (	time	2.55	3.65	4.68	5.71	6.75	7.81	8.89	9.97	11.09	12.20		13.68	8 / 7				
reaction time 0.147	interval	7 steps	1.10	1.03	1.03	1.04	1.06	1.08	1.08	1.12	1.11	1.48			3.16	3.18	3.31	
	velocity	5.38	8.31	8.87	8.87	8.79	8.62	8.46	8.46	8.16	8.23	9.47	8.04		8.68	8.62	8.28	
Yokochi, Taiga (JPN) (2000)	time	2.64	3.73	4.77	5.82	6.85	7.92	8.97	10.05	11.13	12.25		13.72	3 / 8				
reaction time 0.161	interval	7 steps	1.09	1.04	1.05	1.03	1.07	1.05	1.08	1.08	1.12	1.47			3.18	3.15	3.28	
	velocity	5.20	8.39	8.79	8.70	8.87	8.54	8.70	8.46	8.46	8.16	9.54	8.02		8.62	8.70	8.36	

2022 Japanese U20 National Championsips (Osaka, JPN) (99cm)

FINAL date 12-Jun-22 wind 1.1 m/s

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Abe, Tatsuki (JPN) (2003)	time	2.65	3.73	4.77	5.80	6.82	7.85	8.91	9.96	11.01	12.09		13.49	4 / 1			
reaction time 0.157	interval	7 steps	1.08	1.04	1.03	1.02	1.03	1.06	1.05	1.05	1.08	1.40	PB		3.15	3.11	3.18	
	velocity	5.18	8.46	8.79	8.87	8.96	8.87	8.62	8.70	8.70	8.46	10.01	8.15		8.70	8.82	8.62	
Manago, Ryona (JPN) (2003)	time	2.58	3.67	4.70	5.73	6.76	7.80	8.88	9.94	11.02	12.08		13.55	5 / 2			
reaction time 0.151	interval	7 steps	1.09	1.03	1.03	1.03	1.04	1.08	1.06	1.08	1.06	1.47			3.15	3.15	3.20	
	velocity	5.32	8.39	8.87	8.87	8.87	8.79	8.46	8.62	8.46	8.62	9.54	8.12		8.70	8.70	8.57	
Koike, Ryo (JPN) (2003)	time	2.58	3.69	4.74	5.79	6.80	7.83	8.87	9.93	11.00	12.10		13.57	7 / 3			
reaction time 0.155	interval	7 steps	1.11	1.05	1.05	1.01	1.03	1.04	1.06	1.07	1.10	1.47	PB		3.21	3.08	3.23	
	velocity	5.32	8.23	8.70	8.70	9.05	8.87	8.79	8.62	8.54	8.31	9.54	8.11		8.54	8.90	8.49	
Shikata, Makoto (JPN) (2003)	time	2.65	3.72	4.78	5.83	6.87	7.90	9.00	10.08	11.14	12.23		13.63	6 / 4			
reaction time 0.145	interval		1.07	1.06	1.05	1.04	1.03	1.10	1.08	1.06	1.09	1.40	PB		3.18	3.17	3.23	
	velocity	5.18	8.54	8.62	8.70	8.79	8.87	8.31	8.46	8.62	8.39	10.01	8.07		8.62	8.65	8.49	
Yamada, Masahiro (JPN) (2003)	time	2.67	3.77	4.87	5.93	6.98	8.04	9.10	10.17	11.25	12.35		13.82	8 / 5			
reaction time 0.155	interval		1.10	1.10	1.06	1.05	1.06	1.06	1.07	1.08	1.10	1.47	PB		3.26	3.17	3.25	
	velocity	5.14	8.31	8.31	8.62	8.70	8.62	8.62	8.54	8.46	8.31	9.54	7.96		8.41	8.65	8.44	
Matsumoto, Nozomu (JPN) (2(	time	2.68	3.77	4.81	5.86	6.91	7.95	9.01	10.11	11.20	12.31		13.83	9 / 6			
reaction time 0.171	interval	7 steps	1.09	1.04	1.05	1.05	1.04	1.06	1.10	1.09	1.11	1.52			3.18	3.15	3.30	
	velocity	5.12	8.39	8.79	8.70	8.70	8.79	8.62	8.31	8.39	8.23	9.22	7.95		8.62	8.70	8.31	
Tahara, Keigo (JPN) (2003)	time	2.63	3.73	4.83	5.86	6.92	7.96	9.05	10.13	11.23	12.34		13.87	2 / 7			
reaction time 0.155	interval		1.10	1.10	1.03	1.06	1.04	1.09	1.08	1.10	1.11	1.53	PB		3.23	3.19	3.29	
	velocity	5.22	8.31	8.31	8.87	8.62	8.79	8.39	8.46	8.31	8.23	9.16	7.93		8.49	8.60	8.33	
Sasaki, Keito (JPN) (2003)	time	2.75	3.86	4.96	6.05	7.13	8.20	9.30	10.39	11.51	12.64		14.18	3 / 8			
reaction time 0.175	interval		1.11	1.10	1.09	1.08	1.07	1.10	1.09	1.12	1.13	1.54			3.30	3.25	3.34	
	velocity	4.99	8.23	8.31	8.39	8.46	8.54	8.31	8.39	8.16	8.09	9.10	7.76		8.31	8.44	8.21	

2022 NCAA Championships (Eugene, OR) (TV Analysis)

FINAL date 10-Jun-22 wind 0.0 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cunningham, Trey (USA) (199	time	2.44	3.45	4.44	5.42	6.40	7.44	8.44	9.46	10.51	11.56		13.00	5 / 1			
reaction time	interval	7 steps	1.01	0.99	0.98	0.98	1.04	1.00	1.02	1.05	1.05	1.44	PB		2.98	3.02	3.12	
	velocity	5.62	9.05	9.23	9.33	9.33	8.79	9.14	8.96	8.70	8.70	9.74	8.46		9.20	9.08	8.79	
Edwards Jr., Eric (USA) (2000)	time	2.44	3.47	4.47	5.46	6.46	7.46	8.47	9.49	10.53	11.61		13.15	6 / 2			
reaction time	interval		1.03	1.00	0.99	1.00	1.00	1.01	1.02	1.04	1.08	1.54	PB		3.02	3.01	3.14	
	velocity	5.62	8.87	9.14	9.23	9.14	9.14	9.05	8.96	8.79	8.46	9.10	8.37		9.08	9.11	8.73	
Zeller, Joshua (GBR) (2000)	time	2.50	3.57	4.59	5.61	6.61	7.62	8.64	9.66	10.69	11.73		13.26	7 / 3			
reaction time	interval		1.07	1.02	1.02	1.00	1.01	1.02	1.02	1.03	1.04	1.53			3.11	3.03	3.09	
	velocity	5.49	8.54	8.96	8.96	9.14	9.05	8.96	8.96	8.87	8.79	9.16	8.30		8.82	9.05	8.87	
Roberts, Giano (JAM) (2000)	time	2.50	3.59	4.64	5.67	6.69	7.74	8.77	9.82	10.86	11.91		13.45	1 / 4			
reaction time	interval		1.09	1.05	1.03	1.02	1.05	1.03	1.05	1.04	1.05	1.54			3.17	3.10	3.14	
	velocity	5.49	8.39	8.70	8.87	8.96	8.70	8.87	8.70	8.79	8.70	9.10	8.18		8.65	8.85	8.73	

Campbell, Lafranz (JAM) (1997	time	2.51	3.55	4.59	5.60	6.64	7.66	8.69	9.74	10.79	11.91		13.45	8 / 5			
reaction time	interval	7 steps	1.04	1.04	1.01	1.04	1.02	1.03	1.05	1.05	1.12	1.54			3.09	3.09	3.22
	velocity	5.47	8.79	8.79	9.05	8.79	8.96	8.87	8.70	8.70	8.16	9.10	8.18		8.87	8.87	8.52
Patterson, Kentre (USA) (1999)	time	2.50	3.55	4.60	5.60	6.64	7.67	8.72	9.78	10.84	11.91		13.46	9 / 6			
reaction time	interval		1.05	1.05	1.00	1.04	1.03	1.05	1.06	1.06	1.07	1.55			3.10	3.12	3.19
	velocity	5.49	8.70	8.70	9.14	8.79	8.87	8.70	8.62	8.62	8.54	9.05	8.17		8.85	8.79	8.60
Leaston, Justin (USA) (2001)	time	2.52	3.58	4.63	5.66	6.70	7.74	8.77	9.83	10.89	11.98		13.50	3 / 7			
reaction time	interval		1.06	1.05	1.03	1.04	1.04	1.03	1.06	1.06	1.09	1.52			3.14	3.11	3.21
	velocity	5.44	8.62	8.70	8.87	8.79	8.79	8.87	8.62	8.62	8.39	9.22	8.15		8.73	8.82	8.54
Ojora, Tade (GBR) (1999)	time	2.53	3.60	4.67	5.70	6.74	7.81	8.86	9.93	10.98	12.05		13.58	2 / 8			
reaction time	interval	7 steps	1.07	1.07	1.03	1.04	1.07	1.05	1.07	1.05	1.07	1.53			3.17	3.16	3.19
	velocity	5.42	8.54	8.54	8.87	8.79	8.54	8.70	8.54	8.70	8.54	9.16	8.10		8.65	8.68	8.60
Hayles, Jaheem (JAM) (2001)	time	2.55	3.65	4.72	5.77	6.82	7.86	8.89	9.96	11.06	12.19		13.73	4 / 9			
reaction time	interval		1.10	1.07	1.05	1.05	1.04	1.03	1.07	1.10	1.13	1.54			3.22	3.12	3.30
	velocity	5.38	8.31	8.54	8.70	8.70	8.79	8.87	8.54	8.31	8.09	9.10	8.01		8.52	8.79	8.31

2022 Japanese Multi-Event National Championsips (Akita, JPN)

Decathlon - FINAL date 05-Jun-22 wind -2.3 m/s

Takefu (2023) - performance analyisis of decathlon athletes in the 2022 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Taue, Shun (JPN) (1997)	time	2.72	3.87	4.99	6.09	7.23	8.35	9.49	10.65	11.81	12.99		14.48	7 / 1			
reaction time	interval		1.15	1.12	1.10	1.14	1.12	1.14	1.16	1.16	1.18	1.49			3.37	3.40	3.50
	velocity	5.04	7.95	8.16	8.31	8.02	8.16	8.02	7.88	7.88	7.75	9.41	7.60		8.14	8.06	7.83
Nakamura, Akihiko (JPN) (1990	time	2.76	3.92	5.06	6.21	7.35	8.49	9.64	10.81	11.98	13.15		14.65	5 / 3			
reaction time	interval		1.16	1.14	1.15	1.14	1.14	1.15	1.17	1.17	1.17	1.50			3.45	3.43	3.51
	velocity	4.97	7.88	8.02	7.95	8.02	8.02	7.95	7.81	7.81	7.81	9.35	7.51		7.95	7.99	7.81
Okuda, Keisuke (JPN) (1996)	time	2.75	3.90	5.05	6.20	7.35	8.50	9.66	10.82	12.00	13.21		14.71	9 / 4			
reaction time	interval		1.15	1.15	1.15	1.15	1.15	1.16	1.16	1.18	1.21	1.50			3.45	3.46	3.55
	velocity	4.99	7.95	7.95	7.95	7.95	7.95	7.88	7.88	7.75	7.55	9.35	7.48		7.95	7.92	7.72
Ushiro, Keisuke (JPN) (1986)	time	2.79	3.98	5.19	6.41	7.62	8.86	10.12	11.41	12.67	13.95		15.67	8 / 8			
reaction time	interval		1.19	1.21	1.22	1.21	1.24	1.26	1.29	1.26	1.28	1.72			3.62	3.71	3.83
	velocity	4.92	7.68	7.55	7.49	7.55	7.37	7.25	7.09	7.25	7.14	8.15	7.02		7.57	7.39	7.16

2022 Shimane High School Championships (Izumo, JPN)

FINAL date 28-May-22 wind 0.6 m/s

Shimizu (2022) - shimane high school championships 2022 - biomechanics data analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sotono, Haru (JPN) (2004)	time	2.73	3.87	5.02	6.15	7.28	8.42	9.62	10.85	12.03	13.23		14.75	4 / 1			
reaction time	interval		1.14	1.15	1.13	1.13	1.14	1.20	1.23	1.18	1.20	1.52			3.42	3.47	3.61
	velocity	5.03	8.02	7.95	8.09	8.09	8.02	7.62	7.43	7.75	7.62	9.22	7.46		8.02	7.90	7.60
Moriki, Hiroto (JPN) (2004)	time	2.78	3.98	5.23	6.42	7.60	8.80	10.00	11.20	12.42	13.63		15.20	5 / 2			
reaction time	interval		1.20	1.25	1.19	1.18	1.20	1.20	1.20	1.22	1.21	1.57			3.64	3.58	3.63
	velocity	4.94	7.62	7.31	7.68	7.75	7.62	7.62	7.62	7.49	7.55	8.93	7.24		7.53	7.66	7.55
Shinagawa, Yuto (JPN) (2005)	time	2.92	4.12	5.37	6.57	7.77	8.98	10.23	11.50	12.77	14.08		15.67	6 / 3			
reaction time	interval		1.20	1.25	1.20	1.20	1.21	1.25	1.27	1.27	1.31	1.59			3.65	3.66	3.85
	velocity	4.70	7.62	7.31	7.62	7.62	7.55	7.31	7.20	7.20	6.98	8.82	7.02		7.51	7.49	7.12
Takahashi, Yoshihito (JPN)	time	2.98	4.28	5.58	6.90	8.18	9.48	10.82	12.18	13.55	14.88		16.54	9 / 4			
reaction time	interval		1.30	1.30	1.32	1.28	1.30	1.34	1.36	1.37	1.33	1.66			3.92	3.92	4.06
	velocity	4.60	7.03	7.03	6.92	7.14	7.03	6.82	6.72	6.67	6.87	8.45	6.65		6.99	6.99	6.75
Makita, Akira (JPN)	time	2.93	4.20	5.50	6.80	8.12	9.43	10.78	12.12	13.48	14.85		16.57	8 / 5			
reaction time	interval		1.27	1.30	1.30	1.32	1.31	1.35	1.34	1.36	1.37	1.72			3.87	3.98	4.07
	velocity	4.68	7.20	7.03	7.03	6.92	6.98	6.77	6.82	6.72	6.67	8.15	6.64		7.09	6.89	6.74
Teramoto, Soya (JPN)	time	2.88	4.12	5.47	6.82	8.10	9.40	10.87	12.30	13.85	15.37		17.23	7 / 6			
reaction time	interval		1.24	1.35	1.35	1.28	1.30	1.47	1.43	1.55	1.52	1.86			3.94	4.05	4.50
	velocity	4.76	7.37	6.77	6.77	7.14	7.03	6.22	6.39	5.90	6.01	7.54	6.38		6.96	6.77	6.09

2022 NCAA East Region Preliminary (Bloomington, IN) (TV Analysis)

FINAL date 27-May-22 wind -1.5 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cunningham, Trey (USA) (199	time	2.50	3.53	4.53	5.53	6.53	7.53	8.54	9.56	10.61	11.66		13.07	5 / 1			
reaction time	interval	7 steps	1.03	1.00	1.00	1.00	1.00	1.01	1.02	1.05	1.05	1.41	PB		3.03	3.01	3.12
	velocity	5.49	8.87	9.14	9.14	9.14	9.14	9.05	8.96	8.70	8.70	9.94	8.42		9.05	9.11	8.79

2022 Müller Birmingham Diamond League (Birmingham, GBR) (TV Analysis)

FINAL date 21-May-22 wind 0.7 m/s

Henson (2022) - Athlete First: 2022 year end hurdle report

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Parchment, Hansle (JAM) (199(	time	2.47	3.50	4.50	5.49	6.47	7.45	8.45	9.45	10.49	11.53		13.09	4 / 1			
reaction time 0.143	interval	7 steps	1.03	1.00	0.99	0.98	0.98	1.00	1.00	1.04	1.04	1.56			3.02	2.96	3.08
	velocity	5.55	8.87	9.14	9.23	9.33	9.33	9.14	9.14	8.79	8.79	8.99	8.40		9.08	9.26	8.90
McLeod, Omar (JAM) (1994)	time	2.40	3.47	4.47	5.47	6.47	7.45	8.49	9.53	10.58	11.66		13.17	5 / 2			
reaction time 0.132	interval		1.07	1.00	1.00	1.00	0.98	1.04	1.04	1.05	1.08	1.51			3.07	3.02	3.17
	velocity	5.72	8.54	9.14	9.14	9.14	9.33	8.79	8.79	8.70	8.46	9.28	8.35		8.93	9.08	8.65
Martinez, Asier (ESP) (2000)	time	2.50	3.57	4.60	5.63	6.68	7.68	8.73	9.77	10.80	11.87		13.32	6 / 3			
reaction time 0.150	interval	7 steps	1.07	1.03	1.03	1.05	1.00	1.05	1.04	1.03	1.07	1.45			3.13	3.10	3.14
	velocity	5.49	8.54	8.87	8.87	8.70	9.14	8.70	8.79	8.87	8.54	9.67	8.26		8.76	8.85	8.73
Czykier, Damian (POL) (1992)	time	2.49	3.52	4.53	5.53	6.55	7.57	8.59	9.65	10.72	11.77		13.32	1 / 4			
reaction time 0.158	interval	7 steps	1.03	1.01	1.00	1.02	1.02	1.02	1.06	1.07	1.05	1.55			3.04	3.06	3.18
	velocity	5.51	8.87	9.05	9.14	8.96	8.96	8.96	8.62	8.54	8.70	9.05	8.26		9.02	8.96	8.62
Pozzi, Andy (GBR) (1992)	time	2.47	3.50	4.53	5.53	6.55	7.57	8.61	9.69	10.77	11.87		13.39	3 / 5			
reaction time 0.102	interval	7 steps	1.03	1.03	1.00	1.02	1.02	1.04	1.08	1.08	1.10	1.52			3.06	3.08	3.26
	velocity	5.55	8.87	8.87	9.14	8.96	8.96	8.79	8.46	8.46	8.31	9.22	8.22		8.96	8.90	8.41
Manga, Aurel (FRA) (1992)	time	2.47	3.53	4.59	5.67	6.70	7.75	8.80	9.87	10.93	12.03		13.61	7 / 6			
reaction time 0.153	interval	7 steps	1.06	1.06	1.08	1.03	1.05	1.05	1.07	1.06	1.10	1.58			3.20	3.13	3.23
	velocity	5.55	8.62	8.62	8.46	8.87	8.70	8.70	8.54	8.62	8.31	8.87	8.08		8.57	8.76	8.49
King, David (GBR) (1994)	time	2.53	3.60	4.70	5.72	6.74	7.80	8.87	9.93	11.00	12.08		13.64	2 / 7			
reaction time 0.137	interval	7 steps	1.07	1.10	1.02	1.02	1.06	1.07	1.06	1.07	1.08	1.56			3.19	3.15	3.21
	velocity	5.42	8.54	8.31	8.96	8.96	8.62	8.54	8.62	8.54	8.46	8.99	8.06		8.60	8.70	8.54
Zaza, Wellington (LBR) (1995)	time	2.47	3.57	4.67	5.73	6.77	7.90	8.95	10.08	11.17	12.28		13.81	8 / 8			
reaction time 0.141	interval		1.10	1.10	1.06	1.04	1.13	1.05	1.13	1.09	1.11	1.53			3.26	3.22	3.33
	velocity	5.55	8.31	8.31	8.62	8.79	8.09	8.70	8.09	8.39	8.23	9.16	7.97		8.41	8.52	8.23
Fillery, Cameron (GBR) (1998)	time	2.57	3.67	4.73	5.79	6.88	7.93	8.98	10.08	11.17	12.28		13.90	9 / 9			
reaction time 0.126	interval	7 steps	1.10	1.06	1.06	1.09	1.05	1.05	1.10	1.09	1.11	1.62			3.22	3.19	3.30
	velocity	5.34	8.31	8.62	8.62	8.39	8.70	8.70	8.31	8.39	8.23	8.65	7.91		8.52	8.60	8.31

2022 Seiko Golden Grand Prix (Tokyo, JPN)

FINAL date 08-May-22 wind 0.1 m/s

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)	time	2.60	3.66	4.69	5.71	6.73	7.75	8.80	9.84	10.89	11.95		13.34	5 / 1			
reaction time 0.159	interval	7 steps	1.06	1.03	1.02	1.02	1.02	1.05	1.04	1.05	1.06	1.39			3.11	3.09	3.15
	velocity	5.28	8.62	8.87	8.96	8.96	8.96	8.70	8.79	8.70	8.62	10.09	8.25		8.82	8.87	8.70
Chen Kuei-Ru (TPE) (1993)	time	2.58	3.62	4.68	5.70	6.74	7.77	8.82	9.88	10.95	12.02		13.49	2 / 2			
reaction time 0.166	interval	7 steps	1.04	1.06	1.02	1.04	1.03	1.05	1.06	1.07	1.07	1.47			3.12	3.12	3.20
	velocity	5.32	8.79	8.62	8.96	8.79	8.87	8.70	8.62	8.54	8.54	9.54	8.15		8.79	8.79	8.57
Hough, Nicholas (AUS) (1993)	time	2.66	3.77	4.82	5.85	6.87	7.89	8.90	9.94	10.98	12.05		13.49	9 / 3			
reaction time 0.155	interval	7 steps	1.11	1.05	1.03	1.02	1.02	1.01	1.04	1.04	1.07	1.44			3.19	3.05	3.15
	velocity	5.16	8.23	8.70	8.87	8.96	8.96	9.05	8.79	8.79	8.54	9.74	8.15		8.60	8.99	8.70
Nomoto, Syuusei (JPN) (1995)	time	2.57	3.70	4.79	5.83	6.88	7.91	8.97	10.05	11.14	12.23		13.68	3 / 4			
reaction time 0.156	interval	7 steps	1.13	1.09	1.04	1.05	1.03	1.06	1.08	1.09	1.09	1.45			3.26	3.14	3.26
	velocity	5.34	8.09	8.39	8.79	8.70	8.87	8.62	8.46	8.39	8.39	9.67	8.04		8.41	8.73	8.41
Fujii, Ryota (JPN) (1996)	time	2.62	3.70	4.75	5.80	6.85	7.91	8.98	10.06	11.15	12.25		13.70	7 / 5			
reaction time 0.153	interval		1.08	1.05	1.05	1.05	1.06	1.07	1.08	1.09	1.10	1.45			3.18	3.18	3.27
	velocity	5.24	8.46	8.70	8.70	8.70	8.62	8.54	8.46	8.39	8.31	9.67	8.03		8.62	8.62	8.39
Yokochi, Taiga (JPN) (2000)	time	2.65	3.75	4.79	5.83	6.88	7.94	9.00	10.07	11.17	12.27		13.73	8 / 6			
reaction time 0.155	interval	7 steps	1.10	1.04	1.04	1.05	1.06	1.06	1.07	1.10	1.10	1.46			3.18	3.17	3.27
	velocity	5.18	8.31	8.79	8.79	8.70	8.62	8.62	8.54	8.31	8.31	9.60	8.01		8.62	8.65	8.39
Takayama, Shunya (JPN) (1994	time	2.63	3.69	4.73	5.80	6.86	7.93	9.00	10.09	11.18	12.31		13.75	4 / 7			
reaction time 0.156	interval		1.06	1.04	1.07	1.06	1.07	1.07	1.09	1.09	1.13	1.44			3.17	3.20	3.31
	velocity	5.22	8.62	8.79	8.54	8.62	8.54	8.54	8.39	8.39	8.09	9.74	8.00		8.65	8.57	8.28
Ishikawa, Shuhei (JPN) (1995)	time	2.62	3.70	4.76	5.81	6.89	7.95	9.03	10.12	11.23	12.35		13.85	6 / 8			
reaction time 0.162	interval	7 steps	1.08	1.06	1.05	1.08	1.06	1.08	1.09	1.11	1.12	1.50			3.19	3.22	3.32
	velocity	5.24	8.46	8.62	8.70	8.46	8.62	8.46	8.39	8.23	8.16	9.35	7.94		8.60	8.52	8.26

2022 Michitaka Kinami Memorial (Osaka, JPN)

FINAL date 01-May-22 wind 0.8 m/s

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

Hough, Nicholas (AUS) (1993)	time	2.70	3.76	4.80	5.82	6.86	7.90	8.92	9.95	11.00	12.05		13.50	3 / 1				
reaction time 0.168	interval	7 steps	1.06	1.04	1.02	1.04	1.04	1.02	1.03	1.05	1.05	1.45			3.12	3.10	3.13	
	velocity	5.08	8.62	8.79	8.96	8.79	8.79	8.96	8.87	8.70	8.70	9.67	8.15		8.79	8.85	8.76	
Chen Kuei-Ru (TPE) 1993)	time	2.59	3.63	4.68	5.71	6.74	7.78	8.84	9.89	10.98	12.07		13.51	7 / 2				
reaction time 0.158	interval	7 steps	1.04	1.05	1.03	1.03	1.04	1.06	1.05	1.09	1.09	1.44			3.12	3.13	3.23	
	velocity	5.30	8.79	8.70	8.87	8.87	8.79	8.62	8.70	8.39	8.39	9.74	8.14		8.79	8.76	8.49	
Ishikawa, Shuhei (JPN) (1995)	time	2.60	3.65	4.70	5.75	6.80	7.83	8.89	9.95	11.02	12.12		13.58	6 / 3				
reaction time 0.157	interval	7 steps	1.05	1.05	1.05	1.05	1.03	1.06	1.06	1.07	1.10	1.46			3.15	3.14	3.23	
	velocity	5.28	8.70	8.70	8.70	8.70	8.87	8.62	8.62	8.54	8.31	9.60	8.10		8.70	8.73	8.49	
Fujii, Ryota (JPN) (1996)	time	2.59	3.65	4.69	5.73	6.77	7.83	8.88	9.95	11.02	12.14		13.59	4 / 4				
reaction time 0.147	interval		1.06	1.04	1.04	1.04	1.06	1.05	1.07	1.07	1.12	1.45			3.14	3.15	3.26	
	velocity	5.30	8.62	8.79	8.79	8.79	8.62	8.70	8.54	8.54	8.16	9.67	8.09		8.73	8.70	8.41	
Andrews, Nicholas (AUS) (1997	time	2.60	3.66	4.72	5.76	6.81	7.86	8.93	10.04	11.17	12.27		13.72	8 / 5				
reaction time 0.119	interval		1.06	1.06	1.04	1.05	1.05	1.07	1.11	1.13	1.10	1.45			3.16	3.17	3.34	
	velocity	5.28	8.62	8.62	8.79	8.70	8.70	8.54	8.23	8.09	8.31	9.67	8.02		8.68	8.65	8.21	
Higuchi, Rikuto (JPN) (1999)	time	2.59	3.70	4.76	5.85	6.91	7.98	9.04	10.13	11.23	12.35		13.81	5 / 6				
reaction time 0.153	interval	7 steps	1.11	1.06	1.09	1.06	1.07	1.06	1.09	1.10	1.12	1.46			3.26	3.19	3.31	
	velocity	5.30	8.23	8.62	8.39	8.62	8.54	8.62	8.39	8.31	8.16	9.60	7.97		8.41	8.60	8.28	
Kubota, Taichi (JPN) (2000)	time	2.69	3.79	4.86	5.94	7.02	8.08	9.17	10.25	11.35	12.48		13.95	2 / 7				
reaction time 0.165	interval		1.10	1.07	1.08	1.08	1.06	1.09	1.08	1.10	1.13	1.47	PB		3.25	3.23	3.31	
	velocity	5.10	8.31	8.54	8.46	8.46	8.62	8.39	8.46	8.31	8.09	9.54	7.89		8.44	8.49	8.28	
Miyazaki, Takumi (JPN) (2001)	time	2.64	3.71	4.79	5.87	6.96	8.05	9.15	10.26	11.39	12.53		13.99	9 / 8				
reaction time 0.152	interval		1.07	1.08	1.08	1.09	1.09	1.10	1.11	1.13	1.14	1.46			3.23	3.28	3.38	
	velocity	5.20	8.54	8.46	8.46	8.39	8.39	8.31	8.23	8.09	8.02	9.60	7.86		8.49	8.36	8.11	

Decathlon - Heat 2

date 01-May-22 wind 1.2 m/s

Takefu (2023) - performance analyisis of decathlon athletes in the 2022 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Maruyama, Yuma (JPN) (1998)	time	2.69	3.82	4.91	5.99	7.07	8.14	9.23	10.36	11.49	12.61		14.13	6 / 1			
reaction time 0.146	interval		1.13	1.09	1.08	1.08	1.07	1.09	1.13	1.13	1.12	1.52			3.30	3.24	3.38
	velocity	5.10	8.09	8.39	8.46	8.46	8.54	8.39	8.09	8.09	8.16	9.22	7.78		8.31	8.46	8.11
Okuda, Keisuke (JPN) (1996)	time	2.79	3.96	5.13	6.30	7.47	8.65	9.84	11.03	12.23	13.44		14.95	5 / 3			
reaction time 0.132	interval		1.17	1.17	1.17	1.17	1.18	1.19	1.19	1.20	1.21	1.51			3.51	3.54	3.60
	velocity	4.92	7.81	7.81	7.81	7.81	7.75	7.68	7.68	7.62	7.55	9.28	7.36		7.81	7.75	7.62

Decathlon - Heat 1

date 01-May-22 wind 0.0 m/s

Takefu (2023) - performance analyisis of decathlon athletes in the 2022 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Taue, Shun (JPN) (1997)	time	2.75	3.90	5.03	6.16	7.28	8.40	9.53	10.69	11.84	13.02		14.54	4 / 1			
reaction time 0.139	interval		1.15	1.13	1.13	1.12	1.12	1.13	1.16	1.15	1.18	1.52			3.41	3.37	3.49
	velocity	4.99	7.95	8.09	8.09	8.16	8.16	8.09	7.88	7.95	7.75	9.22	7.57		8.04	8.14	7.86
Nakamura, Akihiko (JPN) (1990	time	2.79	3.95	5.09	6.22	7.36	8.50	9.63	10.78	11.94	13.11		14.64	9 / 2			
reaction time 0.147	interval		1.16	1.14	1.13	1.14	1.14	1.13	1.15	1.16	1.17	1.53			3.43	3.41	3.48
	velocity	4.92	7.88	8.02	8.09	8.02	8.02	8.09	7.95	7.88	7.81	9.16	7.51		7.99	8.04	7.88
Ushiro, Keisuke (JPN) (1986)	time	2.77	3.96	5.15	6.35	7.57	8.81	10.03	11.28	12.54	13.81		15.50	3 / 4			
reaction time 0.146	interval		1.19	1.19	1.20	1.22	1.24	1.22	1.25	1.26	1.27	1.69			3.58	3.68	3.78
	velocity	4.95	7.68	7.68	7.62	7.49	7.37	7.49	7.31	7.25	7.20	8.30	7.10		7.66	7.45	7.25

2022 Mikio Oda Memorial (Hiroshima, JPN)

FINAL

date 29-Apr-22 wind -1.5 m/s

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)	time	2.66	3.73	4.78	5.80	6.84	7.88	8.92	9.97	11.03	12.12		13.55	6 / 1			
reaction time 0.159	interval	7 steps	1.07	1.05	1.02	1.04	1.04	1.04	1.05	1.06	1.09	1.43			3.14	3.12	3.20
	velocity	5.16	8.54	8.70	8.96	8.79	8.79	8.79	8.70	8.62	8.39	9.80	8.12		8.73	8.79	8.57
Hough, Nicholas (AUS) (1993)	time	2.69	3.79	4.85	5.91	6.95	8.00	9.05	10.08	11.14	12.23		13.73	1 / 2			
reaction time 0.154	interval	7 steps	1.10	1.06	1.06	1.04	1.05	1.05	1.03	1.06	1.09	1.50			3.22	3.14	3.18
	velocity	5.10	8.31	8.62	8.62	8.79	8.70	8.70	8.87	8.62	8.39	9.35	8.01		8.52	8.73	8.62
Nomoto, Syuusei (JPN) (1995)	time	2.59	3.66	4.73	5.79	6.86	7.92	8.98	10.08	11.18	12.31		13.83	3 / 3			
reaction time 0.157	interval	7 steps	1.07	1.07	1.06	1.07	1.06	1.06	1.10	1.10	1.13	1.52			3.20	3.19	3.33
	velocity	5.30	8.54	8.54	8.62	8.54	8.62	8.62	8.31	8.31	8.09	9.22	7.95		8.57	8.60	8.23
Takayama, Shunya (JPN) (1994	time	2.59	3.67	4.75	5.82	6.90	7.98	9.07	10.18	11.31	12.43		13.92	7 / 4			
reaction time 0.165	interval		1.08	1.08	1.07	1.08	1.08	1.09	1.11	1.13	1.12	1.49			3.23	3.25	3.36
	velocity	5.30	8.46	8.46	8.54	8.46	8.46	8.39	8.23	8.09	8.16	9.41	7.90		8.49	8.44	8.16

Ishikawa, Shuhei (JPN) (1995)	time	2.63	3.73	4.80	5.89	6.95	8.06	9.15	10.25	11.35	12.46		13.94	5 / 5				
reaction time 0.140	interval	7 steps	1.10	1.07	1.09	1.06	1.11	1.09	1.10	1.10	1.11	1.48			3.26	3.26	3.31	
	velocity	5.22	8.31	8.54	8.39	8.62	8.23	8.39	8.31	8.31	8.23	9.47	7.89		8.41	8.41	8.28	
Fujii, Ryota (JPN) (1996)	time	2.64	3.73	4.81	5.89	6.96	8.05	9.14	10.23	11.33	12.46		13.94	8 / 6				
reaction time 0.155	interval		1.09	1.08	1.08	1.07	1.09	1.09	1.09	1.10	1.13	1.48			3.25	3.25	3.32	
	velocity	5.20	8.39	8.46	8.46	8.54	8.39	8.39	8.39	8.31	8.09	9.47	7.89		8.44	8.44	8.26	
Yokochi, Taiga (JPN) (2000)	time	2.67	3.77	4.83	5.90	6.95	8.00	9.05	10.20	11.33	12.48		13.98	2 / 7				
reaction time 0.157	interval	7 steps	1.10	1.06	1.07	1.05	1.05	1.05	1.15	1.13	1.15	1.50			3.23	3.15	3.43	
	velocity	5.14	8.31	8.62	8.54	8.70	8.70	8.70	7.95	8.09	7.95	9.35	7.87		8.49	8.70	7.99	

B FINAL

date 29-Apr-22 wind -0.7 m/s

Shibayama (2023) - race analysis of the men's 110m hurdles in the 2022 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tokuoka, Ryo (JPN) (1999)	time	2.67	3.75	4.80	5.85	6.91	7.99	9.07	10.18	11.28	12.39		13.86	3 / 1			
reaction time 0.162	interval	7 steps	1.08	1.05	1.05	1.06	1.08	1.08	1.11	1.10	1.11	1.47			3.18	3.22	3.32	
	velocity	5.14	8.46	8.70	8.70	8.62	8.46	8.46	8.23	8.31	8.23	9.54	7.94		8.62	8.52	8.26	
Ishida Thomas, Higashi (JPN) (	time	2.65	3.73	4.79	5.85	6.90	7.98	9.06	10.16	11.26	12.39		13.87	5 / 2			
reaction time 0.153	interval	7 steps	1.08	1.06	1.06	1.05	1.08	1.08	1.10	1.10	1.13	1.48			3.20	3.21	3.33	
	velocity	5.18	8.46	8.62	8.62	8.70	8.46	8.46	8.31	8.31	8.09	9.47	7.93		8.57	8.54	8.23	
Andrews, Nicholas (AUS) (199	time	2.64	3.76	4.86	5.95	7.01	8.11	9.20	10.29	11.40	12.53		13.98	4 / 3			
reaction time 0.150	interval		1.12	1.10	1.09	1.06	1.10	1.09	1.09	1.11	1.13	1.45			3.31	3.25	3.33	
	velocity	5.20	8.16	8.31	8.39	8.62	8.31	8.39	8.39	8.23	8.09	9.67	7.87		8.28	8.44	8.23	
Fujihara, Koki (JPN) (2002)	time	2.63	3.74	4.80	5.85	6.90	7.99	9.10	10.23	11.38	12.50		14.03	8 / 4			
reaction time 0.177	interval	7 steps	1.11	1.06	1.05	1.05	1.09	1.11	1.13	1.15	1.12	1.53			3.22	3.25	3.40	
	velocity	5.22	8.23	8.62	8.70	8.70	8.39	8.23	8.09	7.95	8.16	9.16	7.84		8.52	8.44	8.06	
Omuro, Hideki (JPN) (1990)	time	2.68	3.78	4.87	5.95	7.02	8.12	9.23	10.35	11.46	12.58		14.04	7 / 5			
reaction time 0.124	interval		1.10	1.09	1.08	1.07	1.10	1.11	1.12	1.11	1.12	1.46			3.27	3.28	3.35	
	velocity	5.12	8.31	8.39	8.46	8.54	8.31	8.23	8.16	8.23	8.16	9.60	7.83		8.39	8.36	8.19	
Yoshima, Kaito (JPN) (1998)	time	2.70	3.81	4.90	5.99	7.06	8.13	9.24	10.35	11.48	12.64		14.16	1 / 6			
reaction time 0.175	interval	7 steps	1.11	1.09	1.09	1.07	1.07	1.11	1.11	1.13	1.16	1.52			3.29	3.25	3.40	
	velocity	5.08	8.23	8.39	8.39	8.54	8.54	8.23	8.23	8.09	7.88	9.22	7.77		8.33	8.44	8.06	
Miyazaki, Takumi (JPN) (2001)	time	2.65	3.76	4.84	5.95	7.06	8.17	9.29	10.42	11.58	12.74		14.24	2 / 7			
reaction time 0.161	interval		1.11	1.08	1.11	1.11	1.11	1.12	1.13	1.16	1.16	1.50			3.30	3.34	3.45	
	velocity	5.18	8.23	8.46	8.23	8.23	8.23	8.16	8.09	7.88	7.88	9.35	7.72		8.31	8.21	7.95	

2022 World Athletics Indoor Championships (Belgrade, SRB) (TV Analysis)

FINAL

date 20-Mar-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.36	3.40	4.38	5.38	6.38		7.39	4 / 1			
reaction time 0.151	interval	7 steps	1.04	0.98	1.00	1.00	1.01			3.02		
	velocity	5.81	8.79	9.33	9.14	9.14	9.62	8.12		9.08		
Martinot-Lagarde, Pascal (FRA	time	2.46	3.50	4.52	5.52	6.54		7.50	5 / 2			
reaction time 0.154	interval	7 steps	1.04	1.02	1.00	1.02	0.96			3.06		
	velocity	5.58	8.79	8.96	9.14	8.96	10.13	8.00		8.96		
Eaton, Jarrett (USA) (1989)	time	2.46	3.48	4.52	5.52	6.54		7.53	6 / 3			
reaction time 0.166	interval	7 steps	1.02	1.04	1.00	1.02	0.99			3.06		
	velocity	5.58	8.96	8.79	9.14	8.96	9.82	7.97		8.96		
Martinez, Asier (ESP) (2000)	time	2.50	3.54	4.58	5.58	6.58		7.57	2 / 4			
reaction time 0.150	interval	7 steps	1.04	1.04	1.00	1.00	0.99			3.08		
	velocity	5.49	8.79	8.79	9.14	9.14	9.82	7.93		8.90		
Douglas, Chris (AUS) (1997)	time	2.46	3.50	4.54	5.56	6.56		7.60	8 / 5			
reaction time 0.159	interval	7 steps	1.04	1.04	1.02	1.00	1.04			3.10		
	velocity	5.58	8.79	8.79	8.96	9.14	9.35	7.89		8.85		
King, David (GBR) (1994)	time	2.48	3.54	4.58	5.60	6.60		7.62	1 / 6			
reaction time 0.142	interval	7 steps	1.06	1.04	1.02	1.00	1.02			3.12		
	velocity	5.53	8.62	8.79	8.96	9.14	9.53	7.87		8.79		
Trajkovic, Milan (CYP) (1992)	time	2.52	3.58	4.62	5.62	6.62		7.62	7 / 7			
reaction time 0.207	interval	7 steps	1.06	1.04	1.00	1.00	1.00			3.10		
	velocity	5.44	8.62	8.79	9.14	9.14	9.72	7.87		8.85		
Belocian, Wilhem (FRA) (1995)	time	2.50	3.54	4.58	5.62	6.66		7.67	3 / 8			
reaction time 0.177	interval		1.04	1.04	1.04	1.04	1.01			3.12		
	velocity	5.49	8.79	8.79	8.79	8.79	9.62	7.82		8.79		

Semi-Final 3

date 20-Mar-22

Henson (2022) - Athlete First: 2022 year end hurdle report

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)		time	2.53	3.56	4.56	5.56	6.56		7.53	4 / 1			
reaction time 0.129		interval		1.03	1.00	1.00	1.00	0.97			3.03		
		velocity	5.42	8.87	9.14	9.14	9.14	10.02	7.97		9.05		
Douglas, Chris (AUS) (1997)		time	2.46	3.53	4.56	5.56	6.58		7.56	8 / 2			
reaction time 0.145		interval	7 steps	1.07	1.03	1.00	1.02	0.98	NR PB		3.10		
		velocity	5.58	8.54	8.87	9.14	8.96	9.92	7.94		8.85		
King, David (GBR) (1994)		time	2.53	3.56	4.60	5.62	6.63		7.57	3 / 3			
reaction time 0.121		interval	7 steps	1.03	1.04	1.02	1.01	0.94	=PB		3.09		
		velocity	5.42	8.87	8.79	8.96	9.05	10.34	7.93		8.87		
Obasuyi, Michael (BEL) (1999)		time	2.56	3.60	4.63	5.63	6.66		7.58	5 / 4			
reaction time 0.130		interval	7 steps	1.04	1.03	1.00	1.03	0.92	PB		3.07		
		velocity	5.36	8.79	8.87	9.14	8.87	10.57	7.92		8.93		
Szymański, Jakub (POL) (2002)		time	2.53	3.56	4.58	5.60	6.60		7.59	7 / 5			
reaction time 0.146		interval	7 steps	1.03	1.02	1.02	1.00	0.99	PB		3.07		
		velocity	5.42	8.87	8.96	8.96	9.14	9.82	7.91		8.93		
Mallett, Aaron (USA) (1994)		time	2.53	3.60	4.63	5.66	6.70		7.67	6 / 6			
reaction time 0.152		interval	7 steps	1.07	1.03	1.03	1.04	0.97			3.13		
		velocity	5.42	8.54	8.87	8.87	8.79	10.02	7.82		8.76		
Van Der Schaaf, Liam (NED) (1!		time	2.53	3.60	4.63	5.70	6.73		7.69	1 / 7			
reaction time 0.129		interval	7 steps	1.07	1.03	1.07	1.03	0.96	PB		3.17		
		velocity	5.42	8.54	8.87	8.54	8.87	10.13	7.80		8.65		
Larrinaga, Abdel-Kader (POL) (		time	2.56	3.63	4.66	5.70	6.76		7.70	2 / 8			
reaction time 0.137		interval	7 steps	1.07	1.03	1.04	1.06	0.94			3.14		
		velocity	5.36	8.54	8.87	8.79	8.62	10.34	7.79		8.73		

Semi-Final 2

date 20-Mar-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.36	3.36	4.34	5.32	6.32		7.29	6 / 1			
reaction time 0.130		interval	7 steps	1.00	0.98	0.98	1.00	0.97	=WR		2.96		
		velocity	5.81	9.14	9.33	9.33	9.14	10.02	8.23		9.26		
Martinot-Lagarde, Pascal (FRA		time	2.50	3.52	4.54	5.54	6.56		7.53	4 / 2			
reaction time 0.136		interval	7 steps	1.02	1.02	1.00	1.02	0.97			3.04		
		velocity	5.49	8.96	8.96	9.14	8.96	10.02	7.97		9.02		
Martinez, Asier (ESP) (2000)		time	2.50	3.56	4.58	5.58	6.62		7.55	2 / 3			
reaction time 0.138		interval	7 steps	1.06	1.02	1.00	1.04	0.93	=PB		3.08		
		velocity	5.49	8.62	8.96	9.14	8.79	10.45	7.95		8.90		
Pozzi, Andy (GBR) (1992)		time	2.48	3.52	4.56	5.56	6.58		7.60	3 / 4			
reaction time 0.122		interval	7 steps	1.04	1.04	1.00	1.02	1.02			3.08		
		velocity	5.53	8.79	8.79	9.14	8.96	9.53	7.89		8.90		
Czykier, Damian (POL) (1992)		time	2.50	3.54	4.58	5.60	6.64		7.61	5 / 5			
reaction time 0.157		interval	7 steps	1.04	1.04	1.02	1.04	0.97			3.10		
		velocity	5.49	8.79	8.79	8.96	8.79	10.02	7.88		8.85		
Fofana, Hassane (ITA) (1992)		time	2.48	3.54	4.58	5.60	6.64		7.65	1 / 6			
reaction time 0.122		interval		1.06	1.04	1.02	1.04	1.01	PB		3.12		
		velocity	5.53	8.62	8.79	8.96	8.79	9.62	7.84		8.79		
Traber, Gregor (GER) (1992)		time	2.54	3.58	4.62	5.66	6.70		7.67	8 / 7			
reaction time 0.140		interval	7 steps	1.04	1.04	1.04	1.04	0.97			3.12		
		velocity	5.40	8.79	8.79	8.79	8.79	10.02	7.82		8.79		
Chen Kuei-Ju (TPE) (1993)		time	2.50	3.58	4.62	5.64	6.66		7.67	7 / 8			
reaction time 0.168		interval	7 steps	1.08	1.04	1.02	1.02	1.01	NR PB		3.14		
		velocity	5.49	8.46	8.79	8.96	8.96	9.62	7.82		8.73		

Semi-Final 1

date 20-Mar-22

Henson (2022) - Athlete First: 2022 year end hurdle report

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Eaton, Jarrett (USA) (1989)		time	2.43	3.46	4.46	5.48	6.50		7.52	4 / 1			
reaction time 0.134		interval	7 steps	1.03	1.00	1.02	1.02	1.02			3.05		
		velocity	5.65	8.87	9.14	8.96	8.96	9.53	7.98		8.99		
Trajkovic, Milan (CYP) (1992)		time	2.47	3.53	4.53	5.55	6.57		7.53	1 / 2			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.145	interval	7 steps	1.06	1.00	1.02	1.02		0.96			3.08		
		velocity		5.55	8.62	9.14	8.96	8.96	10.13	7.97		8.90		
Nomoto, Syuusei (JPN) (1995)		time		2.40	3.46	4.50	5.55	6.60		7.57	8 / 3			
reaction time	0.127	interval	7 steps	1.06	1.04	1.05	1.05		0.97	**PB**		3.15		
		velocity		5.72	8.62	8.79	8.70	8.70	10.02	7.93		8.70		
Pereira, Rafeal (BRA) (1997)		time		2.50	3.53	4.56	5.60	6.63		7.58	3 / 4			
reaction time	0.141	interval			1.03	1.03	1.04	1.03	0.95	**=NR =PB**		3.10		
		velocity		5.49	8.87	8.87	8.79	8.87	10.23	7.92		8.85		
Al-Yoha, Yaqoub (KUW) (1993)		time		2.50	3.53	4.56	5.56	6.60		7.59	6 / 5			
reaction time	0.156	interval			1.03	1.03	1.00	1.04	0.99			3.06		
		velocity		5.49	8.87	8.87	9.14	8.79	9.82	7.91		8.96		
Walters, Ruebin (TTO) (1995)		time		2.50	3.56	4.63	5.67	6.70		7.68	7 / 6			
reaction time	0.135	interval			1.06	1.07	1.04	1.03	0.98			3.17		
		velocity		5.49	8.62	8.54	8.79	8.87	9.92	7.81		8.65		
Svoboda, Petr (CZE) (1984)		time		2.50	3.56	4.58	5.58	6.63		7.71	5 / 7			
reaction time	0.136	interval			1.06	1.02	1.00	1.05	1.08			3.08		
		velocity		5.49	8.62	8.96	9.14	8.70	9.00	7.78		8.90		
Sevier, Mikdat (TUR) (1998)		time		2.53	3.60	4.66	5.66	6.73		7.75	2 / 8			
reaction time	0.129	interval			1.07	1.06	1.00	1.07	1.02			3.13		
		velocity		5.42	8.54	8.62	9.14	8.54	9.53	7.74		8.76		

Heat 6

date 20-Mar-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)		time		2.50	3.55	4.57	5.57	6.60		7.55	1 / 1			
reaction time	0.109	interval			1.05	1.02	1.00	1.03	0.95			3.07		
		velocity		5.49	8.70	8.96	9.14	8.87	10.23	7.95		8.93		

Heat 5

date 20-Mar-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.50	3.50	4.48	5.46	6.48		7.40	3 / 1			
reaction time	0.140	interval	7 steps	1.00	0.98	0.98	1.02		0.92			2.96		
		velocity		5.49	9.14	9.33	9.33	8.96	10.57	8.11		9.26		
Pozzi, Andy (GBR) (1992)		time		2.56	3.64	4.65	5.65	6.67		7.60	4 / 2			
reaction time	0.132	interval	7 steps	1.08	1.01	1.00	1.02		0.93			3.09		
		velocity		5.36	8.46	9.05	9.14	8.96	10.45	7.89		8.87		

Heat 4

date 20-Mar-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Svoboda, Petr (CZE) (1984)		time		2.53	3.58	4.60	5.62	6.66		7.59	4 / 1			
reaction time	0.132	interval			1.05	1.02	1.02	1.04	0.93			3.09		
		velocity		5.42	8.70	8.96	8.96	8.79	10.45	7.91		8.87		

Heat 2

date 20-Mar-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pereira, Rafael (BRA) (1997)		time		2.49	3.53	4.56	5.58	6.65		7.60	5 / 1			
reaction time	0.130	interval			1.04	1.03	1.02	1.07	0.95			3.09		
		velocity		5.51	8.79	8.87	8.96	8.54	10.23	7.89		8.87		
Martinot-Lagarde, Pascal (FRA		time		2.51	3.56	4.60	5.65	6.70		7.69	3 / 2			
reaction time	0.137	interval	7 steps	1.05	1.04	1.05	1.05		0.99			3.14		
		velocity		5.47	8.70	8.79	8.70	8.70	9.82	7.80		8.73		

Heat 1

date 20-Mar-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
King, David (GBR) (1994)		time		2.53	3.60	4.63	5.65	6.68		7.65	3 / 1			
reaction time	0.118	interval	7 steps	1.07	1.03	1.02	1.03		0.97			3.12		
		velocity		5.42	8.54	8.87	8.96	8.87	10.02	7.84		8.79		
Eaton, Jarrett (USA) (1989)		time		2.56	3.63	4.63	5.65	6.66		7.66	8 / 2			
reaction time	0.128	interval	7 steps	1.07	1.00	1.02	1.01		1.00			3.09		
		velocity		5.36	8.54	9.14	8.96	9.05	9.72	7.83		8.87		

2022 Müller Indoor Grand Prix (Birmingham, GBR) (TV Analysis)

FINAL

date 19-Feb-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.37	3.38	4.39	5.39	6.39		7.41	3 / 1			
reaction time	0.149	interval	7 steps	1.01	1.01	1.00	1.00		1.02			3.02		
		velocity		5.79	9.05	9.05	9.14	9.14	9.53	8.10		9.08		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Pozzi, Andy (GBR) (1992)		time	2.47	3.53	4.55	5.56	6.57			7.59	4 / 2		
reaction time	0.141	interval	7 steps	1.06	1.02	1.01	1.01	1.02				3.09	
		velocity	5.55	8.62	8.96	9.05	9.05	9.53	7.91			8.87	
Eaton, Jarrett (USA) (1989)		time	2.46	3.49	4.51	5.52	6.53			7.60	6 / 3		
reaction time	0.154	interval	7 steps	1.03	1.02	1.01	1.01	1.07				3.06	
		velocity	5.58	8.87	8.96	9.05	9.05	9.08	7.89			8.96	
Szymański, Jakub (POL) (2002)		time	2.46	3.50	4.52	5.55	6.57			7.62	8 / 4		
reaction time	0.165	interval	7 steps	1.04	1.02	1.03	1.02	1.05				3.09	
		velocity	5.58	8.79	8.96	8.87	8.96	9.26	7.87			8.87	
King, David (GBR) (1994)		time	2.46	3.53	4.55	5.57	6.60			7.63	7 / 5		
reaction time	0.132	interval	7 steps	1.07	1.02	1.02	1.03	1.03	=PB			3.11	
		velocity	5.58	8.54	8.96	8.96	8.87	9.44	7.86			8.82	
Al-Yoha, Yaqoub (KUW) (1993		time	2.49	3.53	4.58	5.61	6.65			7.65	5 / 6		
reaction time	0.146	interval		1.04	1.05	1.03	1.04	1.00				3.12	
		velocity	5.51	8.79	8.70	8.87	8.79	9.72	7.84			8.79	
Ortega, Orlando (ESP) (1991)		time	2.50	3.58	4.62	5.67	6.72			7.79	2 / 7		
reaction time	0.165	interval		1.08	1.04	1.05	1.05	1.07				3.17	
		velocity	5.49	8.46	8.79	8.70	8.70	9.08	7.70			8.65	
Levy, Ronald (JAM) (1992)		time	2.52	3.60	4.68	5.75	6.81			7.87	1 / 8		
reaction time	0.146	interval	7 steps	1.08	1.08	1.07	1.06	1.06				3.23	
		velocity	5.44	8.46	8.46	8.54	8.62	9.17	7.62			8.49	

2022 Meeting Hauts-de-France Pas-de-Calais (Liévin, FRA) (TV Analysis)

FINAL

date 17-Feb-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.39	3.40	4.38	5.36	6.36		7.35	4 / 1			
reaction time	0.167	interval	7 steps	1.01	0.98	0.98	1.00	0.99			2.97		
		velocity	5.74	9.05	9.33	9.33	9.14	9.82	8.16		9.23		
Martinot-Lagarde, Pascal (FRA		time	2.43	3.46	4.46	5.46	6.46		7.46	6 / 2			
reaction time	0.144	interval	7 steps	1.03	1.00	1.00	1.00	1.00			3.03		
		velocity	5.65	8.87	9.14	9.14	9.14	9.72	8.04		9.05		
Eaton, Jarrett (USA) (1989)		time	2.43	3.44	4.44	5.44	6.46		7.51	5 / 3			
reaction time	0.146	interval	7 steps	1.01	1.00	1.00	1.02	1.05			3.01		
		velocity	5.65	9.05	9.14	9.14	8.96	9.26	7.99		9.11		
Llopis, Enrique (ESP) (2000)		time	2.55	3.58	4.60	5.60	6.60		7.62	2 / 4			
reaction time	0.163	interval	7 steps	1.03	1.02	1.00	1.00	1.02			3.05		
		velocity	5.38	8.87	8.96	9.14	9.14	9.53	7.87		8.99		
Pozzi, Andy (GBR) (1992)		time	2.55	3.58	4.58	5.60	6.62		7.62	1 / 5			
reaction time	0.163	interval	7 steps	1.03	1.00	1.02	1.02	1.00			3.05		
		velocity	5.38	8.87	9.14	8.96	8.96	9.72	7.87		8.99		
Zaza, Wellington (LBR) (1995)		time	2.45	3.52	4.55	5.57	6.63		7.63	8 / 6			
reaction time	0.149	interval		1.07	1.03	1.02	1.06	1.00			3.12		
		velocity	5.60	8.54	8.87	8.96	8.62	9.72	7.86		8.79		
Roberts, Daniel (USA) (1998)		time	2.43	3.46	4.53	5.55	6.60		7.67	7 / 7			
reaction time	0.172	interval	7 steps	1.03	1.07	1.02	1.05	1.07			3.12		
		velocity	5.65	8.87	8.54	8.96	8.70	9.08	7.82		8.79		
Belocian, Wilhem (FRA) (1995)		time	2.46	3.52	4.55	5.57	6.66		7.72	3 / 8			
reaction time	0.130	interval		1.06	1.03	1.02	1.09	1.06			3.11		
		velocity	5.58	8.62	8.87	8.96	8.39	9.17	7.77		8.82		

Heat 2

date 17-Feb-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.35	3.38	4.37	5.37	6.38		7.40	4 / 1			
reaction time	0.153	interval	7 steps	1.03	0.99	1.00	1.01	1.02			3.02		
		velocity	5.84	8.87	9.23	9.14	9.05	9.53	8.11		9.08		
Belocian, Wilhem (FRA) (1995)		time	2.43	3.45	4.50	5.54	6.54		7.57	5 / 2			
reaction time	0.139	interval		1.02	1.05	1.04	1.00	1.03			3.11		
		velocity	5.65	8.96	8.70	8.79	9.14	9.44	7.93		8.82		
Roberts, Daniel (USA) (1998)		time	2.37	3.40	4.44	5.48	6.54		7.58	3 / 3			
reaction time	0.149	interval	7 steps	1.03	1.04	1.04	1.06	1.04			3.11		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	5.79	8.87	8.79	8.79	8.62					9.35	7.92		8.82	
Dickson, Michael (USA) (1997)		time	2.46	3.55	4.58	5.60	6.63						7.64	6 / 4		
reaction time	0.183	interval	7 steps	1.09	1.03	1.02	1.03					1.01			3.14	
		velocity	5.58	8.39	8.87	8.96	8.87					9.62	7.85		8.73	
Obasuyi, Michael (BEL) (1999)		time	2.48	3.57	4.60	5.62	6.60						7.65	2 / 5		
reaction time	0.150	interval	7 steps	1.09	1.03	1.02	0.98					1.05			3.14	
		velocity	5.53	8.39	8.87	8.96	9.33					9.26	7.84		8.73	
Al-Yoha, Yaqoub (KUW) (1993		time	2.53	3.58	4.62	5.66	6.70						7.73	7 / 6		
reaction time	0.166	interval		1.05	1.04	1.04	1.04					1.03			3.13	
		velocity	5.42	8.70	8.79	8.79	8.79					9.44	7.76		8.76	
Lakka, Elmo (FIN) (1993)		time	2.53	3.62	4.72	5.80	6.85						7.98	8 / 7		
reaction time	0.152	interval	7 steps	1.09	1.10	1.08	1.05					1.13			3.27	
		velocity	5.42	8.39	8.31	8.46	8.70					8.60	7.52		8.39	

2022 New Balance Indoor Grand Prix (Staten Island, NY) (TV Analysis)

FINAL date 06-Feb-22

Henson (2022) - Athlete First: Grant Holloway 2022 Men's 60m hurdles world indoor record

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.45	3.44	4.45	5.44	6.42		7.37	3 / 1			
reaction time	0.181	interval	7 steps	0.99	1.01	0.99	0.98	0.95			2.99		
		velocity	5.60	9.23	9.05	9.23	9.33	10.23	8.14		9.17		
Cunningham, Trey (USA) (199		time	2.48	3.50	4.51	5.51	6.55		7.47	4 / 2			
reaction time	0.189	interval	7 steps	1.02	1.01	1.00	1.04	0.92			3.03		
		velocity	5.53	8.96	9.05	9.14	8.79	10.57	8.03		9.05		
Allen, Devon (USA) (1994)		time	2.51	3.55	4.58	5.57	6.58		7.51	5 / 3			
reaction time	0.143	interval		1.04	1.03	0.99	1.01	0.93			3.06		
		velocity	5.47	8.79	8.87	9.23	9.05	10.45	7.99		8.96		
Roberts, Daniel (USA) (1998)		time	2.47	3.54	4.60	5.61	6.65		7.60	6 / 4			
reaction time	0.175	interval	7 steps	1.07	1.06	1.01	1.04	0.95			3.14		
		velocity	5.55	8.54	8.62	9.05	8.79	10.23	7.89		8.73		
Crittenden, Freddie (USA) (199		time	2.57	3.62	4.67	5.69	6.71		7.71	2 / 5			
reaction time	0.169	interval		1.05	1.05	1.02	1.02	1.00			3.12		
		velocity	5.34	8.70	8.70	8.96	8.96	9.72	7.78		8.79		
Szücs, Valdó (HUN) (1995)		time	2.57	3.64	4.70	5.72	6.72		7.73	1 / 6			
reaction time	0.160	interval	7 steps	1.07	1.06	1.02	1.00	1.01			3.15		
		velocity	5.34	8.54	8.62	8.96	9.14	9.62	7.76		8.70		
Walters, Ruebin (TTO) (1995)		time	2.61	3.70	4.76	5.79	6.81		7.76	8 / 7			
reaction time	0.176	interval		1.09	1.06	1.03	1.02	0.95			3.18		
		velocity	5.26	8.39	8.62	8.87	8.96	10.23	7.73		8.62		
Dunning, Robert (USA) (1997)		time	2.55	3.64	4.70	5.74	6.85		7.82	7 / 8			
reaction time	0.179	interval	7 steps	1.09	1.06	1.04	1.11	0.97			3.19		
		velocity	5.38	8.39	8.62	8.79	8.23	10.02	7.67		8.60		

2021 Japanese U16 National Championships (Matsuyama, JPN) (99cm)

FINAL date 24-Oct-21 wind 1.0 m/s

Shibayama (2021) - race analysis of men's 110m hurdles in the 2021 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hashimoto, Yu (JPN) (2006)		time	2.67	3.77	4.88	6.00	7.12	8.23	9.36	10.47	11.55	12.68		14.19	/ 1			
reaction time		interval		1.10	1.11	1.12	1.12	1.11	1.13	1.11	1.08	1.13	1.51			3.33	3.36	3.32
		velocity	5.14	8.31	8.23	8.16	8.16	8.23	8.09	8.23	8.46	8.09	9.28	7.75		8.23	8.16	8.26
Kawahara, Ren (JPN) (2006)		time	2.74	3.89	5.05	6.21	7.39	8.54	9.69	10.81	11.94	13.11		14.68	/ 2			
reaction time		interval		1.15	1.16	1.16	1.18	1.15	1.15	1.12	1.13	1.17	1.57			3.47	3.48	3.42
		velocity	5.01	7.95	7.88	7.88	7.75	7.95	7.95	8.16	8.09	7.81	8.93	7.49		7.90	7.88	8.02
Asai, Seira (JPN (2006)		time	2.83	3.96	5.10	6.27	7.44	8.60	9.75	10.87	12.02	13.18		14.77	/ 3			
reaction time		interval		1.13	1.14	1.17	1.17	1.16	1.15	1.12	1.15	1.16	1.59			3.44	3.48	3.43
		velocity	4.85	8.09	8.02	7.81	7.81	7.88	7.95	8.16	7.95	7.88	8.82	7.45		7.97	7.88	7.99
Nakamura, Shyuunta (JPN)		time	2.70	3.84	5.00	6.16	7.32	8.51	9.68	10.84	12.01	13.23		14.81	/ 4			
reaction time		interval		1.14	1.16	1.16	1.16	1.19	1.17	1.16	1.17	1.22	1.58			3.46	3.52	3.55
		velocity	5.08	8.02	7.88	7.88	7.88	7.68	7.81	7.88	7.81	7.49	8.87	7.43		7.92	7.79	7.72
Yamauti, Masanari (JPN)		time	2.74	3.90	5.06	6.21	7.37	8.50	9.69	10.85	12.03	13.22		14.83	/ 5			
reaction time		interval		1.16	1.16	1.15	1.16	1.13	1.19	1.16	1.18	1.19	1.61			3.47	3.48	3.53
		velocity	5.01	7.88	7.88	7.95	7.88	8.09	7.68	7.88	7.75	7.68	8.71	7.42		7.90	7.88	7.77

Susami, Youhei (JPN) (2006)	time	2.73	3.90	5.05	6.23	7.37	8.56	9.72	10.92	12.08	13.30		14.89	/ 6			
reaction time	interval		1.17	1.15	1.18	1.14	1.19	1.16	1.20	1.16	1.22	1.59			3.50	3.49	3.58
	velocity	5.03	7.81	7.95	7.75	8.02	7.68	7.88	7.62	7.88	7.49	8.82	7.39		7.83	7.86	7.66
Adachi, Eiji (JPN) (2006)	time	2.73	3.92	5.07	6.25	7.42	8.61	9.79	10.97	12.13	13.32		14.89	/ 7			
reaction time	interval		1.19	1.15	1.18	1.17	1.19	1.18	1.18	1.16	1.19	1.57			3.52	3.54	3.53
	velocity	5.03	7.68	7.95	7.75	7.81	7.68	7.75	7.75	7.88	7.68	8.93	7.39		7.79	7.75	7.77
Takahashi, Hayato (JPN)	time	2.78	3.96	5.13	6.32	7.52	8.73	9.93	11.13	12.32	13.57		15.22	/ 8			
reaction time	interval		1.18	1.17	1.19	1.20	1.21	1.20	1.20	1.19	1.25	1.65			3.54	3.61	3.64
	velocity	4.94	7.75	7.81	7.68	7.62	7.55	7.62	7.62	7.68	7.31	8.50	7.23		7.75	7.60	7.53

2021 Japanese U18 National Championships (Matsuyama, JPN) (99cm)

FINAL date 22-Oct-21 wind -0.6 m/s

Shibayama (2021) - race analysis of men's 110m hurdles in the 2021 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nishi, Tetsuro (JPN) (2004)	time	2.61	3.68	4.72	5.75	6.77	7.80	8.83	9.87	10.92	11.98		13.48	5 / 1			
reaction time 0.131	interval	7 steps	1.07	1.04	1.03	1.02	1.03	1.03	1.04	1.05	1.06	1.50			3.14	3.08	3.15
	velocity	5.26	8.54	8.79	8.87	8.96	8.87	8.87	8.79	8.70	8.62	9.35	8.16		8.73	8.90	8.70
Tahara, Ayuma (JPN) (2004)	time	2.63	3.74	4.82	5.88	6.95	8.03	9.11	10.20	11.31	12.43		13.94	6 / 2			
reaction time 0.150	interval	7 steps	1.11	1.08	1.06	1.07	1.08	1.08	1.09	1.11	1.12	1.51			3.25	3.23	3.32
	velocity	5.22	8.23	8.46	8.62	8.54	8.46	8.46	8.39	8.23	8.16	9.28	7.89		8.44	8.49	8.26
Hirotomi, Ato (JPN) (2004)	time	2.73	3.83	4.91	5.99	7.07	8.14	8.25	10.33	11.45	12.56		14.06	4 / 3			
reaction time 0.160	interval		1.10	1.08	1.08	1.08	1.07	0.11	2.08	1.12	1.11	1.50			3.26	2.26	4.31
	velocity	5.03	8.31	8.46	8.46	8.46	8.54	83.09	4.39	8.16	8.23	9.35	7.82		8.41	12.13	6.36
Uchida, Kaisei (JPN) (2004)	time	2.64	3.76	4.86	5.96	7.07	8.16	9.27	10.39	11.53	12.65		14.12	8 / 4			
reaction time 0.139	interval		1.12	1.10	1.10	1.11	1.09	1.11	1.12	1.14	1.12	1.47			3.32	3.31	3.38
	velocity	5.20	8.16	8.31	8.31	8.23	8.39	8.23	8.16	8.02	8.16	9.54	7.79		8.26	8.28	8.11
Takahashi, Ryo (JPN) (2005)	time	2.71	3.83	4.93	6.02	7.10	8.19	9.31	10.40	11.52	12.64		14.15	9 / 5			
reaction time 0.163	interval		1.12	1.10	1.09	1.08	1.09	1.12	1.09	1.12	1.12	1.51			3.31	3.29	3.33
	velocity	5.06	8.16	8.31	8.39	8.46	8.39	8.16	8.39	8.16	8.16	9.28	7.77		8.28	8.33	8.23
Tomita, Kanto (JPN) (2004)	time	2.71	3.82	4.91	6.00	7.10	8.19	9.30	10.41	11.54	12.68		14.20	3 / 6			
reaction time 0.191	interval		1.11	1.09	1.09	1.10	1.09	1.11	1.11	1.13	1.14	1.52			3.29	3.30	3.38
	velocity	5.06	8.23	8.39	8.39	8.31	8.39	8.23	8.23	8.09	8.02	9.22	7.75		8.33	8.31	8.11
Nakai, Shouta (JPN) (2004)	time	2.74	3.90	5.01	6.10	7.21	8.30	9.39	10.48	11.62	12.75		14.28	7 / 7			
reaction time 0.188	interval		1.16	1.11	1.09	1.11	1.09	1.09	1.09	1.14	1.13	1.53			3.36	3.29	3.36
	velocity	5.01	7.88	8.23	8.39	8.23	8.39	8.39	8.39	8.02	8.09	9.16	7.70		8.16	8.33	8.16

2021 Chinese National Games (Xi'an, CHN)

FINAL date 22-Sep-21 wind 0.0 m/s

Huo (2022) - research on the technical characteristics of elite chinese 110m hurdlers

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.60	3.67	4.71	5.74	6.76	7.78	8.79	9.82	10.87	11.95		13.37	/ 1			
reaction time 0.167	interval	7 steps	1.07	1.04	1.03	1.02	1.02	1.01	1.03	1.05	1.08	1.42			3.14	3.05	3.16
	velocity	5.28	8.54	8.79	8.87	8.96	8.96	9.05	8.87	8.70	8.46	9.87	8.23		8.73	8.99	8.68
Ning Xiaohan (CHN) (2000)	time	2.56	3.63	4.67	5.70	6.73	7.76	8.79	9.84	10.90	11.99		13.45	/ 2			
reaction time 0.124	interval		1.07	1.04	1.03	1.03	1.03	1.03	1.05	1.06	1.09	1.46	PB		3.14	3.09	3.20
	velocity	5.36	8.54	8.79	8.87	8.87	8.87	8.87	8.70	8.62	8.39	9.60	8.18		8.73	8.87	8.57
Sun Zhenjiang (CHN) (1999)	time	2.57	3.64	4.67	5.71	6.76	7.81	8.85	9.93	10.98	12.08		13.51	/ 3			
reaction time 0.136	interval	7 steps	1.07	1.03	1.04	1.05	1.05	1.04	1.08	1.05	1.10	1.43	PB		3.14	3.14	3.23
	velocity	5.34	8.54	8.87	8.79	8.70	8.70	8.79	8.46	8.70	8.31	9.80	8.14		8.73	8.73	8.49
Zhu Shenglong (CHN) (2000)	0.155	no information available										PB	13.63	/ 4			
Qin Weibo (CHN) (2002)	time	2.63	3.72	4.76	5.79	6.82	7.87	8.93	10.00	11.10	12.23		13.72	/ 5			
reaction time 0.177	interval	7 steps	1.09	1.04	1.03	1.03	1.05	1.06	1.07	1.10	1.13	1.49	PB		3.16	3.14	3.30
	velocity	5.22	8.39	8.79	8.87	8.87	8.70	8.62	8.54	8.31	8.09	9.41	8.02		8.68	8.73	8.31
Wu Zhenhua (CHN) (1998)	0.154	no information available										PB	13.76	/ 6			
Guo Zhongjie (CHN) (2001)	time	2.64	3.72	4.77	5.81	6.87	7.93	9.02	10.11	11.28	12.45		13.96	/ 7			
reaction time 0.181	interval		1.08	1.05	1.04	1.06	1.06	1.09	1.09	1.17	1.17	1.51			3.17	3.21	3.43
	velocity	5.20	8.46	8.70	8.79	8.62	8.62	8.39	8.39	7.81	7.81	9.28	7.88		8.65	8.54	7.99
Lu Yang (CHN) (1996)	time	2.68	3.79	4.89	5.94	7.02	8.10	9.20	10.28	11.42	12.59		14.16	/ 8			
reaction time 0.146	interval		1.11	1.10	1.05	1.08	1.08	1.10	1.08	1.14	1.17	1.57			3.26	3.26	3.39
	velocity	5.12	8.23	8.31	8.70	8.46	8.46	8.31	8.46	8.02	7.81	8.93	7.77		8.41	8.41	8.09

2021 Boris Hanžeković Memorial (Zagreb, CRO) (TV Analysis)

FINAL date 14-Sep-21 wind 0.7 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)		time	2.46	3.50	4.50	5.47	6.47	7.47	8.47	9.47	10.50	11.53		12.99	5 / 1			
reaction time 0.126		interval		1.04	1.00	0.97	1.00	1.00	1.00	1.00	1.03	1.03	1.46	PB		3.01	3.00	3.06
		velocity	5.58	8.79	9.14	9.42	9.14	9.14	9.14	9.14	8.87	8.87	9.60	8.47		9.11	9.14	8.96
Levy, Ronald (JAM) (1992)		time	2.48	3.52	4.52	5.52	6.50	7.50	8.50	9.53	10.56	11.63		13.11	4 / 2			
reaction time 0.156		interval	7 steps	1.04	1.00	1.00	0.98	1.00	1.00	1.03	1.03	1.07	1.48			3.04	2.98	3.13
		velocity	5.53	8.79	9.14	9.14	9.33	9.14	9.14	8.87	8.87	8.54	9.47	8.39		9.02	9.20	8.76
Parchment, Hansle (JAM) (199(		time	2.50	3.55	4.55	5.54	6.53	7.52	8.53	9.54	10.56	11.63		13.12	6 / 3			
reaction time 0.141		interval	7 steps	1.05	1.00	0.99	0.99	0.99	1.01	1.01	1.02	1.07	1.49			3.04	2.99	3.10
		velocity	5.49	8.70	9.14	9.23	9.23	9.23	9.05	9.05	8.96	8.54	9.41	8.38		9.02	9.17	8.85
Svoboda, Petr (CZE) (1984)		time	2.50	3.60	4.63	5.63	6.66	7.70	8.73	9.76	10.86	11.93		13.51	7 / 4			
reaction time 0.167		interval		1.10	1.03	1.00	1.03	1.04	1.03	1.03	1.10	1.07	1.58			3.13	3.10	3.20
		velocity	5.49	8.31	8.87	9.14	8.87	8.79	8.87	8.87	8.31	8.54	8.87	8.14		8.76	8.85	8.57
King, David (GBR) (1994)		time	2.50	3.60	4.63	5.66	6.66	7.70	8.73	9.76	10.86	12.03		13.56	3 / 5			
reaction time 0.140		interval	7 steps	1.10	1.03	1.03	1.00	1.04	1.03	1.03	1.10	1.17	1.53			3.16	3.07	3.30
		velocity	5.49	8.31	8.87	8.87	9.14	8.79	8.87	8.87	8.31	7.81	9.16	8.11		8.68	8.93	8.31
Pedriks, Keiso (EST) (1994)		time	2.63	3.68	4.73	5.78	6.81	7.83	8.86	9.93				13.63	8 / 6			
reaction time 0.182		interval	7 steps	1.05	1.05	1.05	1.03	1.02	1.03	1.07				PB		3.15	3.08	
		velocity	5.22	8.70	8.70	8.70	8.87	8.96	8.87	8.54				8.07		8.70	8.90	
Vukicevic, Vladimir (NOR) (199'		time	2.56	3.63	4.66	5.70	6.73	7.76	8.83	9.90	11.00	12.10		13.65	2 / 7			
reaction time 0.136		interval		1.07	1.03	1.04	1.03	1.03	1.07	1.07	1.10	1.10	1.55			3.14	3.13	3.27
		velocity	5.36	8.54	8.87	8.79	8.87	8.87	8.54	8.54	8.31	8.31	9.05	8.06		8.73	8.76	8.39

2021 Weltklasse (Zürich, SUI) (TV Analysis)

FINAL date 09-Sep-21 wind 0.6 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)		time	2.48	3.52	4.52	5.52	6.54	7.56	8.58	9.60	10.60	11.64		13.06	4 / 1			
reaction time 0.115		interval		1.04	1.00	1.00	1.02	1.02	1.02	1.02	1.00	1.04	1.42			3.04	3.06	3.06
		velocity	5.53	8.79	9.14	9.14	8.96	8.96	8.96	8.96	9.14	8.79	9.87	8.42		9.02	8.96	8.96
Levy, Ronald (JAM) (1992)		time	2.46	3.50	4.54	5.54	6.56	7.58	8.58	9.58	10.62	11.66		13.06	7 / 2			
reaction time 0.128		interval	7 steps	1.04	1.04	1.00	1.02	1.02	1.00	1.00	1.04	1.04	1.40			3.08	3.04	3.08
		velocity	5.58	8.79	8.79	9.14	8.96	8.96	9.14	9.14	8.79	8.79	10.01	8.42		8.90	9.02	8.90
Parchment, Hansle (JAM) (199(		time	2.50	3.52	4.54	5.52	6.54	7.54	8.54	9.56	10.60	11.68		13.17	5 / 3			
reaction time 0.132		interval	7 steps	1.02	1.02	0.98	1.02	1.00	1.00	1.02	1.04	1.08	1.49			3.02	3.02	3.14
		velocity	5.49	8.96	8.96	9.33	8.96	9.14	9.14	8.96	8.79	8.46	9.41	8.35		9.08	9.08	8.73
Roberts, Daniel (USA) (1997)		time	2.46	3.52	4.54	5.56	6.58	7.60	8.64	9.68	10.74	11.80		13.31	3 / 4			
reaction time 0.173		interval		1.06	1.02	1.02	1.02	1.02	1.04	1.04	1.06	1.06	1.51			3.10	3.08	3.16
		velocity	5.58	8.62	8.96	8.96	8.96	8.96	8.79	8.79	8.62	8.62	9.28	8.26		8.85	8.90	8.68
Dal Molin, Paolo (ITA) (1987)		time	2.54	3.54	4.56	5.60	6.64	7.68	8.76	9.80	10.86	11.96		13.43	2 / 5			
reaction time 0.135		interval	7 steps	1.00	1.02	1.04	1.04	1.04	1.08	1.04	1.06	1.10	1.47			3.06	3.16	3.20
		velocity	5.40	9.14	8.96	8.79	8.79	8.79	8.46	8.79	8.62	8.31	9.54	8.19		8.96	8.68	8.57
Gaio, Finley (SUI) (1999)		time	2.56	3.64	4.70	5.74	6.82	7.88	8.96	10.02	11.12	12.22		13.72	8 / 6			
reaction time 0.135		interval	7 steps	1.08	1.06	1.04	1.08	1.06	1.08	1.06	1.10	1.10	1.50			3.18	3.22	3.26
		velocity	5.36	8.46	8.62	8.79	8.46	8.62	8.46	8.62	8.31	8.31	9.35	8.02		8.62	8.52	8.41
Smet, Koen (NED) (1992)		time	2.56	3.62	4.66	5.70	6.78	7.84	8.94	10.02	11.10	12.22		13.77	1 / 7			
reaction time 0.132		interval		1.06	1.04	1.04	1.08	1.06	1.10	1.08	1.08	1.12	1.55			3.14	3.24	3.28
		velocity	5.36	8.62	8.79	8.79	8.46	8.62	8.31	8.46	8.46	8.16	9.05	7.99		8.73	8.46	8.36

2021 Meeting de Paris (Paris, FRA) (TV Analysis)

FINAL date 28-Aug-21 wind 0.7 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Parchment, Hansle (JAM) (199(		time	2.46	3.48	4.48	5.48	6.46	7.46	8.44	9.46	10.50	11.54		13.03	6 / 1			
reaction time 0.138		interval	7 steps	1.02	1.00	1.00	0.98	1.00	0.98	1.02	1.04	1.04	1.49			3.02	2.96	3.10
		velocity	5.58	8.96	9.14	9.14	9.33	9.14	9.33	8.96	8.79	8.79	9.41	8.44		9.08	9.26	8.85
Allen, Devon (USA) (1994)		time	2.52	3.54	4.56	5.56	6.56	7.56	8.58	9.58	10.60	11.62		13.08	5 / 2			
reaction time 0.141		interval		1.02	1.02	1.00	1.00	1.00	1.02	1.00	1.02	1.02	1.46			3.04	3.02	3.04
		velocity	5.44	8.96	8.96	9.14	9.14	9.14	8.96	9.14	8.96	8.96	9.60	8.41		9.02	9.08	9.02
Roberts, Daniel (USA) (1997)		time	2.46	3.50	4.52	5.54	6.52	7.56	8.58	9.58	10.62	11.68		13.16	2 / 3			
reaction time 0.169		interval		1.04	1.02	1.02	0.98	1.04	1.02	1.00	1.04	1.06	1.48			3.08	3.04	3.10

WR = World Rec. AR = Area Rec. OR = Olympic Rec. CR = Championship Rec. NR = National Rec. PB = Personal Best DQ = Disqualified DV = Drug Violation

	velocity	5.58	8.79	8.96	8.96	9.33	8.79	8.96	9.14	8.79	8.62	9.47	8.36		8.90	9.02	8.85
Levy, Ronald (JAM) (1992)	time	2.48	3.54	4.58	5.60	6.60	7.62	8.64	9.68	10.72	11.78		13.24	4 / 4			
reaction time 0.144	interval	7 steps	1.06	1.04	1.02	1.00	1.02	1.02	1.04	1.04	1.06	1.46			3.12	3.04	3.14
	velocity	5.53	8.62	8.79	8.96	9.14	8.96	8.96	8.79	8.79	8.62	9.60	8.31		8.79	9.02	8.73
Manga, Aurel (FRA) (1992)	time	2.44	3.50	4.54	5.58	6.60	7.62	8.64	9.70	10.76	11.84		13.40	7 / 5			
reaction time 0.154	interval	7 steps	1.06	1.04	1.04	1.02	1.02	1.02	1.06	1.06	1.08	1.56			3.14	3.06	3.20
	velocity	5.62	8.62	8.79	8.79	8.96	8.96	8.96	8.62	8.62	8.46	8.99	8.21		8.73	8.96	8.57
Pozzi, Andy (GBR) (1992)	time	2.52	3.56	4.60	5.62	6.64	7.68	8.72	9.76	10.86	11.94		13.49	8 / 6			
reaction time 0.126	interval	7 steps	1.04	1.04	1.02	1.02	1.04	1.04	1.04	1.10	1.08	1.55			3.10	3.10	3.22
	velocity	5.44	8.79	8.79	8.96	8.96	8.79	8.79	8.79	8.31	8.46	9.05	8.15		8.85	8.85	8.52
Kwaou-Mathey, Just (FRA) (19	time	2.60	3.64	4.68	5.72	6.74	7.76	8.78	9.84	10.92	12.00		13.50	1 / 7			
reaction time 0.161	interval	7 steps	1.04	1.04	1.04	1.02	1.02	1.02	1.06	1.08	1.08	1.50			3.12	3.06	3.22
	velocity	5.28	8.79	8.79	8.79	8.96	8.96	8.96	8.62	8.46	8.46	9.35	8.15		8.79	8.96	8.52
Martinot-Lagarde, Pascal (FRA	time	2.46	3.48	4.50	5.52	6.54	7.58	8.66						3 / --			
reaction time 0.150	interval	7 steps	1.02	1.02	1.02	1.02	1.04	1.08					DQ		3.06	3.14	
	velocity	5.58	8.96	8.96	8.96	8.96	8.79	8.46							8.96	8.73	

2021 Athletissima (Lausanne, SUI) (TV Analysis)

FINAL

date 26-Aug-21 wind 2.5 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.48	3.48	4.52	5.56	6.56	7.56	8.56	9.56	10.56	11.62		13.07	5 / 1			
reaction time 0.140	interval		1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.06	1.45			3.08	3.00	3.06
	velocity	5.53	9.14	8.79	8.79	9.14	9.14	9.14	9.14	9.14	8.62	9.67	8.42		8.90	9.14	8.96
Joseph, Jason (SUI) (1998)	time	2.56	3.60	4.64	5.62	6.60	7.60	8.60	9.60	10.62	11.62		13.11	3 / 2			
reaction time 0.149	interval	7 steps	1.04	1.04	0.98	0.98	1.00	1.00	1.00	1.02	1.00	1.49			3.06	2.98	3.02
	velocity	5.36	8.79	8.79	9.33	9.33	9.14	9.14	9.14	8.96	9.14	9.41	8.39		8.96	9.20	9.08
Martinot-Lagarde, Pascal (FRA	time	2.52	3.54	4.56	5.56	6.56	7.56	8.60	9.62	10.68	11.72		13.17	2 / 3			
reaction time 0.149	interval	7 steps	1.02	1.02	1.00	1.00	1.00	1.04	1.02	1.06	1.04	1.45			3.04	3.04	3.12
	velocity	5.44	8.96	8.96	9.14	9.14	9.14	8.79	8.96	8.62	8.79	9.67	8.35		9.02	9.02	8.79
Roberts, Daniel (USA) (1997)	time	2.48	3.52	4.56	5.56	6.58	7.60	8.62	9.66	10.72	11.78		13.23	7 / 4			
reaction time 0.178	interval		1.04	1.04	1.00	1.02	1.02	1.02	1.04	1.06	1.06	1.45			3.08	3.06	3.16
	velocity	5.53	8.79	8.79	9.14	8.96	8.96	8.96	8.79	8.62	8.62	9.67	8.31		8.90	8.96	8.68
Levy, Ronald (JAM) (1992)	time	2.48	3.56	4.60	5.64	6.68	7.70	8.72	9.76	10.80	11.86		13.40	4 / 5			
reaction time 0.113	interval	7 steps	1.08	1.04	1.04	1.04	1.02	1.02	1.04	1.04	1.06	1.54			3.16	3.08	3.14
	velocity	5.53	8.46	8.79	8.79	8.79	8.96	8.96	8.79	8.79	8.62	9.10	8.21		8.68	8.90	8.73
Smet, Koen (NED) (1992)	time	2.56	3.60	4.62	5.64	6.68	7.72	8.78	9.78	10.88	11.94		13.42	1 / 6			
reaction time 0.144	interval		1.04	1.02	1.02	1.04	1.04	1.06	1.00	1.10	1.06	1.48			3.08	3.14	3.16
	velocity	5.36	8.79	8.96	8.96	8.79	8.79	8.62	9.14	8.31	8.62	9.47	8.20		8.90	8.73	8.68
Pozzi, Andy (GBR) (1992)	time	2.48	3.52	4.56	5.56	6.56	7.58	8.62	9.68	10.80	11.92		13.45	8 / 7			
reaction time 0.149	interval	7 steps	1.04	1.04	1.00	1.00	1.02	1.04	1.06	1.12	1.12	1.53			3.08	3.06	3.30
	velocity	5.53	8.79	8.79	9.14	9.14	8.96	8.79	8.62	8.16	8.16	9.16	8.18		8.90	8.96	8.31
Parchment, Hansle (JAM) (199	time	2.52	3.52	4.54	5.52	6.54	7.54	8.56	9.56	10.66	11.76		13.58	6 / 8			
reaction time 0.133	interval	7 steps	1.00	1.02	0.98	1.02	1.00	1.02	1.00	1.10	1.10	1.82			3.00	3.04	3.20
	velocity	5.44	9.14	8.96	9.33	8.96	9.14	8.96	9.14	8.31	8.31	7.70	8.10		9.14	9.02	8.57

2021 World Athletics U20 Championships (Nairobi, KEN) (99.1cm) (Altitude) (TV Analysis)

FINAL

date 21-Aug-21 wind 1.0 m/s

Henson (2021) - Athlete First: 2021 Sasha Zhoya 110m Hurdles World U20 Record

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)	time	2.32	3.36	4.32	5.28	6.24	7.20	8.20	9.20	10.16	11.16		12.72	4 / 1			
reaction time 0.138	interval	7 steps	1.04	0.96	0.96	0.96	0.96	1.00	1.00	0.96	1.00	1.56	WU20R		2.96	2.92	2.96
	velocity	5.91	8.79	9.52	9.52	9.52	9.52	9.14	9.14	9.52	9.14	8.99	8.65		9.26	9.39	9.26

Semi-Final 2

date 20-Aug-21 wind -0.4 m/s

Henson (2021) - Athlete First: 2021 Sasha Zhoya 110m Hurdles World U20 Record

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)	time	2.36	3.36	4.36	5.34	6.32	7.28	8.26	9.26	10.28	11.32		12.93	6 / 1			
reaction time 0.160	interval	7 steps	1.00	1.00	0.98	0.98	0.96	0.98	1.00	1.02	1.04	1.61	WU20R		2.98	2.92	3.06
	velocity	5.81	9.14	9.14	9.33	9.33	9.52	9.33	9.14	8.96	8.79	8.71	8.51		9.20	9.39	8.96

Heat 3

date 20-Aug-21 wind 0.3 m/s

Henson (2021) - Athlete First: 2021 Sasha Zhoya 110m Hurdles World U20 Record

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)	time	2.43	3.50	4.50	5.50	6.50	7.50	8.50	9.52	10.54	11.58		13.12	4 / 1			
reaction time 0.175	interval	7 steps	1.07	1.00	1.00	1.00	1.00	1.00	1.02	1.02	1.04	1.54			3.07	3.00	3.08
	velocity	5.65	8.54	9.14	9.14	9.14	9.14	9.14	8.96	8.96	8.79	9.10	8.38		8.93	9.14	8.90

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

2020 Olympic Games (Tokyo, JPN) (TV Analysis)

FINAL

date 06-Aug-21 wind -0.5 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Parchment, Hansle (JAM) (199(		time	2.50	3.54	4.56	5.54	6.52	7.50	8.50	9.54	10.56	11.58		13.04	7 / 1			
reaction time 0.130		interval	7 steps	1.04	1.02	0.98	0.98	0.98	1.00	1.04	1.02	1.02	1.46			3.04	2.96	3.08
		velocity	5.49	8.79	8.96	9.33	9.33	9.33	9.14	8.79	8.96	8.96	9.60	8.44		9.02	9.26	8.90
Holloway, Grant (USA) (1997)		time	2.40	3.40	4.40	5.40	6.40	7.38	8.40	9.44	10.50	11.58		13.09	4 / 2			
reaction time 0.136		interval	7 steps	1.00	1.00	1.00	1.00	0.98	1.02	1.04	1.06	1.08	1.51			3.00	3.00	3.18
		velocity	5.72	9.14	9.14	9.14	9.14	9.33	8.96	8.79	8.62	8.46	9.28	8.40		9.14	9.14	8.62
Levy, Ronald (JAM) (1992)		time	2.46	3.50	4.54	5.56	6.58	7.60	8.60	9.62	10.66	11.72		13.10	5 / 3			
reaction time 0.146		interval	7 steps	1.04	1.04	1.02	1.02	1.02	1.00	1.02	1.04	1.06	1.38			3.10	3.04	3.12
		velocity	5.58	8.79	8.79	8.96	8.96	8.96	9.14	8.96	8.79	8.62	10.16	8.40		8.85	9.02	8.79
Allen, Devon (USA) (1994)		time	2.52	3.56	4.58	5.60	6.58	7.62	8.62	9.66	10.70	11.72		13.14	6 / 4			
reaction time 0.133		interval		1.04	1.02	1.02	0.98	1.04	1.00	1.04	1.04	1.02	1.42			3.08	3.02	3.10
		velocity	5.44	8.79	8.96	8.96	9.33	8.79	9.14	8.79	8.79	8.96	9.87	8.37		8.90	9.08	8.85
Martinot-Lagarde, Pascal (FRA		time	2.48	3.52	4.54	5.54	6.54	7.56	8.56	9.58	10.62	11.70		13.16	8 / 5			
reaction time 0.120		interval	7 steps	1.04	1.02	1.00	1.00	1.02	1.00	1.02	1.04	1.08	1.46			3.06	3.02	3.14
		velocity	5.53	8.79	8.96	9.14	9.14	8.96	9.14	8.96	8.79	8.46	9.60	8.36		8.96	9.08	8.73
Martínez, Asier (ESP) (2000)		time	2.56	3.60	4.64	5.66	6.66	7.68	8.70	9.72	10.76	11.80		13.22	2 / 6			
reaction time 0.155		interval	7 steps	1.04	1.04	1.02	1.00	1.02	1.02	1.02	1.04	1.04	1.42	PB		3.10	3.04	3.10
		velocity	5.36	8.79	8.79	8.96	9.14	8.96	8.96	8.96	8.79	8.79	9.87	8.32		8.85	9.02	8.85
Pozzi, Andy (GBR) (1992)		time	2.46	3.50	4.52	5.52	6.52	7.54	8.58	9.62	10.68	11.76		13.30	3 / 7			
reaction time 0.140		interval	7 steps	1.04	1.02	1.00	1.00	1.02	1.04	1.04	1.06	1.08	1.54			3.06	3.06	3.18
		velocity	5.58	8.79	8.96	9.14	9.14	8.96	8.79	8.79	8.62	8.46	9.10	8.27		8.96	8.96	8.62
Manga, Aurel (FRA) (1992)		time	2.50	3.58	4.62	5.62	6.64	7.66	8.68	9.70	10.78	11.86		13.38	9 / 8			
reaction time 0.151		interval	7 steps	1.08	1.04	1.00	1.02	1.02	1.02	1.02	1.08	1.08	1.52			3.12	3.06	3.18
		velocity	5.49	8.46	8.79	9.14	8.96	8.96	8.96	8.96	8.46	8.46	9.22	8.22		8.79	8.96	8.62

Decathlon - Heat 3

date 05-Aug-21 wind -1.0 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Warner, Damian (CAN) (1989)		time	2.55	3.63	4.68	5.69	6.72	7.75	8.85	9.90	10.98	12.08		13.46	7 / 1			
reaction time 0.148		interval	7 steps	1.08	1.05	1.01	1.03	1.03	1.10	1.05	1.08	1.10	1.38	ODB		3.14	3.16	3.23
		velocity	5.38	8.46	8.70	9.05	8.87	8.87	8.31	8.70	8.46	8.31	10.16	8.17		8.73	8.68	8.49
Scantling, Garrett (USA) (1993)		time	2.64	3.75	4.82	5.94	7.00	8.07	9.15	10.32	11.42	12.49		14.03	6 / 2			
reaction time 0.162		interval	7 steps	1.11	1.07	1.12	1.06	1.07	1.08	1.17	1.10	1.07	1.54			3.30	3.21	3.34
		velocity	5.20	8.23	8.54	8.16	8.62	8.54	8.46	7.81	8.31	8.54	9.10	7.84		8.31	8.54	8.21
Moloney, Ashley (AUS) (2000)		time	2.67	3.75	4.84	5.93	7.06	8.13	9.26	10.38	11.50	12.63		14.08	3 / 3			
reaction time 0.143		interval	7 steps	1.08	1.09	1.09	1.13	1.07	1.13	1.12	1.12	1.13	1.45	PB		3.26	3.33	3.37
		velocity	5.14	8.46	8.39	8.39	8.09	8.54	8.09	8.16	8.16	8.09	9.67	7.81		8.41	8.23	8.14
Ureña, Jorge (ESP) (1993)		time	2.68	3.77	4.90	6.01	7.10	8.21	9.30	10.40	11.53	12.68		14.13	9 / 4			
reaction time 0.132		interval		1.09	1.13	1.11	1.09	1.11	1.09	1.10	1.13	1.15	1.45			3.33	3.29	3.38
		velocity	5.12	8.39	8.09	8.23	8.39	8.23	8.39	8.31	8.09	7.95	9.67	7.78		8.23	8.33	8.11
LePage, Pierce (CAN) (1996)		time	2.72	3.88	4.95	6.10	7.20	8.32	9.48	10.58	11.75	12.90		14.39	5 / 5			
reaction time 0.168		interval	7 steps	1.16	1.07	1.15	1.10	1.12	1.16	1.10	1.17	1.15	1.49			3.38	3.38	3.42
		velocity	5.04	7.88	8.54	7.95	8.31	8.16	7.88	8.31	7.81	7.95	9.41	7.64		8.11	8.11	8.02
Bastien, Steven (USA) (1994)		time	2.68	3.76	4.90	6.03	7.12	8.25	9.42	10.55	11.73	12.87		14.42	2 / 6			
reaction time 0.148		interval	7 steps	1.08	1.14	1.13	1.09	1.13	1.17	1.13	1.18	1.14	1.55			3.35	3.39	3.45
		velocity	5.12	8.46	8.02	8.09	8.39	8.09	7.81	8.09	7.75	8.02	9.05	7.63		8.19	8.09	7.95
dos Santos, Felipe (BRA) (199(		time	2.72	3.88	4.95	6.07	7.20	8.32	9.48	10.63	11.85	13.05		14.58	8 / 7			
reaction time 0.172		interval	7 steps	1.16	1.07	1.12	1.13	1.12	1.16	1.15	1.22	1.20	1.53			3.35	3.41	3.57
		velocity	5.04	7.88	8.54	8.16	8.09	8.16	7.88	7.95	7.49	7.62	9.16	7.54		8.19	8.04	7.68
Dubler, Cedric (AUS) (1995)		time	2.70	3.88	5.05	6.23	7.38	8.61	9.82	10.97	12.18			15.10	4 / 8			
reaction time 0.129		interval		1.18	1.17	1.18	1.15	1.23	1.21	1.15	1.21					3.53	3.59	
		velocity	5.08	7.75	7.81	7.75	7.95	7.43	7.55	7.95	7.55			7.28		7.77	7.64	

Decathlon - Heat 2

date 05-Aug-21 wind 0.0 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Helcelet, Adam Sebastian (CZE		time	2.65	3.80	4.85	5.95	7.08	8.19	9.31	10.45	11.58	12.78		14.35	4 / 1			
reaction time 0.140		interval	7 steps	1.15	1.05	1.10	1.13	1.11	1.12	1.14	1.13	1.20	1.57			3.30	3.36	3.47
		velocity	5.18	7.95	8.70	8.31	8.09	8.23	8.16	8.02	8.09	7.62	8.93	7.67		8.31	8.16	7.90

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Shkurenyov, Ilya (RUS) (1991)	time	2.70	3.83	4.92	6.05	7.14	8.28	9.44	10.56	11.70	12.88		14.43	2 / 2				
reaction time 0.174	interval	7 steps	1.13	1.09	1.13	1.09	1.14	1.16	1.12	1.14	1.18	1.55			3.35	3.39	3.44	
	velocity	5.08	8.09	8.39	8.09	8.39	8.02	7.88	8.16	8.02	7.75	9.05	7.62		8.19	8.09	7.97	
Sýkora, Jiří (CZE) (1995)	time	2.75	3.86	5.03	6.15	7.25	8.38	9.53	10.66	11.81	12.94		14.48	8 / 3				
reaction time 0.160	interval		1.11	1.17	1.12	1.10	1.13	1.15	1.13	1.15	1.13	1.54			3.40	3.38	3.41	
	velocity	4.99	8.23	7.81	8.16	8.31	8.09	7.95	8.09	7.95	8.09	9.10	7.60		8.06	8.11	8.04	
Kazmirek, Kai (GER) (1991)	time	2.82	3.93	5.03	6.24	7.32	8.46	9.64	10.78	11.93	13.12		14.73	9 / 4				
reaction time 0.136	interval		1.11	1.10	1.21	1.08	1.14	1.18	1.14	1.15	1.19	1.61			3.42	3.40	3.48	
	velocity	4.87	8.23	8.31	7.55	8.46	8.02	7.75	8.02	7.95	7.68	8.71	7.47		8.02	8.06	7.88	
Uibo, Maicel (EST) (1992)	time	2.70	3.86	5.03	6.20	7.32	8.46	9.68	10.83	12.04	13.26		14.83	5 / 5				
reaction time 0.162	interval	7 steps	1.16	1.17	1.17	1.12	1.14	1.22	1.15	1.21	1.22	1.57			3.50	3.48	3.58	
	velocity	5.08	7.88	7.81	7.81	8.16	8.02	7.49	7.95	7.55	7.49	8.93	7.42		7.83	7.88	7.66	
Wiesiołek, Paweł (POL) (1991)	time	2.77	3.93	5.08	6.28	7.45	8.58	9.72	10.88	12.08	13.28		14.95	6 / 6				
reaction time 0.154	interval	7 steps	1.16	1.15	1.20	1.17	1.13	1.14	1.16	1.20	1.20	1.67			3.51	3.44	3.56	
	velocity	4.95	7.88	7.95	7.62	7.81	8.09	8.02	7.88	7.62	7.62	8.40	7.36		7.81	7.97	7.70	
Zhuk, Vitaliy (BLR) (1996)	time	2.72	3.85	5.02	6.20	7.32	8.52	9.70	10.89	12.08	13.31		14.95	3 / 7				
reaction time 0.146	interval	7 steps	1.13	1.17	1.18	1.12	1.20	1.18	1.19	1.19	1.23	1.64			3.48	3.50	3.61	
	velocity	5.04	8.09	7.81	7.75	8.16	7.62	7.75	7.69	7.67	7.43	8.55	7.36		7.88	7.83	7.60	

Decathlon - Heat 1

date 05-Aug-21 wind 0.1 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mayer, Kevin (FRA) (1992)	time	2.62	3.70	4.73	5.80	6.87	7.98	9.03	10.14	11.28	12.40		13.90	3 / 1			
reaction time 0.137	interval	7 steps	1.08	1.03	1.07	1.07	1.11	1.05	1.11	1.14	1.12	1.50			3.18	3.23	3.37	
	velocity	5.24	8.46	8.87	8.54	8.54	8.23	8.70	8.23	8.02	8.16	9.35	7.91		8.62	8.49	8.14	
Ziemek, Zachery (USA) (1993)	time	2.75	3.90	4.97	6.08	7.20	8.39	9.52	10.64	11.80	12.98		14.51	6 / 2				
reaction time 0.181	interval	7 steps	1.15	1.07	1.11	1.12	1.19	1.13	1.12	1.16	1.18	1.53			3.33	3.44	3.46	
	velocity	4.99	7.95	8.54	8.23	8.16	7.68	8.09	8.16	7.88	7.75	9.16	7.58		8.23	7.97	7.92	
Erm, Johannes (EST) (1998)	time	2.72	3.83	4.97	6.08	7.20	8.39	9.52	10.63	11.80	12.96		14.55	4 / 3				
reaction time 0.155	interval	7 steps	1.11	1.14	1.11	1.12	1.19	1.13	1.11	1.17	1.16	1.59			3.36	3.44	3.44	
	velocity	5.04	8.23	8.02	8.23	8.16	7.68	8.09	8.23	7.81	7.88	8.82	7.56		8.16	7.97	7.97	
Victor, Lindon (GRN) (1993)	time	2.77	3.90	5.01	6.15	7.30	8.48	9.67	10.82	12.01	13.26		14.83	5 / 4				
reaction time 0.174	interval	7 steps	1.13	1.11	1.14	1.15	1.18	1.19	1.15	1.19	1.25	1.57			3.38	3.52	3.59	
	velocity	4.95	8.09	8.23	8.02	7.95	7.75	7.68	7.95	7.68	7.31	8.93	7.42		8.11	7.79	7.64	
Roe, Martin (NOR) (1992)	time	2.80	3.97	5.18	6.40	7.60	8.85	10.05	11.28	12.56	13.80		15.47	8 / 5				
reaction time 0.144	interval	7 steps	1.17	1.21	1.22	1.20	1.25	1.20	1.23	1.28	1.24	1.67			3.60	3.65	3.75	
	velocity	4.90	7.81	7.55	7.49	7.62	7.31	7.62	7.43	7.14	7.37	8.40	7.11		7.62	7.51	7.31	
Tilga, Karel (EST) (1998)	time	2.91	4.18	5.40	6.72	8.00	9.22	10.47	11.72	13.00	14.35		16.10	7 / 6				
reaction time 0.187	interval	7 steps	1.27	1.22	1.32	1.28	1.22	1.25	1.25	1.28	1.35	1.75			3.81	3.75	3.88	
	velocity	4.71	7.20	7.49	6.92	7.14	7.49	7.31	7.31	7.14	6.77	8.01	6.83		7.20	7.31	7.07	

Semi-Final 3

date 04-Aug-21 wind -0.1 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.44	3.45	4.44	5.44	6.44	7.44	8.49	9.52	10.57	11.64		13.13	4 / 1			
reaction time 0.130	interval	7 steps	1.01	0.99	1.00	1.00	1.00	1.05	1.03	1.05	1.07	1.49			3.00	3.05	3.15	
	velocity	5.62	9.05	9.23	9.14	9.14	9.14	8.70	8.87	8.70	8.54	9.41	8.38		9.14	8.99	8.70	
Parchment, Hansle (JAM) (199(	time	2.61	3.64	4.64	5.64	6.64	7.62	8.61	9.68	10.69	11.73		13.23	6 / 2			
reaction time 0.145	interval	7 steps	1.03	1.00	1.00	1.00	0.98	0.99	1.07	1.01	1.04	1.50			3.03	2.97	3.12	
	velocity	5.26	8.87	9.14	9.14	9.14	9.33	9.23	8.54	9.05	8.79	9.35	8.31		9.05	9.23	8.79	
Izumiya, Shunsuke (JPN) (2000	time	2.53	3.62	4.65	5.65	6.69	7.73	8.77	9.77	10.84	11.95		13.35	7 / 3			
reaction time 0.141	interval	7 steps	1.09	1.03	1.00	1.04	1.04	1.04	1.00	1.07	1.11	1.40			3.12	3.12	3.18	
	velocity	5.42	8.39	8.87	9.14	8.79	8.79	8.79	9.14	8.54	8.23	10.01	8.24		8.79	8.79	8.62	
Szűcs, Valdó (HUN) (1995)	time	2.52	3.61	4.64	5.64	6.65	7.69	8.73	9.81	10.84	11.92		13.40	9 / 4			
reaction time 0.140	interval	7 steps	1.09	1.03	1.00	1.01	1.04	1.04	1.08	1.03	1.08	1.48			3.12	3.09	3.19	
	velocity	5.44	8.39	8.87	9.14	9.05	8.79	8.79	8.46	8.87	8.46	9.47	8.21		8.79	8.87	8.60	
Xie Wenjun (CHN) (1990)	time	2.64	3.70	4.77	5.81	6.84	7.84	8.89	9.92	11.01	12.09		13.58	8 / 5			
reaction time 0.154	interval		1.06	1.07	1.04	1.03	1.00	1.05	1.03	1.09	1.08	1.49			3.17	3.08	3.20	
	velocity	5.20	8.62	8.54	8.79	8.87	9.14	8.70	8.87	8.39	8.46	9.41	8.10		8.65	8.90	8.57	
Pereira, Rafael (BRA) (1997)	time	2.61	3.64	4.69	5.72	6.78	7.82	8.89	9.94	11.04	12.14		13.62	5 / 6			
reaction time 0.154	interval		1.03	1.05	1.03	1.06	1.04	1.07	1.05	1.10	1.10	1.48			3.11	3.17	3.25	
	velocity	5.26	8.87	8.70	8.87	8.62	8.79	8.54	8.70	8.31	8.31	9.47	8.08		8.82	8.65	8.44	

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
King, David (GBR) (1994)		time	2.62	3.65	4.72	5.78	6.82	7.85	8.89	9.92	11.02	12.13		13.67	2 / 7			
reaction time	0.141	interval	7 steps	1.03	1.07	1.06	1.04	1.03	1.04	1.03	1.10	1.11	1.54			3.16	3.11	3.24
		velocity	5.24	8.87	8.54	8.62	8.79	8.87	8.79	8.87	8.31	8.23	9.10	8.05		8.68	8.82	8.46
Trajkovic, Milan (CYP) (1992)		time	2.57	3.62	4.64	5.69	6.72	7.77	8.83	9.86	11.01	12.21		14.01	3 / 8			
reaction time	0.147	interval	7 steps	1.05	1.02	1.05	1.03	1.05	1.06	1.03	1.15	1.20	1.80			3.12	3.14	3.38
		velocity	5.34	8.70	8.96	8.70	8.87	8.70	8.62	8.87	7.95	7.62	7.79	7.85		8.79	8.73	8.11

Semi-Final 2

date 04-Aug-21 wind 0.1 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)		time	2.56	3.64	4.64	5.65	6.65	7.65	8.68	9.71	10.73	11.79		13.18	5 / 1			
reaction time	0.121	interval		1.08	1.00	1.01	1.00	1.00	1.03	1.03	1.02	1.06	1.39			3.09	3.03	3.11
		velocity	5.36	8.46	9.14	9.05	9.14	9.14	8.87	8.87	8.96	8.62	10.09	8.35		8.87	9.05	8.82
Manga, Aurel (FRA) (1992)		time	2.52	3.57	4.60	5.64	6.64	7.65	8.66	9.71	10.72	11.79		13.24	6 / 2			
reaction time	0.151	interval	7 steps	1.05	1.03	1.04	1.00	1.01	1.01	1.05	1.01	1.07	1.45	=PB		3.12	3.02	3.13
		velocity	5.44	8.70	8.87	8.79	9.14	9.05	9.05	8.70	9.05	8.54	9.67	8.31		8.79	9.08	8.76
Thomas, Damion (JAM) (1999)		time	2.62	3.68	4.70	5.71	6.76	7.79	8.83	9.85	10.88	11.95		13.39	8 / 3			
reaction time	0.135	interval	7 steps	1.06	1.02	1.01	1.05	1.03	1.04	1.02	1.03	1.07	1.44			3.09	3.12	3.12
		velocity	5.24	8.62	8.96	9.05	8.70	8.87	8.79	8.96	8.87	8.54	9.74	8.22		8.87	8.79	8.79
Dal Molin, Paolo (ITA) (1987)		time	2.51	3.56	4.59	5.64	6.68	7.71	8.75	9.86	10.91	12.04		13.40	9 / 4			
reaction time	0.133	interval	7 steps	1.05	1.03	1.05	1.04	1.03	1.04	1.11	1.05	1.13	1.36			3.13	3.11	3.29
		velocity	5.47	8.70	8.87	8.70	8.79	8.87	8.79	8.23	8.70	8.09	10.31	8.21		8.76	8.82	8.33
Joseph, Jason (SUI) (1998)		time	2.59	3.67	4.71	5.71	6.76	7.80	8.86	9.89	10.96	12.05		13.46	4 / 5			
reaction time	0.135	interval	7 steps	1.08	1.04	1.00	1.05	1.04	1.06	1.03	1.07	1.09	1.41			3.12	3.15	3.19
		velocity	5.30	8.46	8.79	9.14	8.70	8.79	8.62	8.87	8.54	8.39	9.94	8.17		8.79	8.70	8.60
Chen Kuei-Ru (TPE) (1993)		time	2.56	3.64	4.68	5.71	6.71	7.76	8.83	9.90	10.96	12.08		13.57	2 / 6			
reaction time	0.146	interval	7 steps	1.08	1.04	1.03	1.00	1.05	1.07	1.07	1.06	1.12	1.49			3.15	3.12	3.25
		velocity	5.36	8.46	8.79	8.87	9.14	8.70	8.54	8.54	8.62	8.16	9.41	8.11		8.70	8.79	8.44
Lakka, Elmo (FIN) (1993)		time	2.60	3.68	4.73	5.79	6.85	7.89	8.93	10.00	11.11	12.19		13.67	3 / 7			
reaction time	0.139	interval	7 steps	1.08	1.05	1.06	1.06	1.04	1.04	1.07	1.11	1.08	1.48			3.19	3.14	3.26
		velocity	5.28	8.46	8.70	8.62	8.62	8.79	8.79	8.54	8.23	8.46	9.47	8.05		8.60	8.73	8.41
Kanai, Taio (JPN) (1995)		time	2.52	3.59	4.65	5.69	6.71	7.76	8.84	9.92				26.11	7 / 8			
reaction time	0.127	interval	7 steps	1.07	1.06	1.04	1.02	1.05	1.08	1.08						3.17	3.15	
		velocity	5.44	8.54	8.62	8.79	8.96	8.70	8.46	8.46				4.21		8.65	8.70	

Semi-Final 1

date 04-Aug-21 wind 0.3 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levy, Ronald (JAM) (1992)		time	2.47	3.55	4.58	5.58	6.60	7.64	8.65	9.66	10.69	11.72		13.23	7 / 1			
reaction time	0.154	interval	7 steps	1.08	1.03	1.00	1.02	1.04	1.01	1.01	1.03	1.03	1.51			3.11	3.07	3.07
		velocity	5.55	8.46	8.87	9.14	8.96	8.79	9.05	9.05	8.87	8.87	9.28	8.31		8.82	8.93	8.93
Martinot-Lagarde, Pascal (FRA		time	2.52	3.57	4.58	5.58	6.59	7.62	8.67	9.71	10.72	11.76		13.25	4 / 2			
reaction time	0.155	interval	7 steps	1.05	1.01	1.00	1.01	1.03	1.05	1.04	1.01	1.04	1.49			3.06	3.09	3.09
		velocity	5.44	8.70	9.05	9.14	9.05	8.87	8.70	8.79	9.05	8.79	9.41	8.30		8.96	8.87	8.87
Martínez, Asier (ESP) (2000)		time	2.57	3.59	4.63	5.65	6.67	7.70	8.76	9.80	10.83	11.83		13.27	6 / 3			
reaction time	0.150	interval	7 steps	1.02	1.04	1.02	1.02	1.03	1.06	1.04	1.03	1.00	1.44	PB		3.08	3.11	3.07
		velocity	5.34	8.96	8.79	8.96	8.96	8.87	8.62	8.79	8.87	9.14	9.74	8.29		8.90	8.82	8.93
Pozzi, Andy (GBR) (1992)		time	2.52	3.57	4.57	5.57	6.57	7.60	8.62	9.65	10.74	11.83		13.32	8 / 4			
reaction time	0.148	interval	7 steps	1.05	1.00	1.00	1.00	1.03	1.02	1.03	1.09	1.09	1.49			3.05	3.05	3.21
		velocity	5.44	8.70	9.14	9.14	9.14	8.87	8.96	8.87	8.39	8.39	9.41	8.26		8.99	8.99	8.54
Roberts, Daniel (USA) (1997)		time	2.48	3.55	4.58	5.61	6.62	7.69	8.75	9.82	10.84	11.84		13.33	5 / 5			
reaction time	0.195	interval		1.07	1.03	1.03	1.01	1.07	1.06	1.07	1.02	1.00	1.49			3.13	3.14	3.09
		velocity	5.53	8.54	8.87	8.87	9.05	8.54	8.62	8.54	8.96	9.14	9.41	8.25		8.76	8.73	8.87
Czykier, Damian (POL) (1992)		time	2.59	3.60	4.62	5.63	6.69	7.79	8.86	9.94	11.05	12.15		13.63	2 / 6			
reaction time	0.152	interval	7 steps	1.01	1.02	1.01	1.06	1.10	1.07	1.08	1.11	1.10	1.48			3.04	3.23	3.29
		velocity	5.30	9.05	8.96	9.05	8.62	8.31	8.54	8.46	8.23	8.31	9.47	8.07		9.02	8.49	8.33
Hough, Nicholas (AUS) (1993)		time	2.60	3.71	4.73	5.78	6.83	7.90	9.02	10.11	11.25	12.33		13.88	9 / 7			
reaction time	0.163	interval	7 steps	1.11	1.02	1.05	1.05	1.07	1.12	1.09	1.14	1.08	1.55			3.18	3.24	3.31
		velocity	5.28	8.23	8.96	8.70	8.70	8.54	8.16	8.39	8.02	8.46	9.05	7.93		8.62	8.46	8.28
Constantino, Gabriel (BRA) (1!		time	2.58	3.66	4.71	5.78	6.86	7.95	9.02	10.13	11.26	12.37		13.89	3 / 8			
reaction time	0.159	interval	7 steps	1.08	1.05	1.07	1.08	1.09	1.07	1.11	1.13	1.11	1.52			3.20	3.24	3.35
		velocity	5.32	8.46	8.70	8.54	8.46	8.39	8.54	8.23	8.09	8.23	9.22	7.92		8.57	8.46	8.19

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Heat 5

date 03-Aug-21 wind -0.1 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)		time	2.61	3.66	4.66	5.65	6.65	7.62	8.61	9.63	10.66	11.78		13.21	5 / 1			
reaction time	0.146	interval		1.05	1.00	0.99	1.00	0.97	0.99	1.02	1.03	1.12	1.43			3.04	2.96	3.17
		velocity	5.26	8.70	9.14	9.23	9.14	9.42	9.23	8.96	8.87	8.16	9.80	8.33		9.02	9.26	8.65
Martinot-Lagarde, Pascal (FRA		time	2.58	3.66	4.66	5.66	6.67	7.65	8.66	9.70	10.81	11.87		13.37	3 / 2			
reaction time	0.155	interval	7 steps	1.08	1.00	1.00	1.01	0.98	1.01	1.04	1.11	1.06	1.50			3.08	3.00	3.21
		velocity	5.32	8.46	9.14	9.14	9.05	9.33	9.05	8.79	8.23	8.62	9.35	8.23		8.90	9.14	8.54
Kanai, Taio (JPN) (1995)		time	2.58	3.66	4.68	5.68	6.70	7.73	8.78	9.81	10.89	11.97		13.41	7 / 3			
reaction time	0.148	interval	7 steps	1.08	1.02	1.00	1.02	1.03	1.05	1.03	1.08	1.08	1.44			3.10	3.10	3.19
		velocity	5.32	8.46	8.96	9.14	8.96	8.87	8.70	8.87	8.46	8.46	9.74	8.20		8.85	8.85	8.60
Dal Molin, Paolo (ITA) (1987)		time	2.57	3.66	4.68	5.68	6.70	7.73	8.78	9.83	10.94	12.00		13.44	8 / 4			
reaction time	0.151	interval	7 steps	1.09	1.02	1.00	1.02	1.03	1.05	1.05	1.11	1.06	1.44			3.11	3.10	3.22
		velocity	5.34	8.39	8.96	9.14	8.96	8.87	8.70	8.70	8.23	8.62	9.74	8.18		8.82	8.85	8.52
Lakka, Elmo (FIN) (1993)		time	2.61	3.66	4.69	5.68	6.70	7.73	8.77	9.81	10.87	11.98		13.48	6 / 5			
reaction time	0.145	interval	7 steps	1.05	1.03	0.99	1.02	1.03	1.04	1.04	1.06	1.11	1.50			3.07	3.09	3.21
		velocity	5.26	8.70	8.87	9.23	8.96	8.87	8.79	8.79	8.62	8.23	9.35	8.16		8.93	8.87	8.54
Alkana, Antonio (RSA) (1990)		time	2.58	3.65	4.71	5.71	6.75	7.79	8.82	9.89	10.97	12.06		13.55	4 / 6			
reaction time	0.118	interval		1.07	1.06	1.00	1.04	1.04	1.03	1.07	1.08	1.09	1.49			3.13	3.11	3.24
		velocity	5.32	8.54	8.62	9.14	8.79	8.79	8.87	8.54	8.46	8.39	9.41	8.12		8.76	8.82	8.46
Douvalídis, Konstantínos (GRI		time	2.62	3.74	4.77	5.78	6.78	7.81	8.86	9.95	11.01	12.10		13.63	2 / 7			
reaction time	0.128	interval	7 steps	1.12	1.03	1.01	1.00	1.03	1.05	1.09	1.06	1.09	1.53			3.16	3.08	3.24
		velocity	5.24	8.16	8.87	9.05	9.14	8.87	8.70	8.39	8.62	8.39	9.16	8.07		8.68	8.90	8.46
Rodrigues, Eduardo (BRA) (19		time	2.78	3.86	4.90	5.90	6.94	7.96	9.01	10.06	11.20	12.30		13.78	9 / 8			
reaction time	0.163	interval		1.08	1.04	1.00	1.04	1.02	1.05	1.05	1.14	1.10	1.48			3.12	3.11	3.29
		velocity	4.94	8.46	8.79	9.14	8.79	8.96	8.70	8.70	8.02	8.31	9.47	7.98		8.79	8.82	8.33

Heat 4

date 03-Aug-21 wind -0.2 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Manga, Aurel (FRA) (1992)		time	2.45	3.52	4.53	5.57	6.61	7.61	8.61	9.64	10.72	11.78		13.24	8 / 1			
reaction time	0.154	interval	7 steps	1.07	1.01	1.04	1.04	1.00	1.00	1.03	1.08	1.06	1.46	=PB		3.12	3.04	3.17
		velocity	5.60	8.54	9.05	8.79	8.79	9.14	9.14	8.87	8.46	8.62	9.60	8.31		8.79	9.02	8.65
Izumiya, Shunsuke (JPN) (2000		time	2.49	3.52	4.55	5.57	6.63	7.69	8.69	9.72	10.82	11.86		13.28	6 / 2			
reaction time	0.122	interval	7 steps	1.03	1.03	1.02	1.06	1.06	1.00	1.03	1.10	1.04	1.42			3.08	3.12	3.17
		velocity	5.51	8.87	8.87	8.96	8.62	8.62	9.14	8.87	8.31	8.79	9.87	8.28		8.90	8.79	8.65
Pereira, Rafael (BRA) (1997)		time	2.53	3.57	4.60	5.63	6.68	7.73	8.73	9.81	10.91	12.01		13.46	4 / 3			
reaction time	0.145	interval		1.04	1.03	1.03	1.05	1.05	1.00	1.08	1.10	1.10	1.45			3.10	3.10	3.28
		velocity	5.42	8.79	8.87	8.87	8.70	8.70	9.14	8.46	8.31	8.31	9.67	8.17		8.85	8.85	8.36
Xie Wenjun (CHN) (1990)		time	2.53	3.61	4.64	5.69	6.77	7.78	8.81	9.84	10.92	12.04		13.51	2 / 4			
reaction time	0.147	interval		1.08	1.03	1.05	1.08	1.01	1.03	1.03	1.08	1.12	1.47			3.16	3.12	3.23
		velocity	5.42	8.46	8.87	8.70	8.46	9.05	8.87	8.87	8.46	8.16	9.54	8.14		8.68	8.79	8.49
Chen Kuei-Ru (TPE) (1993)		time	2.53	3.57	4.57	5.61	6.69	7.77	8.81	9.84	10.97	12.04		13.53	3 / 5			
reaction time	0.161	interval	7 steps	1.04	1.00	1.04	1.08	1.08	1.04	1.03	1.13	1.07	1.49			3.08	3.20	3.23
		velocity	5.42	8.79	9.14	8.79	8.46	8.46	8.79	8.87	8.09	8.54	9.41	8.13		8.90	8.57	8.49
King, David (GBR) (1994)		time	2.53	3.57	4.62	5.66	6.75	7.81	8.82	9.85	10.98	12.06		13.55	1 / 6			
reaction time	0.111	interval	7 steps	1.04	1.05	1.04	1.09	1.06	1.01	1.03	1.13	1.08	1.49			3.13	3.16	3.24
		velocity	5.42	8.79	8.70	8.79	8.39	8.62	9.05	8.87	8.09	8.46	9.41	8.12		8.76	8.68	8.46
Lovett, Eddie (ISV) (1992)		time	2.58	3.65	4.77	5.85	6.96	8.05	9.13	10.24	11.41	12.62		14.17	9 / 7			
reaction time	0.132	interval		1.07	1.12	1.08	1.11	1.09	1.08	1.11	1.17	1.21	1.55			3.27	3.28	3.49
		velocity	5.32	8.54	8.16	8.46	8.23	8.39	8.46	8.23	7.81	7.55	9.05	7.76		8.39	8.36	7.86
Chan Chung Wang (NKG) (19		time	2.62	3.73	4.81	5.90	7.02	8.13	9.21	10.32	11.46	12.64		14.23	7 / 8			
reaction time	0.149	interval	7 steps	1.11	1.08	1.09	1.12	1.11	1.08	1.11	1.14	1.18	1.59			3.28	3.31	3.43
		velocity	5.24	8.23	8.46	8.39	8.16	8.23	8.46	8.23	8.02	7.75	8.82	7.73		8.36	8.28	7.99

Heat 3

date 03-Aug-21 wind -0.1 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.37	3.37	4.35	5.34	6.31	7.31	8.31	9.34	10.41	11.47		13.02	9 / 1			
reaction time	0.127	interval	7 steps	1.00	0.98	0.99	0.97	1.00	1.00	1.03	1.07	1.06	1.55			2.97	2.97	3.16
		velocity	5.79	9.14	9.33	9.23	9.42	9.14	9.14	8.87	8.54	8.62	9.05	8.45		9.23	9.23	8.68
Parchment, Hansle (JAM) (199		time	2.51	3.56	4.59	5.59	6.59	7.59	8.61	9.63	10.64	11.70		13.23	7 / 2			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time 0.155	interval	7 steps	1.05	1.03	1.00	1.00	1.00	1.02	1.02	1.01	1.06	1.53			3.08	3.02	3.09
	velocity		5.47	8.70	8.87	9.14	9.14	9.14	8.96	8.96	9.05	8.62	9.16	8.31	8.90	9.08	8.87
Hough, Nicholas (AUS) (1993)	time		2.61	3.65	4.68	5.73	6.73	7.75	8.81	9.91	10.97	12.04		13.57	3 / 3			
reaction time 0.162	interval	7 steps	1.04	1.03	1.05	1.00	1.02	1.06	1.10	1.06	1.07	1.53			3.12	3.08	3.23	
	velocity		5.26	8.79	8.87	8.70	9.14	8.96	8.62	8.31	8.62	8.54	9.16	8.11	8.79	8.90	8.49	
Czykier, Damian (POL) (1992)	time		2.56	3.60	4.64	5.67	6.71	7.72	8.77	9.88	10.97	12.07		13.61	5 / 4			
reaction time 0.141	interval	7 steps	1.04	1.04	1.03	1.04	1.01	1.05	1.11	1.09	1.10	1.54			3.11	3.10	3.30	
	velocity		5.36	8.79	8.79	8.87	8.79	9.05	8.70	8.23	8.39	8.31	9.10	8.08	8.82	8.85	8.31	
Traber, Gregor (GER) (1992)	time		2.53	3.56	4.62	5.65	6.68	7.72	8.77	9.88	10.97	12.07		13.65	4 / 5			
reaction time 0.136	interval	7 steps	1.03	1.06	1.03	1.03	1.04	1.05	1.11	1.09	1.10	1.58			3.12	3.12	3.30	
	velocity		5.42	8.87	8.62	8.87	8.87	8.79	8.70	8.23	8.39	8.31	8.87	8.06	8.79	8.79	8.31	
Takayama, Shunya (JPN) (1994	time		2.49	3.56	4.62	5.72	6.86	7.93	9.05	10.21	11.33	12.44		13.98	2 / 6			
reaction time 0.153	interval			1.07	1.06	1.10	1.14	1.07	1.12	1.16	1.12	1.11	1.54			3.23	3.33	3.39
	velocity		5.51	8.54	8.62	8.31	8.02	8.54	8.16	7.88	8.16	8.23	9.10	7.87	8.49	8.23	8.09	
Lararaudeuse, Jeremie (MRI) (2	time		2.56	3.64	4.73	5.76	6.84	7.88	9.00	10.08	11.24	12.44		14.03	1 / 7			
reaction time 0.132	interval			1.08	1.09	1.03	1.08	1.04	1.12	1.08	1.16	1.20	1.59	PB		3.20	3.24	3.44
	velocity		5.36	8.46	8.39	8.87	8.46	8.79	8.16	8.46	7.88	7.62	8.82	7.84	8.57	8.46	7.97	
Hamadi, Fadane (COM) (1992)	time		2.80	3.96	5.08	6.22								14.99	8 / 8			
reaction time 0.189	interval			1.16	1.12	1.14										3.42		
	velocity		4.90	7.88	8.16	8.02								7.34		8.02		

Heat 2

date 03-Aug-21 wind -0.1 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Martínez, Asier (ESP) (2000)	time		2.70	3.72	4.73	5.77	6.79	7.81	8.86	9.89	10.90	11.97		13.32	7 / 1			
reaction time 0.146	interval	7 steps	1.02	1.01	1.04	1.02	1.02	1.05	1.03	1.01	1.07	1.35				3.07	3.09	3.11
	velocity		5.08	8.96	9.05	8.79	8.96	8.96	8.70	8.87	9.05	8.54	10.39	8.26		8.93	8.87	8.82
Roberts, Daniel (USA) (1997)	time		2.61	3.66	4.66	5.69	6.70	7.72	8.78	9.86	10.89	11.97		13.41	5 / 2			
reaction time 0.188	interval			1.05	1.00	1.03	1.01	1.02	1.06	1.08	1.03	1.08	1.44			3.08	3.09	3.19
	velocity		5.26	8.70	9.14	8.87	9.05	8.96	8.62	8.46	8.87	8.46	9.74	8.20		8.90	8.87	8.60
Thomas, Damion (JAM) (1999)	time		2.70	3.78	4.81	5.81	6.85	7.89	8.90	9.97	11.04	12.12		13.54	8 / 3			
reaction time 0.142	interval	7 steps	1.08	1.03	1.00	1.04	1.04	1.01	1.07	1.07	1.08	1.42				3.11	3.09	3.22
	velocity		5.08	8.46	8.87	9.14	8.79	8.79	9.05	8.54	8.54	8.46	9.87	8.12		8.82	8.87	8.52
Trajkovic, Milan (CYP) (1992)	time		2.61	3.69	4.69	5.72	6.78	7.86	8.89	9.91	11.04	12.13		13.59	2 / 4			
reaction time 0.117	interval	7 steps	1.08	1.00	1.03	1.06	1.08	1.03	1.02	1.13	1.09	1.46				3.11	3.17	3.24
	velocity		5.26	8.46	9.14	8.87	8.62	8.46	8.87	8.96	8.09	8.39	9.60	8.09		8.82	8.65	8.46
Parakhonka, Vitali (BLR) (1993)	time		2.69	3.73	4.73	5.75	6.80	7.82	8.89	9.94	11.04	12.12		13.61	9 / 5			
reaction time 0.133	interval			1.04	1.00	1.02	1.05	1.02	1.07	1.05	1.10	1.08	1.49			3.06	3.14	3.23
	velocity		5.10	8.79	9.14	8.96	8.70	8.96	8.54	8.70	8.31	8.46	9.41	8.08		8.96	8.73	8.49
Brathewaite, Shane (BAR) (199	time		2.66	3.73	4.71	5.73	6.73	7.78	8.90	10.02	11.09	12.22		13.64	4 / 6			
reaction time 0.151	interval	7 steps	1.07	0.98	1.02	1.00	1.05	1.12	1.12	1.07	1.13	1.42				3.07	3.17	3.32
	velocity		5.16	8.54	9.33	8.96	9.14	8.70	8.16	8.16	8.54	8.09	9.87	8.06		8.93	8.65	8.26
Al-Yoha, Yaqoub (KUW) (1993	time		2.66	3.70	4.70	5.73	6.81	7.86	8.90	10.01	11.09	12.22		13.69	3 / 7			
reaction time 0.117	interval			1.04	1.00	1.03	1.08	1.05	1.04	1.11	1.08	1.13	1.47			3.07	3.17	3.32
	velocity		5.16	8.79	9.14	8.87	8.46	8.70	8.79	8.23	8.46	8.09	9.54	8.04		8.93	8.65	8.26
Fofana, Hassane (ITA) (1992)	time		2.70	3.73	4.80	5.86	6.89	7.93	9.01	10.09	11.13	12.26		13.70	6 / 8			
reaction time 0.161	interval			1.03	1.07	1.06	1.03	1.04	1.08	1.08	1.04	1.13	1.44			3.16	3.15	3.25
	velocity		5.08	8.87	8.54	8.62	8.87	8.79	8.46	8.46	8.79	8.09	9.74	8.03		8.68	8.70	8.44

Heat 1

date 03-Aug-21 wind 0.0 m/s

Henson (2024) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levy, Ronald (JAM) (1992)	time		2.47	3.62	4.62	5.62	6.62	7.60	8.62	9.65	10.69	11.74		13.17	4 / 1			
reaction time 0.129	interval	7 steps	1.15	1.00	1.00	1.00	0.98	1.02	1.03	1.04	1.05	1.43				3.15	3.00	3.12
	velocity		5.55	7.95	9.14	9.14	9.14	9.33	8.96	8.87	8.79	8.70	9.80	8.35		8.70	9.14	8.79
Joseph, Jason (SUI) (1998)	time		2.57	3.69	4.69	5.70	6.73	7.70	8.69	9.74	10.78	11.86		13.31	6 / 2			
reaction time 0.143	interval	7 steps	1.12	1.00	1.01	1.03	0.97	0.99	1.05	1.04	1.08	1.45				3.13	2.99	3.17
	velocity		5.34	8.16	9.14	9.05	8.87	9.42	9.23	8.70	8.79	8.46	9.67	8.26		8.76	9.17	8.65
Szűcs, Valdó (HUN) (1995)	time		2.54	3.69	4.69	5.75	6.75	7.78	8.82	9.84	10.94	12.06		13.50	9 / 3			
reaction time 0.137	interval	7 steps	1.15	1.00	1.06	1.00	1.03	1.04	1.02	1.10	1.12	1.44				3.21	3.07	3.24
	velocity		5.40	7.95	9.14	8.62	9.14	8.87	8.79	8.96	8.31	8.16	9.74	8.15		8.54	8.93	8.46
Pozzi, Andy (GBR) (1992)	time		2.58	3.66	4.70	5.71	6.72	7.70	8.77	9.83	10.88	11.98		13.50	2 / 4			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.135	interval	7 steps	1.08	1.04	1.01	1.01	0.98	1.07	1.06	1.05	1.10	1.52			3.13	3.06	3.21
		velocity		5.32	8.46	8.79	9.05	9.05	9.33	8.54	8.62	8.70	8.31	9.22	8.15		8.76	8.96	8.54
Constantino, Gabriel (BRA) (1!		time		2.58	3.70	4.74	5.78	6.77	7.81	8.86	9.90	10.98	12.10		13.55	5 / 5			
reaction time	0.154	interval	7 steps	1.12	1.04	1.04	0.99	1.04	1.05	1.04	1.08	1.12	1.45			3.20	3.08	3.24
		velocity		5.32	8.16	8.79	8.79	9.23	8.79	8.70	8.79	8.46	8.16	9.67	8.12		8.57	8.90	8.46
Obasuyi, Michael (BEL) (1999)		time		2.62	3.70	4.77	5.82	6.83	7.86	8.90	10.00	11.06	12.20		13.65	8 / 6			
reaction time	0.141	interval	7 steps	1.08	1.07	1.05	1.01	1.03	1.04	1.10	1.06	1.14	1.45			3.20	3.08	3.30
		velocity		5.24	8.46	8.54	8.70	9.05	8.87	8.79	8.31	8.62	8.02	9.67	8.06		8.57	8.90	8.31
Mendy, Louis François (SEN) (		time		2.66	3.84	4.89	5.93	6.94	7.98	9.03	10.11	11.22	12.34		13.84	7 / 7			
reaction time	0.169	interval			1.18	1.05	1.04	1.01	1.04	1.05	1.08	1.11	1.12	1.50			3.27	3.10	3.31
		velocity		5.16	7.75	8.70	8.79	9.05	8.79	8.70	8.46	8.23	8.16	9.35	7.95		8.39	8.85	8.28
Belocian, Wilhem (FRA) (1995)		time		2.48	3.68	4.70	5.76	6.79	7.81	8.86	9.97					3 / --			
reaction time	0.135	interval			1.20	1.02	1.06	1.03	1.02	1.05	1.11				DQ		3.28	3.10	
		velocity		5.53	7.62	8.96	8.62	8.87	8.96	8.70	8.23						8.36	8.85	

2021 Japanese High School National Championships (Fukui, JPN)

FINAL date 01-Aug-21 wind 1.4 m/s *Shibayama (2021) - national high school and U20 national championhsips*

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nishi, Tetsuro (JPN) (2004)		time		2.65	3.74	4.79	5.85	6.89	7.95	9.00	10.07	11.14	12.23		13.69	3 / 1			
reaction time	0.128	interval	7 steps	1.09	1.05	1.06	1.04	1.06	1.05	1.07	1.07	1.09	1.46		PB		3.20	3.15	3.23
		velocity		5.18	8.39	8.70	8.62	8.79	8.62	8.70	8.54	8.54	8.39	9.60	8.04		8.57	8.70	8.49
Koike, Ryo (JPN) (2003)		time		2.65	3.78	4.88	5.93	7.00	8.08	9.15	10.24	11.35	12.45		13.93	5 / 2			
reaction time	0.147	interval	7 steps	1.13	1.10	1.05	1.07	1.08	1.07	1.09	1.11	1.10	1.48		=PB		3.28	3.22	3.30
		velocity		5.18	8.09	8.31	8.70	8.54	8.46	8.54	8.39	8.23	8.31	9.47	7.90		8.36	8.52	8.31
Higuchi, Hayato (JPN) (2003)		time		2.62	3.70	4.80	5.88	6.97	8.06	9.18	10.30	11.40	12.53		13.95	6 / 3			
reaction time	0.121	interval			1.08	1.10	1.08	1.09	1.09	1.12	1.12	1.10	1.13	1.42	PB		3.26	3.30	3.35
		velocity		5.24	8.46	8.31	8.46	8.39	8.39	8.16	8.16	8.31	8.09	9.87	7.89		8.41	8.31	8.19
Matsumoto, Nozomu (JPN) (2(		time		2.63	3.74	4.81	5.91	6.98	8.07	9.18	10.28	11.41	12.54		14.05	4 / 4			
reaction time	0.158	interval			1.11	1.07	1.10	1.07	1.09	1.11	1.10	1.13	1.13	1.51	PB		3.28	3.27	3.36
		velocity		5.22	8.23	8.54	8.31	8.54	8.39	8.23	8.31	8.09	8.09	9.28	7.83		8.36	8.39	8.16
Hirotomi, Ato (JPN) (2004)		time		2.73	3.80	4.92	5.99	7.10	8.22	9.33	10.45	11.58	12.70		14.17	2 / 5			
reaction time	0.136	interval			1.07	1.12	1.07	1.11	1.12	1.11	1.12	1.13	1.12	1.47	PB		3.26	3.34	3.37
		velocity		5.03	8.54	8.16	8.54	8.23	8.16	8.23	8.16	8.09	8.16	9.54	7.76		8.41	8.21	8.14
Imanishi, Ryota (JPN) (2004)		time		2.74	3.87	4.97	6.07	7.16	8.28	9.39	10.50	11.63	12.76		14.22	8 / 6			
reaction time	0.187	interval			1.13	1.10	1.10	1.09	1.12	1.11	1.11	1.13	1.13	1.46	PB		3.33	3.32	3.37
		velocity		5.01	8.09	8.31	8.31	8.39	8.16	8.23	8.23	8.09	8.09	9.60	7.74		8.23	8.26	8.14
Kawano, Hayato (JPN) (2003)		time		2.64	3.75	4.85	5.97	7.07	8.18	9.33	10.50	11.62	12.79		14.36	7 / 7			
reaction time	0.143	interval			1.11	1.10	1.12	1.10	1.11	1.15	1.17	1.12	1.17	1.57	PB		3.33	3.36	3.46
		velocity		5.20	8.23	8.31	8.16	8.31	8.23	7.95	7.81	8.16	7.81	8.93	7.66		8.23	8.16	7.92
Uchino, Rio (JPN) (2003)		time		2.73	3.85	4.95	6.06	7.17	8.28	9.40	10.51	11.66	12.84		14.37	1 / 8			
reaction time	0.139	interval			1.12	1.10	1.11	1.11	1.11	1.12	1.11	1.15	1.18	1.53	PB		3.33	3.34	3.44
		velocity		5.03	8.16	8.31	8.23	8.23	8.23	8.16	8.23	7.95	7.75	9.16	7.65		8.23	8.21	7.97

2021 European U20 Championships (Tallinn, EST) (99.1cm) (TV Analysis)

FINAL date 17-Jul-21 wind 0.2 m/s *Henson (2021) - Athlete First: 2021 Sasha Zhoya 110m Hurdles World U20 Record*

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)		time		2.48	3.48	4.48	5.48	6.48	7.48	8.48	9.48	10.52	11.52		13.05	4 / 1			
reaction time	0.196	interval	7 steps	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00	1.53	CR		3.00	3.00	3.04
		velocity		5.53	9.14	9.14	9.14	9.14	9.14	9.14	9.14	8.79	9.14	9.16	8.43		9.14	9.14	9.02

Semi-Final 3 date 16-Jul-21 wind 2.4 m/s *Henson (2021) - Athlete First: 2021 Sasha Zhoya 110m Hurdles World U20 Record*

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)		time		2.48	3.48	4.48	5.46	6.42	7.40	8.38	9.38	10.40	11.44		12.98	5 / 1			
reaction time	0.219	interval	*7 steps*	1.00	1.00	0.98	0.96	0.98	0.98	1.00	1.02	1.04	1.54				2.98	2.92	3.06
		velocity		5.53	9.14	9.14	9.33	9.52	9.33	9.33	9.14	8.96	8.79	9.10	8.47		9.20	9.39	8.96

2021 Müller British Grand Prix (Gateshead, GBR) (TV Analysis)

FINAL date 13-Jul-21 wind 0.8 m/s *Henson (2021) - Athlete First: 2021 year end hurdle report*

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levy, Ronald (JAM) (1992)		time		2.54	3.60	4.64	5.66	6.66	7.68	8.70	9.70	10.76	11.82		13.22	4 / 1			
reaction time	0.150	interval	7 steps	1.06	1.04	1.02	1.00	1.02	1.02	1.00	1.06	1.06	1.40				3.12	3.04	3.12
		velocity		5.40	8.62	8.79	8.96	9.14	8.96	8.96	9.14	8.62	8.62	10.01	8.32		8.79	9.02	8.79
McLeod, Omar (JAM) (1994)		time		2.56	3.62	4.62	5.66	6.68	7.68	8.68	9.74	10.78	11.94		13.42	5 / 2			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time 0.140	interval		1.06	1.00	1.04	1.02	1.00	1.00	1.06	1.04	1.16	1.48			3.10	3.02	3.26
	velocity	5.36	8.62	9.14	8.79	8.96	9.14	9.14	8.62	8.79	7.88	9.47	8.20		8.85	9.08	8.41
Pozzi, Andy (GBR) (1992)	time	2.56	3.62	4.64	5.64	6.66	7.72	8.76	9.80	10.88	11.98		13.45	3 / 3			
reaction time 0.114	interval	7 steps	1.06	1.02	1.00	1.02	1.06	1.04	1.04	1.08	1.10	1.47			3.08	3.12	3.22
	velocity	5.36	8.62	8.96	9.14	8.96	8.62	8.79	8.79	8.46	8.31	9.54	8.18		8.90	8.79	8.52
Dunning, Robert (USA) (1997)	time	2.60	3.62	4.72	5.76	6.82	7.88	8.92	10.00	11.08	12.18		13.71	6 / 4			
reaction time 0.130	interval	7 steps	1.02	1.10	1.04	1.06	1.06	1.04	1.08	1.08	1.10	1.53			3.16	3.16	3.26
	velocity	5.28	8.96	8.31	8.79	8.62	8.62	8.79	8.46	8.46	8.31	9.16	8.02		8.68	8.68	8.41
Broadbell, Rasheed (JAM) (200	time	2.60	3.72	4.76	5.82	6.88	7.98	9.04	10.10	11.22	12.32		13.84	2 / 5			
reaction time 0.165	interval	7 steps	1.12	1.04	1.06	1.06	1.10	1.06	1.06	1.12	1.10	1.52			3.22	3.22	3.28
	velocity	5.28	8.16	8.79	8.62	8.62	8.31	8.62	8.62	8.16	8.31	9.22	7.95		8.52	8.52	8.36
Ojora, Tade (GBR) (1999)	time	2.64	3.72	4.80	5.84	6.92	8.00	9.04	10.18	11.28	12.40		13.87	7 / 6			
reaction time 0.151	interval		1.08	1.08	1.04	1.08	1.08	1.04	1.14	1.10	1.12	1.47			3.20	3.20	3.36
	velocity	5.20	8.46	8.46	8.79	8.46	8.46	8.79	8.02	8.31	8.16	9.54	7.93		8.57	8.57	8.16
Dal Molin, Paolo (ITA) (1987)	time	2.52	3.60	4.64	5.74	6.86	7.96	9.04	10.16	11.24	12.36		13.97	8 / 7			
reaction time 0.150	interval	7 steps	1.08	1.04	1.10	1.12	1.10	1.08	1.12	1.08	1.12	1.61			3.22	3.30	3.32
	velocity	5.44	8.46	8.79	8.31	8.16	8.31	8.46	8.16	8.46	8.16	8.71	7.87		8.52	8.31	8.26

2021 French National U20 Championships (Bondoufle, FRA) (99.1cm) (TV Analysis)

FINAL date 10-Jul-21 wind 2.2 m/s

Henson (2021) - Athlete First: 2021 Sasha Zhoya 110m Hurdles World U20 Record

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhoya, Sasha (FRA) (2002)	time	2.53	3.56	4.56	5.58	6.56	7.58	8.60	9.60	10.62	11.66		13.06	6 / 1			
reaction time 0.150	interval	*7 steps*	1.03	1.00	1.02	0.98	1.02	1.02	1.00	1.02	1.04	1.40			3.05	3.02	3.06
	velocity	5.42	8.87	9.14	8.96	9.33	8.96	8.96	9.14	8.96	8.79	10.01	8.42		8.99	9.08	8.96

2021 Flavour Hangzhou Athletics Meeting (Hangzhou, CHN)

FINAL date 09-Jul-21 wind 0.4 m/s

CAA Hurdle Development (2021)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.64	3.70	4.74	5.77	6.79	7.82	8.86	9.91	10.98	12.06		13.49	4 / 1			
reaction time 0.154	interval		1.06	1.04	1.03	1.02	1.03	1.04	1.05	1.07	1.08	1.43			3.13	3.09	3.20
	velocity	5.20	8.62	8.79	8.87	8.96	8.87	8.79	8.70	8.54	8.46	9.80	8.15		8.76	8.87	8.57

2021 István Gyulai Memorial (Székesfehérvár, HUN) (TV Analysis)

FINAL date 06-Jul-21 wind -0.1 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.36	3.37	4.37	5.35	6.34	7.34	8.36	9.40	10.47	11.56		13.08	4 / 1			
reaction time 0.145	interval	7 steps	1.01	1.00	0.98	0.99	1.00	1.02	1.04	1.07	1.09	1.52			2.99	3.01	3.20
	velocity	5.81	9.05	9.14	9.33	9.23	9.14	8.96	8.79	8.54	8.39	9.22	8.41		9.17	9.11	8.57
Ortega, Orlando (ESP) (1991)	time	2.47	3.50	4.54	5.54	6.54	7.54	8.56	9.57	10.58	11.63		13.15	5 / 2			
reaction time 0.134	interval	7 steps	1.03	1.04	1.00	1.00	1.00	1.02	1.01	1.01	1.05	1.52			3.07	3.02	3.07
	velocity	5.55	8.87	8.79	9.14	9.14	9.14	8.96	9.05	9.05	8.70	9.22	8.37		8.93	9.08	8.93
Shubenkov, Sergey (ANA) (199	time	2.50	3.53	4.54	5.56	6.55	7.54	8.54	9.57	10.61	11.64		13.19	6 / 3			
reaction time 0.150	interval	7 steps	1.03	1.01	1.02	0.99	0.99	1.00	1.03	1.04	1.03	1.55			3.06	2.98	3.10
	velocity	5.49	8.87	9.05	8.96	9.23	9.23	9.14	8.87	8.79	8.87	9.05	8.34		8.96	9.20	8.85
Levy, Ronald (JAM) (1992)	time	2.43	3.46	4.52	5.57	6.59	7.61	8.65	9.68	10.70	11.74		13.25	3 / 4			
reaction time 0.140	interval	7 steps	1.03	1.06	1.05	1.02	1.02	1.04	1.03	1.02	1.04	1.51			3.14	3.08	3.09
	velocity	5.65	8.87	8.62	8.70	8.96	8.96	8.79	8.87	8.96	8.79	9.28	8.30		8.73	8.90	8.87
Szūcs, Valdó (HUN) (1995)	time	2.45	3.50	4.52	5.57	6.61	7.61	8.67	9.72	10.78	11.86		13.47	2 / 5			
reaction time 0.147	interval	7 steps	1.05	1.02	1.05	1.04	1.00	1.06	1.05	1.06	1.08	1.61			3.12	3.10	3.19
	velocity	5.60	8.70	8.96	8.70	8.79	9.14	8.62	8.70	8.62	8.46	8.71	8.17		8.79	8.85	8.60

2021 Japanese National Championships (Osaka, JPN)

FINAL date 27-Jun-21 wind 1.2 m/s

Shibayama (2021) - race analysis of men's 110m hurdles in the 2021 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000	time	2.55	3.57	4.61	5.63	6.64	7.65	8.67	9.68	10.69	11.75		13.06	6 / 1			
reaction time 0.155	interval	7 steps	1.02	1.04	1.02	1.01	1.01	1.02	1.01	1.01	1.06	1.31	**NR PB**		3.08	3.04	3.08
	velocity	5.38	8.96	8.79	8.96	9.05	9.05	8.96	9.05	9.05	8.62	10.70	8.42		8.90	9.02	8.90
Kanai, Taio (JPN) (1995)	time	2.52	3.55	4.56	5.59	6.61	7.63	8.66	9.72	10.76	11.82		13.22	9 / 2			
reaction time 0.141	interval	7 steps	1.03	1.01	1.03	1.02	1.02	1.03	1.06	1.04	1.06	1.40			3.07	3.07	3.16
	velocity	5.44	8.87	9.05	8.87	8.96	8.96	8.87	8.62	8.79	8.62	10.01	8.32		8.93	8.93	8.68
Takayama, Shunya (JPN) (1994	time	2.57	3.60	4.64	5.68	6.71	7.74	8.78	9.83	10.88	11.95		13.37	3 / 3			
reaction time 0.139	interval		1.03	1.04	1.04	1.03	1.03	1.04	1.05	1.05	1.07	1.42			3.11	3.10	3.17
	velocity	5.34	8.87	8.79	8.79	8.87	8.87	8.79	8.70	8.70	8.54	9.87	8.23		8.82	8.85	8.65

Nomoto, Syuusei (JPN) (1995)	time	2.54	3.60	4.65	5.68	6.71	7.75	8.79	9.85	10.90	11.97		13.38	4 / 4			
reaction time 0.154	interval	7 steps	1.06	1.05	1.03	1.03	1.04	1.04	1.06	1.05	1.07	1.41	PB		3.14	3.11	3.18
	velocity	5.40	8.62	8.70	8.87	8.87	8.79	8.79	8.62	8.70	8.54	9.94	8.22		8.73	8.82	8.62
Yokochi, Taiga (JPN) (2000)	time	2.62	3.70	4.72	5.75	6.76	7.77	8.84	9.89	10.96	12.03		13.47	8 / 5			
reaction time 0.167	interval	7 steps	1.08	1.02	1.03	1.01	1.01	1.07	1.05	1.07	1.07	1.44	**PB**		3.13	3.09	3.19
	velocity	5.24	8.46	8.96	8.87	9.05	9.05	8.54	8.70	8.54	8.54	9.74	8.17		8.76	8.87	8.60
Fujii, Ryota (JPN) (1996)	time	2.59	3.65	4.69	5.73	6.77	7.80	8.86	9.92	11.00	12.08		13.54	2 / 6			
reaction time 0.149	interval		1.06	1.04	1.04	1.04	1.03	1.06	1.06	1.08	1.08	1.46	**PB**		3.14	3.13	3.22
	velocity	5.30	8.62	8.79	8.79	8.79	8.87	8.62	8.62	8.46	8.46	9.60	8.12		8.73	8.76	8.52

2020 USA Olympic Trials (Eugene, OR)

FINAL (TV Analysis)

date 26-Jun-21 wind 0.4 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.40	3.37	4.34	5.30	6.27	7.24	8.26	9.27	10.33	11.42		12.96	4 / 1			
reaction time 0.146	interval	7 steps	0.97	0.97	0.96	0.97	0.97	1.02	1.01	1.06	1.09	1.54			2.90	2.96	3.16
	velocity		5.72	9.42	9.42	9.52	9.42	9.42	8.96	9.05	8.62	8.39	9.10	8.49		9.46	9.26	8.68
Allen, Devon (USA) (1994)	time	2.50	3.53	4.53	5.53	6.54	7.57	8.56	9.58	10.60	11.64		13.10	5 / 2			
reaction time 0.152	interval		1.03	1.00	1.00	1.01	1.03	0.99	1.02	1.02	1.04	1.46			3.03	3.03	3.08
	velocity	5.49	8.87	9.14	9.14	9.05	8.87	9.23	8.96	8.96	8.79	9.60	8.40		9.05	9.05	8.90
Roberts, Daniel (USA) (1998)	time	2.43	3.47	4.47	5.47	6.47	7.49	8.51	9.53	10.56	11.61		13.11	6 / 3			
reaction time 0.201	interval		1.04	1.00	1.00	1.00	1.02	1.02	1.02	1.03	1.05	1.50			3.04	3.04	3.10
	velocity	5.65	8.79	9.14	9.14	9.14	8.96	8.96	8.96	8.87	8.70	9.35	8.39		9.02	9.02	8.85
Cunningham, Trey (USA) (199	time	2.43	3.47	4.47	5.47	6.47	7.49	8.52	9.56	10.62	11.70		13.21	3 / 4			
reaction time 0.165	interval	7 steps	1.04	1.00	1.00	1.00	1.02	1.03	1.04	1.06	1.08	1.51	**=PB**		3.04	3.05	3.18
	velocity		5.65	8.79	9.14	9.14	8.96	8.87	8.79	8.62	8.46	9.28	8.33		9.02	8.99	8.62
Brown, Tai (USA) (2000)	time	2.60	3.63	4.65	5.67	6.67	7.67	8.69	9.72	10.76	11.84		13.32	8 / 5			
reaction time 0.174	interval		1.03	1.02	1.02	1.00	1.00	1.02	1.03	1.04	1.08	1.48	**PB**		3.07	3.02	3.15
	velocity	5.28	8.87	8.96	8.96	9.14	9.14	8.96	8.87	8.79	8.46	9.47	8.26		8.93	9.08	8.70
Dickson, Michael (USA) (1997)	time	2.50	3.55	4.60	5.62	6.64	7.67	8.71	9.74	10.78	11.85		13.34	2 / 6			
reaction time 0.201	interval	7 steps	1.05	1.05	1.02	1.02	1.03	1.04	1.03	1.04	1.07	1.49			3.12	3.09	3.14
	velocity		5.49	8.70	8.70	8.96	8.96	8.87	8.79	8.87	8.79	8.54	9.41	8.25		8.79	8.87	8.73
Britt, Jamal (USA) (1998)	time	2.47	3.53	4.57	5.60	6.64	7.67	8.72	9.77	10.85	11.95		13.47	7 / 7			
reaction time 0.158	interval	7 steps	1.06	1.04	1.03	1.04	1.03	1.05	1.05	1.08	1.10	1.52			3.13	3.12	3.23
	velocity		5.55	8.62	8.79	8.87	8.79	8.87	8.70	8.70	8.46	8.31	9.22	8.17		8.76	8.79	8.49
Eaton, Jarrett (USA) (1989)	time	2.47	3.50	4.50	5.54	6.54	7.57	8.64	9.71	10.84	11.98		13.64	1 / 8			
reaction time 0.137	interval	7 steps	1.03	1.00	1.04	1.00	1.03	1.07	1.07	1.13	1.14	1.66			3.07	3.10	3.34
	velocity		5.55	8.87	9.14	8.79	9.14	8.87	8.54	8.54	8.09	8.02	8.45	8.06		8.93	8.85	8.21

Semi-Final 2 (TV A

date 26-Jun-21 wind 1.2 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.53	3.56	4.56	5.54	6.55	7.56	8.55	9.58	10.61	11.64		13.10	5 / 1			
reaction time 0.124	interval		1.03	1.00	0.98	1.01	1.01	0.99	1.03	1.03	1.03	1.46			3.01	3.01	3.09
	velocity	5.42	8.87	9.14	9.33	9.05	9.05	9.23	8.87	8.87	8.87	9.60	8.40		9.11	9.11	8.87
Roberts, Daniel (USA) (1998)	time	2.46	3.53	4.53	5.53	6.55	7.56	8.55	9.61	10.63	11.72		13.25	4 / 2			
reaction time 0.179	interval		1.07	1.00	1.00	1.02	1.01	0.99	1.06	1.02	1.09	1.53			3.07	3.02	3.17
	velocity	5.58	8.54	9.14	9.14	8.96	9.05	9.23	8.62	8.96	8.39	9.16	8.30		8.93	9.08	8.65
Dickson, Michael (USA) (1997)	time	2.50	3.60	4.57	5.60	6.63	7.67	8.67	9.71	10.74	11.86		13.29	6 / 3			
reaction time 0.173	interval	7 steps	1.10	0.97	1.03	1.03	1.04	1.00	1.04	1.03	1.12	1.43			3.10	3.07	3.19
	velocity		5.49	8.31	9.42	8.87	8.87	8.79	9.14	8.79	8.87	8.16	9.80	8.28		8.85	8.93	8.60
Eaton, Jarrett (USA) (1989)	time	2.50	3.56	4.53	5.54	6.55	7.60	8.60	9.63	10.70	11.80		13.32	3 / 4			
reaction time 0.157	interval	7 steps	1.06	0.97	1.01	1.01	1.05	1.00	1.03	1.07	1.10	1.52			3.04	3.06	3.20
	velocity		5.49	8.62	9.42	9.05	9.05	8.70	9.14	8.87	8.54	8.31	9.22	8.26		9.02	8.96	8.57
Mallett, Aaron (USA) (1994)	time	2.56	3.60	4.63	5.63	6.63	7.67	8.67	9.71	10.76	11.86		13.33	7 / 5			
reaction time 0.198	interval		1.04	1.03	1.00	1.00	1.04	1.00	1.04	1.05	1.10	1.47			3.07	3.04	3.19
	velocity	5.36	8.79	8.87	9.14	9.14	8.79	9.14	8.79	8.70	8.31	9.54	8.25		8.93	9.02	8.60
	time																
Marshall, Jamar (USA) (2001)	time	2.50	3.60	4.60	5.60	6.65	7.69	8.70	9.73	10.80	11.88		13.38	1 / ~~6~~			
reaction time 0.137	interval	7 steps	1.10	1.00	1.00	1.05	1.04	1.01	1.03	1.07	1.08	1.50	**DQ**		3.10	3.10	3.18
	velocity		5.49	8.31	9.14	9.14	8.70	8.79	9.05	8.87	8.54	8.46	9.35	8.22		8.85	8.85	8.62
Crittenden, Freddie (USA) (199	time	2.56	3.60	4.63	5.70	6.74	7.77	8.80	9.90	10.99	12.07		13.63	2 / ~~7~~ 6			
reaction time 0.175	interval		1.04	1.03	1.07	1.04	1.03	1.03	1.10	1.09	1.08	1.56			3.14	3.10	3.27
	velocity	5.36	8.79	8.87	8.54	8.79	8.87	8.87	8.31	8.39	8.46	8.99	8.07		8.73	8.85	8.39

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Ames, Brendan (USA) (1988)	time	2.56	3.63	4.65	5.67	6.70	7.73	8.88	10.00	11.13	12.30		13.96	8 / ~~8~~ 7				
reaction time 0.208	interval	7 steps	1.07	1.02	1.02	1.03	1.03	1.15	1.12	1.13	1.17	1.66			3.11	3.21	3.42	
	velocity	5.36	8.54	8.96	8.96	8.87	8.87	7.95	8.16	8.09	7.81	8.45	7.88		8.82	8.54	8.02	

Henson (2021) - Athlete First: 2021 year end hurdle report (TV Analysis)

Vazel (2021) - https://twitter.com/pjvazel/status/1409323602432999426?s=21

Semi-Final 1

date 26-Jun-21 wind 1.8 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10	
Holloway, Grant (USA) (1997)	time	2.49	3.49	4.45	5.40	6.36	7.36	8.35	9.36	10.38	11.42		12.81	5 / 1				*Vazel (2021)*
reaction time 0.169	interval	7 steps	1.00	0.96	0.95	0.96	1.00	0.99	1.01	1.02	1.04	1.39	PB		2.91	2.95	3.07	
	velocity	5.51	9.14	9.52	9.62	9.52	9.14	9.23	9.05	8.96	8.79	10.09	8.59		9.42	9.29	8.93	
Cunningham, Trey (USA) (199	time	2.46	3.48	4.49	5.47	6.48	7.52	8.56	9.59	10.66	11.72		13.21	6 / 2				*Henson (2021)*
reaction time 0.163	interval	7 steps	1.02	1.01	0.98	1.01	1.04	1.04	1.03	1.07	1.06	1.49	PB		3.01	3.09	3.16	
	velocity	5.58	8.96	9.05	9.33	9.05	8.79	8.79	8.87	8.54	8.62	9.41	8.33		9.11	8.87	8.68	
Britt, Jamal (USA) (1998)	time	2.47	3.53	4.55	5.55	6.57	7.58	8.62	9.67	10.73	11.81		13.27	3 / 3				*Henson (2021)*
reaction time 0.147	interval	7 steps	1.06	1.02	1.00	1.02	1.01	1.04	1.05	1.06	1.08	1.46	PB		3.08	3.07	3.19	
	velocity	5.55	8.62	8.96	9.14	8.96	9.05	8.79	8.70	8.62	8.46	9.60	8.29		8.90	8.93	8.60	
Brown, Tai (USA) (2000)	time	2.62	3.65	4.67	5.69	6.70	7.69	8.71	9.74	10.78	11.86		13.33	2 / 4				*Henson (2021)*
reaction time 0.173	interval		1.03	1.02	1.02	1.01	0.99	1.02	1.03	1.04	1.08	1.47	PB		3.07	3.02	3.15	
	velocity	5.24	8.87	8.96	8.96	9.05	9.23	8.96	8.87	8.79	8.46	9.54	8.25		8.93	9.08	8.70	
Gilbert, Tre'Bien (USA) (1999)	time	2.50	3.58	4.60	5.61	6.63	7.64	8.71	9.76	10.80	11.92		13.41	8 / 5				*Henson (2021)*
reaction time 0.191	interval	7 steps	1.08	1.02	1.01	1.02	1.01	1.07	1.05	1.04	1.12	1.49	PB		3.11	3.10	3.21	
	velocity	5.49	8.46	8.96	9.05	8.96	9.05	8.54	8.70	8.79	8.16	9.41	8.20		8.82	8.85	8.54	
McConico, Jaylan (USA) (1998)	time	2.55	3.62	4.64	5.68	6.70	7.72	8.74	9.81	10.86	11.94		13.43	4 / 6				*Henson (2021)*
reaction time 0.209	interval		1.07	1.02	1.04	1.02	1.02	1.02	1.07	1.05	1.08	1.49			3.13	3.06	3.20	
	velocity	5.38	8.54	8.96	8.79	8.96	8.96	8.96	8.54	8.70	8.46	9.41	8.19		8.76	8.96	8.57	
Brooks, Devon (USA) (1998)	time	2.62	3.66	4.68	5.70	6.72	7.74	8.77	9.81	10.87	12.01		13.55	1 / 7				*Henson (2021)*
reaction time 0.264	interval	7 steps	1.04	1.02	1.02	1.02	1.02	1.03	1.04	1.06	1.14	1.54			3.08	3.07	3.24	
	velocity	5.24	8.79	8.96	8.96	8.96	8.96	8.87	8.79	8.62	8.02	9.10	8.12		8.90	8.93	8.46	
Moore, Isaiah (USA) (1996)	time	2.54	3.63	4.69	5.72	6.77	7.81	8.86	9.91	10.96	12.06		13.59	7 / 8				*Henson (2021)*
reaction time 0.147	interval		1.09	1.06	1.03	1.05	1.04	1.05	1.05	1.05	1.10	1.53			3.18	3.14	3.20	
	velocity	5.40	8.39	8.62	8.87	8.70	8.79	8.70	8.70	8.70	8.31	9.16	8.09		8.62	8.73	8.57	
Brixey, Sam (USA) (1998)	time	2.50	3.58	4.67	5.70	6.77	7.86	8.99	10.11	11.21	12.38		13.99	9 / 9				*Henson (2021)*
reaction time 0.148	interval	7 steps	1.08	1.09	1.03	1.07	1.09	1.13	1.12	1.10	1.17	1.61			3.20	3.29	3.39	
	velocity	5.49	8.46	8.39	8.87	8.54	8.39	8.09	8.16	8.31	7.81	8.71	7.86		8.57	8.33	8.09	

Heat 3 (TV Analysis)

date 25-Jun-21 wind 0.5 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.50	3.53	4.56	5.63	6.63	7.63	8.66	9.73	10.73	11.76		13.26	3 / 1			
reaction time 0.139	interval		1.03	1.03	1.07	1.00	1.00	1.03	1.07	1.00	1.03	1.50			3.13	3.03	3.10
	velocity	5.49	8.87	8.87	8.54	9.14	9.14	8.87	8.54	9.14	8.87	9.35	8.30		8.76	9.05	8.85
Dickson, Michael (USA) (1997)	time	2.53	3.57	4.60	5.66	6.66	7.66	8.70	9.73	10.73	11.78		13.26	2 / 2			
reaction time 0.208	interval	7 steps	1.04	1.03	1.06	1.00	1.00	1.04	1.03	1.00	1.05	1.48	PB		3.13	3.04	3.08
	velocity	5.42	8.79	8.87	8.62	9.14	9.14	8.79	8.87	9.14	8.70	9.47	8.30		8.76	9.02	8.90

Heat 2 (TV Analysis)

date 25-Jun-21 wind 1.5 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.46	3.50	4.53	5.53	6.53	7.53	8.56	9.60	10.63	11.70		13.22	1 / 1			
reaction time 0.182	interval		1.04	1.03	1.00	1.00	1.00	1.03	1.04	1.03	1.07	1.52			3.07	3.03	3.14
	velocity	5.58	8.79	8.87	9.14	9.14	9.14	8.87	8.79	8.87	8.54	9.22	8.32		8.93	9.05	8.73
Cunningham, Trey (USA) (199	time	2.43	3.46	4.50	5.50	6.50	7.50	8.56	9.60	10.66	11.73		13.23	3 / 2			
reaction time 0.162	interval	7 steps	1.03	1.04	1.00	1.00	1.00	1.06	1.04	1.06	1.07	1.50	PB		3.07	3.06	3.17
	velocity	5.65	8.87	8.79	9.14	9.14	9.14	8.62	8.79	8.62	8.54	9.35	8.31		8.93	8.96	8.65

Heat 1 (TV Analysis)

date 25-Jun-21 wind 0.7 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.43	3.43	4.43	5.40	6.42	7.43	8.46	9.49	10.51	11.55		13.11	4 / 1			
reaction time 0.175	interval	7 steps	1.00	1.00	0.97	1.02	1.01	1.03	1.03	1.02	1.04	1.56			2.97	3.06	3.09
	velocity	5.65	9.14	9.14	9.42	8.96	9.05	8.87	8.87	8.96	8.79	8.99	8.39		9.23	8.96	8.87

2021 Jamaican National Championships (Kingston, JAM) (TV Analysis)

Heat 1

date 26-Jun-21 wind 1.3 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.47	3.53	4.53	5.56	6.53	7.57	8.57	9.57	10.58	11.59		13.04	4 / 1			
reaction time	interval		1.06	1.00	1.03	0.97	1.04	1.00	1.00	1.01	1.01	1.45			3.09	3.01	3.02
	velocity	5.55	8.62	9.14	8.87	9.42	8.79	9.14	9.14	9.05	9.05	9.67	8.44		8.87	9.11	9.08

Levy, Ronald (JAM) (1992)	time	2.53	3.53	4.56	5.56	6.53	7.53	8.53	9.53	10.56	11.60		13.08	5 / 2				
reaction time	interval	7 steps	1.00	1.03	1.00	0.97	1.00	1.00	1.00	1.03	1.04	1.48			3.03	2.97	3.07	
	velocity	5.42	9.14	8.87	9.14	9.42	9.14	9.14	9.14	8.87	8.79	9.47	8.41		9.05	9.23	8.93	

2021 Chinese National Championships (Chongqing, CHN)

Decathlon - Heat 3

date 27-Jun-21 wind -0.2 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Gong Kewei (CHN) (1994)	time	2.71	3.89	5.05	6.19	7.32	8.46	9.62	10.81	12.01	13.21		14.76	2 / 1			
reaction time 0.177	interval		1.18	1.16	1.14	1.13	1.14	1.16	1.19	1.20	1.20	1.55			3.48	3.43	3.59
	velocity	5.06	7.75	7.88	8.02	8.09	8.02	7.88	7.68	7.62	7.62	9.05	7.45		7.88	7.99	7.64
Wen Qingming (CHN) (2002)	time	2.85	4.07	5.24	6.42	7.57	8.74	9.91	11.11	12.29	13.53		15.07	7 / 2			
reaction time 0.172	interval		1.22	1.17	1.18	1.15	1.17	1.17	1.20	1.18	1.24	1.54			3.57	3.49	3.62
	velocity	4.81	7.49	7.81	7.75	7.95	7.81	7.81	7.62	7.75	7.37	9.10	7.30		7.68	7.86	7.57
Zhang Shuaiyin (CHN) (1998)	time	2.80	3.97	5.14	6.31	7.47	8.64	9.81	10.99	12.19	13.45		15.09	6 / 3			
reaction time 0.163	interval		1.17	1.17	1.17	1.16	1.17	1.17	1.18	1.20	1.26	1.64			3.51	3.50	3.64
	velocity	4.90	7.81	7.81	7.81	7.88	7.81	7.81	7.75	7.62	7.25	8.55	7.29		7.81	7.83	7.53
Tian Yang (CHN) (1997)	time	2.85	4.02	5.19	6.35	7.52	8.69	9.88	11.04	12.24	13.50		15.15	8 / 4			
reaction time 0.273	interval		1.17	1.17	1.16	1.17	1.17	1.19	1.16	1.20	1.26	1.65			3.50	3.53	3.62
	velocity	4.81	7.81	7.81	7.88	7.81	7.81	7.68	7.88	7.62	7.25	8.50	7.26		7.83	7.77	7.57
Fei Xiang (CHN) (1998)	time	2.82	4.02	5.20	6.39	7.57	8.79	9.99	11.19	12.43	13.66		15.28	4 / 5			
reaction time 0.186	interval		1.20	1.18	1.19	1.18	1.22	1.20	1.20	1.24	1.23	1.62			3.57	3.60	3.67
	velocity	4.87	7.62	7.75	7.68	7.75	7.49	7.62	7.62	7.37	7.43	8.65	7.20		7.68	7.62	7.47
Wang Zhipeng (CHN) (2001)	time	2.77	3.94	5.12	6.30	7.50	8.71	9.94	11.19	12.46	13.75		15.41	3 / 6			
reaction time 0.188	interval	7 steps	1.17	1.18	1.18	1.20	1.21	1.23	1.25	1.27	1.29	1.66			3.53	3.64	3.81
	velocity	4.95	7.81	7.75	7.75	7.62	7.55	7.43	7.31	7.20	7.09	8.45	7.14		7.77	7.53	7.20
Sun Qihao (CHN) (2000)	time	2.83	4.04	5.19	6.42	7.66	8.89	10.14	11.40	12.68	14.01		15.72	5 / 7			
reaction time 0.179	interval		1.21	1.15	1.23	1.24	1.23	1.25	1.26	1.28	1.33	1.71			3.59	3.72	3.87
	velocity	4.85	7.55	7.95	7.43	7.37	7.43	7.31	7.25	7.14	6.87	8.20	7.00		7.64	7.37	7.09

Decathlon - Heat 2

date 27-Jun-21 wind -0.2 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cao Jin (CHN) (1996)	time	2.73	3.89	4.99	6.12	7.24	8.37	9.52	10.68	11.86	13.06		14.60	5 / 1			
reaction time 0.185	interval	7 steps	1.16	1.10	1.13	1.12	1.13	1.15	1.16	1.18	1.20	1.54			3.39	3.40	3.54
	velocity	5.03	7.88	8.31	8.09	8.16	8.09	7.95	7.88	7.75	7.62	9.10	7.53		8.09	8.06	7.75
Chen Xinghua (CHN) (2002)	time	2.77	3.94	5.07	6.17	7.31	8.46	9.59	10.73	11.94	13.16		14.79	3 / 2			
reaction time	interval		1.17	1.13	1.10	1.14	1.15	1.13	1.14	1.21	1.22	1.63			3.40	3.42	3.57
	velocity	4.95	7.81	8.09	8.31	8.02	7.95	8.09	8.02	7.55	7.49	8.60	7.44		8.06	8.02	7.68
Hu Yufei (CHN) (1993)	time	2.75	3.94	5.09	6.23	7.39	8.52	9.67	10.84	12.00	13.18		14.80	7 / 3			
reaction time 0.159	interval	7 steps	1.19	1.15	1.14	1.16	1.13	1.15	1.17	1.16	1.18	1.62			3.48	3.44	3.51
	velocity	4.99	7.68	7.95	8.02	7.88	8.09	7.95	7.81	7.88	7.75	8.65	7.43		7.88	7.97	7.81
Hua Zihui (CHN) (2000)	time	2.78	3.97	5.17	6.37	7.59	8.82	10.04	11.29	12.53	13.82		15.45	8 / 4			
reaction time 0.164	interval		1.19	1.20	1.20	1.22	1.23	1.22	1.25	1.24	1.29	1.63			3.59	3.67	3.78
	velocity	4.94	7.68	7.62	7.62	7.49	7.43	7.49	7.31	7.37	7.09	8.60	7.12		7.64	7.47	7.25
Gu Yihe (CHN) (2000)	time	2.87	4.07	5.34	6.57	7.82	9.07	10.33	11.58	12.86	14.16		15.89	2 / 5			
reaction time 0.208	interval		1.20	1.27	1.23	1.25	1.25	1.26	1.25	1.28	1.30	1.73			3.70	3.76	3.83
	velocity	4.78	7.62	7.20	7.43	7.31	7.31	7.25	7.31	7.14	7.03	8.10	6.92		7.41	7.29	7.16
Qin Guoyuan (CHN) (1996)	time	2.95	4.19	5.47	6.71	8.01	9.27	10.54	11.81	13.11	14.40		16.03	6 / 6			
reaction time 0.235	interval		1.24	1.28	1.24	1.30	1.26	1.27	1.27	1.30	1.29	1.63			3.76	3.83	3.86
	velocity	4.65	7.37	7.14	7.37	7.03	7.25	7.20	7.20	7.03	7.09	8.60	6.86		7.29	7.16	7.10

Decathlon - Heat 1

date 27-Jun-21 wind 0.5 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Li Xiaodong (CHN) (1995)	time	2.73	3.90	5.02	6.14	7.27	8.39	9.52	10.68	11.84	13.01		14.55	7 / 1			
reaction time 0.154	interval		1.17	1.12	1.12	1.13	1.12	1.13	1.16	1.16	1.17	1.54			3.41	3.38	3.49
	velocity	5.03	7.81	8.16	8.16	8.09	8.16	8.09	7.88	7.88	7.81	9.10	7.56		8.04	8.11	7.86
Yang Zihao (CHN) (1998)	time	2.72	3.89	5.04	6.17	7.32	8.44	9.56	10.73	11.91	13.08		14.63	8 / 2			
reaction time 0.172	interval		1.17	1.15	1.13	1.15	1.12	1.12	1.17	1.18	1.17	1.55			3.45	3.39	3.52
	velocity	5.04	7.81	7.95	8.09	7.95	8.16	8.16	7.81	7.75	7.81	9.05	7.52		7.95	8.09	7.79
Yue Xuesong (CHN) (1997)	time	2.80	3.95	5.10	6.25	7.42	8.59	9.74	10.91	12.08	13.28		14.82	4 / 3			
reaction time 0.193	interval		1.15	1.15	1.15	1.17	1.17	1.15	1.17	1.17	1.20	1.54			3.45	3.49	3.54
	velocity	4.90	7.95	7.95	7.95	7.81	7.81	7.95	7.81	7.81	7.62	9.10	7.42		7.95	7.86	7.75

Guo Qi (CHN) (1990)	time	2.78	3.99	5.17	6.35	7.52	8.71	9.89	11.08	12.28	13.53		15.18	5 / 4			
reaction time 0.188	interval	7 steps	1.21	1.18	1.18	1.17	1.19	1.18	1.19	1.20	1.25	1.65			3.57	3.54	3.64
	velocity	4.94	7.55	7.75	7.75	7.81	7.68	7.75	7.68	7.62	7.31	8.50	7.25		7.68	7.75	7.53
Li Ning (CHN) (2000)	time	2.83	4.04	5.25	6.45	7.67	8.92	10.19	11.46	12.78	14.10		15.84	2 / 5			
reaction time 0.133	interval	7 steps	1.21	1.21	1.20	1.22	1.25	1.27	1.27	1.32	1.32	1.74			3.62	3.74	3.91
	velocity	4.85	7.55	7.55	7.62	7.49	7.31	7.20	7.20	6.92	6.92	8.06	6.94		7.57	7.33	7.01
Xiang Qingqiang (CHN) (1999)	time	2.87	4.15	5.40	6.66	7.89	9.14	10.38	11.66	12.96	14.26		15.98	6 / 6			
reaction time 0.170	interval		1.28	1.25	1.26	1.23	1.25	1.24	1.28	1.30	1.30	1.72			3.79	3.72	3.88
	velocity	4.78	7.14	7.31	7.25	7.43	7.31	7.37	7.14	7.03	7.03	8.15	6.88		7.23	7.37	7.07
Chen Junyi (CHN) (1999)	time	2.87	4.19	5.45	6.72	8.00	9.29	10.56	11.81	13.11	14.43		16.05	3 / 7			
reaction time 0.187	interval	7 steps	1.32	1.26	1.27	1.28	1.29	1.27	1.25	1.30	1.32	1.62			3.85	3.84	3.87
	velocity	4.78	6.92	7.25	7.20	7.14	7.09	7.20	7.31	7.03	6.92	8.65	6.85		7.12	7.14	7.09

FINAL

date 25-Jun-21 wind 1.6 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)	time	2.60	3.70	4.73	5.77	6.80	7.86	8.88	9.96	11.02	12.09		13.56	7 / 1			
reaction time 0.157	interval	7 steps	1.10	1.03	1.04	1.03	1.06	1.02	1.08	1.06	1.07	1.47	PB		3.17	3.11	3.21
	velocity	5.28	8.31	8.87	8.79	8.87	8.62	8.96	8.46	8.62	8.54	9.54	8.11		8.65	8.82	8.54
Zhang Honglin (CHN) (1994)	time	2.60	3.67	4.73	5.76	6.82	7.87	8.93	9.99	11.12	12.21		13.70	5 / 2			
reaction time 0.158	interval		1.07	1.06	1.03	1.06	1.05	1.06	1.06	1.13	1.09	1.49			3.16	3.17	3.28
	velocity	5.28	8.54	8.62	8.87	8.62	8.70	8.62	8.62	8.09	8.39	9.41	8.03		8.68	8.65	8.36
Ning Xiaohan (CHN) (2000)	time	2.57	3.64	4.67	5.70	6.74	7.77	8.86	9.94	11.05	12.18		13.75	4 / 3			
reaction time 0.134	interval		1.07	1.03	1.03	1.04	1.03	1.09	1.08	1.11	1.13	1.57			3.13	3.16	3.32
	velocity	5.34	8.54	8.87	8.87	8.79	8.87	8.39	8.46	8.23	8.09	8.93	8.00		8.76	8.68	8.26
Zhu Shenglong (CHN) (2000)	time	2.66	3.73	4.78	5.84	6.91	7.99	9.05	10.15	11.27	12.39		13.87	8 / 4			
reaction time 0.176	interval		1.07	1.05	1.06	1.07	1.08	1.06	1.10	1.12	1.12	1.48			3.18	3.21	3.34
	velocity	5.16	8.54	8.70	8.62	8.54	8.46	8.62	8.31	8.16	8.16	9.47	7.93		8.62	8.54	8.21
Guo Zhongjie (CHN) (2001)	time	2.70	3.78	4.85	5.89	6.97	8.04	9.12	10.21	11.31	12.44		13.91	6 / 5			
reaction time 0.182	interval		1.08	1.07	1.04	1.08	1.07	1.08	1.09	1.10	1.13	1.47	PB		3.19	3.23	3.32
	velocity	5.08	8.46	8.54	8.79	8.46	8.54	8.46	8.39	8.31	8.09	9.54	7.91		8.60	8.49	8.26
Shi Guoxing (CHN) (2000)	time	2.69	3.77	4.84	5.91	6.99	8.06	9.16	10.24	11.39	12.51		13.93	3 / 6			
reaction time 0.196	interval		1.08	1.07	1.07	1.08	1.07	1.10	1.08	1.15	1.12	1.42	PB		3.22	3.25	3.35
	velocity	5.10	8.46	8.54	8.54	8.46	8.54	8.31	8.46	7.95	8.16	9.87	7.90		8.52	8.44	8.19
Wu Zhenhua (CHN) (1998)	time	2.65	3.75	4.82	5.90	6.99	8.07	9.16	10.26	11.38	12.53		13.98	2 / 7			
reaction time 0.164	interval		1.10	1.07	1.08	1.09	1.08	1.09	1.10	1.12	1.15	1.45	PB		3.25	3.26	3.37
	velocity	5.18	8.31	8.54	8.46	8.39	8.46	8.39	8.31	8.16	7.95	9.67	7.87		8.44	8.41	8.14
Pan Zijie (CHN) (1995)	time	2.64	3.75	4.81	5.88	6.95	8.02	9.16	10.29	11.43	12.55		14.10	9 / 8			
reaction time 0.185	interval		1.11	1.06	1.07	1.07	1.07	1.14	1.13	1.14	1.12	1.55			3.24	3.28	3.39
	velocity	5.20	8.23	8.62	8.54	8.54	8.54	8.02	8.09	8.02	8.16	9.05	7.80		8.46	8.36	8.09

Heat 4

date 25-Jun-21 wind -0.2 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)	time	2.65	3.72	4.80	5.87	6.92	7.99	9.08	10.16	11.28	12.41		13.96	3 / 1			
reaction time 0.149	interval		1.07	1.08	1.07	1.05	1.07	1.09	1.08	1.12	1.13	1.55			3.22	3.21	3.33
	velocity	5.18	8.54	8.46	8.54	8.70	8.54	8.39	8.46	8.16	8.09	9.05	7.88		8.52	8.54	8.23
Li Huaihai (CHN) (1999)	time	2.68	3.77	4.85	5.94	7.02	8.11	9.21	10.31	11.41	12.56		14.06	8 / 2			
reaction time 0.169	interval	7 steps	1.09	1.08	1.09	1.08	1.09	1.10	1.10	1.10	1.15	1.50			3.26	3.27	3.35
	velocity	5.12	8.39	8.46	8.39	8.46	8.39	8.31	8.31	8.31	7.95	9.35	7.82		8.41	8.39	8.19
Liu Bowen (CHN) (2001)	time	2.60	3.70	4.80	5.91	6.99	8.11	9.22	10.33	11.48	12.65		14.19	7 / 3			
reaction time 0.201	interval		1.10	1.10	1.11	1.08	1.12	1.11	1.11	1.15	1.17	1.54			3.31	3.31	3.43
	velocity	5.28	8.31	8.31	8.23	8.46	8.16	8.23	8.23	7.95	7.81	9.10	7.75		8.28	8.28	7.99
Zhang Tao (CHN) (1997)	time	2.70	3.80	4.92	6.04	7.14	8.24	9.38	10.51	11.66	12.85		14.42	5 / 4			
reaction time 0.189	interval		1.10	1.12	1.12	1.10	1.10	1.14	1.13	1.15	1.19	1.57			3.34	3.34	3.47
	velocity	5.08	8.31	8.16	8.16	8.31	8.31	8.02	8.09	7.95	7.68	8.93	7.63		8.21	8.21	7.90
Jiang Wei (CHN) (1994)	time	2.69	3.82	4.97	6.09	7.21	8.31	9.43	10.56	11.73	12.90		14.49	4 / 5			
reaction time 0.162	interval		1.13	1.15	1.12	1.12	1.10	1.12	1.13	1.17	1.17	1.59			3.40	3.34	3.47
	velocity	5.10	8.09	7.95	8.16	8.16	8.31	8.16	8.09	7.81	7.81	8.82	7.59		8.06	8.21	7.90
Lai Junjie (CHN) (2003)	time	2.75	3.90	5.04	6.16	7.29	8.42	9.56	10.74	11.94	13.16		14.78	9 / 6			
reaction time 0.181	interval		1.15	1.14	1.12	1.13	1.13	1.14	1.18	1.20	1.22	1.62			3.41	3.40	3.60
	velocity	4.99	7.95	8.02	8.16	8.09	8.09	8.02	7.75	7.62	7.49	8.65	7.44		8.04	8.06	7.62

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Heat 3

date 25-Jun-21 wind 0.5 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Honglin (CHN) (1994)	time	2.60	3.68	4.75	5.81	6.87	7.94	8.99	10.09	11.21	12.36		13.91	5 / 1			
reaction time 0.156	interval		1.08	1.07	1.06	1.06	1.07	1.05	1.10	1.12	1.15	1.55			3.21	3.18	3.37
	velocity	5.28	8.46	8.54	8.62	8.62	8.54	8.70	8.31	8.16	7.95	9.05	7.91		8.54	8.62	8.14
Guo Zhongjie (CHN) (2001)	time	2.66	3.72	4.79	5.84	6.90	7.96	9.06	10.15	11.29	12.45		13.94	4 / 2			
reaction time 0.178	interval		1.06	1.07	1.05	1.06	1.06	1.10	1.09	1.14	1.16	1.49	PB		3.18	3.22	3.39
	velocity	5.16	8.62	8.54	8.70	8.62	8.62	8.31	8.39	8.02	7.88	9.41	7.89		8.62	8.52	8.09
Pan Zijie (CHN) (1995)	time	2.62	3.70	4.76	5.87	6.96	8.04	9.11	10.20	11.32	12.47		14.00	6 / 3			
reaction time 0.167	interval		1.08	1.06	1.11	1.09	1.08	1.07	1.09	1.12	1.15	1.53			3.25	3.24	3.36
	velocity	5.24	8.46	8.62	8.23	8.39	8.46	8.54	8.39	8.16	7.95	9.16	7.86		8.44	8.46	8.16
Wu Zhenhua (CHN) (1998)	time	2.69	3.77	4.87	5.94	7.02	8.11	9.19	10.29	11.38	12.51		14.01	3 / 4			
reaction time 0.201	interval		1.08	1.10	1.07	1.08	1.09	1.08	1.10	1.09	1.13	1.50	PB		3.25	3.25	3.32
	velocity	5.10	8.46	8.31	8.54	8.46	8.39	8.46	8.31	8.39	8.09	9.35	7.85		8.44	8.44	8.26
Shi Guoxing (CHN) (2000)	time	2.70	3.79	4.85	5.94	7.02	8.09	9.19	10.31	11.43	12.56		14.03	8 / 5			
reaction time 0.172	interval		1.09	1.06	1.09	1.08	1.07	1.10	1.12	1.12	1.13	1.47	PB		3.24	3.25	3.37
	velocity	5.08	8.39	8.62	8.39	8.46	8.54	8.31	8.16	8.16	8.09	9.54	7.84		8.46	8.44	8.14
Long Wei (CHN) (1997)	time	2.62	3.71	4.81	5.91	7.01	8.11	9.24	10.34	11.50	12.65		14.17	2 / 6			
reaction time 0.162	interval		1.09	1.10	1.10	1.10	1.10	1.13	1.10	1.16	1.15	1.52	PB		3.29	3.33	3.41
	velocity	5.24	8.39	8.31	8.31	8.31	8.31	8.09	8.31	7.88	7.95	9.22	7.76		8.33	8.23	8.04
Ji Haohao (CHN) (2001)	time	2.72	3.84	4.94	6.07	7.18	8.29	9.43	10.56	11.71	12.88		14.44	7 / 7			
reaction time 0.177	interval		1.12	1.10	1.13	1.11	1.11	1.14	1.13	1.15	1.17	1.56			3.35	3.36	3.45
	velocity	5.04	8.16	8.31	8.09	8.23	8.23	8.02	8.09	7.95	7.81	8.99	7.62		8.19	8.16	7.95
Huan Jiaxing (CHN) (2001)	time	2.69	3.82	4.95	6.09	7.22	8.34	9.48	10.64	11.80	12.96		14.54	9 / 8			
reaction time 0.172	interval		1.13	1.13	1.14	1.13	1.12	1.14	1.16	1.16	1.16	1.58			3.40	3.39	3.48
	velocity	5.10	8.09	8.09	8.02	8.09	8.16	8.02	7.88	7.88	7.88	8.87	7.57		8.06	8.09	7.88

Heat 2

date 25-Jun-21 wind -1.2 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.65	3.77	4.82	5.89	6.97	8.04	9.13	10.23	11.34	12.48		13.99	6 / 1			
reaction time 0.163	interval		1.12	1.05	1.07	1.08	1.07	1.09	1.10	1.11	1.14	1.51			3.24	3.24	3.35
	velocity	5.18	8.16	8.70	8.54	8.46	8.54	8.39	8.31	8.23	8.02	9.28	7.86		8.46	8.46	8.19
Qin Weibo (CHN) (2002)	time	2.64	3.75	4.83	5.92	6.99	8.06	9.16	10.25	11.37	12.52		14.05	3 / 2			
reaction time 0.198	interval	7 steps	1.11	1.08	1.09	1.07	1.07	1.10	1.09	1.12	1.15	1.53	PB		3.28	3.24	3.36
	velocity	5.20	8.23	8.46	8.39	8.54	8.54	8.31	8.39	8.16	7.95	9.16	7.83		8.36	8.46	8.16
Zhang Jinzhao (CHN) (1999)	time	2.70	3.82	4.88	5.95	7.04	8.12	9.23	10.34	11.46	12.59		14.09	4 / 3			
reaction time 0.189	interval		1.12	1.06	1.07	1.09	1.08	1.11	1.11	1.12	1.13	1.50			3.25	3.28	3.36
	velocity	5.08	8.16	8.62	8.54	8.39	8.46	8.23	8.23	8.16	8.09	9.35	7.81		8.44	8.36	8.16
Lu Yang (CHN) (1996)	time	2.70	3.82	4.90	5.99	7.07	8.17	9.27	10.38	11.53	12.70		14.28	5 / 4			
reaction time 0.163	interval		1.12	1.08	1.09	1.08	1.10	1.10	1.11	1.15	1.17	1.58			3.29	3.28	3.43
	velocity	5.08	8.16	8.46	8.39	8.46	8.31	8.31	8.23	7.95	7.81	8.87	7.70		8.33	8.36	7.99
Sun Haoru (CHN) (1998)	time	2.75	3.89	5.00	6.11	7.25	8.38	9.51	10.64	11.88	13.09		14.69	8 / 5			
reaction time 0.166	interval		1.14	1.11	1.11	1.14	1.13	1.13	1.13	1.24	1.21	1.60			3.36	3.40	3.58
	velocity	4.99	8.02	8.23	8.23	8.02	8.09	8.09	8.09	7.37	7.55	8.76	7.49		8.16	8.06	7.66
Yan Chenyu (CHN) (2003)	time	2.72	3.85	4.97	6.11	7.27	8.38	9.58	10.77	11.96	13.17		14.74	2 / 6			
reaction time 0.182	interval		1.13	1.12	1.14	1.16	1.11	1.20	1.19	1.19	1.21	1.57			3.39	3.47	3.59
	velocity	5.04	8.09	8.16	8.02	7.88	8.23	7.62	7.68	7.68	7.55	8.93	7.46		8.09	7.90	7.64
Zhao Jiefu (CHN) (2001)	time	2.79	3.94	5.05	6.18	7.31	8.43	9.58	10.71	11.91	13.11		14.77	9 / 7			
reaction time 0.214	interval		1.15	1.11	1.13	1.13	1.12	1.15	1.13	1.20	1.20	1.66			3.39	3.40	3.53
	velocity	4.92	7.95	8.23	8.09	8.09	8.16	7.95	8.09	7.62	7.62	8.45	7.45		8.09	8.06	7.77

Heat 1

date 25-Jun-21 wind -1.0 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)	time	2.58	3.66	4.72	5.79	6.85	7.91	9.00	10.09	11.21	12.33		13.91	4 / 1			
reaction time 0.150	interval	7 steps	1.08	1.06	1.07	1.06	1.06	1.09	1.09	1.12	1.12	1.58			3.21	3.21	3.33
	velocity	5.32	8.46	8.62	8.54	8.62	8.62	8.39	8.39	8.16	8.16	8.87	7.91		8.54	8.54	8.23
Yang Quanlei (CHN) (1999)	time	2.68	3.78	4.88	5.96	7.05	8.14	9.22	10.33	11.45	12.57		14.05	5 / 2			
reaction time 0.164	interval		1.10	1.10	1.08	1.09	1.09	1.08	1.11	1.12	1.12	1.48			3.28	3.26	3.35
	velocity	5.12	8.31	8.31	8.46	8.39	8.39	8.46	8.23	8.16	8.16	9.47	7.83		8.36	8.41	8.19
Xu Zhuoyi (CHN) (2003)	time	2.68	3.80	4.89	5.97	7.06	8.15	9.26	10.38	11.54	12.71		14.23	6 / 3			

WR = World Rec. AR = Area Rec. OR = Olympic Rec. CR = Championship Rec. NR = National Rec. PB = Personal Best DQ = Disqualified DV = Drug Violation

reaction time	0.156	interval	7 steps	1.12	1.09	1.08	1.09	1.09	1.11	1.12	1.16	1.17	1.52				3.29	3.29	3.45
		velocity		5.12	8.16	8.39	8.46	8.39	8.39	8.23	8.16	7.88	7.81	9.22	7.73		8.33	8.33	7.95
Yang Yuxuan (CHN) (2002)		time		2.72	3.83	4.94	6.05	7.14	8.24	9.36	10.49	11.64	12.80		14.29	3 / 4			
reaction time	0.146	interval			1.11	1.11	1.11	1.09	1.10	1.12	1.13	1.15	1.16	1.49			3.33	3.31	3.44
		velocity		5.04	8.23	8.23	8.23	8.39	8.31	8.16	8.09	7.95	7.88	9.41	7.70		8.23	8.28	7.97
Chen Jie (CHN) (2002)		time		2.72	3.81	4.93	6.04	7.15	8.27	9.40	10.53	11.68	12.81		14.31	8 / 5			
reaction time	0.151	interval			1.09	1.12	1.11	1.11	1.12	1.13	1.13	1.15	1.13	1.50			3.32	3.36	3.41
		velocity		5.04	8.39	8.16	8.23	8.23	8.16	8.09	8.09	7.95	8.09	9.35	7.69		8.26	8.16	8.04
Yang Jiajun (CHN) (2002)		time		2.71	3.85	4.97	6.06	7.16	8.26	9.37	10.52	11.67	12.84		14.40	9 / 6			
reaction time	0.170	interval			1.14	1.12	1.09	1.10	1.10	1.11	1.15	1.15	1.17	1.56	=PB		3.35	3.31	3.47
		velocity		5.06	8.02	8.16	8.39	8.31	8.31	8.23	7.95	7.95	7.81	8.99	7.64		8.19	8.28	7.90
Lin Ken (CHN) (1999)		time		2.69	3.78	4.88	6.02	7.10	8.22	9.37	10.50	11.67	12.84		14.41	2 / 7			
reaction time	0.190	interval			1.09	1.10	1.14	1.08	1.12	1.15	1.13	1.17	1.17	1.57	PB		3.33	3.35	3.47
		velocity		5.10	8.39	8.31	8.02	8.46	8.16	7.95	8.09	7.81	7.81	8.93	7.63		8.23	8.19	7.90
Yang Haoran (CHN) (2001)		time		2.71	3.83	4.94	6.06	7.20	8.35	9.50	10.67	11.83	12.99		14.54	7 / 8			
reaction time	0.142	interval			1.12	1.11	1.12	1.14	1.15	1.15	1.17	1.16	1.16	1.55			3.35	3.44	3.49
		velocity		5.06	8.16	8.23	8.16	8.02	7.95	7.95	7.81	7.88	7.88	9.05	7.57		8.19	7.97	7.86

2021 Japanese Multi-Event National Championships (Nagano, JPN)

Decathlon - Heat 3

date 13-Jun-21 wind -0.6 m/s

Matsubayashi (2021) - 110m hurdling race analysis of decathlon athletes in the 2021 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990		time	2.73	3.85	4.97	6.09	7.21	8.32	9.45	10.58	11.72	12.85		14.34	2 / 2			
reaction time	0.152	interval		1.12	1.12	1.12	1.12	1.11	1.13	1.13	1.14	1.13	1.49			3.36	3.36	3.40
		velocity	5.03	8.16	8.16	8.16	8.16	8.23	8.09	8.09	8.02	8.09	9.41	7.67		8.16	8.16	8.06
Maruyama, Yuma (JPN) (1998)		time	2.74	3.91	5.05	6.17	7.27	8.40	9.51	10.66	11.80	12.95		14.50	6 / 3			
reaction time	0.170	interval		1.17	1.14	1.12	1.10	1.13	1.11	1.15	1.14	1.15	1.55			3.43	3.34	3.44
		velocity	5.01	7.81	8.02	8.16	8.31	8.09	8.23	7.95	8.02	7.95	9.05	7.59		7.99	8.21	7.97

Decathlon - Heat 2

date 13-Jun-21 wind -0.9 m/s

Matsubayashi (2021) - 110m hurdling race analysis of decathlon athletes in the 2021 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Okuda, Keisuke (JPN) (1996)		time	2.74	3.88	5.02	6.15	7.26	8.41	9.56	10.71	11.86	13.06		14.54	2 / 1			
reaction time	0.151	interval		1.14	1.14	1.13	1.11	1.15	1.15	1.15	1.15	1.20	1.48			3.41	3.41	3.50
		velocity	5.01	8.02	8.02	8.09	8.23	7.95	7.95	7.95	7.95	7.62	9.47	7.57		8.04	8.04	7.83

2020 Chinese Olympic Trials (Shaoxing, CHN)

FINAL

date 12-Jun-21 wind 0.9 m/s

CAA Hurdle Development (2021)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)		time	2.62	3.68	4.72	5.76	6.81	7.86	8.91	9.98	11.09	12.19		13.69	3 / 1			
reaction time	0.143	interval		1.06	1.04	1.04	1.05	1.05	1.05	1.07	1.11	1.10	1.50			3.14	3.15	3.28
		velocity	5.24	8.62	8.79	8.79	8.70	8.70	8.70	8.54	8.23	8.31	9.35	8.04		8.73	8.70	8.36
Zhang Honglin (CHN) (1994)		time	2.65	3.75	4.79	5.82	6.87	7.94	9.01	10.07	11.18	12.29		13.75	5 / 2			
reaction time	0.161	interval		1.10	1.04	1.03	1.05	1.07	1.07	1.06	1.11	1.11	1.46			3.17	3.19	3.28
		velocity	5.18	8.31	8.79	8.87	8.70	8.54	8.54	8.62	8.23	8.23	9.60	8.00		8.65	8.60	8.36
Zhang Jinzhao (CHN) (1999)		time	2.77	3.87	4.95	6.01	7.07	8.14	9.19	10.28	11.38	12.47		13.94	4 / 3			
reaction time	0.190	interval		1.10	1.08	1.06	1.06	1.07	1.05	1.09	1.10	1.09	1.47	PB		3.24	3.18	3.28
		velocity	4.95	8.31	8.46	8.62	8.62	8.54	8.70	8.39	8.31	8.39	9.54	7.89		8.46	8.62	8.36
Li Huaihai (CHN) (1999)		time	2.65	3.75	4.84	5.93	7.02	8.11	9.19	10.29	11.39	12.51		14.00	7 / 4			
reaction time	0.139	interval	7 steps	1.10	1.09	1.09	1.09	1.09	1.08	1.10	1.10	1.12	1.49	PB		3.28	3.26	3.32
		velocity	5.18	8.31	8.39	8.39	8.39	8.39	8.46	8.31	8.31	8.16	9.41	7.86		8.36	8.41	8.26
Pan Zijie (CHN) (1995)		time	2.63	3.74	4.81	5.93	7.03	8.13	9.22	10.30	11.43	12.55		14.02	1 / 5			
reaction time	0.158	interval		1.11	1.07	1.12	1.10	1.10	1.09	1.08	1.13	1.12	1.47			3.30	3.29	3.33
		velocity	5.22	8.23	8.54	8.16	8.31	8.31	8.39	8.46	8.09	8.16	9.54	7.85		8.31	8.33	8.23
Xie Wenjun (CHN) (1990)		time	2.68	3.77	4.84	5.89	6.96	8.04	9.14	10.27	11.39	12.53		14.06	2 / 6			
reaction time	0.152	interval		1.09	1.07	1.05	1.07	1.08	1.10	1.13	1.12	1.14	1.53			3.21	3.25	3.39
		velocity	5.12	8.39	8.54	8.70	8.54	8.46	8.31	8.09	8.16	8.02	9.16	7.82		8.54	8.44	8.09
Yang Quanlei (CHN) (1999)		time	2.72	3.79	4.88	5.97	7.05	8.17	9.24	10.36	11.51	12.65		14.16	6 / 7			
reaction time	0.172	interval		1.07	1.09	1.09	1.08	1.12	1.07	1.12	1.15	1.14	1.51			3.25	3.27	3.41
		velocity	5.04	8.54	8.39	8.39	8.46	8.16	8.54	8.16	7.95	8.02	9.28	7.77		8.44	8.39	8.04
Guo Zhongjie (CHN) (2001)		time	2.71	3.77	4.85	5.95	7.10							dnf	8 / --			
reaction time		interval		1.06	1.08	1.10	1.15									3.24		
		velocity	5.06	8.62	8.46	8.31	7.95									8.46		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Heat 2

date 12-Jun-21 wind -0.8 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yang Quanlei (CHN) (1999)	time	2.55	3.63	4.71	5.77	6.85	7.92	9.01	10.09	11.19	12.29		13.87	5 / 1			
reaction time 0.161	interval		1.08	1.08	1.06	1.08	1.07	1.09	1.08	1.10	1.10	1.58	PB		3.22	3.24	3.28
	velocity	5.38	8.46	8.46	8.62	8.46	8.54	8.39	8.46	8.31	8.31	8.87	7.93		8.52	8.46	8.36
Zhang Jinzhao (CHN) (1999)	time	2.64	3.76	4.84	5.92	7.00	8.09	9.17	10.28	11.39	12.51		14.10	3 / 2			
reaction time 0.172	interval		1.12	1.08	1.08	1.08	1.09	1.08	1.11	1.11	1.12	1.59			3.28	3.25	3.34
	velocity	5.20	8.16	8.46	8.46	8.46	8.39	8.46	8.23	8.23	8.16	8.82	7.80		8.36	8.44	8.21
Guo Zhongjie (CHN) (2001)	time	2.61	3.70	4.77	5.85	6.93	8.02	9.14	10.26	11.36	12.54		14.15	6 / 3			
reaction time 0.177	interval		1.09	1.07	1.08	1.08	1.09	1.12	1.12	1.10	1.18	1.61			3.24	3.29	3.40
	velocity	5.26	8.39	8.54	8.46	8.46	8.39	8.16	8.16	8.31	7.75	8.71	7.77		8.46	8.33	8.06
Xie Wenjun (CHN) (1990)	time	2.59	3.69	4.76	5.83	6.90	8.01	9.13	10.28	11.42	12.59		14.25	8 / 4			
reaction time 0.162	interval		1.10	1.07	1.07	1.07	1.11	1.12	1.15	1.14	1.17	1.66			3.24	3.30	3.46
	velocity	5.30	8.31	8.54	8.54	8.54	8.23	8.16	7.95	8.02	7.81	8.45	7.72		8.46	8.31	7.92
Qin Weibo (CHN) (2002)	time	2.58	3.72	4.81	5.91	7.00	8.10	9.23	10.36	11.49	12.64		14.26	4 / 5			
reaction time 0.174	interval	7 steps	1.14	1.09	1.10	1.09	1.10	1.13	1.13	1.13	1.15	1.62			3.33	3.32	3.41
	velocity	5.32	8.02	8.39	8.31	8.39	8.31	8.09	8.09	8.09	7.95	8.65	7.71		8.23	8.26	8.04
Shi Guoxing (CHN) (2000)	time	2.65	3.76	4.87	5.97	7.11	8.24	9.36	10.49	11.63	12.77		14.39	7 / 6			
reaction time 0.156	interval		1.11	1.11	1.10	1.14	1.13	1.12	1.13	1.14	1.14	1.62			3.32	3.39	3.41
	velocity	5.18	8.23	8.23	8.31	8.02	8.09	8.16	8.09	8.02	8.02	8.65	7.64		8.26	8.09	8.04

Heat 1

date 12-Jun-21 wind -0.4 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Honglin (CHN) (1994)	time	2.52	3.60	4.69	5.77	6.84	7.90	8.96	10.06	11.19	12.33		13.94	6 / 1			
reaction time 0.166	interval		1.08	1.09	1.08	1.07	1.06	1.06	1.10	1.13	1.14	1.61			3.25	3.19	3.37
	velocity	5.44	8.46	8.39	8.46	8.54	8.62	8.62	8.31	8.09	8.02	8.71	7.89		8.44	8.60	8.14
Ning Xiaohan (CHN) (2000)	time	2.50	3.58	4.65	5.72	6.80	7.87	8.95	10.05	11.17	12.31		13.97	4 / 2			
reaction time 0.141	interval		1.08	1.07	1.07	1.08	1.07	1.08	1.10	1.12	1.14	1.66			3.22	3.23	3.36
	velocity	5.49	8.46	8.54	8.54	8.46	8.54	8.46	8.31	8.16	8.02	8.45	7.87		8.52	8.49	8.16
Li Huaihai (CHN) (1999)	time	2.55	3.64	4.72	5.79	6.87	7.96	9.04	10.20	11.34	12.50		14.09	8 / 3			
reaction time 0.154	interval	7 steps	1.09	1.08	1.07	1.08	1.09	1.08	1.16	1.14	1.16	1.59			3.24	3.25	3.46
	velocity	5.38	8.39	8.46	8.54	8.46	8.39	8.46	7.88	8.02	7.88	8.82	7.81		8.46	8.44	7.92
Pan Zijie (CHN) (1995)	time	2.51	3.61	4.72	5.80	6.91	8.03	9.14	10.25	11.40	12.53		14.16	7 / 4			
reaction time 0.111	interval		1.10	1.11	1.08	1.11	1.12	1.11	1.11	1.15	1.13	1.63			3.29	3.34	3.39
	velocity	5.47	8.31	8.23	8.46	8.23	8.16	8.23	8.23	7.95	8.09	8.60	7.77		8.33	8.21	8.09
Liu Bowen (CHN) (2001)	time	2.51	3.60	4.72	5.84	6.94	8.07	9.18	10.32	11.46	12.65		14.30	3 / 5			
reaction time 0.148	interval		1.09	1.12	1.12	1.10	1.13	1.11	1.14	1.14	1.19	1.65			3.33	3.34	3.47
	velocity	5.47	8.39	8.16	8.16	8.31	8.09	8.23	8.02	8.02	7.68	8.50	7.69		8.23	8.21	7.90
Xu Zhuoyi (CHN) (2003)	time	2.64	3.73	4.85	5.94	7.04	8.14	9.26	10.38	11.52	12.70		14.33	5 / 6			
reaction time 0.173	interval	7 steps	1.09	1.12	1.09	1.10	1.10	1.12	1.12	1.14	1.18	1.63			3.30	3.32	3.44
	velocity	5.20	8.39	8.16	8.39	8.31	8.31	8.16	8.16	8.02	7.75	8.60	7.68		8.31	8.26	7.97

2021 NCAA Championships (Eugene, OR) (TV Analysis)

FINAL

date 11-Jun-21 wind -0.6 m/s *Henson (2021) - Athlete First: 2021 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Dunning, Robert (USA) (1997)	time	2.53	3.57	4.60	5.62	6.60	7.63	8.63	9.65	10.69	11.75		13.25	2 / 1			
reaction time 0.161	interval	7 steps	1.04	1.03	1.02	0.98	1.03	1.00	1.02	1.04	1.06	1.50			3.09	3.01	3.12
	velocity	5.42	8.79	8.87	8.96	9.33	8.87	9.14	8.96	8.79	8.62	9.35	8.30		8.87	9.11	8.79
McConico, Jaylan (USA) (1998)	time	2.55	3.57	4.60	5.63	6.63	7.63	8.73	9.80	10.83	11.93		13.38	4 / 2			
reaction time 0.194	interval		1.02	1.03	1.03	1.00	1.00	1.10	1.07	1.03	1.10	1.45			3.08	3.10	3.20
	velocity	5.38	8.96	8.87	8.87	9.14	9.14	8.31	8.54	8.87	8.31	9.67	8.22		8.90	8.85	8.57
Lemonious, Phillip (JAM) (199	time	2.57	3.60	4.70	5.70	6.73	7.73	8.77	9.80	10.83	11.90		13.39	5 / 3			
reaction time 0.150	interval	7 steps	1.03	1.10	1.00	1.03	1.00	1.04	1.03	1.03	1.07	1.49	PB		3.13	3.07	3.13
	velocity	5.34	8.87	8.31	9.14	8.87	9.14	8.79	8.87	8.87	8.54	9.41	8.22		8.76	8.93	8.76
Britt, Jamal (USA) (1998)	time	2.57	3.63	4.67	5.70	6.70	7.73	8.77	9.83	10.87	11.97		13.45	8 / 4			
reaction time 0.203	interval	7 steps	1.06	1.04	1.03	1.00	1.03	1.04	1.06	1.04	1.10	1.48	PB		3.13	3.07	3.20
	velocity	5.34	8.62	8.79	8.87	9.14	8.87	8.79	8.62	8.79	8.31	9.47	8.18		8.76	8.93	8.57
Marshall, Jamar (USA) (2001)	time	2.50	3.53	4.57	5.60	6.60	7.60	8.63	9.70	10.80	11.93		13.53	7 / 5			
reaction time 0.161	interval	7 steps	1.03	1.04	1.03	1.00	1.00	1.03	1.07	1.10	1.13	1.60			3.10	3.03	3.30
	velocity	5.49	8.87	8.79	8.87	9.14	9.14	8.87	8.54	8.31	8.09	8.76	8.13		8.85	9.05	8.31

Ojora, Tade (GBR) (1999)	time	2.63	3.70	4.77	5.83	6.85	7.87	8.93	9.97	11.07	12.13		13.57	9 / 6				
reaction time 0.224	interval		1.07	1.07	1.06	1.02	1.02	1.06	1.04	1.10	1.06	1.44	PB		3.20	3.10	3.20	
	velocity	5.22	8.54	8.54	8.62	8.96	8.96	8.62	8.79	8.31	8.62	9.74	8.11		8.57	8.85	8.57	
Roberts, Giano (JAM) (2000)	time	2.57	3.63	4.70	5.73	6.75	7.79	8.83	9.95	11.07	12.13		13.65	3 / 7				
reaction time 0.152	interval		1.06	1.07	1.03	1.02	1.04	1.04	1.12	1.12	1.06	1.52			3.16	3.10	3.30	
	velocity	5.34	8.62	8.54	8.87	8.96	8.79	8.79	8.16	8.16	8.62	9.22	8.06		8.68	8.85	8.31	
Thomas, Damion (JAM) (1999)	time	2.60	3.67	4.70	5.75	6.77	7.80	8.90	10.00	11.07	12.23		13.76	6 / 8				
reaction time 0.200	interval	7 steps	1.07	1.03	1.05	1.02	1.03	1.10	1.10	1.07	1.16	1.53			3.15	3.15	3.33	
	velocity	5.28	8.54	8.87	8.70	8.96	8.87	8.31	8.31	8.54	7.88	9.16	7.99		8.70	8.70	8.23	
Brown, Tai (USA) (2000)	time	2.70	3.77	4.85	5.90	6.93	7.97	9.03	10.07	11.13	12.23		13.89	1 / 9				
reaction time 0.161	interval		1.07	1.08	1.05	1.03	1.04	1.06	1.04	1.06	1.10	1.66			3.20	3.13	3.20	
	velocity	5.08	8.54	8.46	8.70	8.87	8.79	8.62	8.79	8.62	8.31	8.45	7.92		8.57	8.76	8.57	

2021 Golden Gala Pietro Mennea (Florence, ITA) (TV Analysis)

FINAL date 10-Jun-21 wind -0.1 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.44	3.50	4.48	5.48	6.48	7.48	8.48	9.50	10.50	11.56		13.01	4 / 1			
reaction time 0.147	interval		1.06	0.98	1.00	1.00	1.00	1.00	1.02	1.00	1.06	1.45			3.04	3.00	3.08	
	velocity	5.62	8.62	9.33	9.14	9.14	9.14	9.14	8.96	9.14	8.62	9.67	8.46		9.02	9.14	8.90	
Pozzi, Andy (GBR) (1992)	time	2.48	3.52	4.50	5.50	6.52	7.54	8.56	9.60	10.64	11.74		13.25	3 / 2				
reaction time 0.113	interval	7 steps	1.04	0.98	1.00	1.02	1.02	1.02	1.04	1.04	1.10	1.51			3.02	3.06	3.18	
	velocity	5.53	8.79	9.33	9.14	8.96	8.96	8.96	8.79	8.79	8.31	9.28	8.30		9.08	8.96	8.62	
Belocian, Wilhem (FRA) (1995)	time	2.48	3.52	4.56	5.58	6.60	7.64	8.66	9.68	10.76	11.82		13.31	6 / 3				
reaction time 0.138	interval		1.04	1.04	1.02	1.02	1.04	1.02	1.02	1.08	1.06	1.49			3.10	3.08	3.16	
	velocity	5.53	8.79	8.79	8.96	8.96	8.79	8.96	8.96	8.46	8.62	9.41	8.26		8.85	8.90	8.68	
Allen, Devon (USA) (1994)	time	2.52	3.56	4.58	5.60	6.62	7.64	8.68	9.72	10.76	11.82		13.32	5 / 4				
reaction time 0.136	interval		1.04	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.06	1.50			3.08	3.08	3.14	
	velocity	5.44	8.79	8.96	8.96	8.96	8.96	8.79	8.79	8.79	8.62	9.35	8.26		8.90	8.90	8.73	
Brathwaite, Shane (BAR) (1990	time	2.50	3.56	4.60	5.64	6.66	7.68	8.74	9.80	10.86	11.94		13.46	1 / 5				
reaction time 0.122	interval		1.06	1.04	1.04	1.02	1.02	1.06	1.06	1.06	1.08	1.52			3.14	3.10	3.20	
	velocity	5.49	8.62	8.79	8.79	8.96	8.96	8.62	8.62	8.62	8.46	9.22	8.17		8.73	8.85	8.57	
Perini, Lorenzo (ITA) (1994)	time	2.54	3.60	4.68	5.72	6.76	7.80	8.84	9.90	10.98	12.06		13.63	8 / 6				
reaction time 0.140	interval		1.06	1.08	1.04	1.04	1.04	1.04	1.06	1.08	1.08	1.57			3.18	3.12	3.22	
	velocity	5.40	8.62	8.46	8.79	8.79	8.79	8.79	8.62	8.46	8.46	8.93	8.07		8.62	8.79	8.52	
Dal Molin, Paolo (ITA) (1987)	time	2.48	3.54	4.60	5.68	6.72	7.80	8.86	9.94	11.00	12.12		13.64	2 / 7				
reaction time 0.142	interval	7 steps	1.06	1.06	1.08	1.04	1.08	1.06	1.08	1.06	1.12	1.52			3.20	3.18	3.26	
	velocity	5.53	8.62	8.62	8.46	8.79	8.46	8.62	8.46	8.62	8.16	9.22	8.06		8.57	8.62	8.41	
Martinot-Lagarde, Pascal (FRA	time	2.56	3.64	4.74	5.80	6.88	7.98	9.08	10.24	11.42	12.58		14.26	7 / 8				
reaction time 0.162	interval	7 steps	1.08	1.10	1.06	1.08	1.10	1.10	1.16	1.18	1.16	1.68			3.24	3.28	3.50	
	velocity	5.36	8.46	8.31	8.62	8.46	8.31	8.31	7.88	7.75	7.88	8.35	7.71		8.46	8.36	7.83	

2021 Fanny Blankers Koen Games (Hengelo, NED) (TV Analysis)

FINAL date 06-Jun-21 wind 1.7 m/s

Henson (2021) - Athlete First: 2021 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.37	3.43	4.48	5.50	6.47	7.47	8.54	9.56	10.58	11.66		13.08	5 / 1			
reaction time	interval		1.06	1.05	1.02	0.97	1.00	1.07	1.02	1.02	1.08	1.42			3.13	3.04	3.12	
	velocity	5.79	8.62	8.70	8.96	9.42	9.14	8.54	8.96	8.96	8.46	9.87	8.41		8.76	9.02	8.79	
Allen, Devon (USA) (1994)	time	2.47	3.54	4.54	5.60	6.64	7.67	8.73	9.74	10.77	11.86		13.32	4 / 2			
reaction time	interval		1.07	1.00	1.06	1.04	1.03	1.06	1.01	1.03	1.09	1.46			3.13	3.13	3.13	
	velocity	5.55	8.54	9.14	8.62	8.79	8.87	8.62	9.05	8.87	8.39	9.60	8.26		8.76	8.76	8.76	
Belocian, Wilhem (FRA) (1995)	time	2.47	3.54	4.54	5.57	6.60	7.62	8.64	9.67	10.74	11.84		13.34	6 / 3			
reaction time	interval		1.07	1.00	1.03	1.03	1.02	1.02	1.03	1.07	1.10	1.50			3.10	3.07	3.20	
	velocity	5.55	8.54	9.14	8.87	8.87	8.96	8.96	8.87	8.54	8.31	9.35	8.25		8.85	8.93	8.57	

2021 Fuse Sprint (Tottori, JPN)

FINAL date 06-Jun-21 wind 1.8 m/s

Shibayama (2021) - race analysis of men's 110m hurdles in the 2021 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.55	3.58	4.62	5.65	6.68	7.71	8.76	9.81	10.88	11.96		13.40	4 / 1			
reaction time 0.128	interval	7 steps	1.03	1.04	1.03	1.03	1.03	1.05	1.05	1.07	1.08	1.44			3.10	3.11	3.20	
	velocity	5.38	8.87	8.79	8.87	8.87	8.87	8.70	8.70	8.54	8.46	9.74	8.21		8.85	8.82	8.57	
Ishikawa, Shuhei (JPN) (1995)	time	2.60	3.64	4.68	5.71	6.73	7.75	8.82	9.86	10.93	12.03		13.48	7 / 2			
reaction time 0.152	interval	7 steps	1.04	1.04	1.03	1.02	1.02	1.07	1.04	1.07	1.10	1.45			3.11	3.11	3.21	

		velocity	5.28	8.79	8.79	8.87	8.96	8.96	8.54	8.79	8.54	8.31	9.67	8.16		8.82	8.82	8.54
Takayama, Shunya (JPN) (1994		time	2.56	3.61	4.64	5.68	6.71	7.75	8.79	9.85	10.91	12.02		13.48	6 / 3			
reaction time	0.145	interval		1.05	1.03	1.04	1.03	1.04	1.04	1.06	1.06	1.11	1.46			3.12	3.11	3.23
		velocity	5.36	8.70	8.87	8.79	8.87	8.79	8.79	8.62	8.62	8.23	9.60	8.16		8.79	8.82	8.49
Nomoto, Syuusei (JPN) (1995)		time	2.57	3.62	4.68	5.75	6.80	7.85	8.93	10.00	11.11	12.22		13.66	8 / 4			
reaction time	0.144	interval	7 steps	1.05	1.06	1.07	1.05	1.05	1.08	1.07	1.11	1.11	1.44			3.18	3.18	3.29
		velocity	5.34	8.70	8.62	8.54	8.70	8.70	8.46	8.54	8.23	8.23	9.74	8.05		8.62	8.62	8.33
Kawashima, Ryota (JPN) (1999		time	2.59	3.68	4.75	5.79	6.85	7.92	8.98	10.06	11.14	12.27		13.77	3 / 5			
reaction time	0.139	interval		1.09	1.07	1.04	1.06	1.07	1.06	1.08	1.08	1.13	1.50	PB		3.20	3.19	3.29
		velocity	5.30	8.39	8.54	8.79	8.62	8.54	8.62	8.46	8.46	8.09	9.35	7.99		8.57	8.60	8.33
Fujii, Ryota (JPN) (1996)		time	2.62	3.71	4.76	5.81	6.90	7.96	9.02	10.13	11.21	12.31		13.79	9 / 6			
reaction time	0.152	interval		1.09	1.05	1.05	1.09	1.06	1.06	1.11	1.08	1.10	1.48			3.19	3.21	3.29
		velocity	5.24	8.39	8.70	8.70	8.39	8.62	8.62	8.23	8.46	8.31	9.47	7.98		8.60	8.54	8.33
Omuro, Hideki (JPN) (1990)		time	2.60	3.68	4.74	5.81	6.87	7.95	9.02	10.10	11.19	12.30		13.80	2 / 7			
reaction time	0.150	interval		1.08	1.06	1.07	1.06	1.08	1.07	1.08	1.09	1.11	1.50			3.21	3.21	3.28
		velocity	5.28	8.46	8.62	8.54	8.62	8.46	8.54	8.46	8.39	8.23	9.35	7.97		8.54	8.54	8.36

2021 Michitaka Kinami Memorial (Osaka, JPN)

FINAL date 01-Jun-21 wind 0.3 m/s

Shibayama (2021) - race analysis of men's 110m hurdles in the 2021 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)		time	2.60	3.65	4.68	5.70	6.72	7.76	8.81	9.86	10.91	11.99		13.35	7 / 1			
reaction time	0.150	interval	7 steps	1.05	1.03	1.02	1.02	1.04	1.05	1.05	1.05	1.08	1.36	NJR PB		3.10	3.11	3.18
		velocity	5.28	8.70	8.87	8.96	8.96	8.79	8.70	8.70	8.70	8.46	10.31	8.24		8.85	8.82	8.62
Ishikawa, Shuhei (JPN) (1995)		time	2.58	3.62	4.65	5.68	6.70	7.75	8.79	9.85	10.90	11.98		13.42	6 / 2			
reaction time	0.156	interval	7 steps	1.04	1.03	1.03	1.02	1.05	1.04	1.06	1.05	1.08	1.44			3.10	3.11	3.19
		velocity	5.32	8.79	8.87	8.87	8.96	8.70	8.79	8.62	8.70	8.46	9.74	8.20		8.85	8.82	8.60
Tokuoka, Ryo (JPN) (1999)		time	2.68	3.76	4.80	5.84	6.89	7.95	9.03	10.08	11.16	12.25		13.69	8 / 3			
reaction time	0.185	interval		1.08	1.04	1.04	1.05	1.06	1.08	1.05	1.08	1.09	1.44			3.16	3.19	3.22
		velocity	5.12	8.46	8.79	8.79	8.70	8.62	8.46	8.70	8.46	8.39	9.74	8.04		8.68	8.60	8.52
Shimizu, Koichiro (JPN) (2000)		time	2.69	3.75	4.85	5.91	6.96	8.03	9.10	10.18	11.28	12.39		13.85	9 / 4			
reaction time	0.169	interval		1.06	1.10	1.06	1.05	1.07	1.07	1.08	1.10	1.11	1.46			3.22	3.19	3.29
		velocity	5.10	8.62	8.31	8.62	8.70	8.54	8.54	8.46	8.31	8.23	9.60	7.94		8.52	8.60	8.33
Ishida-Thomas, Higashi (JPN)		time	2.70	3.78	4.85	5.92	6.98	8.05	9.13	10.22	11.32	12.43		13.87	2 / 5			
reaction time	0.208	interval	7 steps	1.08	1.07	1.07	1.06	1.07	1.08	1.09	1.10	1.11	1.44			3.22	3.21	3.30
		velocity	5.08	8.46	8.54	8.54	8.62	8.54	8.46	8.39	8.31	8.23	9.74	7.93		8.52	8.54	8.31
Ikeda, Kai (JPN) (2002)		time	2.76	3.88	4.95	6.03	7.10	8.16	9.24	10.32	11.39	12.50		13.97	4 / 6			
reaction time	0.185	interval	7 steps	1.12	1.07	1.08	1.07	1.06	1.08	1.08	1.07	1.11	1.47			3.27	3.21	3.26
		velocity	4.97	8.16	8.54	8.46	8.54	8.62	8.46	8.46	8.54	8.23	9.54	7.87		8.39	8.54	8.41
Yazawa, Wataru (JPN) (1991)		time	2.68	3.80	4.89	5.96	7.03	8.11	9.19	10.29	11.40	12.55		14.09	3 / 7			
reaction time	0.176	interval	7 steps	1.12	1.09	1.07	1.07	1.08	1.08	1.10	1.11	1.15	1.54			3.28	3.23	3.36
		velocity	5.12	8.16	8.39	8.54	8.54	8.46	8.46	8.31	8.23	7.95	9.10	7.81		8.36	8.49	8.16
Omuro, Hideki (JPN) (1990)		time	2.65	3.78	4.88	6.00	7.13	8.25	9.42	10.56	11.75	12.95		14.65	5 / 8			
reaction time	0.165	interval		1.13	1.10	1.12	1.13	1.12	1.17	1.14	1.19	1.20	1.70			3.35	3.42	3.53
		velocity	5.18	8.09	8.31	8.16	8.09	8.16	7.81	8.02	7.68	7.62	8.25	7.51		8.19	8.02	7.77

2021 Shimane High School Championships (Izumo, JPN)

FINAL date 30-May-21 wind 1.7 m/s

Shimizu (2021) - shimane high school championships 2021 - biomechanics data analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yamamoto, Shunsuke (JPN)		time	2.75	3.95	5.12	6.30	7.45	8.60	9.80	10.97	12.17	13.37		14.95	6 / 1			
reaction time		interval		1.20	1.17	1.18	1.15	1.15	1.20	1.17	1.20	1.20	1.58			3.55	3.50	3.57
		velocity	4.99	7.62	7.81	7.75	7.95	7.95	7.62	7.81	7.62	7.62	8.87	7.36		7.72	7.83	7.68
Sotono, Haru (JPN) (2004)		time	2.78	3.95	5.17	6.35	7.55	8.75	9.93	11.20	12.43	13.70		15.32	4 / 2			
reaction time		interval		1.17	1.22	1.18	1.20	1.20	1.18	1.27	1.23	1.27	1.62			3.57	3.58	3.77
		velocity	4.94	7.81	7.49	7.75	7.62	7.62	7.75	7.20	7.43	7.20	8.65	7.18		7.68	7.66	7.27
Sonoyama, Tenshi (JPN)		time	2.82	4.02	5.22	6.40	7.60	8.80	10.02	11.27	12.50	13.82		15.45	3 / 3			
reaction time		interval		1.20	1.20	1.18	1.20	1.20	1.22	1.25	1.23	1.32	1.63			3.58	3.62	3.80
		velocity	4.87	7.62	7.62	7.75	7.62	7.62	7.49	7.31	7.43	6.92	8.60	7.12		7.66	7.57	7.22
Moriki, Hiroto (JPN) (2004)		time	2.78	4.02	5.28	6.50	7.72	9.00	10.25	11.52	12.82	14.12		15.80	5 / 4			
reaction time		interval		1.24	1.26	1.22	1.22	1.28	1.25	1.27	1.30	1.30	1.68			3.72	3.75	3.87
		velocity	4.94	7.37	7.25	7.49	7.49	7.14	7.31	7.20	7.03	7.03	8.35	6.96		7.37	7.31	7.09

Hashimoto, Takumi (JPN) (200	time	2.83	4.08	5.40	6.68	8.03	9.37	10.75	12.07	13.48	14.85		16.57	2 / 5			
reaction time	interval		1.25	1.32	1.28	1.35	1.34	1.38	1.32	1.41	1.37	1.72			3.85	4.07	4.10
	velocity	4.85	7.31	6.92	7.14	6.77	6.82	6.62	6.92	6.48	6.67	8.15	6.64		7.12	6.74	6.69
Shinagawa, Yuto (JPN) (2005)	time	3.02	4.35	5.70	7.05	8.37	9.72	11.07	12.42	13.80	15.22		17.07	1 / 6			
reaction time	interval		1.33	1.35	1.35	1.32	1.35	1.35	1.35	1.38	1.42	1.85			4.03	4.02	4.15
	velocity	4.54	6.87	6.77	6.77	6.92	6.77	6.77	6.77	6.62	6.44	7.58	6.44		6.80	6.82	6.61

2021 Philippe Cup Athletics Invitational (Wuhan, CHN)

FINAL date 19-May-21 wind 1.9 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)	time	2.60	3.67	4.70	5.74	6.79	7.82	8.89	9.98	11.08	12.20		13.70	3 / 1			
reaction time 0.158	interval		1.07	1.03	1.04	1.05	1.03	1.07	1.09	1.10	1.12	1.50			3.14	3.15	3.31
	velocity	5.28	8.54	8.87	8.79	8.70	8.87	8.54	8.39	8.31	8.16	9.35	8.03		8.73	8.70	8.28
Zhu Shenglong (CHN) (2000)	time	2.63	3.70	4.75	5.79	6.84	7.92	8.97	10.09	11.18	12.28		13.78	6 / 2			
reaction time 0.169	interval		1.07	1.05	1.04	1.05	1.08	1.05	1.12	1.09	1.10	1.50	PB		3.16	3.18	3.31
	velocity	5.22	8.54	8.70	8.79	8.70	8.46	8.70	8.16	8.39	8.31	9.35	7.98		8.68	8.62	8.28
Liu Bowen (CHN) (2001)	time	2.67	3.77	4.87	5.93	7.02	8.09	9.21	10.33	11.46	12.61		14.14	5 / 3			
reaction time 0.163	interval		1.10	1.10	1.06	1.09	1.07	1.12	1.12	1.13	1.15	1.53	PB		3.26	3.28	3.40
	velocity	5.14	8.31	8.31	8.62	8.39	8.54	8.16	8.16	8.09	7.95	9.16	7.78		8.41	8.36	8.06
Yang Jiajun (CHN) (2002)	time	2.72	3.83	4.94	6.06	7.16	8.26	9.39	10.56	11.71	12.88		14.40	8 / 4			
reaction time 0.126	interval		1.11	1.11	1.12	1.10	1.10	1.13	1.17	1.15	1.17	1.52	PB		3.34	3.33	3.49
	velocity	5.04	8.23	8.23	8.16	8.31	8.31	8.09	7.81	7.95	7.81	9.22	7.64		8.21	8.23	7.86
Jiang Wei (CHN) (1994)	time	2.74	3.89	5.00	6.10	7.22	8.36	9.44	10.59	11.73	12.90		14.43	2 / 5			
reaction time 0.194	interval		1.15	1.11	1.10	1.12	1.14	1.08	1.15	1.14	1.17	1.53			3.36	3.34	3.46
	velocity	5.01	7.95	8.23	8.31	8.16	8.02	8.46	7.95	8.02	7.81	9.16	7.62		8.16	8.21	7.92
Sun Haoru (CHN) (1998)	time	2.74	3.85	4.97	6.19								dnf	7 / --			
reaction time 0.156	interval		1.11	1.12	1.22										3.45		
	velocity	5.01	8.23	8.16	7.49										7.95		

2021 Happy Chengdu Meeting (Chengdu, CHN)

FINAL date 15-May-21 wind 1.3 m/s *Jiang (2022) - research on pre-competition training of Zhu Shenglong preparting for the 14th national games*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.46	3.58	4.68	5.76	6.83	7.89	8.96	10.02	11.10	12.22		13.87	/ 1			
reaction time	interval		1.12	1.10	1.08	1.07	1.06	1.07	1.06	1.08	1.12	1.65	PB		3.30	3.20	3.26
	velocity	5.58	8.16	8.31	8.46	8.54	8.62	8.54	8.62	8.46	8.16	8.50	7.93		8.31	8.57	8.41

2021 Ready Steady Tokyo (Tokyo, JPN)

FINAL date 09-May-21 wind -0.8 m/s *Shibayama (2021) - race analysis of men's 110m hurdles in the 2021 season*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.53	3.57	4.59	5.65	6.68	7.73	8.78	9.84	10.91	11.98		13.38	4 / 1			
reaction time 0.133	interval	7 steps	1.04	1.02	1.06	1.03	1.05	1.05	1.06	1.07	1.07	1.40			3.12	3.13	3.20
	velocity	5.42	8.79	8.96	8.62	8.87	8.70	8.70	8.62	8.54	8.54	10.01	8.22		8.79	8.76	8.57
Izumiya, Shunsuke (JPN) (2000	time	2.51	3.60	4.63	5.71	6.76	7.83	8.90	9.94	11.01	12.06		13.43	7 / 2			
reaction time 0.132	interval	7 steps	1.09	1.03	1.08	1.05	1.07	1.07	1.04	1.07	1.05	1.37			3.20	3.19	3.16
	velocity	5.47	8.39	8.87	8.46	8.70	8.54	8.54	8.79	8.54	8.70	10.23	8.19		8.57	8.60	8.68
Takayama, Shunya (JPN) (1994	time	2.58	3.64	4.65	5.67	6.70	7.74	8.77	9.84	10.92	12.01		13.45	5 / 3			
reaction time 0.163	interval		1.06	1.01	1.02	1.03	1.04	1.03	1.07	1.08	1.09	1.44			3.09	3.10	3.24
	velocity	5.32	8.62	9.05	8.96	8.87	8.79	8.87	8.54	8.46	8.39	9.74	8.18		8.87	8.85	8.46
Muratake, Rachid (JPN) (2002)	time	2.56	3.63	4.66	5.72	6.77	7.81	8.85	9.93	11.01	12.11		13.51	9 / 4			
reaction time 0.119	interval	7 steps	1.07	1.03	1.06	1.05	1.04	1.04	1.08	1.08	1.10	1.40	PB		3.16	3.13	3.26
	velocity	5.36	8.54	8.87	8.62	8.70	8.79	8.79	8.46	8.46	8.31	10.01	8.14		8.68	8.76	8.41
Chen Kuei-Ru (TPE) (1993)	time	2.58	3.61	4.65	5.69	6.73	7.77	8.84	9.92	11.02	12.13		13.62	2 / 5			
reaction time 0.161	interval	7 steps	1.03	1.04	1.04	1.04	1.04	1.07	1.08	1.10	1.11	1.49			3.11	3.15	3.29
	velocity	5.32	8.87	8.79	8.79	8.79	8.79	8.54	8.46	8.31	8.23	9.41	8.08		8.82	8.70	8.33
Ishikawa, Shuhei (JPN) (1995)	time	2.65	3.74	4.77	5.80	6.86	7.93	8.99	10.07	11.15	12.25		13.67	8 / 6			
reaction time 0.141	interval	7 steps	1.09	1.03	1.03	1.06	1.07	1.06	1.08	1.08	1.10	1.42			3.15	3.19	3.26
	velocity	5.18	8.39	8.87	8.87	8.62	8.54	8.62	8.46	8.46	8.31	9.87	8.05		8.70	8.60	8.41
Yokochi, Taiga (JPN) (2000)	time	2.58	3.64	4.69	5.73	6.78	7.83	8.88	9.98	11.09	12.20		13.67	6 / 7			
reaction time 0.139	interval	7 steps	1.06	1.05	1.04	1.05	1.05	1.05	1.10	1.11	1.11	1.47			3.15	3.15	3.32
	velocity	5.32	8.62	8.70	8.79	8.70	8.70	8.70	8.31	8.23	8.23	9.54	8.05		8.70	8.70	8.26
Tokuoka, Ryo (JPN) (1999)	time	2.63	3.69	4.74	5.82	6.87	7.92	9.05	10.15	11.25	12.35		13.77	3 / 8			

reaction time	0.166	interval		1.06	1.05	1.08	1.05	1.05	1.13	1.10	1.10	1.10	1.42	PB		3.19	3.23	3.30
		velocity	5.22	8.62	8.70	8.46	8.70	8.70	8.09	8.31	8.31	8.31	9.87	7.99		8.60	8.49	8.31
Omuro, Hideki (JPN) (1990)		time	2.59	3.66	4.74	5.81	6.90	7.99	9.09	10.21	11.33	12.73		14.46	1 / 9			
reaction time	0.153	interval		1.07	1.08	1.07	1.09	1.09	1.10	1.12	1.12	1.40	1.73			3.22	3.28	3.64
		velocity	5.30	8.54	8.46	8.54	8.39	8.39	8.31	8.16	8.16	6.53	8.10	7.61		8.52	8.36	7.53

2021 Mikio Oda Memorial (Hiroshima, JPN)

FINAL

date 29-Apr-21 wind 1.7 m/s

Shibayama (2021) - race analysis of men's 110m hurdles in the 2021 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.51	3.54	4.55	5.56	6.58	7.60	8.62	9.67	10.70	11.75		13.16	4 / 1			
reaction time	interval	7 steps	1.03	1.01	1.01	1.02	1.02	1.02	1.05	1.03	1.05	1.41	NR PB		3.05	3.06	3.13
	velocity	5.47	8.87	9.05	9.05	8.96	8.96	8.96	8.70	8.87	8.70	9.94	8.36		8.99	8.96	8.76
Izumiya, Shunsuke (JPN) (2000	time	2.57	3.65	4.66	5.69	6.70	7.74	8.79	9.83	10.88	11.93		13.33	3 / 2			
reaction time	interval	7 steps	1.08	1.01	1.03	1.01	1.04	1.05	1.04	1.05	1.05	1.40	PB		3.12	3.10	3.14
	velocity	5.34	8.46	9.05	8.87	9.05	8.79	8.70	8.79	8.70	8.70	10.01	8.25		8.79	8.85	8.73
Ishikawa, Shuhei (JPN) (1995)	time	2.58	3.65	4.66	5.69	6.73	7.77	8.80	9.86	10.91	11.98		13.44	5 / 3			
reaction time	interval	7 steps	1.07	1.01	1.03	1.04	1.04	1.03	1.06	1.05	1.07	1.46			3.11	3.11	3.18
	velocity	5.32	8.54	9.05	8.87	8.79	8.79	8.87	8.62	8.70	8.54	9.60	8.18		8.82	8.82	8.62
Muratake, Rachid (JPN) (2002)	time	2.63	3.68	4.72	5.75	6.79	7.84	8.91	9.98	11.04	12.11		13.53	6 / 4			
reaction time	interval	7 steps	1.05	1.04	1.03	1.04	1.05	1.07	1.07	1.06	1.07	1.42	PB		3.12	3.16	3.20
	velocity	5.22	8.70	8.79	8.87	8.79	8.70	8.54	8.54	8.62	8.54	9.87	8.13		8.79	8.68	8.57
Tokuoka, Ryo (JPN) (1999)	time	2.64	3.70	4.75	5.80	6.85	7.88	8.95	10.00	11.09	12.20		13.67	8 / 5			
reaction time	interval		1.06	1.05	1.05	1.05	1.03	1.07	1.05	1.09	1.11	1.47			3.16	3.15	3.25
	velocity	5.20	8.62	8.70	8.70	8.70	8.87	8.54	8.70	8.39	8.23	9.54	8.05		8.68	8.70	8.44
Yokochi, Taiga (JPN) (2000)	time	2.65	3.75	4.81	5.85	6.89	7.93	8.99	10.06	11.14	12.24		13.68	1 / 6			
reaction time	interval	7 steps	1.10	1.06	1.04	1.04	1.04	1.06	1.07	1.08	1.10	1.44			3.20	3.14	3.25
	velocity	5.18	8.31	8.62	8.79	8.79	8.79	8.62	8.54	8.46	8.31	9.74	8.04		8.57	8.73	8.44
Omuro, Hideki (JPN) (1990)	time	2.60	3.66	4.72	5.76	6.82	7.88	8.96	10.03	11.14	12.25		13.75	7 / 7			
reaction time	interval		1.06	1.06	1.04	1.06	1.06	1.08	1.07	1.11	1.11	1.50			3.16	3.20	3.29
	velocity	5.28	8.62	8.62	8.79	8.62	8.62	8.46	8.54	8.23	8.23	9.35	8.00		8.68	8.57	8.33
Fujii, Ryota (JPN) (1996)	time	2.64	3.73	4.78	5.85	6.91	7.98	9.05	10.13	11.22	12.34		13.84	2 / 8			
reaction time	interval		1.09	1.05	1.07	1.06	1.07	1.07	1.08	1.09	1.12	1.50			3.21	3.20	3.29
	velocity	5.20	8.39	8.70	8.54	8.62	8.54	8.54	8.46	8.39	8.16	9.35	7.95		8.54	8.57	8.33

2021 East China District Meeting (Zhaoqing, CHN)

FINAL

date 24-Apr-21 wind -0.3 m/s

CAA Hurdle Development (2021)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yang Quanlei (CHN) (1999)	time	2.64	3.74	4.80	5.88	6.95	8.02	9.11	10.20	11.31	12.43		13.89	6 / 1			
reaction time	0.185 interval		1.10	1.06	1.08	1.07	1.07	1.09	1.09	1.11	1.12	1.46	PB		3.24	3.23	3.32
	velocity	5.20	8.31	8.62	8.46	8.54	8.54	8.39	8.39	8.23	8.16	9.60	7.92		8.46	8.49	8.26
Zhu Shenglong (CHN) (2000)	time	2.64	3.70	4.76	5.82	6.88	7.96	9.03	10.12	11.24	12.38		13.91	3 / 2			
reaction time	0.165 interval		1.06	1.06	1.06	1.06	1.08	1.07	1.09	1.12	1.14	1.53			3.18	3.21	3.35
	velocity	5.20	8.62	8.62	8.62	8.62	8.46	8.54	8.39	8.16	8.02	9.16	7.91		8.62	8.54	8.19
Zhang Jinzhao (CHN) (1999)	time	2.74	3.84	4.94	5.99	7.06	8.14	9.22	10.29	11.40	12.52		14.00	5 / 3			
reaction time	0.208 interval		1.10	1.10	1.05	1.07	1.08	1.08	1.07	1.11	1.12	1.48	PB		3.25	3.23	3.30
	velocity	5.01	8.31	8.31	8.70	8.54	8.46	8.46	8.54	8.23	8.16	9.47	7.86		8.44	8.49	8.31
Wu Zhenhua (CHN) (1998)	time	2.70	3.79	4.90	5.98	7.06	8.16	9.26	10.35	11.46	12.59		14.04	9 / 4			
reaction time	0.174 interval		1.09	1.11	1.08	1.08	1.10	1.10	1.09	1.11	1.13	1.45	PB		3.28	3.28	3.33
	velocity	5.08	8.39	8.23	8.46	8.46	8.31	8.31	8.39	8.23	8.09	9.67	7.83		8.36	8.36	8.23
Pan Zijie (CHN) (1995)	time	2.68	3.79	4.91	5.99	7.08	8.19	9.28	10.39	11.54	12.68		14.19	2 / 5			
reaction time	0.186 interval		1.11	1.12	1.08	1.09	1.11	1.09	1.11	1.15	1.14	1.51			3.31	3.29	3.40
	velocity	5.12	8.23	8.16	8.46	8.39	8.23	8.39	8.23	7.95	8.02	9.28	7.75		8.28	8.33	8.06
Chen Jie (CHN) (2002)	time	2.68	3.76	4.89	5.97	7.10	8.19	9.38	10.56	11.76	12.96		14.57	8 / 6			
reaction time	0.171 interval		1.08	1.13	1.08	1.13	1.09	1.19	1.18	1.20	1.20	1.61			3.29	3.41	3.58
	velocity	5.12	8.46	8.09	8.46	8.09	8.39	7.68	7.75	7.62	7.62	8.71	7.55		8.33	8.04	7.66

Heat 2

date 24-Apr-21 wind -1.2 m/s

CAA Hurdle Development (2021)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.56	3.62	4.66	5.69	6.72	7.77	8.84	9.91	11.00	12.10		13.62	5 / 1			
reaction time	0.151 interval		1.06	1.04	1.03	1.03	1.05	1.07	1.07	1.09	1.10	1.52			3.13	3.15	3.26
	velocity	5.36	8.62	8.79	8.87	8.87	8.70	8.54	8.54	8.39	8.31	9.22	8.08		8.76	8.70	8.41

Li Huaihai (CHN) (1999)	time	2.66	3.76	4.86	5.94	7.03	8.13	9.25	10.36	11.51	12.66		14.20	4 / 2				
reaction time 0.162	interval	7 steps	1.10	1.10	1.08	1.09	1.10	1.12	1.11	1.15	1.15	1.54			3.28	3.31	3.41	
	velocity	5.16	8.31	8.31	8.46	8.39	8.31	8.16	8.23	7.95	7.95	9.10	7.75		8.36	8.28	8.04	
Zhu Shenglong (CHN) (2000)	time	2.64	3.73	4.78	5.87	6.97	8.05	9.23	10.38	11.57	12.74		14.29	3 / 3				
reaction time 0.164	interval		1.09	1.05	1.09	1.10	1.08	1.18	1.15	1.19	1.17	1.55			3.23	3.36	3.51	
	velocity	5.20	8.39	8.70	8.39	8.31	8.46	7.75	7.95	7.68	7.81	9.05	7.70		8.49	8.16	7.81	
Pan Zijie (CHN) (1995)	time	2.68	3.80	4.90	5.98	7.10	8.25	9.36	10.50	11.63	12.78		14.31	9 / 4				
reaction time 0.178	interval		1.12	1.10	1.08	1.12	1.15	1.11	1.14	1.13	1.15	1.53			3.30	3.38	3.42	
	velocity	5.12	8.16	8.31	8.46	8.16	7.95	8.23	8.02	8.09	7.95	9.16	7.69		8.31	8.11	8.02	
Zhao Jiefu (CHN) (2001)	time	2.80	3.96	5.08	6.23	7.35	8.46	9.60	10.74	11.88	13.08		14.69	2 / 5				
reaction time 0.213	interval		1.16	1.12	1.15	1.12	1.11	1.14	1.14	1.14	1.20	1.61			3.43	3.37	3.48	
	velocity	4.90	7.88	8.16	7.95	8.16	8.23	8.02	8.02	8.02	7.62	8.71	7.49		7.99	8.14	7.88	
Yang Jiajun (CHN) (2002)	time	2.76	3.93	5.04	6.17	7.30	8.46	9.61	10.78	11.96	13.15		14.72	6 / 6				
reaction time 0.171	interval		1.17	1.11	1.13	1.13	1.16	1.15	1.17	1.18	1.19	1.57	PB		3.41	3.44	3.54	
	velocity	4.97	7.81	8.23	8.09	8.09	7.88	7.95	7.81	7.75	7.68	8.93	7.47		8.04	7.97	7.75	
Zhang Tao (CHN) (1997)	time	2.72	3.91	5.04	6.21	7.38	8.54	9.73	10.93	12.16	13.37		15.13	7 / 7				
reaction time 0.186	interval		1.19	1.13	1.17	1.17	1.16	1.19	1.20	1.23	1.21	1.76			3.49	3.52	3.64	
	velocity	5.04	7.68	8.09	7.81	7.81	7.88	7.68	7.62	7.43	7.55	7.97	7.27		7.86	7.79	7.53	
Wang Yanbo (CHN) (2002)	time	2.77	3.97	5.13	6.33	7.57	8.84	10.08	11.38	12.66	13.94		15.70	8 / 8				
reaction time 0.164	interval		1.20	1.16	1.20	1.24	1.27	1.24	1.30	1.28	1.28	1.76			3.56	3.75	3.86	
	velocity	4.95	7.62	7.88	7.62	7.37	7.20	7.37	7.03	7.14	7.14	7.97	7.01		7.70	7.31	7.10	

Heat 1

date 24-Apr-21 wind -1.1 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yang Quanlei (CHN) (1999)	time	2.66	3.76	4.85	5.94	7.02	8.10	9.20	10.28	11.39	12.51		14.00	4 / 1			
reaction time 0.164	interval		1.10	1.09	1.09	1.08	1.08	1.10	1.08	1.11	1.12	1.49			3.28	3.26	3.31
	velocity	5.16	8.31	8.39	8.39	8.46	8.46	8.31	8.46	8.23	8.16	9.41	7.86		8.36	8.41	8.28
Zhang Jinzhao (CHN) (1999)	time	2.74	3.84	4.91	5.99	7.07	8.14	9.24	10.34	11.45	12.59		14.09	3 / 2			
reaction time 0.192	interval		1.10	1.07	1.08	1.08	1.07	1.10	1.10	1.11	1.14	1.50			3.25	3.25	3.35
	velocity	5.01	8.31	8.54	8.46	8.46	8.54	8.31	8.31	8.23	8.02	9.35	7.81		8.44	8.44	8.19
Wu Zhenhua (CHN) (1998)	time	2.68	3.80	4.88	5.98	7.08	8.20	9.32	10.44	11.59	12.72		14.21	9 / 3			
reaction time 0.156	interval		1.12	1.08	1.10	1.10	1.12	1.12	1.12	1.15	1.13	1.49			3.30	3.34	3.40
	velocity	5.12	8.16	8.46	8.31	8.31	8.16	8.16	8.16	7.95	8.09	9.41	7.74		8.31	8.21	8.06
Chen Jie (CHN) (2002)	time	2.73	3.85	4.94	6.04	7.16	8.26	9.38	10.50	11.60	12.75		14.22	7 / 4			
reaction time 0.168	interval		1.12	1.09	1.10	1.12	1.10	1.12	1.12	1.10	1.15	1.47	PB		3.31	3.34	3.37
	velocity	5.03	8.16	8.39	8.31	8.16	8.31	8.16	8.16	8.31	7.95	9.54	7.74		8.28	8.21	8.14
Xu Zhuoyi (CHN) (2003)	time	2.74	3.88	5.02	6.15	7.25	8.38	9.50	10.62	11.75	12.91		14.42	8 / 5			
reaction time 0.179	interval	7 steps	1.14	1.14	1.13	1.10	1.13	1.12	1.12	1.13	1.16	1.51			3.41	3.35	3.41
	velocity	5.01	8.02	8.02	8.09	8.31	8.09	8.16	8.16	8.09	7.88	9.28	7.63		8.04	8.19	8.04
Jian Jinlong (CHN) (2000)	time	2.75	3.93	5.06	6.20	7.32	8.46	9.59	10.74	11.90	13.10		14.66	2 / 6			
reaction time 0.166	interval		1.18	1.13	1.14	1.12	1.14	1.13	1.15	1.16	1.20	1.56	PB		3.45	3.39	3.51
	velocity	4.99	7.75	8.09	8.02	8.16	8.02	8.09	7.95	7.88	7.62	8.99	7.50		7.95	8.09	7.81
Liu Bowen (CHN) (2001)	time	2.66	3.77	4.92	6.02	7.14	8.29	9.49	10.70	11.90	13.14		14.78	5 / 7			
reaction time 0.164	interval		1.11	1.15	1.10	1.12	1.15	1.20	1.21	1.20	1.24	1.64			3.36	3.47	3.65
	velocity	5.16	8.23	7.95	8.31	8.16	7.95	7.62	7.55	7.62	7.37	8.55	7.44		8.16	7.90	7.51

2021 Tom Jones Invitational (Gainesville, FL) (TV Analysis)

FINAL

date 17-Apr-21 wind 1.3 m/s *Henson (2021) - Athlete First: 2021 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.50	3.52	4.49	5.47	6.45	7.44	8.42	9.47	10.53	11.59		13.07	6 / 1			
reaction time	interval	7 steps	1.02	0.97	0.98	0.98	0.99	0.98	1.05	1.06	1.06	1.48			2.97	2.95	3.17
	velocity	5.49	8.96	9.42	9.33	9.33	9.23	9.33	8.70	8.62	8.62	9.47	8.42		9.23	9.29	8.65

2021 Yangtze River Delta Athletics Meeting (Shaoxing, CHN)

FINAL

date 08-Apr-21 wind -0.1 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.56	3.64	4.66	5.68	6.68	7.72	8.76	9.80	10.88	11.96		13.43	6 / 1			
reaction time	interval		1.08	1.02	1.02	1.00	1.04	1.04	1.04	1.08	1.08	1.47	PB		3.12	3.08	3.20
	velocity	5.36	8.46	8.96	8.96	9.14	8.79	8.79	8.79	8.46	8.46	9.54	8.19		8.79	8.90	8.57
Yang Quanlei (CHN) (1999)	time	2.64	3.76	4.84	5.92	7.00	8.08	9.18	10.26	11.36	12.44		13.90	4 / 2			
reaction time	interval		1.12	1.08	1.08	1.08	1.08	1.10	1.08	1.10	1.08	1.46	PB		3.28	3.26	3.26
	velocity	5.20	8.16	8.46	8.46	8.46	8.46	8.31	8.46	8.31	8.46	9.60	7.91		8.36	8.41	8.41

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Zhang Jinzhao (CHN) (1999)	time	2.76	3.86	4.96	6.04	7.12	8.22	9.32	10.42	11.52	12.64		14.12	9 / 3			
reaction time	interval		1.10	1.10	1.08	1.08	1.10	1.10	1.10	1.10	1.12	1.48	PB		3.28	3.28	3.32
	velocity	4.97	8.31	8.31	8.46	8.46	8.31	8.31	8.31	8.31	8.16	9.47	7.79		8.36	8.36	8.26
Xu Zhuoyi (CHN) (2003)	time	2.72	3.84	4.96	6.04	7.12	8.24	9.32	10.44	11.56	12.68		14.17	5 / 4			
reaction time	interval	7 steps	1.12	1.12	1.08	1.08	1.12	1.08	1.12	1.12	1.12	1.49	PB		3.32	3.28	3.36
	velocity	5.04	8.16	8.16	8.46	8.46	8.16	8.46	8.16	8.16	8.16	9.41	7.76		8.26	8.36	8.16
Lu Yang (CHN) (1996)	time	2.76	3.88	4.96	6.08	7.16	8.24	9.34	10.48	11.60	12.76		14.30	7 / 5			
reaction time	interval		1.12	1.08	1.12	1.08	1.08	1.10	1.14	1.12	1.16	1.54			3.32	3.26	3.42
	velocity	4.97	8.16	8.46	8.16	8.46	8.46	8.31	8.02	8.16	7.88	9.10	7.69		8.26	8.41	8.02
Pan Zijie (CHN) (1995)	time	2.72	3.84	4.96	6.04	7.16	8.28	9.40	10.52	11.66	12.78		14.33	3 / 6			
reaction time	interval		1.12	1.12	1.08	1.12	1.12	1.12	1.12	1.14	1.12	1.55			3.32	3.36	3.38
	velocity	5.04	8.16	8.16	8.46	8.16	8.16	8.16	8.16	8.02	8.16	9.05	7.68		8.26	8.16	8.11
Liu Junqian (CHN) (2003)	time	2.68	3.80	4.92	6.04	7.16	8.28	9.40	10.52	11.72	12.90		14.51	8 / 7			
reaction time	interval		1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.20	1.18	1.61			3.36	3.36	3.50
	velocity	5.12	8.16	8.16	8.16	8.16	8.16	8.16	8.16	7.62	7.75	8.71	7.58		8.16	8.16	7.83
Huan Jiaxing (CHN) (2001)	time	2.80	3.92	5.08	6.22	7.34	8.48	9.66	10.84	12.00	13.20		14.74	2 / 8			
reaction time	interval		1.12	1.16	1.14	1.12	1.14	1.18	1.18	1.16	1.20	1.54			3.42	3.44	3.54
	velocity	4.90	8.16	7.88	8.02	8.16	8.02	7.75	7.75	7.88	7.62	9.10	7.46		8.02	7.97	7.75

2021 National Grand Prix (Chengdu, CHN)

FINAL

date 02-Apr-21 wind -0.1 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Honglin (CHN) (1994)	time	2.66	3.76	4.80	5.87	6.91	7.94	9.02	10.08	11.20	12.30		13.76	4 / 1			
reaction time 0.179	interval		1.10	1.04	1.07	1.04	1.03	1.08	1.06	1.12	1.10	1.46			3.21	3.15	3.28
	velocity	5.16	8.31	8.79	8.54	8.79	8.87	8.46	8.62	8.16	8.31	9.60	7.99		8.54	8.70	8.36
Sun Zhenjiang (CHN) (1999)	time	2.62	3.72	4.78	5.82	6.88	7.93	9.01	10.10	11.24	12.36		13.98	5 / 2			
reaction time 0.168	interval	7 steps	1.10	1.06	1.04	1.06	1.05	1.08	1.09	1.14	1.12	1.62			3.20	3.19	3.35
	velocity	5.24	8.31	8.62	8.79	8.62	8.70	8.46	8.39	8.02	8.16	8.65	7.87		8.57	8.60	8.19
Lai Junjie (CHN) (2003)	time	2.78	3.95	5.06	6.18	7.27	8.38	9.48	10.60	11.75	12.90		14.43	3 / 3			
reaction time 0.176	interval		1.17	1.11	1.12	1.09	1.11	1.10	1.12	1.15	1.15	1.53			3.40	3.30	3.42
	velocity	4.94	7.81	8.23	8.16	8.39	8.23	8.31	8.16	7.95	7.95	9.16	7.62		8.06	8.31	8.02
Yang Haoran (CHN) (2001)	time	2.69	3.82	4.97	6.10	7.25	8.38	9.52	10.66	11.82	12.96		14.44	6 / 4			
reaction time 0.145	interval		1.13	1.15	1.13	1.15	1.13	1.14	1.14	1.16	1.14	1.48	PB		3.41	3.42	3.44
	velocity	5.10	8.09	7.95	8.09	7.95	8.09	8.02	8.02	7.88	8.02	9.47	7.62		8.04	8.02	7.97
Yan Chenyu (CHN) (2003)	time	2.74	3.88	5.00	6.14	7.27	8.40	9.54	10.68	11.81	12.94		14.50	8 / 5			
reaction time 0.192	interval		1.14	1.12	1.14	1.13	1.13	1.14	1.14	1.13	1.13	1.56			3.40	3.40	3.40
	velocity	5.01	8.02	8.16	8.02	8.09	8.09	8.02	8.02	8.09	8.09	8.99	7.59		8.06	8.06	8.06
Wang Jiawei (CHN) (2004)	time	2.90	4.12	5.34	6.52	7.72	8.90	10.10	11.32	12.52	13.78		15.43	2 / 6			
reaction time 0.210	interval		1.22	1.22	1.18	1.20	1.18	1.20	1.22	1.20	1.26	1.65			3.62	3.58	3.68
	velocity	4.73	7.49	7.49	7.75	7.62	7.75	7.62	7.49	7.62	7.25	8.50	7.13		7.57	7.66	7.45
Tan Junyu (CHN) (2004)	time	2.76	3.92	5.14	6.36	7.56	8.74	10.06	11.36	12.68	13.98		15.64	7 / 7			
reaction time 0.194	interval		1.16	1.22	1.22	1.20	1.18	1.32	1.30	1.32	1.30	1.66			3.60	3.70	3.92
	velocity	4.97	7.88	7.49	7.49	7.62	7.75	6.92	7.03	6.92	7.03	8.45	7.03		7.62	7.41	6.99

Heat 2

date 02-Apr-21 wind 0.3 m/s *CAA Hurdle Development (2021)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Honglin (CHN) (1994)	time	2.62	3.72	4.78	5.88	6.94	8.02	9.10	10.18	11.28	12.38		13.90	6 / 1			
reaction time 0.172	interval		1.10	1.06	1.10	1.06	1.08	1.08	1.08	1.10	1.10	1.52			3.26	3.22	3.28
	velocity	5.24	8.31	8.62	8.31	8.62	8.46	8.46	8.46	8.31	8.31	9.22	7.91		8.41	8.52	8.36
Lai Junjie (CHN) (2003)	time	2.72	3.88	5.02	6.10	7.20	8.30	9.42	10.56	11.68	12.84		14.38	3 / 2			
reaction time 0.189	interval		1.16	1.14	1.08	1.10	1.10	1.12	1.14	1.12	1.16	1.54	PB		3.38	3.32	3.42
	velocity	5.04	7.88	8.02	8.46	8.31	8.31	8.16	8.02	8.16	7.88	9.10	7.94		8.11	8.26	8.02
Yang Haoran (CHN) (2001)	time	2.70	3.82	4.94	6.10	7.22	8.32	9.48	10.60	11.78	12.96		14.54	5 / 3			
reaction time 0.162	interval		1.12	1.12	1.16	1.12	1.10	1.16	1.12	1.18	1.18	1.58	PB		3.40	3.38	3.48
	velocity	5.08	8.16	8.16	7.88	8.16	8.31	7.88	8.16	7.75	7.75	8.87	7.81		8.06	8.11	7.88
Tan Junyu (CHN) (2004)	time	2.80	3.96	5.16	6.32	7.52	8.72	9.92	11.10	12.32	13.54		15.14	4 / 4			
reaction time 0.218	interval		1.16	1.20	1.16	1.20	1.20	1.20	1.18	1.22	1.22	1.60			3.52	3.60	3.62
	velocity	4.90	7.88	7.62	7.88	7.62	7.62	7.62	7.75	7.49	7.49	8.76	7.76		7.79	7.62	7.57

Heat 1

date 02-Apr-21 wind 0.5 m/s *CAA Hurdle Development (2021)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)		time	2.66	3.74	4.80	5.88	6.92	7.96	9.04	10.14	11.24	12.36		13.88	4 / 1			
reaction time	0.189	interval	7 steps	1.08	1.06	1.08	1.04	1.04	1.08	1.10	1.10	1.12	1.52			3.22	3.16	3.32
		velocity	5.16	8.46	8.62	8.46	8.79	8.79	8.46	8.31	8.31	8.16	9.22	7.93		8.52	8.68	8.26
Yan Chenyu (CHN) (2003)		time	2.74	3.94	5.10	6.26	7.40	8.56	9.70	10.84	12.02	13.20		14.79	5 / 2			
reaction time	0.216	interval		1.20	1.16	1.16	1.14	1.16	1.14	1.14	1.18	1.18	1.59			3.52	3.44	3.50
		velocity	5.01	7.62	7.88	7.88	8.02	7.88	8.02	8.02	7.75	7.75	8.82	7.44		7.79	7.97	7.83
Wang Jiawei (CHN) (2004)		time	2.88	4.12	5.34	6.56	7.78	9.02	10.30	11.56	12.80	14.06		15.75	3 / 3			
reaction time	0.195	interval		1.24	1.22	1.22	1.22	1.24	1.28	1.26	1.24	1.26	1.69			3.68	3.74	3.76
		velocity	4.76	7.37	7.49	7.49	7.49	7.37	7.14	7.25	7.37	7.25	8.30	6.98		7.45	7.33	7.29

2021 National Indoor Grand Prix (Jinan, CHN)

FINAL

date 18-Mar-21

CAA Hurdle Development (2021)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)		time	2.54	3.59	4.63	5.65	6.67							7.57	4 / 1			
reaction time	0.161	interval		1.05	1.04	1.02	1.02						0.90			3.11		
		velocity	5.40	8.70	8.79	8.96	8.96						10.80	7.93		8.82		
Zhang Honglin (CHN) (1994)		time	2.66	3.74	4.81	5.86	6.91							7.81	3 / 2			
reaction time	0.204	interval	7 steps	1.08	1.07	1.05	1.05						0.90			3.20		
		velocity	5.16	8.46	8.54	8.70	8.70						10.80	7.68		8.57		
Yang Quanlei (CHN) (1999)		time	2.63	3.74	4.82	5.90	6.96							7.86	5 / 3			
reaction time	0.173	interval		1.11	1.08	1.08	1.06						0.90	PB		3.27		
		velocity	5.22	8.23	8.46	8.46	8.62						10.80	7.63		8.39		
Ning Xiaohan (CHN) (2000)		time	2.65	3.75	4.82	5.90	7.01							7.97	6 / 4			
reaction time	0.166	interval	7 steps	1.10	1.07	1.08	1.11						0.96			3.25		
		velocity	5.18	8.31	8.54	8.46	8.23						10.13	7.53		8.44		
Sun Haoru (CHN) (1998)		time	2.77	3.89	4.98	6.09	7.17							8.15	1 / 5			
reaction time	0.188	interval		1.12	1.09	1.11	1.08						0.98			3.32		
		velocity	4.95	8.16	8.39	8.23	8.46						9.92	7.36		8.26		
Xu Zhuoyi (CHN) (2003)		time	2.76	3.90	5.03	6.15	7.29							8.30	2 / 6			
reaction time	0.171	interval	7 steps	1.14	1.13	1.12	1.14						1.01			3.39		
		velocity	4.97	8.02	8.09	8.16	8.02						9.62	7.23		8.09		

2021 National Indoor Grand Prix (Chengdu, CHN)

A FINAL

date 13-Mar-21

CAA Hurdle Development (2021)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)		time	2.54	3.58	4.62	5.62	6.64							7.55	3 / 1			
reaction time	0.163	interval		1.04	1.04	1.00	1.02						0.91	PB		3.08		
		velocity	5.40	8.79	8.79	9.14	8.96						10.68	7.95		8.90		
Sun Zhenjiang (CHN) (1999)		time	2.62	3.70	4.78	5.83	6.88							7.81	5 / 2			
reaction time	0.187	interval	7 steps	1.08	1.08	1.05	1.05						0.93			3.21		
		velocity	5.24	8.46	8.46	8.70	8.70						10.45	7.68		8.54		
Li Guancheng (CHN) (2002)		time	2.70	3.92	5.08	6.22	7.35							8.34	2 / 3			
reaction time	0.201	interval		1.22	1.16	1.14	1.13						0.99	PB		3.52		
		velocity	5.08	7.49	7.88	8.02	8.09						9.82	7.19		7.79		

B FINAL

date 13-Mar-21

CAA Hurdle Development (2021)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yang Quanlei (CHN) (1999)		time	2.66	3.77	4.89	5.98	7.06							7.97	2 / 1			
reaction time	0.186	interval		1.11	1.12	1.09	1.08						0.91	PB		3.32		
		velocity	5.16	8.23	8.16	8.39	8.46						10.68	7.53		8.26		
Xu Zhuoyi (CHN) (2003)		time	2.66	3.77	4.88	5.98	7.06							7.97	3 / 2			
reaction time	0.173	interval	7 steps	1.11	1.11	1.10	1.08						0.91	PB		3.32		
		velocity	5.16	8.23	8.23	8.31	8.46						10.68	7.53		8.26		
Yang Haoran (CHN) (2001)		time	2.68	3.80	4.94	6.04	7.14							8.05	6 / 3			
reaction time	0.154	interval		1.12	1.14	1.10	1.10						0.91	PB		3.36		
		velocity	5.12	8.16	8.02	8.31	8.31						10.68	7.45		8.16		
Lai Junjie (CHN) (2003)		time	2.80	3.98	5.14	6.28	7.44							8.48	5 / 4			
reaction time	0.197	interval		1.18	1.16	1.14	1.16						1.04			3.48		
		velocity	4.90	7.75	7.88	8.02	7.88						9.35	7.08		7.88		
Luo Xinyu (CHN) (2002)		time	2.85	4.14	5.38	6.66	7.92							9.00	4 / 5			
reaction time	0.199	interval		1.29	1.24	1.28	1.26						1.08	PB		3.81		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	4.81	7.09	7.37	7.14	7.25		9.00	6.67		7.20	

2021 European Indoor Championships (Toruń, POL) (TV Analysis)

FINAL

date 07-Mar-21

Henson (2021) - Athlete First: 2021 year end hurdle report

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)		time	2.40	3.46	4.44	5.44	6.42		7.42	5 / 1			
reaction time	0.129	interval		1.06	0.98	1.00	0.98	1.00	PB		3.04		
		velocity	5.72	8.62	9.33	9.14	9.33	9.72	8.09		9.02		
Pozzi, Andy (GBR) (1992)		time	2.42	3.44	4.44	5.42	6.44		7.43	6 / 2			
reaction time	0.151	interval	7 steps	1.02	1.00	0.98	1.02	0.99	=PB		3.00		
		velocity	5.67	8.96	9.14	9.33	8.96	9.82	8.08		9.14		
Dal Molin, Paolo (ITA) (1987)		time	2.40	3.46	4.50	5.54	6.58		7.56	7 / 3			
reaction time	0.133	interval	7 steps	1.06	1.04	1.04	1.04	0.98			3.14		
		velocity	5.72	8.62	8.79	8.79	8.79	9.92	7.94		8.73		
Martinez, Asier (ESP) (2000)		time	2.50	3.54	4.56	5.58	6.62		7.60	8 / 4			
reaction time	0.150	interval	7 steps	1.04	1.02	1.02	1.04	0.98	PB		3.08		
		velocity	5.49	8.79	8.96	8.96	8.79	9.92	7.89		8.90		
Manga, Aurel (FRA) (1992)		time	2.42	3.48	4.50	5.52	6.58		7.63	3 / 5			
reaction time	0.152	interval	7 steps	1.06	1.02	1.02	1.06	1.05			3.10		
		velocity	5.67	8.62	8.96	8.96	8.62	9.26	7.86		8.85		
Czykier, Damian (POL) (1992)		time	2.46	3.48	4.48	5.46	6.60		7.63	4 / 6			
reaction time	0.148	interval	7 steps	1.02	1.00	0.98	1.14	1.03			3.00		
		velocity	5.58	8.96	9.14	9.33	8.02	9.44	7.86		9.14		
Smet, Koen (BEL) (1992)		time	2.54	3.60	4.64	5.68	6.74		7.73	1 / 7			
reaction time	0.144	interval		1.06	1.04	1.04	1.06	0.99			3.14		
		velocity	5.40	8.62	8.79	8.79	8.62	9.82	7.76		8.73		
Koua, Franck Brice (ITA) (2001		time	2.52	3.60	4.66	5.70	6.76		7.76	2 / 8			
reaction time	0.165	interval		1.08	1.06	1.04	1.06	1.00			3.18		
		velocity	5.44	8.46	8.62	8.79	8.62	9.72	7.73		8.62		

2021 Villa de Madrid (Madrid, ESP)

Vazel (2021) - https://twitter.com/pjvazel/status/1364677209525485569

FINAL

date 24-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway (TV Analysis)

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.48	3.47	4.46	5.45	6.44		7.29	6 / 1			*Vazel (2021)*
reaction time		interval	7 steps	0.99	0.99	0.99	0.99	0.85	WR		2.97		
		velocity	5.53	9.23	9.23	9.23	9.23	11.44	8.23		9.23		
Pozzi, Andy (GBR) (1992)		time	2.40	3.44	4.45	5.45	6.47		7.51	3 / 2			
reaction time		interval	7 steps	1.04	1.01	1.00	1.02	1.04			3.05		
		velocity	5.72	8.79	9.05	9.14	8.96	9.35	7.99		8.99		
Dal Molin, Paolo (ITA) (1987)		time	2.37	3.43	4.47	5.50	6.54		7.57	5 / 3			
reaction time		interval	7 steps	1.06	1.04	1.03	1.04	1.03			3.13		
		velocity	5.79	8.62	8.79	8.87	8.79	9.44	7.93		8.76		
Martinez, Asier (ESP) (2000)		time	2.48	3.54	4.56	5.58	6.59		7.61	4 / 4			
reaction time		interval	7 steps	1.06	1.02	1.02	1.01	1.02	=PB		3.10		
		velocity	5.53	8.62	8.96	8.96	9.05	9.53	7.88		8.85		
Obasuyi, Michael (BEL) (1999)		time	2.45	3.50	4.54	5.58	6.61		7.69	8 / 5			
reaction time		interval	7 steps	1.05	1.04	1.04	1.03	1.08			3.13		
		velocity	5.60	8.70	8.79	8.79	8.87	9.00	7.80		8.76		
Llopis, Enrique (ESP) (2000)		time	2.45	3.52	4.58	5.62	6.65		7.69	1 / 6			
reaction time		interval	7 steps	1.07	1.06	1.04	1.03	1.04	PB		3.17		
		velocity	5.60	8.54	8.62	8.79	8.87	9.35	7.80		8.65		
Smet, Koen (BEL) (1992)		time	2.50	3.59	4.63	5.67	6.71		7.73	2 / 7			
reaction time		interval		1.09	1.04	1.04	1.04	1.02			3.17		
		velocity	5.49	8.39	8.79	8.79	8.79	9.53	7.76		8.65		
Lakka, Elmo (FIN) (1993)		time	2.45	3.50	4.58	5.65	6.69		7.77	7 / 8			
reaction time		interval	7 steps	1.05	1.08	1.07	1.04	1.08			3.20		
		velocity	5.60	8.70	8.46	8.54	8.79	9.00	7.72		8.57		

Heat 2 (TV Analysis

date 24-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pozzi, Andy (GBR) (1992)		time	2.57	3.63	4.63	5.65	6.66		7.53	4 / 1			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.132	interval	7 steps	1.06	1.00	1.02	1.01	0.87			3.08		
		velocity		5.34	8.62	9.14	8.96	9.05	11.17	7.97		8.90	
Dal Molin, Paolo (ITA) (1987)		time		2.47	3.53	4.63	5.72	6.78		7.71	5 / 2		
reaction time	0.134	interval	7 steps	1.06	1.10	1.09	1.06	0.93			3.25		
		velocity		5.55	8.62	8.31	8.39	8.62	10.45	7.78		8.44	
Obasuyi, Michael (BEL) (1999)		time		2.60	3.66	4.73	5.75	6.78		7.74	3 / 3		
reaction time	0.172	interval	7 steps	1.06	1.07	1.02	1.03	0.96	PB		3.15		
		velocity		5.28	8.62	8.54	8.96	8.87	10.13	7.75		8.70	

Heat 1 (TV Analysis) date 24-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.36	3.36	4.34	5.34	6.33		7.32	5 / 1			
reaction time	0.164	interval	7 steps	1.00	0.98	1.00	0.99	0.99	=AR		2.98			
		velocity		5.81	9.14	9.33	9.14	9.23	9.82	8.20		9.20		
Martinez, Asier (ESP) (2000)		time		2.52	3.56	4.57	5.58	6.60		7.61	4 / 2			
reaction time	0.131	interval	7 steps	1.04	1.01	1.01	1.02	1.01	PB		3.06			
		velocity		5.44	8.79	9.05	9.05	8.96	9.62	7.88		8.96		
Lakka, Elmo (FIN) (1993)		time		2.50	3.56	4.60	5.67	6.70		7.75	6 / 3			
reaction time	0.142	interval	7 steps	1.06	1.04	1.07	1.03	1.05			3.17			
		velocity		5.49	8.62	8.79	8.54	8.87	9.26	7.74		8.65		

2021 Copernicus Cup (Toruń, POL) (TV Analysis)

FINAL date 17-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.44	3.45	4.43	5.42	6.45		7.38	4 / 1			
reaction time	0.122	interval	7 steps	1.01	0.98	0.99	1.03	0.93			2.98			
		velocity		5.62	9.05	9.33	9.23	8.87	10.45	8.13		9.20		
Belocian, Wilhem (FRA) (1995)		time		2.54	3.56	4.58	5.60	6.61		7.57	3 / 2			
reaction time	0.143	interval			1.02	1.02	1.02	1.01	0.96		3.06			
		velocity		5.40	8.96	8.96	8.96	9.05	10.13	7.93		8.96		
Mallett, Aaron (USA) (1994)		time		2.54	3.58	4.63	5.67	6.67		7.60	6 / 3			
reaction time	0.170	interval			1.04	1.05	1.04	1.00	0.93		3.13			
		velocity		5.40	8.79	8.70	8.79	9.14	10.45	7.89		8.76		
Czykier, Damian (POL) (1992)		time		2.54	3.59	4.60	5.60	6.67		7.63	7 / 4			
reaction time	0.149	interval	7 steps	1.05	1.01	1.00	1.07	0.96			3.06			
		velocity		5.40	8.70	9.05	9.14	8.54	10.13	7.86		8.96		
Al-Yoha, Yaqoub (KUW) (1993		time		2.59	3.65	4.70	5.72	6.75		7.75	5 / 5			
reaction time	0.166	interval			1.06	1.05	1.02	1.03	1.00		3.13			
		velocity		5.30	8.62	8.70	8.96	8.87	9.72	7.74		8.76		
Kiljan, Krzysztof (POL) (1999)		time		2.58	3.67	4.71	5.77	6.84		7.80	2 / 6			
reaction time	0.155	interval	7 steps	1.09	1.04	1.06	1.07	0.96			3.19			
		velocity		5.32	8.39	8.79	8.62	8.54	10.13	7.69		8.60		
Żevrowski, Dawid (POL) (1997)		time		2.63	3.71	4.76	5.80	6.86		7.84	1 / 7			
reaction time	0.167	interval			1.08	1.05	1.04	1.06	0.98		3.17			
		velocity		5.22	8.46	8.70	8.79	8.62	9.92	7.65		8.65		

2021 Meeting Elite en Salle de L'Eure (Val-de-Reuil, FRA) (TV Analysis)

FINAL date 14-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

				H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time		2.40	3.40	4.40	5.42	6.42		7.41	5 / 1			
reaction time	0.161	interval	7 steps	1.00	1.00	1.02	1.00	0.99			3.02			
		velocity		5.72	9.14	9.14	8.96	9.14	9.82	8.10		9.08		
Constantino, Gabriel (BRA) (2		time		2.50	3.56	4.60	5.62	6.66		7.65	4 / 2			
reaction time	0.166	interval	7 steps	1.06	1.04	1.02	1.04	0.99			3.12			
		velocity		5.49	8.62	8.79	8.96	8.79	9.82	7.84		8.79		
Mallett, Aaron (USA) (1995)		time		2.50	3.58	4.62	5.64	6.66		7.66	3 / 3			
reaction time	0.137	interval			1.08	1.04	1.02	1.02	1.00		3.14			
		velocity		5.49	8.46	8.79	8.96	8.96	9.72	7.83		8.73		
Manga, Aurel (FRA) (1992)		time		2.50	3.58	4.66	5.70	6.74		7.77	6 / 4			
reaction time	0.160	interval	7 steps	1.08	1.08	1.04	1.04	1.03			3.20			
		velocity		5.49	8.46	8.46	8.79	8.79	9.44	7.72		8.57		

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kwaou-Mathey, Just (FRA) (19		time	2.60	3.68	4.72	5.74	6.82		7.83	1 / 5			
reaction time 0.168		interval	7 steps	1.08	1.04	1.02	1.08	1.01			3.14		
		velocity	5.28	8.46	8.79	8.96	8.46	9.62	7.66		8.73		
Laviolette, Jeanice (FRA) (2000		time	2.60	3.68	4.74	5.84	6.90		8.01	2 / 6			
reaction time 0.158		interval		1.08	1.06	1.10	1.06	1.11			3.24		
		velocity	5.28	8.46	8.62	8.31	8.62	8.76	7.49		8.46		

Heat 2

date 14-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mallett, Aaron (USA) (1995)		time	2.58	3.64	4.68	5.70	6.72		7.68	3 / 1			
reaction time 0.166		interval		1.06	1.04	1.02	1.02	0.96			3.12		
		velocity	5.32	8.62	8.79	8.96	8.96	10.13	7.81		8.79		
Manga, Aurel (FRA) (1992)		time	2.58	3.64	4.68	5.72	6.74		7.69	4 / 2			
reaction time 0.176		interval	7 steps	1.06	1.04	1.04	1.02	0.95			3.14		
		velocity	5.32	8.62	8.79	8.79	8.96	10.23	7.80		8.73		
Kwaou-Mathey, Just (FRA) (19		time	2.68	3.76	4.80	5.86	6.90		7.83	2 / 3			
reaction time 0.158		interval	7 steps	1.08	1.04	1.06	1.04	0.93			3.18		
		velocity	5.12	8.46	8.79	8.62	8.79	10.45	7.66		8.62		

Heat 1

date 14-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.42	3.42	4.42	5.42	6.42		7.47	4 / 1			
reaction time 0.142		interval	7 steps	1.00	1.00	1.00	1.00	1.05			3.00		
		velocity	5.67	9.14	9.14	9.14	9.14	9.26	8.03		9.14		
Constantino, Gabriel (BRA) (2		time	2.54	3.58	4.62	5.66	6.68		7.68	5 / 2			
reaction time 0.185		interval	7 steps	1.04	1.04	1.04	1.02	1.00			3.12		
		velocity	5.40	8.79	8.79	8.79	8.96	9.72	7.81		8.79		
Lecoeur, Romain (FRA) (1997)		time	2.60	3.74	4.82	5.92	6.98		8.01	2 / 3			
reaction time 0.116		interval	7 steps	1.14	1.08	1.10	1.06	1.03			3.32		
		velocity	5.28	8.02	8.46	8.31	8.62	9.44	7.49		8.26		

2021 Meeting Hauts-de-France Pas-de-Calais (Liévin, FRA)

Vazel (2021) - https://twitter.com/pjvazel/status/1359286403834724356

FINAL

date 09-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway (TV Analysis)

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.50	3.49	4.48	5.47	6.45		7.32	5 / 1			*Vazel (2021)*
reaction time 0.150		interval	7 steps	0.99	0.99	0.99	0.98	0.87	AR		2.97		
		velocity	5.49	9.23	9.23	9.23	9.33	11.17	8.20		9.23		
Belocian, Wilhem (FRA) (1995)		time	2.52	3.54	4.56	5.55	6.56		7.52	4 / 2			
reaction time 0.160		interval		1.02	1.02	0.99	1.01	0.96			3.03		
		velocity	5.44	8.96	8.96	9.23	9.05	10.13	7.98		9.05		
Dal Molin, Paolo (ITA) (1987)		time	2.43	3.49	4.55	5.57	6.60		7.55	2 / 3			
reaction time 0.126		interval	7 steps	1.06	1.06	1.02	1.03	0.95			3.14		
		velocity	5.65	8.62	8.62	8.96	8.87	10.23	7.95		8.73		
Mallett, Aaron (USA) (1994)		time	2.54	3.57	4.60	5.60	6.62		7.57	7 / 4			
reaction time 0.150		interval		1.03	1.03	1.00	1.02	0.95			3.06		
		velocity	5.40	8.87	8.87	9.14	8.96	10.23	7.93		8.96		
Czykier, Damian (POL) (1992)		time	2.55	3.58	4.60	5.60	6.62		7.59	3 / 5			
reaction time 0.161		interval	7 steps	1.03	1.02	1.00	1.02	0.97			3.05		
		velocity	5.38	8.87	8.96	9.14	8.96	10.02	7.91		8.99		
Eaton, Jarrett (USA) (1989)		time	2.50	3.52	4.55	5.59	6.62		7.60	6 / 6			
reaction time 0.140		interval	7 steps	1.02	1.03	1.04	1.03	0.98			3.09		
		velocity	5.49	8.96	8.87	8.79	8.87	9.92	7.89		8.87		
Obasuyi, Michael (BEL) (1999)		time	2.57	3.60	4.62	5.62	6.64		7.67	8 / 7			
reaction time 0.158		interval	7 steps	1.03	1.02	1.00	1.02	1.03	=PB		3.05		
		velocity	5.34	8.87	8.96	9.14	8.96	9.44	7.82		8.99		
Mayer, Kevin (FRA) (1992)		time	2.58	3.68	4.76	5.77	6.81		7.79	1 / 8			
reaction time 0.179		interval	7 steps	1.10	1.08	1.01	1.04	0.98			3.19		
		velocity	5.32	8.31	8.46	9.05	8.79	9.92	7.70		8.60		

Heat 2 (TV Analysis

date 09-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.38	3.38	4.38	5.36	6.34		7.38	4 / 1			
reaction time 0.194		interval	7 steps	1.00	1.00	0.98	0.98	1.04			2.98		

		velocity	5.76	9.14	9.14	9.33	9.33	9.35	8.13		9.20		
Czykier, Damian (POL) (1992)		time	2.45	3.50	4.53	5.53	6.53		7.63	6 / 2			
reaction time	0.155	interval	7 steps	1.05	1.03	1.00	1.00	1.10			3.08		
		velocity	5.60	8.70	8.87	9.14	9.14	8.84	7.86		8.90		
Obasuyi, Michael (BEL) (1999)		time	2.45	3.50	4.53	5.56	6.60		7.67	7 / 3			
reaction time	0.152	interval	7 steps	1.05	1.03	1.03	1.04	1.07	PB		3.11		
		velocity	5.60	8.70	8.87	8.87	8.79	9.08	7.82		8.82		

Heat 1 (TV Analysis

date 09-Feb-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)		time	2.40	3.43	4.46	5.46	6.46		7.50	5 / 1			
reaction time	0.141	interval		1.03	1.03	1.00	1.00	1.04			3.06		
		velocity	5.72	8.87	8.87	9.14	9.14	9.35	8.00		8.96		
Eaton, Jarrett (USA) (1989)		time	2.37	3.40	4.43	5.46	6.49		7.55	4 / 2			
reaction time	0.161	interval	7 steps	1.03	1.03	1.03	1.03	1.06			3.09		
		velocity	5.79	8.87	8.87	8.87	8.87	9.17	7.95		8.87		
Mallett, Aaron (USA) (1994)		time	2.46	3.51	4.53	5.53	6.56		7.61	3 / 3			
reaction time	0.152	interval		1.05	1.02	1.00	1.03	1.05			3.07		
		velocity	5.58	8.70	8.96	9.14	8.87	9.26	7.88		8.93		
Dal Molin, Paolo (ITA) (1987)		time	2.40	3.48	4.53	5.55	6.58		7.65	7 / 4			
reaction time	0.134	interval	7 steps	1.08	1.05	1.02	1.03	1.07			3.15		
		velocity	5.72	8.46	8.70	8.96	8.87	9.08	7.84		8.70		
Mayer, Kevin (FRA) (1992)		time	2.46	3.51	4.53	5.56	6.60		7.68	6 / 5			
reaction time	0.174	interval	7 steps	1.05	1.02	1.03	1.04	1.08	PB		3.10		
		velocity	5.58	8.70	8.96	8.87	8.79	9.00	7.81		8.85		

2021 Meeting Elite en Salle de Metz (Metz, FRA)

FINAL

date 06-Feb-21

Vazel (2021) - https://twitter.com/pjvazel/status/1358428540241399810

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)		time	2.53	3.55	4.54	5.61			dnf	3 / --			
reaction time		interval		1.02	0.99	1.07					3.08		
		velocity	5.42	8.96	9.23	8.54					8.90		

Heat 1

date 06-Feb-21

Vazel (2021) - https://twitter.com/pjvazel/status/1358428540241399810

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)		time	2.54	3.57	4.56	5.56	6.56		7.45	/ 1			
reaction time	0.148	interval		1.03	0.99	1.00	1.00	0.89	PB		3.02		
		velocity	5.40	8.87	9.23	9.14	9.14	10.92	14.77		9.08		

2021 American Track League 1 (Fayetteville, AR) (TV Analysis)

FINAL

date 24-Jan-21

Henson (2021) - men's 60m hurdles world record season - Grant Holloway

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.42	3.43	4.43	5.42	6.39		7.35	4 / 1			
reaction time	0.174	interval	7 steps	1.01	1.00	0.99	0.97	0.96	=AR =PB		3.00		
		velocity	5.67	9.05	9.14	9.23	9.42	10.13	8.16		9.14		
Dickson, Michael (USA) (1997)		time	2.50	3.55	4.59	5.62	6.62		7.54	3 / 2			
reaction time	0.186	interval	7 steps	1.05	1.04	1.03	1.00	0.92	PB		3.12		
		velocity	5.49	8.70	8.79	8.87	9.14	10.57	7.96		8.79		
Walters, Ruebin (TTO) (1995)		time	2.55	3.63	4.68	5.70	6.72		7.65	5 / 3			
reaction time	0.142	interval		1.08	1.05	1.02	1.02	0.93			3.15		
		velocity	5.38	8.46	8.70	8.96	8.96	10.45	7.84		8.70		
Zallow, Chad (USA) (1997)		time	2.55	3.60	4.64	5.70	6.72		7.71	6 / 4			
reaction time	0.189	interval		1.05	1.04	1.06	1.02	0.99			3.15		
		velocity	5.38	8.70	8.79	8.62	8.96	9.82	7.78		8.70		
Lovett, Eddie (ISV) (1992)		time	2.58	3.67	4.70	5.78	6.85		7.84	7 / 5			
reaction time	0.182	interval		1.09	1.03	1.08	1.07	0.99			3.20		
		velocity	5.32	8.39	8.87	8.46	8.54	9.82	7.65		8.57		
Zaza, Wellington (LBR) (1995)		time	2.50	3.60	4.70	5.78	6.88		7.87	2 / 6			
reaction time	0.153	interval		1.10	1.10	1.08	1.10	0.99			3.28		
		velocity	5.49	8.31	8.31	8.46	8.31	9.82	7.62		8.36		
Holloway, Trey (USA) (1994)		time	2.57	3.76		5.97	7.03		8.10	1 / 7			
reaction time	0.166	interval	7 steps	1.19		2.21	1.06	1.07			3.40		
		velocity	5.34	7.68		8.27	8.62	9.08	7.41		8.06		

2020 Michitaka Kinami Memorial (Osaka, JPN)

FINAL

date 24-Oct-20 wind 0.6 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994	time	2.53	3.58	4.61	5.65	6.68	7.73	8.79	9.84	10.93	12.01		13.49	7 / 1			
reaction time	interval		1.05	1.03	1.04	1.03	1.05	1.06	1.05	1.09	1.08	1.48			3.12	3.14	3.22
	velocity	5.42	8.70	8.87	8.79	8.87	8.70	8.62	8.70	8.39	8.46	9.47	8.15		8.79	8.73	8.52
Nomoto, Syuusei (JPN) (1995)	time	2.53	3.59	4.65	5.69	6.75	7.81	8.88	9.95	11.03	12.12		13.55	4 / 2			
reaction time	interval	7 steps	1.06	1.06	1.04	1.06	1.06	1.07	1.07	1.08	1.09	1.43			3.16	3.19	3.24
	velocity	5.42	8.62	8.62	8.79	8.62	8.62	8.54	8.54	8.46	8.39	9.80	8.12		8.68	8.60	8.46
Yokochi, Taiga (JPN) (2000)	time	2.67	3.77	4.80	5.87	6.91	7.95	9.04	10.07	11.15	12.24		13.67	5 / 3			
reaction time	interval	7 steps	1.10	1.03	1.07	1.04	1.04	1.09	1.03	1.08	1.09	1.43			3.20	3.17	3.20
	velocity	5.14	8.31	8.87	8.54	8.79	8.79	8.39	8.87	8.46	8.39	9.80	8.05		8.57	8.65	8.57
Ishikawa, Shuhei (JPN) (1995)	time	2.60	3.66	4.71	5.75	6.82	7.87	8.94	10.00	11.10	12.20		13.69	6 / 4			
reaction time	interval	7 steps	1.06	1.05	1.04	1.07	1.05	1.07	1.06	1.10	1.10	1.49			3.15	3.19	3.26
	velocity	5.28	8.62	8.70	8.79	8.54	8.70	8.54	8.62	8.31	8.31	9.41	8.04		8.70	8.60	8.41
Masuno, Genta (JPN) (1993)	time	2.61	3.68	4.75	5.80	6.87	7.92	8.98	10.06	11.18	12.27		13.77	2 / 5			
reaction time	interval		1.07	1.07	1.05	1.07	1.05	1.06	1.08	1.12	1.09	1.50			3.19	3.18	3.29
	velocity	5.26	8.54	8.54	8.70	8.54	8.70	8.62	8.46	8.16	8.39	9.35	7.99		8.60	8.62	8.33
Tokuoka, Ryo (JPN) (1999)	time	2.65	3.73	4.80	5.85	6.93	7.99	9.08	10.17	11.26	12.39		13.89	3 / 6			
reaction time	interval		1.08	1.07	1.05	1.08	1.06	1.09	1.09	1.09	1.13	1.50			3.20	3.23	3.31
	velocity	5.18	8.46	8.54	8.70	8.46	8.62	8.39	8.39	8.39	8.09	9.35	7.92		8.57	8.49	8.28
Ishida Thomas, Higashi (JPN) (	time	2.62	3.71	4.76	5.83	6.89	7.95	9.01	10.14	11.24	12.38		13.90	9 / 7			
reaction time	interval	7 steps	1.09	1.05	1.07	1.06	1.06	1.06	1.13	1.10	1.14	1.52			3.21	3.18	3.37
	velocity	5.24	8.39	8.70	8.54	8.62	8.62	8.62	8.09	8.31	8.02	9.22	7.91		8.54	8.62	8.14
Omuro, Hideki (JPN) (1990)	time	2.61	3.69	4.78	5.88	6.97	8.04	9.14	10.24	11.33	12.44		13.94	8 / 8			
reaction time	interval		1.08	1.09	1.10	1.09	1.07	1.10	1.10	1.09	1.11	1.50			3.27	3.26	3.30
	velocity	5.26	8.46	8.39	8.31	8.39	8.54	8.31	8.31	8.39	8.23	9.35	7.89		8.39	8.41	8.31

2020 Japanese National Championships (Niigata, JPN)

FINAL

date 03-Oct-20 wind -0.1 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taioh (JPN) (1995)	time	2.56	3.60	4.63	5.66	6.68	7.73	8.77	9.82	10.89	11.95		13.36	6 / 1			
reaction time 0.137	interval	7 steps	1.04	1.03	1.03	1.02	1.05	1.04	1.05	1.07	1.06	1.41			3.10	3.11	3.18
	velocity	5.36	8.79	8.87	8.87	8.96	8.70	8.79	8.70	8.54	8.62	9.94	8.23		8.85	8.82	8.62
Takayama, Shunya (JPN) (1994	time	2.57	3.60	4.63	5.66	6.70	7.73	8.78	9.84	10.92	12.02		13.47	7 / 2			
reaction time 0.146	interval		1.03	1.03	1.03	1.04	1.03	1.05	1.06	1.08	1.10	1.45			3.09	3.12	3.24
	velocity	5.34	8.87	8.87	8.87	8.79	8.87	8.70	8.62	8.46	8.31	9.67	8.17		8.87	8.79	8.46
Izumiya, Shunsuke (JPN) (2000	time	2.59	3.65	4.69	5.71	6.74	7.81	8.85	9.92	10.97	12.07		13.48	5 / 3			
reaction time 0.130	interval		1.06	1.04	1.02	1.03	1.07	1.04	1.07	1.05	1.10	1.41			3.12	3.14	3.22
	velocity	5.30	8.62	8.79	8.96	8.87	8.54	8.79	8.54	8.70	8.31	9.94	8.16		8.79	8.73	8.52
Nomoto, Syuusei (JPN) (1995)	time	2.54	3.63	4.68	5.73	6.78	7.83	8.90	9.97	11.05	12.13		13.55	8 / 4			
reaction time 0.145	interval	7 steps	1.09	1.05	1.05	1.05	1.05	1.07	1.07	1.08	1.08	1.42			3.19	3.17	3.23
	velocity	5.40	8.39	8.70	8.70	8.70	8.70	8.54	8.54	8.46	8.46	9.87	8.12		8.60	8.65	8.49
Masuno, Genta (JPN) (1993)	time	2.59	3.65	4.71	5.76	6.81	7.87	8.94	10.00	11.09	12.18		13.61	4 / 5			
reaction time 0.136	interval		1.06	1.06	1.05	1.05	1.06	1.07	1.06	1.09	1.09	1.43			3.17	3.18	3.24
	velocity	5.30	8.62	8.62	8.70	8.70	8.62	8.54	8.62	8.39	8.39	9.80	8.08		8.65	8.62	8.46
Ishida Thomas, Higashi (JPN) (	time	2.64	3.71	4.75	5.79	6.83	7.88	8.94	10.00	11.08	12.21		13.67	9 / 6			
reaction time 0.153	interval	7 steps	1.07	1.04	1.04	1.04	1.05	1.06	1.06	1.08	1.13	1.46			3.15	3.15	3.27
	velocity	5.20	8.54	8.79	8.79	8.79	8.70	8.62	8.62	8.46	8.09	9.60	8.05		8.70	8.70	8.39
Ishikawa, Shuhei (JPN) (1995)	time	2.61	3.68	4.75	5.81	6.87	7.94	9.00	10.07	11.15	12.25		13.71	2 / 7			
reaction time 0.159	interval	7 steps	1.07	1.07	1.06	1.06	1.07	1.06	1.07	1.08	1.10	1.46			3.20	3.19	3.25
	velocity	5.26	8.54	8.54	8.62	8.62	8.54	8.62	8.54	8.46	8.31	9.60	8.02		8.57	8.60	8.44
Yokochi, Taiga (JPN) (2000)	time	2.67	3.75	4.80	5.83	6.88	7.93	8.97	10.05	11.12	12.23		13.72	3 / 8			
reaction time 0.158	interval	7 steps	1.08	1.05	1.03	1.05	1.05	1.04	1.08	1.07	1.11	1.49			3.16	3.14	3.26
	velocity	5.14	8.46	8.70	8.87	8.70	8.70	8.79	8.46	8.54	8.23	9.41	8.02		8.68	8.73	8.41

Heat 2

date 02-Oct-20 wind 0.4 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)	time	2.63	3.69	4.75	5.79	6.83	7.88	8.93	10.00	11.08	12.16		13.59	8 / 2			
reaction time 0.148	interval		1.06	1.06	1.04	1.04	1.05	1.05	1.07	1.08	1.08	1.43			3.16	3.14	3.23

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
		velocity	5.22	8.62	8.62	8.79	8.79	8.70	8.70	8.54	8.46	8.46	9.80	8.09		8.68	8.73	8.49
Ishida Thomas, Higashi (JPN) (		time	2.62	3.68	4.72	5.75	6.81	7.86	8.92	10.00	11.06	12.17		13.61	7 / 3			
reaction time 0.151		interval	7 steps	1.06	1.04	1.03	1.06	1.05	1.06	1.08	1.06	1.11	1.44			3.13	3.17	3.25
		velocity	5.24	8.62	8.79	8.87	8.62	8.70	8.62	8.46	8.62	8.23	9.74	8.08		8.76	8.65	8.44
Muratake, Rachid (JPN) (2002)		time	2.63	3.69	4.74	5.80	6.85	7.90	8.98	10.05	11.12	12.20		13.61	5 / 4			
reaction time 0.168		interval		1.06	1.05	1.06	1.05	1.05	1.08	1.07	1.07	1.08	1.41	PB		3.17	3.18	3.22
		velocity	5.22	8.62	8.70	8.62	8.70	8.70	8.46	8.54	8.54	8.46	9.94	8.08		8.65	8.62	8.52

Heat 1

date 02-Oct-20 wind 0.8 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000		time	2.58	3.62	4.67	5.70	6.73	7.79	8.81	9.87	10.92	11.99		13.45	4 / 2			
reaction time 0.128		interval		1.04	1.05	1.03	1.03	1.06	1.02	1.06	1.05	1.07	1.46			3.12	3.11	3.18
		velocity	5.32	8.79	8.70	8.87	8.87	8.62	8.96	8.62	8.70	8.54	9.60	8.18		8.79	8.82	8.62
Yokochi, Taiga (JPN) (2000)		time	2.69	3.76	4.80	5.83	6.85	7.90	8.93	10.00	11.06	12.15		13.60	7 / 5			
reaction time 0.160		interval	7 steps	1.07	1.04	1.03	1.02	1.05	1.03	1.07	1.06	1.09	1.45	PB		3.14	3.10	3.22
		velocity	5.10	8.54	8.79	8.87	8.96	8.70	8.87	8.54	8.62	8.39	9.67	8.09		8.73	8.85	8.52

2020 Japanese Multi-Event National Championships (Nagano, JPN)

Decathlon - Heat 3

date 27-Sep-20 wind 0.7 m/s

Matsubayashi (2020) - research on athlete performance and technique- 2020 data book

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Taue, Shun (JPN) (1997)		time	2.77	3.88	4.97	6.06	7.16	8.24	9.34	10.44	11.56	12.68		14.15	7 / 1			
reaction time		interval		1.11	1.09	1.09	1.10	1.08	1.10	1.10	1.12	1.12	1.47			3.29	3.28	3.34
		velocity	4.95	8.23	8.39	8.39	8.31	8.46	8.31	8.31	8.16	8.16	9.54	7.77		8.33	8.36	8.21
Nakamura, Akihiko (JPN) (1990		time	2.71	3.85	4.94	6.05	7.15	8.26	9.37	10.49	11.60	12.73		14.21	4 / 2			
reaction time		interval		1.14	1.09	1.11	1.10	1.11	1.11	1.12	1.11	1.13	1.48			3.34	3.32	3.36
		velocity	5.06	8.02	8.39	8.23	8.31	8.23	8.23	8.16	8.23	8.09	9.47	7.74		8.21	8.26	8.16

Decathlon - Heat 2

date 27-Sep-20 wind 1.1 m/s

Matsubayashi (2020) - research on athlete performance and technique- 2020 data book

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)		time	2.80	3.97	5.12	6.30	7.47	8.63	9.81	11.03	12.25	13.47		15.14	4 / 7			
reaction time		interval		1.17	1.15	1.18	1.17	1.16	1.18	1.22	1.22	1.22	1.67			3.50	3.51	3.66
		velocity	4.90	7.81	7.95	7.75	7.81	7.88	7.75	7.49	7.49	7.49	8.40	7.27		7.83	7.81	7.49

2020 Doha Diamond League (Doha, QAT) (TV Analysis)

FINAL

date 25-Sep-20 wind 0.3 m/s

Henson (2020) - Athlete First: 2020 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mallett, Aaron (USA) (1994)		time	2.46	3.50	4.52	5.52	6.52	7.54	8.56	9.58	10.60	11.64		13.15	4 / 1			
reaction time 0.149		interval		1.04	1.02	1.00	1.00	1.02	1.02	1.02	1.02	1.04	1.51	PB		3.06	3.04	3.08
		velocity	5.58	8.79	8.96	9.14	9.14	8.96	8.96	8.96	8.96	8.79	9.28	8.37		8.96	9.02	8.90
Joseph, Jason (SUI) (1998)		time	2.56	3.64	4.68	5.70	6.72	7.76	8.80	9.82	10.82	11.88		13.40	3 / 2			
reaction time 0.196		interval	7 steps	1.08	1.04	1.02	1.02	1.04	1.04	1.02	1.00	1.06	1.52			3.14	3.10	3.08
		velocity	5.36	8.46	8.79	8.96	8.96	8.79	8.79	8.96	9.14	8.62	9.22	8.21		8.73	8.85	8.90
King, David (GBR) (1994)		time	2.48	3.56	4.60	5.64	6.68	7.70	8.76	9.82	10.90	11.98		13.54	1 / 3			
reaction time 0.109		interval	7 steps	1.08	1.04	1.04	1.04	1.02	1.06	1.06	1.08	1.08	1.56			3.16	3.12	3.22
		velocity	5.53	8.46	8.79	8.79	8.79	8.96	8.62	8.62	8.46	8.46	8.99	8.12		8.68	8.79	8.52
Constantino, Gabriel (BRA) (1!		time	2.44	3.48	4.52	5.54	6.56	7.60	8.64	9.68	10.74	11.94		13.60	7 / 4			
reaction time 0.122		interval	7 steps	1.04	1.04	1.02	1.02	1.04	1.04	1.04	1.06	1.20	1.66			3.10	3.10	3.30
		velocity	5.62	8.79	8.79	8.96	8.96	8.79	8.79	8.79	8.62	7.62	8.45	8.09		8.85	8.85	8.31
Fillery, Cameron (GBR) (1998)		time	2.52	3.64	4.72	5.76	6.80	7.84	8.92	10.00	11.08	12.16		13.76	6 / 5			
reaction time 0.128		interval	7 steps	1.12	1.08	1.04	1.04	1.04	1.08	1.08	1.08	1.08	1.60			3.24	3.16	3.24
		velocity	5.44	8.16	8.46	8.79	8.79	8.79	8.46	8.46	8.46	8.46	8.76	7.99		8.46	8.68	8.46

2020 All Japan Corporate Championships (Kumagaya, JPN)

FINAL

date 20-Sep-20 wind 0.1 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994		time	2.58	3.64	4.67	5.69	6.73	7.78	8.83	9.88	10.95	12.05		13.51	5 / 1			
reaction time 0.153		interval		1.06	1.03	1.02	1.04	1.05	1.05	1.05	1.07	1.10	1.46			3.11	3.14	3.22
		velocity	5.32	8.62	8.87	8.96	8.79	8.70	8.70	8.70	8.54	8.31	9.60	8.14		8.82	8.73	8.52
Ishikawa, Shuhei (JPN) (1995)		time	2.58	3.63	4.68	5.73	6.78	7.83	8.88	9.97	11.06	12.19		13.69	4 / 2			
reaction time 0.151		interval		1.05	1.05	1.05	1.05	1.05	1.05	1.09	1.09	1.13	1.50			3.15	3.15	3.31
		velocity	5.32	8.70	8.70	8.70	8.70	8.70	8.70	8.39	8.39	8.09	9.35	8.04		8.70	8.70	8.28
Fujii, Ryota (JPN) (1996)		time	2.60	3.68	4.73	5.79	6.83	7.90	8.98	10.06	11.16	12.28		13.78	7 / 3			
reaction time 0.151		interval		1.08	1.05	1.06	1.04	1.07	1.08	1.08	1.10	1.12	1.50			3.19	3.19	3.30
		velocity	5.28	8.46	8.70	8.62	8.79	8.54	8.46	8.46	8.31	8.16	9.35	7.98		8.60	8.60	8.31

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.60	3.68	4.74	5.82	6.89	7.98	9.07	10.18	11.30	12.44		13.92	8 / 4			
reaction time 0.142	interval		1.08	1.06	1.08	1.07	1.09	1.09	1.11	1.12	1.14	1.48			3.22	3.25	3.37
	velocity	5.28	8.46	8.62	8.46	8.54	8.39	8.39	8.23	8.16	8.02	9.47	7.90		8.52	8.44	8.14
Kuriki, Anthony Tyrrell (JPN) (	time	2.68	3.77	4.85	5.92	6.97	8.05	9.11	10.20	11.30	12.43		13.92	9 / 4			
reaction time 0.130	interval		1.09	1.08	1.07	1.05	1.08	1.06	1.09	1.10	1.13	1.49			3.24	3.19	3.32
	velocity	5.12	8.39	8.46	8.54	8.70	8.46	8.62	8.39	8.31	8.09	9.41	7.90		8.46	8.60	8.26
Wado, Tatsuya (JPN) (1990)	time	2.62	3.72	4.81	5.89	6.97	8.05	9.15	10.28	11.40	12.54		14.09	2 / 6			
reaction time 0.134	interval		1.10	1.09	1.08	1.08	1.08	1.10	1.13	1.12	1.14	1.55			3.27	3.26	3.39
	velocity	5.24	8.31	8.39	8.46	8.46	8.46	8.31	8.09	8.16	8.02	9.05	7.81		8.39	8.41	8.09

Heat 2

date 20-Sep-20 wind 1.7 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taioh (JPN) (1995)	time	2.55	3.60	4.65	5.66	6.69	7.72	8.75	9.82	10.88	11.95		13.38	5 / 1			
reaction time 0.138	interval		1.05	1.05	1.01	1.03	1.03	1.03	1.07	1.06	1.07	1.43			3.11	3.09	3.20
	velocity	5.38	8.70	8.70	9.05	8.87	8.87	8.87	8.54	8.62	8.54	9.80	8.22		8.82	8.87	8.57
Tanaka, Hideaki (JPN) (1995)	time	2.68	3.78	4.86	5.95	7.04	8.13	9.22	10.33	11.47	12.61		14.09	3 / 4			
reaction time 0.131	interval		1.10	1.08	1.09	1.09	1.09	1.09	1.11	1.14	1.14	1.48			3.27	3.27	3.39
	velocity	5.12	8.31	8.46	8.39	8.39	8.39	8.39	8.23	8.02	8.02	9.47	7.81		8.39	8.39	8.09

2020 Golden Gala Pietro Mennea (Rome, ITA) (TV Analysis)

FINAL

date 17-Sep-20 wind 0.1 m/s

Henson (2020) - Athlete First: 2020 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pozzi, Andy (GBR) (1992)	time	2.50	3.54	4.52	5.52	6.52	7.52	8.54	9.58	10.62	11.68		13.15	4 / 1			
reaction time 0.128	interval	7 steps	1.04	0.98	1.00	1.00	1.00	1.02	1.04	1.04	1.06	1.47			3.02	3.02	3.14
	velocity	5.49	8.79	9.33	9.14	9.14	9.14	8.96	8.79	8.79	8.62	9.54	8.37		9.08	9.08	8.73
Mallett, Aaron (USA) (1994)	time	2.52	3.58	4.60	5.62	6.66	7.68	8.68	9.70	10.72	11.78		13.23	3 / 2			
reaction time 0.149	interval		1.06	1.02	1.02	1.04	1.02	1.00	1.02	1.02	1.06	1.45	PB		3.10	3.06	3.10
	velocity	5.44	8.62	8.96	8.96	8.79	8.96	9.14	8.96	8.96	8.62	9.67	8.31		8.85	8.96	8.85
Crittendon, Freddie (USA) (19	time	2.48	3.52	4.56	5.58	6.62	7.64	8.68	9.72	10.76	11.82		13.31	6 / 3			
reaction time 0.139	interval		1.04	1.04	1.02	1.04	1.02	1.04	1.04	1.04	1.06	1.49			3.10	3.10	3.14
	velocity	5.53	8.79	8.79	8.96	8.79	8.96	8.79	8.79	8.79	8.62	9.41	8.26		8.85	8.85	8.73
Belocian, Wilhem (FRA) (1995)	time	2.50	3.52	4.56	5.60	6.64	7.68	8.72	9.78	10.86	11.94		13.49	5 / 4			
reaction time 0.134	interval		1.02	1.04	1.04	1.04	1.04	1.04	1.06	1.08	1.08	1.55			3.10	3.12	3.22
	velocity	5.49	8.96	8.79	8.79	8.79	8.79	8.79	8.62	8.46	8.46	9.05	8.15		8.85	8.79	8.52
Al Yoha, Jaqoub (KUW) (1993)	time	2.56	3.64	4.68	5.70	6.74	7.78	8.82	9.86	10.94	12.08		13.60	9 / 5			
reaction time 0.139	interval		1.08	1.04	1.02	1.04	1.04	1.04	1.04	1.08	1.14	1.52			3.14	3.12	3.26
	velocity	5.36	8.46	8.79	8.96	8.79	8.79	8.79	8.79	8.46	8.02	9.22	8.09		8.73	8.79	8.41
Perini, Lorenzo (ITA) (1994)	time	2.54	3.62	4.68	5.72	6.78	7.82	8.88	9.94	11.02	12.08		13.61	7 / 6			
reaction time 0.132	interval		1.08	1.06	1.04	1.06	1.04	1.06	1.06	1.08	1.06	1.53			3.18	3.16	3.20
	velocity	5.40	8.46	8.62	8.79	8.62	8.79	8.62	8.62	8.46	8.62	9.16	8.08		8.62	8.68	8.57
Alkana, Antonio (RSA) (1990)	time	2.52	3.60	4.68	5.76	6.80	7.84	8.88	9.96	11.04	12.14		13.66	8 / 7			
reaction time 0.130	interval		1.08	1.08	1.08	1.04	1.04	1.04	1.08	1.08	1.10	1.52			3.24	3.12	3.26
	velocity	5.44	8.46	8.46	8.46	8.79	8.79	8.79	8.46	8.46	8.31	9.22	8.05		8.46	8.79	8.41
Constantino, Gabriel (BRA) (1!	time	2.54	3.58	4.62	5.66	6.70	7.76	8.82	9.92	11.04	12.16		13.67	2 / 8			
reaction time 0.161	interval	7 steps	1.04	1.04	1.04	1.04	1.06	1.06	1.10	1.12	1.12	1.51			3.12	3.16	3.34
	velocity	5.40	8.79	8.79	8.79	8.79	8.62	8.62	8.31	8.16	8.16	9.28	8.05		8.79	8.68	8.21
Dal Molin, Paolo (ITA) (1987)	time	2.50	3.52	4.60	5.66	6.70	7.78	8.88	9.96	11.06	12.18		13.70	1 / 9			
reaction time 0.134	interval	7 steps	1.02	1.08	1.06	1.04	1.08	1.10	1.08	1.10	1.12	1.52			3.16	3.22	3.30
	velocity	5.49	8.96	8.46	8.62	8.79	8.46	8.31	8.46	8.31	8.16	9.22	8.03		8.68	8.52	8.31

2020 Chinese National Championships (Shaoxing, CHN)

FINAL

date 16-Sep-20 wind 0.4 m/s

CAA Hurdle Development (2020)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.57	3.62	4.65	5.68	6.69	7.71	8.73	9.75	10.78	11.83		13.24	5 / 1			
reaction time 0.162	interval	7 steps	1.05	1.03	1.03	1.01	1.02	1.02	1.02	1.03	1.05	1.41			3.11	3.05	3.10
	velocity	5.34	8.70	8.87	8.87	9.05	8.96	8.96	8.96	8.87	8.70	9.94	8.31		8.82	8.99	8.85
Zeng Jianhang (CHN) (1998)	time	2.58	3.62	4.66	5.69	6.72	7.76	8.82	9.90	10.98	12.09		13.54	6 / 2			
reaction time 0.156	interval		1.04	1.04	1.03	1.03	1.04	1.06	1.08	1.08	1.11	1.45			3.11	3.13	3.27
	velocity	5.32	8.79	8.79	8.87	8.87	8.79	8.62	8.46	8.46	8.23	9.67	8.12		8.82	8.76	8.39
Ning Xiaohan (CHN) (2000)	time	2.60	3.69	4.76	5.81	6.86	7.90	8.95	10.01	11.07	12.15		13.60	7 / 3			
reaction time 0.144	interval	7 steps	1.09	1.07	1.05	1.05	1.04	1.05	1.06	1.06	1.08	1.45	PB		3.21	3.14	3.20
	velocity	5.28	8.39	8.54	8.70	8.70	8.79	8.70	8.62	8.62	8.46	9.67	8.09		8.54	8.73	8.57

Zhang Honglin (CHN) (1994)		time	2.63	3.74	4.80	5.86	6.90	7.94	9.01	10.08	11.16	12.26		13.66	4 / 4			
reaction time	0.167	interval		1.11	1.06	1.06	1.04	1.04	1.07	1.07	1.08	1.10	1.40			3.23	3.15	3.25
		velocity	5.22	8.23	8.62	8.62	8.79	8.79	8.54	8.54	8.46	8.31	10.01	8.05		8.49	8.70	8.44
Sun Zhenjiang (CHN) (1999)		time	2.60	3.70	4.77	5.83	6.90	7.95	9.03	10.13	11.24	12.36		13.88	9 / 5			
reaction time	0.176	interval	7 steps	1.10	1.07	1.06	1.07	1.05	1.08	1.10	1.11	1.12	1.52			3.23	3.20	3.33
		velocity	5.28	8.31	8.54	8.62	8.54	8.70	8.46	8.31	8.23	8.16	9.22	7.93		8.49	8.57	8.23
Li Huaihai (CHN) (1999)		time	2.66	3.77	4.86	5.94	7.00	8.07	9.15	10.26	11.40	12.55		14.07	3 / 6			
reaction time	0.171	interval		1.11	1.09	1.08	1.06	1.07	1.08	1.11	1.14	1.15	1.52			3.28	3.21	3.40
		velocity	5.16	8.23	8.39	8.46	8.62	8.54	8.46	8.23	8.02	7.95	9.22	7.82		8.36	8.54	8.06
Qin Weibo (CHN) (2002)		time	2.69	3.80	4.89	5.96	7.02	8.14	9.25	10.38	11.52	12.68		14.17	8 / 7			
reaction time	0.169	interval		1.11	1.09	1.07	1.06	1.12	1.11	1.13	1.14	1.16	1.49			3.27	3.29	3.43
		velocity	5.10	8.23	8.39	8.54	8.62	8.16	8.23	8.09	8.02	7.88	9.41	7.76		8.39	8.33	7.99
Guo Zhongjie (CHN) (2001)		time	2.74	3.81	4.89	5.96	7.05	8.14	9.24	10.36	11.51	12.67		14.22	2 / 8			
reaction time	0.185	interval		1.07	1.08	1.07	1.09	1.09	1.10	1.12	1.15	1.16	1.55			3.22	3.28	3.43
		velocity	5.01	8.54	8.46	8.54	8.39	8.39	8.31	8.16	7.95	7.88	9.05	7.74		8.52	8.36	7.99

Heat 2

date 16-Sep-20 wind -0.5 m/s *CAA Hurdle Development (2020)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.60	3.67	4.72	5.77	6.82	7.87	8.94	10.01	11.08	12.18		13.63	2 / 1			
reaction time	0.175	interval	7 steps	1.07	1.05	1.05	1.05	1.05	1.07	1.07	1.07	1.10	1.45			3.17	3.17	3.24
		velocity	5.28	8.54	8.70	8.70	8.70	8.70	8.54	8.54	8.54	8.31	9.67	8.07		8.65	8.65	8.46
Sun Zhenjiang (CHN) (1999)		time	2.59	3.71	4.76	5.82	6.88	7.95	9.03	10.11	11.23	12.34		13.86	3 / 2			
reaction time	0.152	interval	7 steps	1.12	1.05	1.06	1.06	1.07	1.08	1.08	1.12	1.11	1.52			3.23	3.21	3.31
		velocity	5.30	8.16	8.70	8.62	8.62	8.54	8.46	8.46	8.16	8.23	9.22	7.94		8.49	8.54	8.28
Qin Weibo (CHN) (2002)		time	2.67	3.80	4.86	5.93	7.01	8.09	9.18	10.30	11.44	12.58		14.08	2 / 3			
reaction time	0.187	interval		1.13	1.06	1.07	1.08	1.08	1.09	1.12	1.14	1.14	1.50			3.26	3.25	3.40
		velocity	5.14	8.09	8.62	8.54	8.46	8.46	8.39	8.16	8.02	8.02	9.35	7.81		8.41	8.44	8.06
Lu Yang (CHN) (1996)		time	2.72	3.84	4.95	6.02	7.11	8.19	9.27	10.38	11.50	12.68		14.17	8 / 4			
reaction time	0.145	interval		1.12	1.11	1.07	1.09	1.08	1.08	1.11	1.12	1.18	1.49			3.30	3.25	3.41
		velocity	5.04	8.16	8.23	8.54	8.39	8.46	8.46	8.23	8.16	7.75	9.41	7.76		8.31	8.44	8.04
Jiang Fan (CHN) (1989)		time	2.69	3.82	4.92	6.01	7.12	8.21	9.30	10.45	11.59	12.74		14.27	4 / 5			
reaction time	0.140	interval		1.13	1.10	1.09	1.11	1.09	1.09	1.15	1.14	1.15	1.53			3.32	3.29	3.44
		velocity	5.10	8.09	8.31	8.39	8.23	8.39	8.39	7.95	8.02	7.95	9.16	7.71		8.26	8.33	7.97
Sun Haoru (CHN) (1998)		time	2.68	3.79	4.89	5.98	7.05	8.17	9.28	10.41	11.57	12.74		14.30	7 / 6			
reaction time	0.153	interval		1.11	1.10	1.09	1.07	1.12	1.11	1.13	1.16	1.17	1.56			3.30	3.30	3.46
		velocity	5.12	8.23	8.31	8.39	8.54	8.16	8.23	8.09	7.88	7.81	8.99	7.69		8.31	8.31	7.92
Pan Zijie (CHN) (1995)		time	2.64	3.78	4.90	6.00	7.13	8.26	9.39	10.53	11.68	12.84		14.40	9 / 7			
reaction time	0.154	interval		1.14	1.12	1.10	1.13	1.13	1.13	1.14	1.15	1.16	1.56			3.36	3.39	3.45
		velocity	5.20	8.02	8.16	8.31	8.09	8.09	8.09	8.02	7.95	7.88	8.99	7.64		8.16	8.09	7.95
Wu Zhenhua (CHN) (1998)		time	2.73	3.89	5.03	6.14	7.27	8.39	9.59	10.79	11.97	13.18		14.73	5 / 8			
reaction time	0.150	interval		1.16	1.14	1.11	1.13	1.12	1.20	1.20	1.18	1.21	1.55			3.41	3.45	3.59
		velocity	5.03	7.88	8.02	8.23	8.09	8.16	7.62	7.62	7.75	7.55	9.05	7.47		8.04	7.95	7.64

Heat 1

date 16-Sep-20 wind 0.3 m/s *CAA Hurdle Development (2020)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)		time	2.60	3.67	4.72	5.77	6.82	7.87	8.94	10.01	11.08	12.18		13.63	2 / 1			
reaction time	0.142	interval	7 steps	1.07	1.05	1.05	1.05	1.05	1.07	1.07	1.07	1.10	1.45	PB		3.17	3.17	3.24
		velocity	5.28	8.54	8.70	8.70	8.70	8.70	8.54	8.54	8.54	8.31	9.67	8.07		8.65	8.65	8.46
Zeng Jianhang (CHN) (1998)		time	2.61	3.69	4.72	5.75	6.81	7.87	8.94	10.02	11.12	12.22		13.69	6 / 2			
reaction time	0.159	interval		1.08	1.03	1.03	1.06	1.06	1.07	1.08	1.10	1.10	1.47			3.14	3.19	3.28
		velocity	5.26	8.46	8.87	8.87	8.62	8.62	8.54	8.46	8.31	8.31	9.54	8.04		8.73	8.60	8.36
Zhang Honglin (CHN) (1994)		time	2.63	3.73	4.78	5.84	6.90	7.96	9.04	10.12	11.22	12.35		13.79	8 / 3			
reaction time	0.167	interval		1.10	1.05	1.06	1.06	1.06	1.08	1.08	1.10	1.13	1.44			3.21	3.20	3.31
		velocity	5.22	8.31	8.70	8.62	8.62	8.62	8.46	8.46	8.31	8.09	9.74	7.98		8.54	8.57	8.28
Yang Quanlei (CHN) (1999)		time	2.70	3.79	4.89	6.00	7.08	8.18	9.29	10.43	11.56	12.68		14.17	5 / 4			
reaction time	0.175	interval		1.09	1.10	1.11	1.08	1.10	1.11	1.14	1.13	1.12	1.49			3.30	3.29	3.39
		velocity	5.08	8.39	8.31	8.23	8.46	8.31	8.23	8.02	8.09	8.16	9.41	7.76		8.31	8.33	8.09
Guo Zhongjie (CHN) (2001)		time	2.71	3.79	4.87	5.95	7.05	8.16	9.26	10.37	11.52	12.68		14.22	7 / 5			
reaction time	0.179	interval		1.08	1.08	1.08	1.10	1.11	1.10	1.11	1.15	1.16	1.54			3.24	3.31	3.42
		velocity	5.06	8.46	8.46	8.46	8.31	8.23	8.31	8.23	7.95	7.88	9.10	7.74		8.46	8.28	8.02

Li Huaihai (CHN) (1999)		time	2.69	3.77	4.93	6.03	7.13	8.23	9.32	10.45	11.57	12.72		14.25	3 / 6			
reaction time	0.185	interval		1.08	1.16	1.10	1.10	1.10	1.09	1.13	1.12	1.15	1.53			3.34	3.29	3.40
		velocity	5.10	8.46	7.88	8.31	8.31	8.31	8.39	8.09	8.16	7.95	9.16	7.72		8.21	8.33	8.06
Shi Guoxing (CHN) (2000)		time	2.72	3.86	5.00	6.11	7.24	8.37	9.50	10.63	11.76	12.90		14.34	9 / 7			
reaction time	0.169	interval		1.14	1.14	1.11	1.13	1.13	1.13	1.13	1.13	1.14	1.44	PB		3.39	3.39	3.40
		velocity	5.04	8.02	8.02	8.23	8.09	8.09	8.09	8.09	8.09	8.02	9.74	7.67		8.09	8.09	8.06
Zhu Shenglong (CHN) (2000)		time	2.73	3.84	4.94	6.02	7.11	8.22	9.34	10.46	11.62	12.80		14.36	1 / 8			
reaction time	0.157	interval		1.11	1.10	1.08	1.09	1.11	1.12	1.12	1.16	1.18	1.56			3.29	3.32	3.46
		velocity	5.03	8.23	8.31	8.46	8.39	8.23	8.16	8.16	7.88	7.75	8.99	7.66		8.33	8.26	7.92
Yang Yuxuan (CHN) (2002)		time	2.72	3.88	4.98	6.10	7.20	8.32	9.45	10.59	11.75	12.91		14.43	4 / 9			
reaction time	0.138	interval		1.16	1.10	1.12	1.10	1.12	1.13	1.14	1.16	1.16	1.52			3.38	3.35	3.46
		velocity	5.04	7.88	8.31	8.16	8.31	8.16	8.09	8.02	7.88	7.88	9.22	7.62		8.11	8.19	7.92

2020 French National Championships (Albi, FRA) (TV Analysis)

FINAL

date 13-Sep-20 wind 0.0 m/s

Henson (2020) - Athlete First: 2020 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Belocian, Wilhem (FRA) (1995)		time	2.50	3.51	4.49	5.50	6.48	7.53	8.57	9.59	10.63	11.67		13.20	4 / 1			
reaction time	0.156	interval		1.01	0.98	1.01	0.98	1.05	1.04	1.02	1.04	1.04	1.53			3.00	3.07	3.10
		velocity	5.49	9.05	9.33	9.05	9.33	8.70	8.79	8.96	8.79	8.79	9.16	8.33		9.14	8.93	8.85
Laviolette, Jeanice (FRA) (2000		time	2.56	3.64	4.69	5.74	6.71	7.76	8.81	9.83	10.87	11.95		13.52	5 / 2			
reaction time	0.222	interval	7 steps	1.08	1.05	1.05	0.97	1.05	1.05	1.02	1.04	1.08	1.57	PB		3.18	3.07	3.14
		velocity	5.36	8.46	8.70	8.70	9.42	8.70	8.70	8.96	8.79	8.46	8.93	8.14		8.62	8.93	8.73
Kwaou-Mathey, Just (FRA) (19		time	2.63	3.71	4.69	5.77	6.75	7.87	8.90	9.95	11.00	12.08		13.61	3 / 3			
reaction time	0.199	interval	7 steps	1.08	0.98	1.08	0.98	1.12	1.03	1.05	1.05	1.08	1.53	PB		3.14	3.13	3.18
		velocity	5.22	8.46	9.33	8.46	9.33	8.16	8.87	8.70	8.70	8.46	9.16	8.08		8.73	8.76	8.62
Ngo, Matteo (FRA) (1998)		time	2.63	3.71	4.73	5.84	6.89	8.00	9.05	10.13	11.24	12.39		14.02	2 / 4			
reaction time	0.218	interval		1.08	1.02	1.11	1.05	1.11	1.05	1.08	1.11	1.15	1.63			3.21	3.21	3.34
		velocity	5.22	8.46	8.96	8.23	8.70	8.23	8.70	8.46	8.23	7.95	8.60	7.85		8.54	8.54	8.21
Pistol, Marvin (FRA) (1996)		time	2.67	3.75	4.86	5.94	6.96	8.10	9.15	10.23	11.34	12.49		14.20	1 / 5			
reaction time	0.202	interval		1.08	1.11	1.08	1.02	1.14	1.05	1.08	1.11	1.15	1.71			3.27	3.21	3.34
		velocity	5.14	8.46	8.23	8.46	8.96	8.02	8.70	8.46	8.23	7.95	8.20	7.75		8.39	8.54	8.21
Mohamed, Raphael (FRA) (199		time	2.70	3.75	4.79	5.84	6.89	8.00	9.05	10.13	11.14			dnf	7 / --			
reaction time	0.270	interval	7 steps	1.05	1.04	1.05	1.05	1.11	1.05	1.08	1.01					3.14	3.21	
		velocity	5.08	8.70	8.79	8.70	8.70	8.23	8.70	8.46	9.05					8.73	8.54	

2020 World Athletics Trials (Fuji, JPN)

Race 2

date 06-Sep-20 wind 1.3 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)		time	2.60	3.67	4.73	5.76	6.81	7.88	8.95	10.03	11.12	12.23		13.69	3 / 1			
reaction time		interval		1.07	1.06	1.03	1.05	1.07	1.07	1.08	1.09	1.11	1.46			3.16	3.19	3.28
		velocity	5.28	8.54	8.62	8.87	8.70	8.54	8.54	8.46	8.39	8.23	9.60	8.04		8.68	8.60	8.36
Fujii, Ryota (JPN) (1996)		time	2.60	3.67	4.73	5.78	6.83	7.89	8.95	10.03	11.15	12.26		13.78	4 / 2			
reaction time		interval		1.07	1.06	1.05	1.05	1.06	1.06	1.08	1.12	1.11	1.52			3.18	3.17	3.31
		velocity	5.28	8.54	8.62	8.70	8.70	8.62	8.62	8.46	8.16	8.23	9.22	7.98		8.62	8.65	8.28
Tanaka, Hideaki (JPN) (1995)		time	2.71	3.83	4.92	6.00	7.10	8.19	9.28	10.40	11.51	12.65		14.13	6 / 3			
reaction time		interval	7 steps	1.12	1.09	1.08	1.10	1.09	1.09	1.12	1.11	1.14	1.48			3.29	3.28	3.37
		velocity	5.06	8.16	8.39	8.46	8.31	8.39	8.39	8.16	8.23	8.02	9.47	7.78		8.33	8.36	8.14
Furuya, Shinta (JPN) (2000)		time	2.65	3.76	4.83	5.92	7.00	8.10	9.22	10.36	11.49	12.64		14.16	7 / 4			
reaction time		interval		1.11	1.07	1.09	1.08	1.10	1.12	1.14	1.13	1.15	1.52	PB		3.27	3.30	3.42
		velocity	5.18	8.23	8.54	8.39	8.46	8.31	8.16	8.02	8.09	7.95	9.22	7.77		8.39	8.31	8.02
Tomiyama, Hiroki (JPN) (1998)		time	2.68	3.81	4.93	6.04	7.13	8.24	9.35	10.49	11.62	12.78		14.30	5 / 5			
reaction time		interval	7 steps	1.13	1.12	1.11	1.09	1.11	1.11	1.14	1.13	1.16	1.52			3.36	3.31	3.43
		velocity	5.12	8.09	8.16	8.23	8.39	8.23	8.23	8.02	8.09	7.88	9.22	7.69		8.16	8.28	7.99
Yazawa, Wataru (JPN) (1991)		time	2.83	4.00	5.18	6.38	7.56	8.74	9.93	11.12	12.36	13.61		15.21	2 / 6			
reaction time		interval		1.17	1.18	1.20	1.18	1.18	1.19	1.19	1.24	1.25	1.60			3.55	3.55	3.68
		velocity	4.85	7.81	7.75	7.62	7.75	7.75	7.68	7.68	7.37	7.31	8.76	7.23		7.72	7.72	7.45

2020 Meeting Pro Athlé Tour de Marseille (Marseille, FRA) (TV Analysis)

FINAL

date 03-Sep-20 wind -0.3 m/s

Henson (2020) - Athlete First: 2020 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.49	3.55	4.61	5.59	6.60	7.57	8.55	9.62	10.67	11.70		13.15	5 / 1			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time 0.214	interval	7 steps	1.06	1.06	0.98	1.01	0.97	0.98	1.07	1.05	1.03	1.45			3.10	2.96	3.15
	velocity		5.51	8.62	8.62	9.33	9.05	9.42	9.33	8.54	8.70	8.87	9.67	8.37		8.85	9.26	8.70
Belocian, Wilhem (FRA) (1995)	time		2.52	3.57	4.57	5.55	6.60	7.61	8.62	9.66	10.70	11.75		13.27	6 / 2			
reaction time 0.211	interval			1.05	1.00	0.98	1.05	1.01	1.01	1.04	1.04	1.05	1.52			3.03	3.07	3.13
	velocity		5.44	8.70	9.14	9.33	8.70	9.05	9.05	8.79	8.79	8.70	9.22	8.29		9.05	8.93	8.76
Martinot-Lagarde, Pascal (FRA	time		2.56	3.60	4.67	5.65	6.70	7.74	8.78	9.86	11.00	12.06		13.63	4 / 3			
reaction time	interval	7 steps	1.04	1.07	0.98	1.05	1.04	1.04	1.08	1.14	1.06	1.57				3.09	3.13	3.28
	velocity		5.36	8.79	8.54	9.33	8.70	8.79	8.79	8.46	8.02	8.62	8.93	8.07		8.87	8.76	8.36
Alkana, Antonio (RSA) (1990)	time		2.56	3.60	4.71	5.75	6.81	7.84	8.89	9.96	11.11	12.18		13.81	3 / 4			
reaction time 0.201	interval			1.04	1.11	1.04	1.06	1.03	1.05	1.07	1.15	1.07	1.63			3.19	3.14	3.29
	velocity		5.36	8.79	8.23	8.79	8.62	8.87	8.70	8.54	7.95	8.54	8.60	7.97		8.60	8.73	8.33
Obasuyi, Michael (BEL) (1999)	time		2.66	3.74	4.81	5.86	6.93	8.01	9.05	10.16	11.24	12.32		13.88	7 / 5			
reaction time 0.208	interval	7 steps	1.08	1.07	1.05	1.07	1.08	1.04	1.11	1.08	1.08	1.56				3.20	3.19	3.27
	velocity		5.16	8.46	8.54	8.70	8.54	8.46	8.79	8.23	8.46	8.46	8.99	7.93		8.57	8.60	8.39
Kwaou-Mathey, Just (FRA) (19	time		2.70	3.80	4.91	5.89	7.00	8.04	9.05	10.20	11.31	12.39		13.99	2 / 6			
reaction time	interval	7 steps	1.10	1.11	0.98	1.11	1.04	1.01	1.15	1.11	1.08	1.60				3.19	3.16	3.34
	velocity		5.08	8.31	8.23	9.33	8.23	8.79	9.05	7.95	8.23	8.46	8.76	7.86		8.60	8.68	8.21
Chaverra, Joan Camilo (COL) (	time		2.62	3.67	4.78	5.79	6.86	7.92	9.00	10.17	11.29	12.42		14.08	8 / 7			
reaction time	interval	7 steps	1.05	1.11	1.01	1.07	1.06	1.08	1.17	1.12	1.13	1.66				3.17	3.21	3.42
	velocity		5.24	8.70	8.23	9.05	8.54	8.62	8.46	7.81	8.16	8.09	8.45	7.81		8.65	8.54	8.02
Greff, Ronan (FRA) (1998)	time		2.69	3.80	4.88	5.89	7.03	8.08	9.15	10.30	11.41	12.49		14.16	1 / 8			
reaction time 0.247	interval			1.11	1.08	1.01	1.14	1.05	1.07	1.15	1.11	1.08	1.67			3.20	3.26	3.34
	velocity		5.10	8.23	8.46	9.05	8.02	8.70	8.54	7.95	8.23	8.46	8.40	7.77		8.57	8.41	8.21

2020 Athlete Night Games (Fukui, JPN)

FINAL

date 29-Aug-20 wind 1.4 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taioh (JPN) (1995)	time	2.55	3.60	4.63	5.65	6.66	7.70	8.73	9.78	10.83	11.90		13.27	5 / 1			
reaction time	interval	7 steps	1.05	1.03	1.02	1.01	1.04	1.03	1.05	1.05	1.07	1.37	PB		3.10	3.08	3.17
	velocity	5.38	8.70	8.87	8.96	9.05	8.79	8.87	8.70	8.70	8.54	10.23	8.29		8.85	8.90	8.65
Takayama, Shunya (JPN) (1994	time	2.57	3.60	4.62	5.63	6.64	7.68	8.72	9.75	10.82	11.90		13.34	3 / 2			
reaction time	interval		1.03	1.02	1.01	1.01	1.04	1.04	1.03	1.07	1.08	1.44			3.06	3.09	3.18
	velocity	5.34	8.87	8.96	9.05	9.05	8.79	8.79	8.87	8.54	8.46	9.74	8.25		8.96	8.87	8.62
Ishikawa, Shuhei (JPN) (1995)	time	2.56	3.62	4.65	5.67	6.70	7.73	8.75	9.80	10.85	11.92		13.39	6 / 3			
reaction time	interval	7 steps	1.06	1.03	1.02	1.03	1.03	1.02	1.05	1.05	1.07	1.47	PB		3.11	3.08	3.17
	velocity	5.36	8.62	8.87	8.96	8.87	8.87	8.96	8.70	8.70	8.54	9.54	8.22		8.82	8.90	8.65
Nomoto, Syuusei (JPN) (1995)	time	2.55	3.62	4.68	5.71	6.75	7.80	8.84	9.91	10.99	12.06		13.45	7 / 4			
reaction time	interval	7 steps	1.07	1.06	1.03	1.04	1.05	1.04	1.07	1.08	1.07	1.39	PB		3.16	3.13	3.22
	velocity	5.38	8.54	8.62	8.87	8.79	8.70	8.79	8.54	8.46	8.54	10.09	8.18		8.68	8.76	8.52
Fujii, Ryota (JPN) (1996)	time	2.59	3.65	4.68	5.70	6.76	7.82	8.87	9.94	11.02	12.14		13.58	8 / 5			
reaction time	interval		1.06	1.03	1.02	1.06	1.06	1.05	1.07	1.08	1.12	1.44			3.11	3.17	3.27
	velocity	5.30	8.62	8.87	8.96	8.62	8.62	8.70	8.54	8.46	8.16	9.74	8.10		8.82	8.65	8.39
Takahashi, Yusuke (JPN) (1996	time	2.62	3.72	4.76	5.81	6.87	7.93	9.01	10.07	11.15	12.23		13.60	4 / 6			
reaction time	interval		1.10	1.04	1.05	1.06	1.06	1.08	1.06	1.08	1.08	1.37	PB		3.19	3.20	3.22
	velocity	5.24	8.31	8.79	8.70	8.62	8.62	8.46	8.62	8.46	8.46	10.23	8.09		8.60	8.57	8.52
Masuno, Genta (JPN) (1993)	time	2.61	3.67	4.72	5.75	6.81	7.88	8.94	10.00	11.09	12.19		13.62	1 / 7			
reaction time	interval		1.06	1.05	1.03	1.06	1.07	1.06	1.06	1.09	1.10	1.43			3.14	3.19	3.25
	velocity	5.26	8.62	8.70	8.87	8.62	8.54	8.62	8.62	8.39	8.31	9.80	8.08		8.73	8.60	8.44
Kuriki, Anthony Tyrrell (JPN) (	time	2.65	3.72	4.77	5.83	6.85	7.90	8.95	10.04	11.10	12.19		13.64	2 / 8			
reaction time	interval	7 steps	1.07	1.05	1.06	1.02	1.05	1.05	1.09	1.06	1.09	1.45			3.18	3.12	3.24
	velocity	5.18	8.54	8.70	8.62	8.96	8.70	8.70	8.39	8.62	8.39	9.67	8.06		8.62	8.79	8.46

Heat 2

date 29-Aug-20 wind 1.5 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Fujii, Ryota (JPN) (1996)	time	2.57	3.61	4.64	5.68	6.72	7.78	8.87	9.93	11.03	12.10		13.57	/ 1			
reaction time	interval		1.04	1.03	1.04	1.04	1.06	1.09	1.06	1.10	1.07	1.47	PB		3.11	3.19	3.23
	velocity	5.34	8.79	8.87	8.79	8.79	8.62	8.39	8.62	8.31	8.54	9.54	8.11		8.82	8.60	8.49

2020 Seiko Golden Grand Prix (Tokyo, JPN)

FINAL

date 23-Aug-20 wind -0.4 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Kanai, Taioh (JPN) (1995)	time	2.55	3.60	4.65	5.68	6.73	7.77	8.81	9.88	10.93	12.03		13.45	6 / 1				
reaction time 0.121	interval	7 steps	1.05	1.05	1.03	1.05	1.04	1.04	1.07	1.05	1.10	1.42			3.13	3.13	3.22	
	velocity	5.38	8.70	8.70	8.87	8.70	8.79	8.79	8.54	8.70	8.31	9.87	8.18		8.76	8.76	8.52	
Muratake, Rachid (JPN) (2002)	time	2.58	3.67	4.72	5.79	6.84	7.90	8.96	10.04	11.13	12.22		13.65	2 / 2				
reaction time 0.138	interval		1.09	1.05	1.07	1.05	1.06	1.06	1.08	1.09	1.09	1.43	PB		3.21	3.17	3.26	
	velocity	5.32	8.39	8.70	8.54	8.70	8.62	8.62	8.46	8.39	8.39	9.80	8.06		8.54	8.65	8.41	
Takayama, Shunya (JPN) (1994)	time	2.58	3.65	4.70	5.75	6.81	7.87	8.95	10.06	11.16	12.27		13.74	5 / 3				
reaction time 0.135	interval		1.07	1.05	1.05	1.06	1.06	1.08	1.11	1.10	1.11	1.47			3.17	3.20	3.32	
	velocity	5.32	8.54	8.70	8.70	8.62	8.62	8.46	8.23	8.31	8.23	9.54	8.01		8.65	8.57	8.26	
Kuriki, Anthony Tyrrell (JPN) (	time	2.63	3.72	4.79	5.85	6.91	7.97	9.05	10.13	11.21	12.31		13.79	3 / 4				
reaction time 0.108	interval	7 steps	1.09	1.07	1.06	1.06	1.06	1.08	1.08	1.08	1.10	1.48			3.22	3.20	3.26	
	velocity	5.22	8.39	8.54	8.62	8.62	8.62	8.46	8.46	8.46	8.31	9.47	7.98		8.52	8.57	8.41	
Fujii, Ryota (JPN) (1996)	time	2.60	3.67	4.73	5.77	6.82	7.88	8.97	10.08	11.19	12.31		13.79	9 / 5				
reaction time 0.144	interval		1.07	1.06	1.04	1.05	1.06	1.09	1.11	1.11	1.12	1.48			3.17	3.20	3.34	
	velocity	5.28	8.54	8.62	8.79	8.70	8.62	8.39	8.23	8.23	8.16	9.47	7.98		8.65	8.57	8.21	
Ishida Thomas, Higashi (JPN) (	time	2.70	3.79	4.86	5.93	7.01	8.11	9.23	10.34	11.46	12.61		14.09	7 / 6				
reaction time 0.146	interval	7 steps	1.09	1.07	1.07	1.08	1.10	1.12	1.11	1.12	1.15	1.48			3.23	3.30	3.38	
	velocity	5.08	8.39	8.54	8.54	8.46	8.31	8.16	8.23	8.16	7.95	9.47	7.81		8.49	8.31	8.11	
Toyoda, Ken (JPN) (2002)	time	2.60	3.68	4.76	5.85	6.98	8.08	9.19	10.33	11.48	12.62		14.15	1 / 7				
reaction time 0.136	interval	7 steps	1.08	1.08	1.09	1.13	1.10	1.11	1.14	1.15	1.14	1.53	PB		3.25	3.34	3.43	
	velocity	5.28	8.46	8.46	8.39	8.09	8.31	8.23	8.02	7.95	8.02	9.16	7.77		8.44	8.21	7.99	
Yazawa, Wataru (JPN) (1991)	time	2.67	3.80	4.90	6.00	7.10	8.19	9.29	10.42	11.56	12.72		14.29	8 / 8				
reaction time 0.158	interval	7 steps	1.13	1.10	1.10	1.10	1.09	1.10	1.13	1.14	1.16	1.57			3.33	3.29	3.43	
	velocity	5.14	8.09	8.31	8.31	8.31	8.39	8.31	8.09	8.02	7.88	8.93	7.70		8.23	8.33	7.99	

2020 István Gyulai Memorial (Székesfehérvár, HUN) (TV Analysis)

FINAL date 19-Aug-20 wind 0.3 m/s

Henson (2020) - Athlete First: 2020 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.50	3.54	4.57	5.60	6.64	7.64	8.66	9.68	10.71	11.74		13.21	4 / 1			
reaction time 0.146	interval	7 steps	1.04	1.03	1.03	1.04	1.00	1.02	1.02	1.03	1.03	1.47			3.10	3.06	3.08
	velocity	5.49	8.79	8.87	8.87	8.79	9.14	8.96	8.96	8.87	8.87	9.54	8.33		8.85	8.96	8.90
Holloway, Grant (USA) (1997)	time	2.36	3.37	4.34	5.34	6.31	7.34	8.34	9.44	10.51	11.64		13.22	3 / 2			
reaction time 0.141	interval	7 steps	1.01	0.97	1.00	0.97	1.03	1.00	1.10	1.07	1.13	1.58			2.98	3.00	3.30
	velocity	5.81	9.05	9.42	9.14	9.42	8.87	9.14	8.31	8.54	8.09	8.87	8.32		9.20	9.14	8.31
Crittendon, Freddie (USA) (19	time	2.47	3.50	4.52	5.54	6.57		8.64	9.68	10.74	11.78		13.30	8 / 3			
reaction time 0.146	interval		1.03	1.02	1.02	1.03		2.07	1.04	1.06	1.04	1.52			3.07	3.10	3.14
	velocity	5.55	8.87	8.96	8.96	8.87		8.83	8.79	8.62	8.79	9.22	8.27		8.93	8.85	8.73
Belocian, Wilhem (FRA) (1995)	time	2.47	3.50	4.54	5.57	6.57	7.60	8.64	9.68	10.74	11.84		13.34	6 / 4			
reaction time 0.134	interval		1.03	1.04	1.03	1.00	1.03	1.04	1.04	1.06	1.10	1.50			3.10	3.07	3.20
	velocity	5.55	8.87	8.79	8.87	9.14	8.87	8.79	8.79	8.62	8.31	9.35	8.25		8.85	8.93	8.57
Mallett, Aaron (USA) (1994)	time	2.49	3.54	4.57	5.61	6.64	7.69	8.71	9.75	10.82	11.91		13.45	1 / 5			
reaction time 0.168	interval		1.05	1.03	1.04	1.03	1.05	1.02	1.04	1.07	1.09	1.54			3.12	3.10	3.20
	velocity	5.51	8.70	8.87	8.79	8.87	8.70	8.96	8.79	8.54	8.39	9.10	8.18		8.79	8.85	8.57
Pozzi, Andy (GBR) (1992)	time	2.50	3.54	4.54	5.57	6.57	7.61	8.64	9.68	10.74	11.91		13.60	5 / 6			
reaction time 0.127	interval	7 steps	1.04	1.00	1.03	1.00	1.04	1.03	1.04	1.06	1.17	1.69			3.07	3.07	3.27
	velocity	5.49	8.79	9.14	8.87	9.14	8.79	8.87	8.79	8.62	7.81	8.30	8.09		8.93	8.93	8.39
Szücs, Valdó (HUN) (1995)	time	2.50	3.67	4.74	5.80	6.85	7.91	8.94	9.98	11.08	12.18		13.74	7 / 7			
reaction time 0.141	interval	7 steps	1.17	1.07	1.06	1.05	1.06	1.03	1.04	1.10	1.10	1.56			3.30	3.14	3.24
	velocity	5.49	7.81	8.54	8.62	8.70	8.62	8.87	8.79	8.31	8.31	8.99	8.01		8.31	8.73	8.46
Baji, Balázs (HUN) (1989)	time	2.54	3.67	4.74	5.80	6.84	7.91	8.95	10.04	11.14	12.28		13.86	2 / 8			
reaction time 0.137	interval	7 steps	1.13	1.07	1.06	1.04	1.07	1.04	1.09	1.10	1.14	1.58			3.26	3.15	3.33
	velocity	5.40	8.09	8.54	8.62	8.79	8.54	8.79	8.39	8.31	8.02	8.87	7.94		8.41	8.70	8.23

2020 Herculis Meeting International d'Athletisme (Monaco, MON) (TV Analysis)

FINAL date 14-Aug-20 wind 0.8 m/s

Henson (2020) - Athlete First: 2020 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.54	3.57	4.60	5.60	6.57	7.57	8.61	9.61	10.67	11.71		13.11	4 / 1			
reaction time 0.125	interval	7 steps	1.03	1.03	1.00	0.97	1.00	1.04	1.00	1.06	1.04	1.40			3.06	3.01	3.10
	velocity	5.40	8.87	8.87	9.14	9.42	9.14	8.79	9.14	8.62	8.79	10.01	8.39		8.96	9.11	8.85
Pozzi, Andy (GBR) (1992)	time	2.52	3.54	4.54	5.54	6.54	7.54	8.57	9.57	10.61	11.68		13.14	5 / 2			

reaction time	0.125	interval	7 steps	1.02	1.00	1.00	1.00	1.00	1.03	1.00	1.04	1.07	1.46	=PB		3.02	3.03	3.11
		velocity		5.44	8.96	9.14	9.14	9.14	9.14	8.87	9.14	8.79	8.54	9.60	8.37		9.08	9.05	8.82
Belocian, Wilhem (FRA) (1995)		time		2.54	3.57	4.60	5.60	6.60	7.61	8.64	9.67	10.71	11.77		13.18	6 / 3			
reaction time	0.134	interval			1.03	1.03	1.00	1.00	1.01	1.03	1.03	1.04	1.06	1.41	PB		3.06	3.04	3.13
		velocity		5.40	8.87	8.87	9.14	9.14	9.05	8.87	8.87	8.79	8.62	9.94	8.35		8.96	9.02	8.76
Holloway, Grant (USA) (1997)		time		2.50	3.50	4.50	5.50	6.50	7.50	8.54	9.57	10.64	11.74		13.19	3 / 4			
reaction time	0.163	interval	7 steps	1.00	1.00	1.00	1.00	1.00	1.04	1.03	1.07	1.10	1.45				3.00	3.04	3.20
		velocity		5.49	9.14	9.14	9.14	9.14	9.14	8.79	8.87	8.54	8.31	9.67	8.34		9.14	9.02	8.57
Dal Molin, Paolo (ITA) (1987)		time		2.50	3.57	4.64	5.70	6.77	7.80	8.87	9.97	11.04	12.14		13.61	8 / 5			
reaction time	0.123	interval	7 steps	1.07	1.07	1.06	1.07	1.03	1.07	1.10	1.07	1.10	1.47				3.20	3.17	3.27
		velocity		5.49	8.54	8.54	8.62	8.54	8.87	8.54	8.31	8.54	8.31	9.54	8.08		8.57	8.65	8.39
Vukicevic, Vladimir (NOR) (199		time		2.63	3.70	4.77	5.80	6.87	7.91	9.00	10.07	11.14	12.24		13.75	1 / 6			
reaction time	0.130	interval			1.07	1.07	1.03	1.07	1.04	1.09	1.07	1.07	1.10	1.51			3.17	3.20	3.24
		velocity		5.22	8.54	8.54	8.87	8.54	8.79	8.39	8.54	8.54	8.31	9.28	8.00		8.65	8.57	8.46
Joseph, Jason (SUI) (1998)		time		2.73	3.80	4.87	5.90	6.92	7.97	9.00	10.07	11.18	12.31		13.84	2 / 7			
reaction time	0.233	interval	7 steps	1.07	1.07	1.03	1.02	1.05	1.03	1.07	1.11	1.13	1.53				3.17	3.10	3.31
		velocity		5.03	8.54	8.54	8.87	8.96	8.70	8.87	8.54	8.23	8.09	9.16	7.95		8.65	8.85	8.28
Alkana, Antonio (RSA) (1990)		time		2.57	3.63	4.70	5.77	6.84	7.91	8.98	10.07	11.18	12.31		13.87	7 / 8			
reaction time	0.134	interval			1.06	1.07	1.07	1.07	1.07	1.07	1.09	1.11	1.13	1.56			3.20	3.21	3.33
		velocity		5.34	8.62	8.54	8.54	8.54	8.54	8.54	8.39	8.23	8.09	8.99	7.93		8.57	8.54	8.23

2020 Paavo Nurmi Games (Turku, FIN) (TV Analysis)

FINAL date 11-Aug-20 wind 1.1 m/s

Henson (2020) - Athlete First: 2020 year end hurdle report

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pozzi, Andy (GBR) (1992)		time		2.57	3.57	4.57	5.57	6.57	7.57	8.59	9.61	10.65	11.71		13.17	6 / 1			
reaction time	0.149	interval	7 steps	1.00	1.00	1.00	1.00	1.00	1.02	1.02	1.04	1.06	1.46				3.00	3.02	3.12
		velocity		5.34	9.14	9.14	9.14	9.14	9.14	8.96	8.96	8.79	8.62	9.60	8.35		9.14	9.08	8.79
Belocian, Wilhem (FRA) (1995)		time		2.57	3.60	4.60	5.64	6.64	7.64	8.67	9.74	10.81	11.88		13.38	3 / 2			
reaction time	0.147	interval			1.03	1.00	1.04	1.00	1.00	1.03	1.07	1.07	1.07	1.50			3.07	3.03	3.21
		velocity		5.34	8.87	9.14	8.79	9.14	9.14	8.87	8.54	8.54	8.54	9.35	8.22		8.93	9.05	8.54
King, David (GBR) (1994)		time		2.60	3.67	4.70	5.75	6.77	7.84	8.88	9.91	11.01	12.08		13.57	5 / 3			
reaction time	0.148	interval	7 steps	1.07	1.03	1.05	1.02	1.07	1.04	1.03	1.10	1.07	1.49				3.15	3.13	3.20
		velocity		5.28	8.54	8.87	8.70	8.96	8.54	8.79	8.87	8.31	8.54	9.41	8.11		8.70	8.76	8.57
Alkana, Antonio (RSA) (1990)		time		2.57	3.60	4.64	5.70	6.77	7.84	8.88	9.91	11.01	12.08		13.58	8 / 4			
reaction time	0.158	interval			1.03	1.04	1.06	1.07	1.07	1.04	1.03	1.10	1.07	1.50			3.13	3.18	3.20
		velocity		5.34	8.87	8.79	8.62	8.54	8.54	8.79	8.87	8.31	8.54	9.35	8.10		8.76	8.62	8.57
Lakka, Elmo (FIN) (1993)		time		2.62	3.70	4.77	5.84	6.87	7.91	9.01	10.08	11.18	12.28		13.79	4 / 5			
reaction time	0.186	interval			1.08	1.07	1.07	1.03	1.04	1.10	1.07	1.10	1.10	1.51			3.22	3.17	3.27
		velocity		5.24	8.46	8.54	8.54	8.87	8.79	8.31	8.54	8.31	8.31	9.28	7.98		8.52	8.65	8.39
Fofana, Hassane (ITA) (1992)		time		2.60	3.70	4.80	5.85	6.91	8.00	9.08	10.14	11.22	12.30		13.88	7 / 6			
reaction time	0.170	interval	7 steps	1.10	1.10	1.05	1.06	1.09	1.08	1.06	1.08	1.08	1.58				3.25	3.23	3.22
		velocity		5.28	8.31	8.31	8.70	8.62	8.39	8.46	8.62	8.46	8.46	8.87	7.93		8.44	8.49	8.52
Manninen, Ilari (FIN) (1997)		time		2.60	3.70	4.80	5.90	7.00	8.08	9.21	10.31	11.44	12.58		14.11	1 / 7			
reaction time	0.201	interval	7 steps	1.10	1.10	1.10	1.10	1.08	1.13	1.10	1.13	1.14	1.53				3.30	3.31	3.37
		velocity		5.28	8.31	8.31	8.31	8.31	8.46	8.09	8.31	8.09	8.02	9.16	7.80		8.31	8.28	8.14
Kraus, Simon (FRA) (1992)		time		2.64	3.70	4.84	5.91	7.00	8.08	9.21					dnf	2 / --			
reaction time	0.154	interval	7 steps	1.06	1.14	1.07	1.09	1.08	1.13								3.27	3.30	
		velocity		5.20	8.62	8.02	8.54	8.39	8.46	8.09							8.39	8.31	

2020 CAA Shanghai Training Base Permit Meeting (Shanghai, CHN)

FINAL date 19-Jul-20 wind 2.5 m/s

Shanghai Sport Institute (2020) - competition analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time		2.69	3.70	4.70	5.71	6.70	7.70	8.72	9.75	10.77	11.82		13.20	/ 1			
reaction time	interval	7 steps	1.01	1.00	1.01	0.99	1.00	1.02	1.03	1.02	1.05	1.38				3.02	3.01	3.10
	velocity		5.10	9.05	9.14	9.05	9.23	9.14	8.96	8.87	8.96	8.70	10.16	8.33		9.08	9.11	8.85

2020 Shimane High School Championships (Izumo, JPN)

FINAL date 11-Jul-20 wind -0.1 m/s

Shimizu (2020) - shimane high school championships 2020 - biomechanics data analysis

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hori, Shion (JPN)	time		2.73	3.92	5.10	6.27	7.47	8.68	9.92	11.18	12.50	13.80		15.47	4 / 1			
reaction time	interval			1.19	1.18	1.17	1.20	1.21	1.24	1.26	1.32	1.30	1.67			3.54	3.65	3.88
	velocity		5.03	7.68	7.75	7.81	7.62	7.55	7.37	7.25	6.92	7.03	8.40	7.11		7.75	7.51	7.07

Yamamoto, Shunsuke (JPN)	time	2.83	4.03	5.23	6.45	7.70	8.93	10.18	11.47	12.75	14.02		15.66	1 / 2			
reaction time	interval		1.20	1.20	1.22	1.25	1.23	1.25	1.29	1.28	1.27	1.64			3.62	3.73	3.84
	velocity	4.85	7.62	7.62	7.49	7.31	7.43	7.31	7.09	7.14	7.20	8.55	7.02		7.57	7.35	7.14
Sotono, Haru (JPN) (2004)	time	2.85	4.12	5.38	6.62	7.88	9.17	10.45	11.75	13.05	14.37		16.11	9 / 3			
reaction time	interval		1.27	1.26	1.24	1.26	1.29	1.28	1.30	1.30	1.32	1.74			3.77	3.83	3.92
	velocity	4.81	7.20	7.25	7.37	7.25	7.09	7.14	7.03	7.03	6.92	8.06	6.83		7.27	7.16	6.99
Hata, Nobuyuki (JPN)	time	2.88	4.13	5.38	6.62	7.88	9.17	10.45	11.75	13.05	14.37		16.22	7 / 4			
reaction time	interval		1.25	1.25	1.24	1.26	1.29	1.28	1.30	1.30	1.32	1.85			3.74	3.83	3.92
	velocity	4.76	7.31	7.31	7.37	7.25	7.09	7.14	7.03	7.03	6.92	7.58	6.78		7.33	7.16	6.99
Sonoyama, Tenshi (JPN)	time	2.83	4.08	5.32	6.53	7.82	9.15	10.52	11.83	13.18	14.58		16.36	5 / 5			
reaction time	interval		1.25	1.24	1.21	1.29	1.33	1.37	1.31	1.35	1.40	1.78			3.70	3.99	4.06
	velocity	4.85	7.31	7.37	7.55	7.09	6.87	6.67	6.98	6.77	6.53	7.88	6.72		7.41	6.87	6.75

2020 USATF National Indoor Championships (Albuquerque, NM) (Altitude)

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CAA Hurdle Development (2020)

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mallett, Aaron (USA) (1994)	time		2.55	3.58	4.62	5.61	6.62		7.54	3 / 1			
reaction time 0.160	interval			1.03	1.04	0.99	1.01	0.92	PB		3.06		
	velocity		5.38	8.87	8.79	9.23	9.05	10.57	7.96		8.96		
Eaton, Jarret (USA) (1989)	time		2.55	3.57	4.60	5.62	6.65		7.57	4 / 2			
reaction time 0.155	interval	7 Steps	1.02	1.03	1.02	1.03		0.92			3.07		
	velocity		5.38	8.96	8.87	8.96	8.87	10.57	7.93		8.93		
Ames, Brendan (USA) (1988)	time		2.58	3.63	4.67	5.72	6.74		7.65	5 / 3			
reaction time 0.145	interval	7 Steps	1.05	1.04	1.05	1.02		0.91			3.14		
	velocity		5.32	8.70	8.79	8.70	8.96	10.68	7.84		8.73		
Zallow, Chad (USA) (1997)	time		2.53	3.59	4.65	5.70	6.75		7.65	2 / 4			
reaction time 0.151	interval			1.06	1.06	1.05	1.05	0.90			3.17		
	velocity		5.42	8.62	8.62	8.70	8.70	10.80	7.84		8.65		
Harris, Aleec (USA) (1990)	time		2.60	3.63	4.70	5.71	6.75		7.67	7 / 5			
reaction time 0.128	interval			1.03	1.07	1.01	1.04	0.92			3.11		
	velocity		5.28	8.87	8.54	9.05	8.79	10.57	7.82		8.82		
Dickson, Michael (USA) (1997)	time		2.58	3.65	4.72	5.74	6.79		7.69	6 / 6			
reaction time 0.171	interval			1.07	1.07	1.02	1.05	0.90			3.16		
	velocity		5.32	8.54	8.54	8.96	8.70	10.80	7.80		8.68		
Fontenot, Ryan (USA) (1986)	time		2.67	3.73	4.80	5.84	6.87		7.84	8 / 7			
reaction time 0.170	interval			1.06	1.07	1.04	1.03	0.97			3.17		
	velocity		5.14	8.62	8.54	8.79	8.87	10.02	7.65		8.65		
Moore, Isaiah (USA) (1996)	time		2.65	3.77	4.84	5.91	6.97		7.93	1 / 8			
reaction time 0.139	interval			1.12	1.07	1.07	1.06	0.96			3.26		
	velocity		5.18	8.16	8.54	8.54	8.62	10.13	7.57		8.41		

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CAA Hurdle Development (2020)

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ames, Brendan (USA) (1988)	time		2.58	3.65	4.69	5.70	6.75		7.65	3 / 1			
reaction time 0.174	interval	7 Steps	1.07	1.04	1.01	1.05		0.90			3.12		
	velocity		5.32	8.54	8.79	9.05	8.70	10.80	7.84		8.79		
Dickson, Michael (USA) (1997)	time		2.57	3.62	4.69	5.74	6.79		7.69	5 / 2			
reaction time 0.126	interval			1.05	1.07	1.05	1.05	0.90			3.17		
	velocity		5.34	8.70	8.54	8.70	8.70	10.80	7.80		8.65		
Zallow, Chad (USA) (1997)	time		2.55	3.60	4.67	5.72	6.80		7.72	4 / 3			
reaction time 0.156	interval			1.05	1.07	1.05	1.08	0.92			3.17		
	velocity		5.38	8.70	8.54	8.70	8.46	10.57	7.77		8.65		
Moore, Isaiah (USA) (1996)	time		2.63	3.72	4.79	5.84	6.89		7.83	6 / 4			
reaction time 0.161	interval			1.09	1.07	1.05	1.05	0.94			3.21		
	velocity		5.22	8.39	8.54	8.70	8.70	10.34	7.66		8.54		
Graham, Javon (USA)	time		2.60	3.70	4.77	5.83	6.91		7.84	2 / 5			
reaction time 0.158	interval			1.10	1.07	1.06	1.08	0.93	PB		3.23		
	velocity		5.28	8.31	8.54	8.62	8.46	10.45	7.65		8.49		
Wilt, Caleb (USA) (1997)	time		2.58	3.67	4.75	5.82	6.89		7.85	7 / 6			
reaction time 0.112	interval	7 Steps	1.09	1.08	1.07	1.07		0.96			3.24		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	5.32	8.39	8.46	8.54	8.54		10.13	7.64		8.46	
Fareed, Naim (USA) (1996)		time	2.63	3.72	4.80	5.86	6.96			7.95	1 / 7		
reaction time	0.136	interval		1.09	1.08	1.06	1.10		0.99			3.23	
		velocity	5.22	8.39	8.46	8.62	8.31		9.82	7.55		8.49	
Tawiah, Casimir (USA) (1997)		time	2.68	3.80	4.92	6.00	7.15			8.09	8 / 8		
reaction time	0.162	interval	7 Steps	1.12	1.12	1.08	1.15		0.94			3.32	
		velocity	5.12	8.16	8.16	8.46	7.95		10.34	7.42		8.26	

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CAA Hurdle Development (2020)

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Eaton, Jarret (USA) (1989)		time	2.58	3.62	4.63	5.65	6.70		7.63	4 / 1			
reaction time	0.148	interval	7 Steps	1.04	1.01	1.02	1.05	0.93			3.07		
		velocity	5.32	8.79	9.05	8.96	8.70	10.45	7.86		8.93		
Mallett, Aaron (USA) (1994)		time	2.57	3.62	4.67	5.68	6.72		7.65	5 / 2			
reaction time	0.149	interval		1.05	1.05	1.01	1.04	0.93			3.11		
		velocity	5.34	8.70	8.70	9.05	8.79	10.45	7.84		8.82		
Harris, Aleec (USA) (1990)		time	2.63	3.70	4.74	5.77	6.84		7.75	6 / 3			
reaction time	0.145	interval		1.07	1.04	1.03	1.07	0.91			3.14		
		velocity	5.22	8.54	8.79	8.87	8.54	10.68	7.74		8.73		
Fontenot, Ryan (USA) (1986)		time	2.67	3.73	4.79	5.82	6.85		7.79	3 / 4			
reaction time	0.151	interval		1.06	1.06	1.03	1.03	0.94			3.15		
		velocity	5.14	8.62	8.62	8.87	8.87	10.34	7.70		8.70		
Moore, Titus (USA) (1999)		time	2.66	3.77	4.84	5.90	6.97		7.87	7 / 5			
reaction time	0.179	interval		1.11	1.07	1.06	1.07	0.90			3.24		
		velocity	5.16	8.23	8.54	8.62	8.54	10.80	7.62		8.46		
Tait, Emmanuel (USA)		time	2.63	3.75	4.85	5.92	7.04		7.99	2 / 6			
reaction time	0.158	interval		1.12	1.10	1.07	1.12	0.95			3.29		
		velocity	5.22	8.16	8.31	8.54	8.16	10.23	7.51		8.33		
Anderson, Joseph (USA) (1999		time	2.68	3.78	4.88	5.97	7.07		8.03	1 / 7			
reaction time	0.171	interval		1.10	1.10	1.09	1.10	0.96			3.29		
		velocity	5.12	8.31	8.31	8.39	8.31	10.13	7.47		8.33		
Prescott, Matt (USA) (1984)		time	2.72	3.83	4.92	6.05	7.17		8.19	8 / 8			
reaction time	0.159	interval		1.11	1.09	1.13	1.12	1.02			3.33		
		velocity	5.04	8.23	8.39	8.09	8.16	9.53	7.33		8.23		

Heat 3

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CAA Hurdle Development (2020)

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mallett, Aaron (USA) (1994)		time	2.62	3.68	4.74	5.75	6.79		7.70	4 / 1			
reaction time	0.196	interval		1.06	1.06	1.01	1.04	0.91			3.13		
		velocity	5.24	8.62	8.62	9.05	8.79	10.68	7.79		8.76		
Ames, Brendan (USA) (1988)		time	2.60	3.69	4.74	5.75	6.81		7.71	3 / 2			
reaction time	0.183	interval	7 Steps	1.09	1.05	1.01	1.06	0.90			3.15		
		velocity	5.28	8.39	8.70	9.05	8.62	10.80	7.78		8.70		
Harris, Aleec (USA) (1990)		time	2.62	3.67	4.72	5.77	6.84		7.77	5 / 3			
reaction time	0.157	interval		1.05	1.05	1.05	1.07	0.93			3.15		
		velocity	5.24	8.70	8.70	8.70	8.54	10.45	7.72		8.70		
Graham, Javon (USA)		time	2.65	3.77	4.82	5.92	6.97		7.92	8 / 4			
reaction time	0.166	interval		1.12	1.05	1.10	1.05	0.95			3.27		
		velocity	5.18	8.16	8.70	8.31	8.70	10.23	7.58		8.39		
Anderson, Joseph (USA) (1999		time	2.67	3.79	4.89	5.96	7.06		7.97	2 / 5			
reaction time	0.160	interval		1.12	1.10	1.07	1.10	0.91			3.29		
		velocity	5.14	8.16	8.31	8.54	8.31	10.68	7.53		8.33		
Tawiah, Casimir (USA) (1997)		time	2.70	3.80	4.90	5.98	7.07		8.03	7 / 6			
reaction time	0.168	interval	7 Steps	1.10	1.10	1.08	1.09	0.96			3.28		
		velocity	5.08	8.31	8.31	8.46	8.39	10.13	7.47		8.36		
Snell, Errik (USA)		time	2.65	3.77	4.90	5.98	7.11		8.08	6 / 7			
reaction time	0.159	interval		1.12	1.13	1.08	1.13	0.97			3.33		
		velocity	5.18	8.16	8.09	8.46	8.09	10.02	7.43		8.23		

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CAA Hurdle Development (2020)

H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

Eaton, Jarret (USA) (1989)	time	2.62	3.67	4.69	5.74	6.81			7.74	3 / 1	
reaction time 0.154	interval	7 Steps	1.05	1.02	1.05	1.07	0.93				3.12
	velocity	5.24	8.70	8.96	8.70	8.54	10.45	7.75			8.79
Fontenot, Ryan (USA) (1986)	time	2.66	3.74	4.79	5.84	6.89			7.81	4 / 2	
reaction time 0.160	interval		1.08	1.05	1.05	1.05	0.92				3.18
	velocity	5.16	8.46	8.70	8.70	8.70	10.57	7.68			8.62
Moore, Isaiah (USA) (1996)	time	2.64	3.74	4.79	5.82	6.89			7.82	1 / 3	
reaction time 0.154	interval		1.10	1.05	1.03	1.07	0.93				3.18
	velocity	5.20	8.31	8.70	8.87	8.54	10.45	7.67			8.62
Moore, Titus (USA) (1999)	time	2.64	3.73	4.79	5.85	6.92			7.84	6 / 4	
reaction time 0.159	interval		1.09	1.06	1.06	1.07	0.92	PB			3.21
	velocity	5.20	8.39	8.62	8.62	8.54	10.57	7.65			8.54
Rooney, Taylor (USA) (1999)	time	2.70	3.82	4.89	5.99	7.09			8.06	5 / 5	
reaction time 0.219	interval	7 Steps	1.12	1.07	1.10	1.10	0.97				3.29
	velocity	5.08	8.16	8.54	8.31	8.31	10.02	7.44			8.33
Kimball, Patrick (USA) (1998)	time	2.68	3.80	4.92	5.99	7.09			8.09	7 / 6	
reaction time 0.156	interval		1.12	1.12	1.07	1.10	1.00				3.31
	velocity	5.12	8.16	8.16	8.54	8.31	9.72	7.42			8.28

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CAA Hurdle Development (2020)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zallow, Chad (USA) (1997)	time	2.57	3.62	4.67	5.72	6.81		7.67	8 / 1			
reaction time 0.168	interval		1.05	1.05	1.05	1.09	0.86			3.15		
	velocity	5.34	8.70	8.70	8.70	8.39	11.30	7.82		8.70		
Dickson, Michael (USA) (1997)	time	2.60	3.67	4.72	5.75	6.79		7.68	3 / 2			
reaction time 0.159	interval		1.07	1.05	1.03	1.04	0.89			3.15		
	velocity	5.28	8.54	8.70	8.87	8.79	10.92	7.81		8.70		
Wilt, Caleb (USA) (1997)	time	2.59	3.65	4.74	5.80	6.87		7.82	2 / 3			
reaction time 0.144	interval	7 Steps	1.06	1.09	1.06	1.07	0.95	=PB		3.21		
	velocity	5.30	8.62	8.39	8.62	8.54	10.23	7.67		8.54		
Tait, Emmanuel (USA)	time	2.64	3.72	4.84	5.87	6.96		7.89	1 / 4			
reaction time 0.146	interval		1.08	1.12	1.03	1.09	0.93	PB		3.23		
	velocity	5.20	8.46	8.16	8.87	8.39	10.45	7.60		8.49		
Fareed, Naim (USA) (1996)	time	2.64	3.70	4.79	5.86	6.99		7.94	7 / 5			
reaction time 0.153	interval		1.06	1.09	1.07	1.13	0.95			3.22		
	velocity	5.20	8.62	8.39	8.54	8.09	10.23	7.56		8.52		
Prescott, Matt (USA) (1984)	time	2.68	3.79	4.89	5.96	7.06		8.01	4 / 6			
reaction time 0.161	interval		1.11	1.10	1.07	1.10	0.95			3.28		
	velocity	5.12	8.23	8.31	8.54	8.31	10.23	7.49		8.36		
Golaube, Kamal (USA)	time	2.63	3.75	4.89	6.00	7.12		8.16	5 / 7			
reaction time 0.130	interval		1.12	1.14	1.11	1.12	1.04			3.37		
	velocity	5.22	8.16	8.02	8.23	8.16	9.35	7.35		8.14		

2020 Don Kirby Elite Invitational (Albuquerque, NM) (Altitude)

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CAA Hurdle Development (2020)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Brixey, Sam (USA) (1998)	time	2.55	3.59	4.64	5.71	6.76		7.72	4 / 1			
reaction time	interval	7 steps	1.04	1.05	1.07	1.05	0.96			3.16		
	velocity	5.38	8.79	8.70	8.54	8.70	10.13	7.77		8.68		
Zhu Shenglong (CHN) (2000)	time	2.69	3.77	4.86	5.89	6.96		7.88	5 / 2			
reaction time	interval		1.08	1.09	1.03	1.07	0.92			3.20		
	velocity	5.10	8.46	8.39	8.87	8.54	10.57	7.61		8.57		
Smith, Shakeem (BAH) (1997)	time	2.65	3.75	4.84	5.91	6.99		7.91	6 / 3			
reaction time	interval		1.10	1.09	1.07	1.08	0.92			3.26		
	velocity	5.18	8.31	8.39	8.54	8.46	10.57	7.59		8.41		
Foster, Jasher (USA) (1998)	time	2.64	3.74	4.82	5.89	6.97		7.95	7 / 4			
reaction time	interval		1.10	1.08	1.07	1.08	0.98			3.25		
	velocity	5.20	8.31	8.46	8.54	8.46	9.92	7.55		8.44		
Jiang Fan (CHN) (1989)	time	2.70	3.82	4.90	6.01	7.11		8.14	2 / 6			
reaction time	interval		1.12	1.08	1.11	1.10	1.03			3.31		
	velocity	5.08	8.16	8.46	8.23	8.31	9.44	7.37		8.28		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Semi-Final 3

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CAA Hurdle Development (2020)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jiang Fan (CHN) (1989)	time	2.68	3.80	4.85	5.94	7.00		7.96	1 / 2			
reaction time	interval		1.12	1.05	1.09	1.06	0.96			3.26		
	velocity	5.12	8.16	8.70	8.39	8.62	10.13	7.54		8.41		

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CAA Hurdle Development (2020)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.70	3.80	4.87	5.90	6.97		7.89	2 / 1			
reaction time	interval		1.10	1.07	1.03	1.07	0.92			3.20		
	velocity	5.08	8.31	8.54	8.87	8.54	10.57	7.60		8.57		

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CAA Hurdle Development (2020)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.59	3.64	4.74	5.79	6.84		7.92	2 / 1			
reaction time	interval		1.05	1.10	1.05	1.05	1.08			3.20		
	velocity	5.30	8.70	8.31	8.70	8.70	9.00	7.58		8.57		

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date 14-Feb-20

CAA Hurdle Development (2020)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jiang Fan (CHN) (1989)	time	2.55	3.65	4.72	5.79	6.87		7.94	2 / 1			
reaction time	interval		1.10	1.07	1.07	1.08	1.07			3.24		
	velocity	5.38	8.31	8.54	8.54	8.46	9.08	7.56		8.46		

2020 Millrose Games (New York, NY) (TV Analysis)

FINAL

date 08-Feb-20

Henson (2020) - Athlete First: 2020 year end hurdle report

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.47	3.54	4.57	5.61	6.67		7.64	5 / 1			
reaction time 0.194	interval	7 steps	1.07	1.03	1.04	1.06	0.97			3.14		
	velocity	5.55	8.54	8.87	8.79	8.62	10.02	7.85		8.73		
Xie Wenjun (CHN) (1990)	time	2.53	3.60	4.64	5.67	6.70		7.69	6 / 2			
reaction time 0.156	interval	7 steps	1.07	1.04	1.03	1.03	0.99			3.14		
	velocity	5.42	8.54	8.79	8.87	8.87	9.82	7.80		8.73		
Zallow, Chad (USA) (1997)	time	2.50	3.55	4.63	5.67	6.72		7.69	8 / 3			
reaction time 0.172	interval		1.05	1.08	1.04	1.05	0.97			3.17		
	velocity	5.49	8.70	8.46	8.79	8.70	10.02	7.80		8.65		
Harris, Aleec (USA) (1990)	time	2.56	3.64	4.70	5.73	6.80		7.77	4 / 4			
reaction time 0.167	interval		1.08	1.06	1.03	1.07	0.97			3.17		
	velocity	5.36	8.46	8.62	8.87	8.54	10.02	7.72		8.65		
Dickson, Michael (USA) (1997)	time	2.60	3.67	4.74	5.80	6.84		7.83	7 / 5			
reaction time 0.231	interval		1.07	1.07	1.06	1.04	0.99			3.20		
	velocity	5.28	8.54	8.54	8.62	8.79	9.82	7.66		8.57		
Lovett, Eddie (ISV) (1994)	time	2.57	3.67	4.74	5.77	6.87		7.85	3 / 6			
reaction time 0.180	interval	7 steps	1.10	1.07	1.03	1.10	0.98			3.20		
	velocity	5.34	8.31	8.54	8.87	8.31	9.92	7.64		8.57		
Hairston, Max (USA) (1994)	time	2.57	3.67	4.77	5.81	6.87		7.87	2 / 7			
reaction time 0.206	interval	7 steps	1.10	1.10	1.04	1.06	1.00			3.24		
	velocity	5.34	8.31	8.31	8.79	8.62	9.72	7.62		8.46		

2020 Mountain T's Invitational (Flagstaff AZ) (Altitude)

FINAL

date 01-Feb-20

CAA Hurdle Development (2020)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.64	3.72	4.76	5.79	6.82		7.74	6 / 1			
reaction time	interval		1.08	1.04	1.03	1.03	0.92	PB		3.15		
	velocity	5.20	8.46	8.79	8.87	8.87	10.57	7.75		8.70		
Xie Wenjun (CHN) (1990)	time	2.65	3.70	4.75	5.78	6.82		7.75	4 / 2			
reaction time	interval	7 steps	1.05	1.05	1.03	1.04	0.93			3.13		
	velocity	5.18	8.70	8.70	8.87	8.79	10.45	7.74		8.76		
Charles, Jordan (USA) (1995)	time	2.60	3.70	4.76	5.80	6.85		7.78	5 / 3			
reaction time	interval	7 steps	1.10	1.06	1.04	1.05	0.93	PB		3.20		
	velocity	5.28	8.31	8.62	8.79	8.70	10.45	7.71		8.57		
Hairston, Max (USA) (1994)	time	2.65	3.75	4.82	5.92	6.99		7.91	3 / 4			
reaction time	interval	7 steps	1.10	1.07	1.10	1.07	0.92			3.27		
	velocity	5.18	8.31	8.54	8.31	8.54	10.57	7.59		8.39		

Jiang Fan (CHN) (1989)	time	2.72	3.81	4.89	5.98	7.04						7.97	2 / 5			
reaction time	interval		1.09	1.08	1.09	1.06					0.93			3.26		
	velocity	5.04	8.39	8.46	8.39	8.62					10.45	7.53		8.41		

Heat 3

date 01-Feb-20 — *CAA Hurdle Development (2020)*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.64	3.74	4.79	5.83	6.87		7.80	4 / 1			
reaction time	interval	7 steps	1.10	1.05	1.04	1.04	0.93			3.19		
	velocity	5.20	8.31	8.70	8.79	8.79	10.45	7.69		8.60		

Heat 2

date 01-Feb-20 — *CAA Hurdle Development (2020)*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hairston, Max (USA) (1994)	time	2.66	3.75	4.86	5.94	7.03		7.96	4 / 1			
reaction time	interval	7 steps	1.09	1.11	1.08	1.09	0.93			3.28		
	velocity	5.16	8.39	8.23	8.46	8.39	10.45	7.54		8.36		
Jiang Fan (CHN) (1989)	time	2.72	3.82	4.91	5.97	7.02		7.97	5 / 2			
reaction time	interval		1.10	1.09	1.06	1.05	0.95			3.25		
	velocity	5.04	8.31	8.39	8.62	8.70	10.23	7.53		8.44		

Heat 1

date 01-Feb-20 — *CAA Hurdle Development (2020)*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.67	3.75	4.82	5.86	6.90		7.83	5 / 2			
reaction time	interval		1.08	1.07	1.04	1.04	0.93	PB		3.19		
	velocity	5.14	8.46	8.54	8.79	8.79	10.45	7.66		8.60		

2020 Leonard Hilton Memorial Invitational (Houston, TX)

FINAL

date 17-Jan-20 — *CAA Hurdle Development (2020)*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Akindele, Oladayo (USA) (1996)	time	2.53	3.60	4.64	5.67	6.71		7.78	5 / 1			
reaction time	interval	7 steps	1.07	1.04	1.03	1.04	1.07	PB		3.14		
	velocity	5.42	8.54	8.79	8.87	8.79	9.08	7.71		8.73		
Burt, John (USA) (1997)	time	2.49	3.58	4.65	5.71	6.79		7.88	6 / 2			
reaction time	interval		1.09	1.07	1.06	1.08	1.09			3.22		
	velocity	5.51	8.39	8.54	8.62	8.46	8.92	7.61		8.52		
Zhu Shenglong (CHN) (2000)	time	2.60	3.67	4.76	5.81	6.87		7.91	3 / 3			
reaction time	interval		1.07	1.09	1.05	1.06	1.04	PB		3.21		
	velocity	5.28	8.54	8.39	8.70	8.62	9.35	7.59		8.54		

Heast 3

date 17-Jan-20 — *CAA Hurdle Development (2020)*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.62	3.71	4.79	5.84	6.92		8.00	5 / 1			
reaction time	interval		1.09	1.08	1.05	1.08	1.08			3.22		
	velocity	5.24	8.39	8.46	8.70	8.46	9.00	7.50		8.52		

2019 Japanese National U18/U20 Championships (Hiroshima, JPN)

U20 FINAL (99cm)

date 18-Oct-19 wind -0.6 m/s — *Kijima (2019) - research on athlete performance and technique- 2019 data book*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)	time	2.60	3.64	4.70	5.74	6.78	7.83	8.87	9.94	11.01	12.08		13.54	5 / 1			
reaction time 0.144	interval		1.04	1.06	1.04	1.04	1.05	1.04	1.07	1.07	1.07	1.46			3.14	3.13	3.21
	velocity	5.28	8.79	8.62	8.79	8.79	8.70	8.79	8.54	8.54	8.54	9.60	8.12		8.73	8.76	8.54
Kurokawa, Kazuki (JPN) (2001)	time	2.59	3.68	4.74	5.79	6.85	7.90	8.99	10.08	11.17	12.25		13.73	6 / 2			
reaction time 0.131	interval	7 steps	1.09	1.06	1.05	1.06	1.05	1.09	1.09	1.09	1.08	1.48			3.20	3.20	3.26
	velocity	5.30	8.39	8.62	8.70	8.62	8.70	8.39	8.39	8.39	8.46	9.47	8.01		8.57	8.57	8.41
Furuya, Shinta (JPN) (2000)	time	2.60	3.69	4.75	5.79	6.85	7.91	8.99	10.06	11.17	12.28		13.79	7 / 3			
reaction time 0.122	interval		1.09	1.06	1.04	1.06	1.06	1.08	1.07	1.11	1.11	1.51			3.19	3.20	3.29
	velocity	5.28	8.39	8.62	8.79	8.62	8.62	8.46	8.54	8.23	8.23	9.28	7.98		8.60	8.57	8.33

U18 FINAL (99cm)

date 18-Oct-19 wind -0.4 m/s — *Kijima (2019) - research on athlete performance and technique- 2019 data book*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takahashi, Harumasa (JPN) (20	time	2.62	3.73	4.80	5.85	6.90	7.92	8.97	10.01	11.08	12.15		13.60	6 / 1			
reaction time 0.131	interval		1.11	1.07	1.05	1.05	1.02	1.05	1.04	1.07	1.07	1.45			3.23	3.12	3.18
	velocity	5.24	8.23	8.54	8.70	8.70	8.96	8.70	8.79	8.54	8.54	9.67	8.09		8.49	8.79	8.62
Kondo, Mizuki (JPN) (2003)	time	2.64	3.70	4.76	5.80	6.83	7.88	8.92	9.97	11.03	12.13		13.60	3 / 2			
reaction time 0.152	interval		1.06	1.06	1.04	1.03	1.05	1.04	1.05	1.06	1.10	1.47			3.16	3.12	3.21
	velocity	5.20	8.62	8.62	8.79	8.87	8.70	8.79	8.70	8.62	8.31	9.54	8.09		8.68	8.79	8.54
Kataoka, Takumi (JPN) (2002)	time	2.64	3.74	4.82	5.93	6.99	8.07	9.16	10.25	11.34	12.46		13.94	8 / 3			
reaction time 0.115	interval		1.10	1.08	1.11	1.06	1.08	1.09	1.09	1.09	1.12	1.48			3.29	3.23	3.30
	velocity	5.20	8.31	8.46	8.23	8.62	8.46	8.39	8.39	8.39	8.16	9.47	7.89		8.33	8.49	8.31

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

2019 National Sports Festival (Hitachinaka, JPN) (99cm)

FINAL

date 06-Oct-19 wind 2.7 m/s

Enomoto (2019) - research on athlete performance and technique- 2019 data book

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)		time	2.60	3.66	4.69	5.73	6.75	7.79	8.83	9.88	10.92	11.97		13.37	4 / 1			
reaction time	0.160	interval		1.06	1.03	1.04	1.02	1.04	1.04	1.05	1.04	1.05	1.40			3.13	3.10	3.14
		velocity	5.28	8.62	8.87	8.79	8.96	8.79	8.79	8.70	8.79	8.70	10.01	8.23		8.76	8.85	8.73
Kondo, Mizuki (JPN) (2003)		time	2.63	3.68	4.72	5.73	6.76	7.78	8.82	9.87	10.92	11.98		13.45	6 / 2			
reaction time	0.142	interval		1.05	1.04	1.01	1.03	1.02	1.04	1.05	1.05	1.06	1.47			3.10	3.09	3.16
		velocity	5.22	8.70	8.79	9.05	8.87	8.96	8.79	8.70	8.70	8.62	9.54	8.18		8.85	8.87	8.68
Kurokawa, Kazuki (JPN) (2001)		time	2.61	3.69	4.75	5.78	6.80	7.83	8.88	9.92	10.97	12.02		13.49	9 / 3			
reaction time	0.157	interval		1.08	1.06	1.03	1.02	1.03	1.05	1.04	1.05	1.05	1.47			3.17	3.10	3.14
		velocity	5.26	8.46	8.62	8.87	8.96	8.87	8.70	8.79	8.70	8.70	9.54	8.15		8.65	8.85	8.73
Kikuchi, Rintaro (JPN) (2001)		time	2.57	3.62	4.70	5.76	6.83	7.85	8.92	9.94	11.02	12.10		13.54	2 / 4			
reaction time	0.132	interval		1.05	1.08	1.06	1.07	1.02	1.07	1.02	1.08	1.08	1.44			3.19	3.16	3.18
		velocity	5.34	8.70	8.46	8.62	8.54	8.96	8.54	8.96	8.46	8.46	9.74	8.12		8.60	8.68	8.62
Miyazaki, Takumi (JPN) (2001)		time	2.64	3.72	4.79	5.86	6.89	7.94	8.97	10.03	11.08	12.15		13.60	5 / 5			
reaction time	0.150	interval		1.08	1.07	1.07	1.03	1.05	1.03	1.06	1.05	1.07	1.45			3.22	3.11	3.18
		velocity	5.20	8.46	8.54	8.54	8.87	8.70	8.87	8.62	8.70	8.54	9.67	8.09		8.52	8.82	8.62
Machi, Ryota (JPN) (2001)		time	2.64	3.74	4.80	5.86	6.93	7.95	9.01	10.08	11.16	12.26		13.72	7 / 6			
reaction time	0.145	interval		1.10	1.06	1.06	1.07	1.02	1.06	1.07	1.08	1.10	1.46			3.22	3.15	3.25
		velocity	5.20	8.31	8.62	8.62	8.54	8.96	8.62	8.54	8.46	8.31	9.60	8.02		8.52	8.70	8.44
Ono, Kazuto (JPN) (2001)		time	2.68	3.76	4.84	5.91	6.97	8.03	9.10	10.16	11.24	12.32		13.79	3 / 7			
reaction time	0.157	interval		1.08	1.08	1.07	1.06	1.06	1.07	1.06	1.08	1.08	1.47			3.23	3.19	3.22
		velocity	5.12	8.46	8.46	8.54	8.62	8.62	8.54	8.62	8.46	8.46	9.54	7.98		8.49	8.60	8.52
Sugaya, Takumi (JPN) (2001)		time	2.68	3.76	4.82	5.88	6.93	7.98	9.04	10.13	11.20	12.28		13.79	8 / 8			
reaction time	0.150	interval		1.08	1.06	1.06	1.05	1.05	1.06	1.09	1.07	1.08	1.51			3.20	3.16	3.24
		velocity	5.12	8.46	8.62	8.62	8.70	8.70	8.62	8.39	8.54	8.46	9.28	7.98		8.57	8.68	8.46

2019 IAAF World Championships (Doha, QAT)

Decathlon - Heat 3

date 03-Oct-19 wind 0.8 m/s

Henson (2021) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Warner, Damion (CAN) (1989)		time	2.48	3.56	4.58	5.62	6.66	7.70	8.76	9.82	10.88	11.96		13.56	5 / 1			
reaction time	0.143	interval	7 steps	1.08	1.02	1.04	1.04	1.04	1.06	1.06	1.06	1.08	1.60			3.14	3.14	3.20
		velocity	5.53	8.46	8.96	8.79	8.79	8.79	8.62	8.62	8.62	8.46	8.76	8.11		8.73	8.73	8.57

FINAL

date 02-Oct-19 wind 0.6 m/s

CAA Hurdle Development (2019)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.46	3.46	4.44	5.41	6.41	7.40	8.42	9.44	10.50	11.60		13.10	6 / 1			
reaction time	0.158	interval	7 steps	1.00	0.98	0.97	1.00	0.99	1.02	1.02	1.06	1.10	1.50			2.95	3.01	3.18
		velocity	5.58	9.14	9.33	9.42	9.14	9.23	8.96	8.96	8.62	8.31	9.35	8.40		9.29	9.11	8.62
Shubenkov, Sergey (ANA) (199		time	2.62	3.66	4.66	5.66	6.65	7.66	8.67	9.68	10.74	11.79		13.15	9 / 2			
reaction time	0.150	interval	7 steps	1.04	1.00	1.00	0.99	1.01	1.01	1.01	1.06	1.05	1.36			3.04	3.01	3.12
		velocity	5.24	8.79	9.14	9.14	9.23	9.05	9.05	9.05	8.62	8.70	10.31	8.37		9.02	9.11	8.79
Martinot-Lagarde, Pascal (FRA		time	2.55	3.59	4.61	5.61	6.61	7.63	8.64	9.65	10.69	11.75		13.18	7 / 3			
reaction time	0.161	interval	7 steps	1.04	1.02	1.00	1.00	1.02	1.01	1.01	1.04	1.06	1.43			3.06	3.03	3.11
		velocity	5.38	8.79	8.96	9.14	9.14	8.96	9.05	9.05	8.79	8.62	9.80	8.35		8.96	9.05	8.82
Ortega, Orlando (ESP) (1991)		time	2.58	3.60	4.65	5.63	6.66	7.65	8.63	9.66	10.69	11.79		13.30	5 / 3			
reaction time	0.130	interval	7 steps	1.02	1.05	0.98	1.03	0.99	0.98	1.03	1.03	1.10	1.51			3.05	3.00	3.16
		velocity	5.32	8.96	8.70	9.33	8.87	9.23	9.33	8.87	8.87	8.31	9.28	8.27		8.99	9.14	8.68
Xie Wenjun (CHN) (1990)		time	2.59	3.64	4.66	5.68	6.69	7.71	8.73	9.76	10.80	11.86		13.29	2 / 5			
reaction time	0.140	interval	7 steps	1.05	1.02	1.02	1.01	1.02	1.02	1.03	1.04	1.06	1.43			3.09	3.05	3.13
		velocity	5.30	8.70	8.96	8.96	9.05	8.96	8.96	8.87	8.79	8.62	9.80	8.28		8.87	8.99	8.76
Brathwaite, Shane (BAR) (1990		time	2.62	3.68	4.78	5.85	6.91	7.96	8.99	10.04	11.09	12.15		13.61	1 / 6			
reaction time	0.149	interval		1.06	1.10	1.07	1.06	1.05	1.03	1.05	1.05	1.06	1.46			3.23	3.14	3.16
		velocity	5.24	8.62	8.31	8.54	8.62	8.70	8.87	8.70	8.70	8.62	9.60	8.08		8.49	8.73	8.68
Allen, Devon (USA) (1994)		time	2.58	3.67	4.73	5.77	6.80	7.82	8.88	9.94	11.05	12.19		13.70	3 / 7			
reaction time	0.124	interval		1.09	1.06	1.04	1.03	1.02	1.06	1.06	1.11	1.14	1.51			3.19	3.11	3.31
		velocity	5.32	8.39	8.62	8.79	8.87	8.96	8.62	8.62	8.23	8.02	9.28	8.03		8.60	8.82	8.28
Trajkovic, Milan (CYP) (1992)		time	2.57	3.62	4.62	5.64	6.63	7.65	8.81	10.07	11.25	12.39		13.87	8 / 8			
reaction time	0.150	interval	7 steps	1.05	1.00	1.02	0.99	1.02	1.16	1.26	1.18	1.14	1.48			3.07	3.17	3.58

		velocity	5.34	8.70	9.14	8.96	9.23	8.96	7.88	7.25	7.75	8.02	9.47	7.93		8.93	8.65	7.66
McLeod, Omar (JAM) (1994)		time	2.53	3.53	4.54	5.57	6.56	7.53	8.54	9.54	10.70	12.00		14.10	4 / --			
reaction time	0.128	interval		1.00	1.01	1.03	0.99	0.97	1.01	1.00	1.16	1.30	2.10	DQ		3.04	2.97	3.46
		velocity	5.42	9.14	9.05	8.87	9.23	9.42	9.05	9.14	7.88	7.03	6.68	7.80		9.02	9.23	7.92

Semi-Final 3

date 02-Oct-19 wind 0.6 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)		time	2.58	3.63	4.63	5.67	6.66	7.67	8.68	9.69	10.74	11.77		13.16	4 / 1			
reaction time	0.131	interval	7 steps	1.05	1.00	1.04	0.99	1.01	1.01	1.01	1.05	1.03	1.39			3.09	3.01	3.09
		velocity	5.32	8.70	9.14	8.79	9.23	9.05	9.05	9.05	8.70	8.87	10.09	8.36		8.87	9.11	8.87
Trajkovic, Milan (CYP) (1992)		time	2.58	3.61	4.63	5.62	6.62	7.63	8.65	9.69	10.77	11.85		13.29	7 / 2			
reaction time	0.162	interval	7 steps	1.03	1.02	0.99	1.00	1.01	1.02	1.04	1.08	1.08	1.44			3.04	3.03	3.20
		velocity	5.32	8.87	8.96	9.23	9.14	9.05	8.96	8.79	8.46	8.46	9.74	8.28		9.02	9.05	8.57
Alkana, Antonio (RSA) (1990)		time	2.58	3.61	4.67	5.69	6.73	7.77	8.81	9.87	10.94	12.03		13.47	5 / 3			
reaction time	0.123	interval		1.03	1.06	1.02	1.04	1.04	1.04	1.06	1.07	1.09	1.44			3.11	3.12	3.22
		velocity	5.32	8.87	8.62	8.96	8.79	8.79	8.79	8.62	8.54	8.39	9.74	8.17		8.82	8.79	8.52
Douvalídis, Konstadínos (GRE		time	2.65	3.71	4.75	5.77	6.81	7.86	8.92	9.99	11.05	12.13		13.54	9 / 4			
reaction time	0.198	interval	7 steps	1.06	1.04	1.02	1.04	1.05	1.06	1.07	1.06	1.08	1.41			3.12	3.15	3.21
		velocity	5.18	8.62	8.79	8.96	8.79	8.70	8.62	8.54	8.62	8.46	9.94	8.12		8.79	8.70	8.54
Riley, Andrew (JAM) (1988)		time	2.57	3.60	4.66	5.68	6.76	7.82	8.88	9.94	11.02	12.13		13.57	8 / 5			
reaction time	0.136	interval		1.03	1.06	1.02	1.08	1.06	1.06	1.06	1.08	1.11	1.44			3.11	3.20	3.25
		velocity	5.34	8.87	8.62	8.96	8.46	8.62	8.62	8.62	8.46	8.23	9.74	8.11		8.82	8.57	8.44
Takayama, Shunya (JPN) (1994		time	2.54	3.58	4.58	5.60	6.61	7.67	8.86	9.99	11.07	12.16		13.58	6 / 6			
reaction time	0.144	interval		1.04	1.00	1.02	1.01	1.06	1.19	1.13	1.08	1.09	1.42			3.06	3.26	3.30
		velocity	5.40	8.79	9.14	8.96	9.05	8.62	7.68	8.09	8.46	8.39	9.87	8.10		8.96	8.41	8.31
Belocian, Wilhem (FRA) (1995)		time	2.58	3.64	4.66	5.67	6.72	7.74	8.80	9.90	11.00	12.12		13.60	3 / 7			
reaction time	0.133	interval	7 steps	1.06	1.02	1.01	1.05	1.02	1.06	1.10	1.10	1.12	1.48			3.09	3.13	3.32
		velocity	5.32	8.62	8.96	9.05	8.70	8.96	8.62	8.31	8.31	8.16	9.47	8.09		8.87	8.76	8.26
Hough, Nicholas (AUS) (1993)		time	2.66	3.72	4.77	5.78	6.84	7.90	8.93	10.00	11.06	12.15		13.61	2 / 8			
reaction time	0.176	interval	7 steps	1.06	1.05	1.01	1.06	1.06	1.03	1.07	1.06	1.09	1.46			3.12	3.15	3.22
		velocity	5.16	8.62	8.70	9.05	8.62	8.62	8.87	8.54	8.62	8.39	9.60	8.08		8.79	8.70	8.52

Semi-Final 2

date 02-Oct-19 wind 0.9 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time	2.51	3.54	4.54	5.54	6.58	7.59	8.61	9.65	10.70	11.76		13.08	5 / 1			
reaction time	0.141	interval		1.03	1.00	1.00	1.04	1.01	1.02	1.04	1.05	1.06	1.32			3.03	3.07	3.15
		velocity	5.47	8.87	9.14	9.14	8.79	9.05	8.96	8.79	8.70	8.62	10.62	8.41		9.05	8.93	8.70
Martinot-Lagarde, Pascal (FRA		time	2.55	3.60	4.61	5.61	6.62	7.62	8.62	9.65	10.68	11.73		13.12	6 / 2			
reaction time	0.163	interval	7 steps	1.05	1.01	1.00	1.01	1.00	1.00	1.03	1.03	1.05	1.39			3.06	3.01	3.11
		velocity	5.38	8.70	9.05	9.14	9.05	9.14	9.14	8.87	8.87	8.70	10.09	8.38		8.96	9.11	8.82
Xie Wenjun (CHN) (1990)		time	2.56	3.60	4.63	5.64	6.66	7.67	8.68	9.69	10.73	11.78		13.22	7 / 3			
reaction time	0.137	interval	7 steps	1.04	1.03	1.01	1.02	1.01	1.01	1.01	1.04	1.05	1.44			3.08	3.04	3.10
		velocity	5.36	8.79	8.87	9.05	8.96	9.05	9.05	9.05	8.79	8.70	9.74	8.32		8.90	9.02	8.85
Allen, Devon (USA) (1994)		time	2.60	3.64	4.67	5.69	6.76	7.75	8.80	9.83	10.87	11.95		13.36	9 / 4			
reaction time	0.119	interval		1.04	1.03	1.02	1.07	0.99	1.05	1.03	1.04	1.08	1.41			3.09	3.11	3.15
		velocity	5.28	8.79	8.87	8.96	8.54	9.23	8.70	8.87	8.79	8.46	9.94	8.23		8.87	8.82	8.70
Chen Keui-Ru (TPE) (1993)		time	2.53	3.59	4.63	5.66	6.70	7.74	8.82	9.89	10.96	12.05		13.52	8 / 5			
reaction time	0.132	interval	7 steps	1.06	1.04	1.03	1.04	1.04	1.08	1.07	1.07	1.09	1.47			3.13	3.16	3.23
		velocity	5.42	8.62	8.79	8.87	8.79	8.79	8.46	8.54	8.54	8.39	9.54	8.14		8.76	8.68	8.49
Fofana, Hassane (ITA) (1992)		time	2.60	3.67	4.72	5.75	6.79	7.83	8.87	9.92	10.99	12.08		13.52	2 / 6			
reaction time	0.155	interval	7 steps	1.07	1.05	1.03	1.04	1.04	1.04	1.05	1.07	1.09	1.44			3.15	3.12	3.21
		velocity	5.28	8.54	8.70	8.87	8.79	8.79	8.79	8.70	8.54	8.39	9.74	8.14		8.70	8.79	8.54
Joseph, Jason (SUI) (1998)		time	2.62	3.67	4.71	5.75	6.77	7.79	8.82	9.90	10.97	12.08		13.53	4 / 7			
reaction time	0.158	interval	7 steps	1.05	1.04	1.04	1.02	1.02	1.03	1.08	1.07	1.11	1.45			3.13	3.07	3.26
		velocity	5.24	8.70	8.79	8.79	8.96	8.96	8.87	8.46	8.54	8.23	9.67	8.13		8.76	8.93	8.41
Chaverra, Joan Camilo (PUR) (		time	2.60	3.66	4.71	5.74	6.77	7.81	8.85	9.93	11.06	12.19		13.76	3 / 8			
reaction time	0.164	interval	7 steps	1.06	1.05	1.03	1.03	1.04	1.04	1.08	1.13	1.13	1.57			3.14	3.11	3.34
		velocity	5.28	8.62	8.70	8.87	8.87	8.79	8.79	8.46	8.09	8.09	8.93	7.99		8.73	8.82	8.21

Semi-Final 1

date 02-Oct-19 wind 1.1 m/s *CAA Hurdle Development (2019)*

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

Holloway, Grant (USA) (1997)	time	2.50	3.50	4.46	5.43	6.40	7.39	8.40	9.42	10.48	11.62		13.10	5 / 1				
reaction time 0.166	interval	7 steps	1.00	0.96	0.97	0.97	0.99	1.01	1.02	1.06	1.14	1.48			2.93	2.97	3.22	
	velocity	5.49	9.14	9.52	9.42	9.42	9.23	9.05	8.96	8.62	8.02	9.47	8.40		9.36	9.23	8.52	
Shubenkov, Sergey (ANA) (199	time	2.62	3.66	4.68	5.68	6.68	7.68	8.68	9.70	10.74	11.78		13.18	6 / 2				
reaction time 0.129	interval	7 steps	1.04	1.02	1.00	1.00	1.00	1.00	1.02	1.04	1.04	1.40			3.06	3.00	3.10	
	velocity	5.24	8.79	8.96	9.14	9.14	9.14	9.14	8.96	8.79	8.79	10.01	8.35		8.96	9.14	8.85	
Bascou, Dimitri (FRA) (1987)	time	2.58	3.62	4.66	5.68	6.70	7.74	8.80	9.88	10.94	12.04		13.48	2 / 3				
reaction time 0.152	interval	7 steps	1.04	1.04	1.02	1.02	1.04	1.06	1.08	1.06	1.10	1.44			3.10	3.12	3.24	
	velocity	5.32	8.79	8.79	8.96	8.96	8.79	8.62	8.46	8.62	8.31	9.74	8.16		8.85	8.79	8.46	
Al-Yoha, Yaqoub (KUW) (1993	time	2.62	3.66	4.70	5.72	6.74	7.76	8.82	9.90	10.98	12.10		13.57	9 / 4				
reaction time 0.154	interval		1.04	1.04	1.02	1.02	1.02	1.06	1.08	1.08	1.12	1.47			3.10	3.10	3.28	
	velocity	5.24	8.79	8.79	8.96	8.96	8.96	8.62	8.46	8.46	8.16	9.54	8.11		8.85	8.85	8.36	
Pozzi, Andy (GBR) (1992)	time	2.58	3.61	4.64	5.66	6.68	7.74	8.86	9.94	11.04	12.14		13.60	4 / 5				
reaction time 0.123	interval	7 steps	1.03	1.03	1.02	1.02	1.06	1.12	1.08	1.10	1.10	1.46			3.08	3.20	3.28	
	velocity	5.32	8.87	8.87	8.96	8.96	8.62	8.16	8.46	8.31	8.31	9.60	8.09		8.90	8.57	8.36	
Bennett, Orlando (JAM) (1999)	time	2.62	3.72	4.76	5.80	6.84	7.90	8.92	10.00	11.08	12.18		13.60	3 / 6				
reaction time 0.162	interval		1.10	1.04	1.04	1.04	1.06	1.02	1.08	1.08	1.10	1.42			3.18	3.12	3.26	
	velocity	5.24	8.31	8.79	8.79	8.79	8.62	8.96	8.46	8.46	8.31	9.87	8.09		8.62	8.79	8.41	
Levy, Ronald (JAM) (1992)	time	2.62	3.70	4.74	5.78	6.80	7.82	8.86	9.90	10.96	12.04		13.60	7 / ~~7~~				
reaction time 0.163	interval	7 steps	1.08	1.04	1.04	1.02	1.02	1.04	1.04	1.06	1.08	1.56	DQ		3.16	3.08	3.18	
	velocity	5.24	8.46	8.79	8.79	8.96	8.96	8.79	8.79	8.62	8.46	8.99	8.09		8.68	8.90	8.62	
Brathwaite, Shane (BAR) (1990	time	2.62	3.68	4.70	5.72	6.74	7.76	8.79	9.86	10.92	12.12		14.29	8 / ~~8~~ 7				
reaction time 0.169	interval		1.06	1.02	1.02	1.02	1.02	1.03	1.07	1.06	1.20	2.17			3.10	3.07	3.33	
	velocity	5.24	8.62	8.96	8.96	8.96	8.96	8.87	8.54	8.62	7.62	6.46	7.70		8.85	8.93	8.23	

Heat 5

date 30-Sep-19 wind -0.5 m/s

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.58	3.63	4.63	5.63	6.63	7.64	8.63	9.66	10.68	11.74		13.15	9 / 1			
reaction time 0.140	interval	7 steps	1.05	1.00	1.00	1.00	1.01	0.99	1.03	1.02	1.06	1.41			3.05	3.00	3.11
	velocity	5.32	8.70	9.14	9.14	9.14	9.05	9.23	8.87	8.96	8.62	9.94	8.37		8.99	9.14	8.82

Henson (2021) - Athlete First: 2019 year end hurdle report (TV Analysis)

Heat 4

date 30-Sep-19 wind 0.4 m/s

Shibayama (2019) - race analysis of men's 110m hurdles in the 2019 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.38	3.38	4.34	5.32	6.32	7.30	8.32	9.36	10.42	11.56		13.22	8 / 1			*Henson (2021)*
reaction time 0.160	interval	7 steps	1.00	0.96	0.98	1.00	0.98	1.02	1.04	1.06	1.14	1.66			2.94	3.00	3.24
	velocity	5.76	9.14	9.52	9.33	9.14	9.33	8.96	8.79	8.62	8.02	8.45	8.32		9.33	9.14	8.46
Takayama, Shunya (JPN) (1994	time	2.56	3.58	4.62	5.64	6.66	7.69	8.72	9.77	10.83	11.89		13.32	7 / 2			*Shibayama (2019)*
reaction time 0.146	interval		1.02	1.04	1.02	1.02	1.03	1.03	1.05	1.06	1.06	1.43			3.08	3.08	3.17
	velocity	5.36	8.96	8.79	8.96	8.96	8.87	8.87	8.70	8.62	8.62	9.80	8.26		8.90	8.90	8.65

Heat 3 (TV Analysis)

date 30-Sep-19 wind -0.4 m/s

Henson (2021) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.42	3.46	4.48	5.48	6.48	7.52	8.54	9.58	10.62	11.76		13.38	4 / ~~1~~			
reaction time 0.186	interval		1.04	1.02	1.00	1.00	1.04	1.02	1.04	1.04	1.14	1.62	DQ		3.06	3.06	3.22
	velocity	5.67	8.79	8.96	9.14	9.14	8.79	8.96	8.79	8.79	8.02	8.65	8.22		8.96	8.96	8.52
Martinot-Lagarde, Pascal (FRA	time	2.48	3.52	4.56	5.58	6.60	7.62	8.68	9.72	10.80	11.90		13.45	5 / ~~2~~ 1			
reaction time 0.160	interval	7 steps	1.04	1.04	1.02	1.02	1.02	1.06	1.04	1.08	1.10	1.55			3.10	3.10	3.22
	velocity	5.53	8.79	8.79	8.96	8.96	8.96	8.62	8.79	8.46	8.31	9.05	8.18		8.85	8.85	8.52

Shibayama (2020) - race analysis of men's 110m hurdles in the 2020 season

Heat 2

date 30-Sep-19 wind 0.5 m/s

Shibayama (2019) - race analysis of men's 110m hurdles in the 2019 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199	time	2.52	3.52	4.54	5.54	6.54	7.54	8.58	9.62	10.68	11.74		13.27	6 / 1			*Henson (2021) (TV)*
reaction time 0.138	interval	7 steps	1.00	1.02	1.00	1.00	1.00	1.04	1.04	1.06	1.06	1.53			3.02	3.04	3.16
	velocity	5.44	9.14	8.96	9.14	9.14	9.14	8.79	8.79	8.62	8.62	9.16	8.29		9.08	9.02	8.68
Brathwaite, Shane (BAR) (1990	time	2.62	3.65	4.72	5.73	6.76	7.81	8.84	9.88	10.96	12.04		13.51	3 / 4			*Shibayama (2020)*
reaction time 0.156	interval		1.03	1.07	1.01	1.03	1.05	1.03	1.04	1.08	1.08	1.47			3.11	3.11	3.20
	velocity	5.24	8.87	8.54	9.05	8.87	8.70	8.87	8.79	8.46	8.46	9.54	8.14		8.82	8.82	8.57
Kanai, Taio (JPN) (1995)	time	2.58	3.64	4.70	5.76	6.84	7.90	8.99	10.09	11.20	12.31		13.74	7 / 7			*Shibayama (2019)*
reaction time 0.125	interval	7 steps	1.06	1.06	1.06	1.08	1.06	1.09	1.10	1.11	1.11	1.43			3.18	3.23	3.32
	velocity	5.32	8.62	8.62	8.62	8.46	8.62	8.39	8.31	8.23	8.23	9.80	8.01		8.62	8.49	8.26

Heat 1 (TV Analysis)

date 30-Sep-19 wind 0.2 m/s

Henson (2021) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.52	3.54	4.56	5.56	6.58	7.60	8.62	9.66	10.70	11.76		13.17	9 / 1			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.132	interval		1.02	1.02	1.00	1.02	1.02	1.02	1.04	1.04	1.06	1.41			3.04	3.06	3.14
		velocity	5.44	8.96	8.96	9.14	8.96	8.96	8.96	8.79	8.79	8.62	9.94	8.35		9.02	8.96	8.73

2019 The Match - Europe v USA (Minsk, BLR) (TV Analysis)

FINAL date 10-Sep-19 wind 0.1 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)		time	2.58	3.64	4.66	5.71	6.71	7.73	8.73	9.73	10.75	11.77		13.21	5 / 1			
reaction time	0.158	interval	7 steps	1.06	1.02	1.05	1.00	1.02	1.00	1.00	1.02	1.02	1.44			3.13	3.02	3.04
		velocity	5.32	8.62	8.96	8.70	9.14	8.96	9.14	9.14	8.96	8.96	9.74	8.33		8.76	9.08	9.02
Shubenkov, Sergey (ANA) (199		time	2.60	3.66	4.73	5.76	6.80	7.83	8.83	9.86	10.90	11.96		13.39	7 / 2			
reaction time	0.186	interval	7 steps	1.06	1.07	1.03	1.04	1.03	1.00	1.03	1.04	1.06	1.43			3.16	3.07	3.13
		velocity	5.28	8.62	8.54	8.87	8.79	8.87	9.14	8.87	8.79	8.62	9.80	8.22		8.68	8.93	8.76
Crittenden, Freddie (USA) (199		time	2.60	3.63	4.66	5.71	6.73	7.77	8.77	9.77	10.88	11.90		13.43	4 / 3			
reaction time	0.161	interval		1.03	1.03	1.05	1.02	1.04	1.00	1.00	1.11	1.02	1.53			3.11	3.06	3.13
		velocity	5.28	8.87	8.87	8.70	8.96	8.79	9.14	9.14	8.23	8.96	9.16	8.19		8.82	8.96	8.76
Pozzi, Andy (GBR) (1992)		time	2.53	3.60	4.63	5.63	6.65	7.71	8.75	9.82	10.90	12.06		13.59	3 / 4			
reaction time	0.155	interval	7 steps	1.07	1.03	1.00	1.02	1.06	1.04	1.07	1.08	1.16	1.53			3.10	3.12	3.31
		velocity	5.42	8.54	8.87	9.14	8.96	8.62	8.79	8.54	8.46	7.88	9.16	8.09		8.85	8.79	8.28
Dickson, Michael (USA) (1997)		time	2.60	3.68	4.72	5.78	6.86	7.93	8.96	10.10	11.16	12.23		13.70	6 / 5			
reaction time	0.189	interval		1.08	1.04	1.06	1.08	1.07	1.03	1.14	1.06	1.07	1.47			3.18	3.18	3.27
		velocity	5.28	8.46	8.79	8.62	8.46	8.54	8.87	8.02	8.62	8.54	9.54	8.03		8.62	8.62	8.39
Parakhonka, Vitali (BLR) (1993)		time	2.63	3.73	4.78	5.80	6.83	7.92	8.96	10.10	11.16	12.28		13.80	9 / 6			
reaction time	0.162	interval		1.10	1.05	1.02	1.03	1.09	1.04	1.14	1.06	1.12	1.52			3.17	3.16	3.32
		velocity	5.22	8.31	8.70	8.96	8.87	8.39	8.79	8.02	8.62	8.16	9.22	7.97		8.65	8.68	8.26
Dunning, Robert (USA) (1997)		time	2.60	3.68	4.73	5.80	6.85	7.91	8.95	10.03	11.13	12.28		13.86	2 / 7			
reaction time	0.183	interval	7 steps	1.08	1.05	1.07	1.05	1.06	1.04	1.08	1.10	1.15	1.58			3.20	3.15	3.33
		velocity	5.28	8.46	8.70	8.54	8.70	8.62	8.79	8.46	8.31	7.95	8.87	7.94		8.57	8.70	8.23
Eaton, Jarret (USA) (1989)		time	2.73	3.93	5.13	6.33	7.60	8.76	10.00	11.22	12.43	13.73		15.54	8 / 8			
reaction time	0.180	interval	7 steps	1.20	1.20	1.20	1.27	1.16	1.24	1.22	1.21	1.30	1.81			3.60	3.67	3.73
		velocity	5.03	7.62	7.62	7.62	7.20	7.88	7.37	7.49	7.55	7.03	7.75	7.08		7.62	7.47	7.35

2019 AG Memorial van Damme (Brussels, BEL) (TV Analysis)

FINAL date 06-Sep-19 wind 0.0 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)		time	2.52	3.56	4.58	5.60	6.58	7.58	8.60	9.64	10.68	11.72		13.22	5 / 1			
reaction time	0.126	interval	7 steps	1.04	1.02	1.02	0.98	1.00	1.02	1.04	1.04	1.04	1.50			3.08	3.00	3.12
		velocity	5.44	8.79	8.96	8.96	9.33	9.14	8.96	8.79	8.79	8.79	9.35	8.32		8.90	9.14	8.79
Levy, Ronald (JAM) (1992)		time	2.50	3.54	4.60	5.64	6.66	7.66	8.68	9.72	10.78	11.82		13.31	3 / 2			
reaction time	0.134	interval	7 steps	1.04	1.06	1.04	1.02	1.00	1.02	1.04	1.06	1.04	1.49			3.14	3.04	3.14
		velocity	5.49	8.79	8.62	8.79	8.96	9.14	8.96	8.79	8.62	8.79	9.41	8.26		8.73	9.02	8.73
Shubenkov, Sergey (ANA) (199		time	2.54	3.60	4.64	5.64	6.64	7.64	8.68	9.72	10.76	11.82		13.33	7 / 3			
reaction time	0.153	interval	7 steps	1.06	1.04	1.00	1.00	1.00	1.04	1.04	1.04	1.06	1.51			3.10	3.04	3.14
		velocity	5.40	8.62	8.79	9.14	9.14	9.14	8.79	8.79	8.79	8.62	9.28	8.25		8.85	9.02	8.73
Crittenden, Freddie (USA) (199		time	2.52	3.56	4.60	5.62	6.62	7.64	8.68	9.70	10.74	11.80		13.35	6 / 4			
reaction time	0.144	interval		1.04	1.04	1.02	1.00	1.02	1.04	1.02	1.04	1.06	1.55			3.10	3.06	3.12
		velocity	5.44	8.79	8.79	8.96	9.14	8.96	8.79	8.96	8.79	8.62	9.05	8.24		8.85	8.96	8.79
Xie Wenjun (CHN) (1990)		time	2.54	3.60	4.66	5.70	6.72	7.74	8.80	9.84	10.88	11.98		13.49	4 / 5			
reaction time	0.150	interval	7 steps	1.06	1.06	1.04	1.02	1.02	1.06	1.04	1.04	1.10	1.51			3.16	3.10	3.18
		velocity	5.40	8.62	8.62	8.79	8.96	8.96	8.62	8.79	8.79	8.31	9.28	8.15		8.68	8.85	8.62
Pozzi, Andy (GBR) (1992)		time	2.52	3.58	4.60	5.60	6.62	7.66	8.70	9.72	10.82	11.90		13.50	2 / 6			
reaction time	0.141	interval	7 steps	1.06	1.02	1.00	1.02	1.04	1.04	1.02	1.10	1.08	1.60			3.08	3.10	3.20
		velocity	5.44	8.62	8.96	9.14	8.96	8.79	8.79	8.96	8.31	8.46	8.76	8.15		8.90	8.85	8.57
Alkana, Antonio (RSA) (1990)		time	2.48	3.56	4.60	5.64	6.70	7.76	8.82	9.88	10.96	12.04		13.61	8 / 7			
reaction time	0.136	interval		1.08	1.04	1.04	1.06	1.06	1.06	1.06	1.08	1.08	1.57			3.16	3.18	3.22
		velocity	5.53	8.46	8.79	8.79	8.62	8.62	8.62	8.62	8.46	8.46	8.93	8.08		8.68	8.62	8.52
Obasuyi, Michael (BEL) (1999)		time	2.52	3.64	4.68	5.72	6.78	7.82	8.88	9.92	11.00	12.08			1 / ~~8~~			
reaction time	0.149	interval	7 steps	1.12	1.04	1.04	1.06	1.04	1.06	1.04	1.08	1.08		DQ		3.20	3.16	3.20
		velocity	5.44	8.16	8.79	8.79	8.62	8.79	8.62	8.79	8.46	8.46				8.57	8.68	8.57

2019 ISTAF (Berlin, GER) (TV Analysis)

FINAL date 01-Sep-19 wind 0.8 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time	2.46	3.46	4.46	5.50	6.50	7.50	8.52	9.58	10.62	11.68		13.07	5 / 1			
reaction time	0.130	interval		1.00	1.00	1.04	1.00	1.00	1.02	1.06	1.04	1.06	1.39			3.04	3.02	3.16
		velocity	5.58	9.14	9.14	8.79	9.14	9.14	8.96	8.62	8.79	8.62	10.09	8.42		9.02	9.08	8.68
Martinot-Lagarde, Pascal (FRA		time	2.53	3.56	4.58	5.58	6.58	7.62	8.63	9.65	10.70	11.78		13.25	7 / 2			
reaction time	0.158	interval	7 steps	1.03	1.02	1.00	1.00	1.04	1.01	1.02	1.05	1.08	1.47			3.05	3.05	3.15
		velocity	5.42	8.87	8.96	9.14	9.14	8.79	9.05	8.96	8.70	8.46	9.54	8.30		8.99	8.99	8.70
Brathwaite, Shane (BAR) (199		time	2.53	3.58	4.61	5.63	6.65	7.65	8.68	9.75	10.80	11.86		13.36	1 / 3			
reaction time	0.125	interval		1.05	1.03	1.02	1.02	1.00	1.03	1.07	1.05	1.06	1.50			3.10	3.05	3.18
		velocity	5.42	8.70	8.87	8.96	8.96	9.14	8.87	8.54	8.70	8.62	9.35	8.23		8.85	8.99	8.62
Crittenden, Freddie (USA) (199		time	2.53	3.53	4.63	5.65	6.67	7.68	8.73	9.80	10.84	11.88		13.38	6 / 4			
reaction time	0.137	interval		1.00	1.10	1.02	1.02	1.01	1.05	1.07	1.04	1.04	1.50			3.12	3.08	3.15
		velocity	5.42	9.14	8.31	8.96	8.96	9.05	8.70	8.54	8.79	8.79	9.35	8.22		8.79	8.90	8.70

2019 Japanese World Championships Trials (Fujiyoshida, JPN)

FINAL date 01-Sep-19 wind 1.4 m/s

Shibayama (2019) - race analysis of men's 110m hurdles in the 2019 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994)		time	2.53	3.61	4.63	5.68	6.70	7.73	8.75	9.80	10.83	11.88		13.29	5 / 1			
reaction time		interval		1.08	1.02	1.05	1.02	1.03	1.02	1.05	1.03	1.05	1.41			3.15	3.07	3.13
		velocity	5.42	8.46	8.96	8.70	8.96	8.87	8.96	8.70	8.87	8.70	9.94	8.28		8.70	8.93	8.76
Chen Kuei-Ru (TPE) (1993)		time	2.56	3.61	4.65	5.69	6.72	7.75	8.78	9.80	10.85	11.91		13.36	6 / 2			
reaction time		interval	7 steps	1.05	1.04	1.04	1.03	1.03	1.03	1.02	1.05	1.06	1.45			3.13	3.09	3.13
		velocity	5.36	8.70	8.79	8.79	8.87	8.87	8.87	8.96	8.70	8.62	9.67	8.23		8.76	8.87	8.76
Kanai, Taio (JPN) (1995)		time	2.58	3.63	4.68	5.72	6.77	7.83	8.88	9.95	11.02	12.10		13.51	4 / 3			
reaction time		interval		1.05	1.05	1.04	1.05	1.06	1.05	1.07	1.07	1.08	1.41			3.14	3.16	3.22
		velocity	5.32	8.70	8.70	8.79	8.70	8.62	8.70	8.54	8.54	8.46	9.94	8.14		8.73	8.68	8.52
Yazawa, Wataru (JPN) (1991)		time	2.62	3.70	4.73	5.76	6.81	7.85	8.90	9.96	11.04	12.12		13.51	7 / 4			
reaction time		interval	7 steps	1.08	1.03	1.03	1.05	1.04	1.05	1.06	1.08	1.08	1.39			3.14	3.14	3.22
		velocity	5.24	8.46	8.87	8.87	8.70	8.79	8.70	8.62	8.46	8.46	10.09	8.14		8.73	8.73	8.52
Kuriki, Anthony Tyrell (JPN) (1		time	2.60	3.69	4.73	5.77	6.82	7.86	8.91	9.97	11.03	12.10		13.59	8 / 5			
reaction time		interval	7 steps	1.09	1.04	1.04	1.05	1.04	1.05	1.06	1.06	1.07	1.49	**PB**		3.17	3.14	3.19
		velocity	5.28	8.39	8.79	8.79	8.70	8.79	8.70	8.62	8.62	8.54	9.41	8.09		8.65	8.73	8.60
Fujii, Ryota (JPN) (1996)		time	2.59	3.65	4.70	5.74	6.80	7.86	8.92	10.00	11.10	12.21		13.65	2 / 6			
reaction time		interval		1.06	1.05	1.04	1.06	1.06	1.06	1.08	1.10	1.11	1.44	**PB**		3.15	3.18	3.29
		velocity	5.30	8.62	8.70	8.79	8.62	8.62	8.62	8.46	8.31	8.23	9.74	8.06		8.70	8.62	8.33
Ishikawa, Shuhei (JPN) (1995)		time	2.56	3.64	4.69	5.75	6.82	7.89	8.95	10.02	11.12	12.23		13.67	3 / 7			
reaction time		interval	7 steps	1.08	1.05	1.06	1.07	1.07	1.06	1.07	1.10	1.11	1.44			3.19	3.20	3.28
		velocity	5.36	8.46	8.70	8.62	8.54	8.54	8.62	8.54	8.31	8.23	9.74	8.05		8.60	8.57	8.36

2019 Meeting de Paris (Paris, FRA) (TV Analysis)

FINAL date 24-Aug-19 wind 0.8 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)		time	2.46	3.48	4.50	5.52	6.52	7.52	8.54	9.56	10.58	11.66		13.08	3 / 1			
reaction time	0.161	interval		1.02	1.02	1.02	1.00	1.00	1.02	1.02	1.02	1.08	1.42			3.06	3.02	3.12
		velocity	5.58	8.96	8.96	8.96	9.14	9.14	8.96	8.96	8.96	8.46	9.87	8.41		8.96	9.08	8.79
Ortega, Orlando (ESP) (1991)		time	2.50	3.52	4.54	5.54	6.52	7.56	8.58	9.62	10.66	11.70		13.14	6 / 2			
reaction time	0.132	interval	7 steps	1.02	1.02	1.00	0.98	1.04	1.02	1.04	1.04	1.04	1.44			3.04	3.04	3.12
		velocity	5.49	8.96	8.96	9.14	9.33	8.79	8.96	8.79	8.79	8.79	9.74	8.37		9.02	9.02	8.79
Crittenden, Freddie (USA) (199		time	2.52	3.54	4.56	5.56	6.56	7.58	8.58	9.62	10.66	11.70		13.17	1 / 3			
reaction time	0.150	interval		1.02	1.02	1.00	1.00	1.02	1.00	1.04	1.04	1.04	1.47	**PB**		3.04	3.02	3.12
		velocity	5.44	8.96	8.96	9.14	9.14	8.96	9.14	8.79	8.79	8.79	9.54	8.35		9.02	9.08	8.79
Levy, Ronald (JAM) (1992)		time	2.52	3.56	4.60	5.62	6.64	7.66	8.70	9.70	10.74	11.78		13.22	8 / 4			
reaction time	0.151	interval	7 steps	1.04	1.04	1.02	1.02	1.02	1.04	1.00	1.04	1.04	1.44			3.10	3.08	3.08
		velocity	5.44	8.79	8.79	8.96	8.96	8.96	8.79	9.14	8.79	8.79	9.74	8.32		8.85	8.90	8.90
Martinot-Lagarde, Pascal (FRA		time	2.50	3.54	4.56	5.56	6.56	7.58	8.58	9.62	10.66	11.76		13.24	2 / 5			
reaction time	0.165	interval	7 steps	1.04	1.02	1.00	1.00	1.02	1.00	1.04	1.04	1.10	1.48			3.06	3.02	3.18
		velocity	5.49	8.79	8.96	9.14	9.14	8.96	9.14	8.79	8.79	8.31	9.47	8.31		8.96	9.08	8.62
Holloway, Grant (USA) (1997)		time	2.44	3.44	4.44	5.44	6.42	7.44	8.44	9.50	10.58	11.66		13.25	5 / 6			
reaction time	0.162	interval	7 steps	1.00	1.00	1.00	0.98	1.02	1.00	1.06	1.08	1.08	1.59			3.00	3.00	3.22
		velocity	5.62	9.14	9.14	9.14	9.33	8.96	9.14	8.62	8.46	8.46	8.82	8.30		9.14	9.14	8.52

Xie Wenjun (CHN) (1990)		time	2.56	3.60	4.66	5.68	6.70	7.74	8.76	9.80	10.86	11.98		13.46	7 / 7			
reaction time	0.162	interval	7 steps	1.04	1.06	1.02	1.02	1.04	1.02	1.04	1.06	1.12	1.48			3.12	3.08	3.22
		velocity	5.36	8.79	8.62	8.96	8.96	8.79	8.96	8.79	8.62	8.16	9.47	8.17		8.79	8.90	8.52
Shubenkov, Sergey (ANA) (199		time	2.56	3.64	4.72	5.76	6.80	7.88	8.94	10.00	11.12	12.26		13.88	4 / 8			
reaction time	0.144	interval	7 steps	1.08	1.08	1.04	1.04	1.08	1.06	1.06	1.12	1.14	1.62			3.20	3.18	3.32
		velocity	5.36	8.46	8.46	8.79	8.79	8.46	8.62	8.62	8.16	8.02	8.65	7.93		8.57	8.62	8.26

2019 Chinese National Grand Prix Final (Daqing, CHN)

FINAL

date 24-Aug-19 wind -0.1 m/s

CAA Hurdle Development (2019)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)		time	2.62	3.67	4.72	5.75	6.79	7.84	8.89	9.98	11.07	12.17		13.65	5 / 1			
reaction time	0.177	interval		1.05	1.05	1.03	1.04	1.05	1.05	1.09	1.09	1.10	1.48			3.13	3.14	3.28
		velocity	5.24	8.70	8.70	8.87	8.79	8.70	8.70	8.39	8.39	8.31	9.47	8.06		8.76	8.73	8.36
Sun Zhenjiang (CHN) (1999)		time	2.60	3.68	4.76	5.80	6.89	8.00	9.09	10.19	11.31	12.46		13.96	7 / 2			
reaction time	0.181	interval	7 steps	1.08	1.08	1.04	1.09	1.11	1.09	1.10	1.12	1.15	1.50			3.20	3.29	3.37
		velocity	5.28	8.46	8.46	8.79	8.39	8.23	8.39	8.31	8.16	7.95	9.35	7.88		8.57	8.33	8.14
Li Jiming (CHN) (1996)		time	2.71	3.80	4.89	5.94	6.99	8.06	9.15	10.24	11.35	12.46		13.97	6 / 3			
reaction time	0.213	interval		1.09	1.09	1.05	1.05	1.07	1.09	1.09	1.11	1.11	1.51			3.23	3.21	3.31
		velocity	5.06	8.39	8.39	8.70	8.70	8.54	8.39	8.39	8.23	8.23	9.28	7.87		8.49	8.54	8.28
Pan Zijie (CHN) (1995)		time	2.68	3.80	4.90	6.00	7.09	8.17	9.27	10.38	11.49	12.61		14.08	2 / 4			
reaction time	0.204	interval		1.12	1.10	1.10	1.09	1.08	1.10	1.11	1.11	1.12	1.47			3.32	3.27	3.34
		velocity	5.12	8.16	8.31	8.31	8.39	8.46	8.31	8.23	8.23	8.16	9.54	7.81		8.26	8.39	8.21
Zhang Tao (CHN) (1997)		time	2.72	3.85	4.93	6.03	7.11	8.21	9.31	10.42	11.55	12.67		14.18	4 / 5			
reaction time	0.181	interval		1.13	1.08	1.10	1.08	1.10	1.10	1.11	1.13	1.12	1.51			3.31	3.28	3.36
		velocity	5.04	8.09	8.46	8.31	8.46	8.31	8.31	8.23	8.09	8.16	9.28	7.76		8.28	8.36	8.16
Shi Guoxing (CHN) (2000)		time	2.78	3.89	4.99	6.10	7.19	8.32	9.44	10.56	11.72	12.88		14.36	3 / 6			
reaction time	0.201	interval		1.11	1.10	1.11	1.09	1.13	1.12	1.12	1.16	1.16	1.48	PB		3.32	3.34	3.44
		velocity	4.94	8.23	8.31	8.23	8.39	8.09	8.16	8.16	7.88	7.88	9.47	7.66		8.26	8.21	7.97
Guo Zhongjie (CHN) (2001)		time	2.73	3.80	4.90	6.00	7.11	8.24	9.37	10.52	11.68	12.88		14.46	8 / 7			
reaction time	0.226	interval		1.07	1.10	1.10	1.11	1.13	1.13	1.15	1.16	1.20	1.58			3.27	3.37	3.51
		velocity	5.03	8.54	8.31	8.31	8.23	8.09	8.09	7.95	7.88	7.62	8.87	7.61		8.39	8.14	7.81
Wu Zhenhua (CHN) (1998)		time	2.74	3.87	5.00	6.12	7.23	8.36	9.50	10.73	11.92	13.16		14.83	9 / 8			
reaction time	0.184	interval		1.13	1.13	1.12	1.11	1.13	1.14	1.23	1.19	1.24	1.67			3.38	3.38	3.66
		velocity	5.01	8.09	8.09	8.16	8.23	8.09	8.02	7.43	7.68	7.37	8.40	7.42		8.11	8.11	7.49

Heat 2

date 23-Aug-19 wind -0.2 m/s

CAA Hurdle Development (2019)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Tao (CHN) (1997)		time	2.74	3.85	4.95	6.05	7.14	8.22	9.33	10.46	11.58	12.75		14.30	4 / 1			
reaction time	0.180	interval		1.11	1.10	1.10	1.09	1.08	1.11	1.13	1.12	1.17	1.55			3.31	3.28	3.42
		velocity	5.01	8.23	8.31	8.31	8.39	8.46	8.23	8.09	8.16	7.81	9.05	7.69		8.28	8.36	8.02
Pan Zijie (CHN) (1995)		time	2.67	3.80	4.90	6.01	7.12	8.24	9.36	10.52	11.67	12.86		14.48	7 / 2			
reaction time	0.195	interval		1.13	1.10	1.11	1.11	1.12	1.12	1.16	1.15	1.19	1.62			3.34	3.35	3.50
		velocity	5.14	8.09	8.31	8.23	8.23	8.16	8.16	7.88	7.95	7.68	8.65	7.60		8.21	8.19	7.83
Shi Guoxing (CHN) (2000)		time	2.81	3.94	5.06	6.17	7.34	8.48	9.62	10.76	11.92	13.08		14.58	5 / 3			
reaction time	0.195	interval		1.13	1.12	1.11	1.17	1.14	1.14	1.14	1.16	1.16	1.50			3.36	3.45	3.46
		velocity	4.88	8.09	8.16	8.23	7.81	8.02	8.02	8.02	7.88	7.88	9.35	7.54		8.16	7.95	7.92
Jiang Wei (CHN) (1994)		time	2.72	3.87	4.99	6.11	7.26	8.39	9.51	10.68	11.84	13.04		14.60	3 / 4			
reaction time	0.200	interval	7 steps	1.15	1.12	1.12	1.15	1.13	1.12	1.17	1.16	1.20	1.56			3.39	3.40	3.53
		velocity	5.04	7.95	8.16	8.16	7.95	8.09	8.16	7.81	7.88	7.62	8.99	7.53		8.09	8.06	7.77
Lu Wei (CHN) (2000)		time	2.83	3.98	5.09	6.26	7.41	8.54	9.67	10.80	11.98	13.18		14.80	6 / 5			
reaction time	0.208	interval		1.15	1.11	1.17	1.15	1.13	1.13	1.13	1.18	1.20	1.62			3.43	3.41	3.51
		velocity	4.85	7.95	8.23	7.81	7.95	8.09	8.09	8.09	7.75	7.62	8.65	7.43		7.99	8.04	7.81
Jiang Fan (CHN) (1989)		time	2.70	3.84	4.95	6.06	7.17	8.29	9.41	10.59	11.83	13.09		14.80	9 / 6			
reaction time	0.159	interval		1.14	1.11	1.11	1.11	1.12	1.12	1.18	1.24	1.26	1.71			3.36	3.35	3.68
		velocity	5.08	8.02	8.23	8.23	8.23	8.16	8.16	7.75	7.37	7.25	8.20	7.43		8.16	8.19	7.45
Yang Quanlei (CHN) (1999)		time	2.74	3.89	5.03	6.19	7.35	8.52	9.72	10.93	12.16	13.38		14.97	8 / 7			
reaction time	0.193	interval		1.15	1.14	1.16	1.16	1.17	1.20	1.21	1.23	1.22	1.59			3.45	3.53	3.66
		velocity	5.01	7.95	8.02	7.88	7.88	7.81	7.62	7.55	7.43	7.49	8.82	7.35		7.95	7.77	7.49
Long Wei (CHN) (1997)		time	2.77	3.94	5.11	6.27	7.46	8.67	9.86	11.08	12.29	13.51		15.11	2 / 8			
reaction time	0.199	interval		1.17	1.17	1.16	1.19	1.21	1.19	1.22	1.21	1.22	1.60			3.50	3.59	3.65
		velocity	4.95	7.81	7.81	7.88	7.68	7.55	7.68	7.49	7.55	7.49	8.76	7.28		7.83	7.64	7.51

Heat 1

date 23-Aug-19 wind -0.2 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)		time	2.65	3.71	4.77	5.85	6.94	8.02	9.11	10.24	11.38	12.53		14.11	4 / 1			
reaction time	0.176	interval		1.06	1.06	1.08	1.09	1.08	1.09	1.13	1.14	1.15	1.58			3.20	3.26	3.42
		velocity	5.18	8.62	8.62	8.46	8.39	8.46	8.39	8.09	8.02	7.95	8.87	7.80		8.57	8.41	8.02
Sun Zhenjiang (CHN) (1999)		time	2.62	3.72	4.80	5.90	6.99	8.09	9.21	10.33	11.46	12.64		14.20	7 / 2			
reaction time	0.177	interval	7 steps	1.10	1.08	1.10	1.09	1.10	1.12	1.12	1.13	1.18	1.56			3.28	3.31	3.43
		velocity	5.24	8.31	8.46	8.31	8.39	8.31	8.16	8.16	8.09	7.75	8.99	7.75		8.36	8.28	7.99
Li Jiming (CHN) (1996)		time	2.70	3.80	4.89	5.97	7.06	8.16	9.26	10.36	11.48	12.64		14.23	8 / 3			
reaction time	0.192	interval		1.10	1.09	1.08	1.09	1.10	1.10	1.10	1.12	1.16	1.59			3.27	3.29	3.38
		velocity	5.08	8.31	8.39	8.46	8.39	8.31	8.31	8.31	8.16	7.88	8.82	7.73		8.39	8.33	8.11
Wu Zhenhua (CHN) (1998)		time	2.74	3.84	4.95	6.06	7.20	8.31	9.44	10.59	11.73	12.88		14.41	9 / 4			
reaction time	0.175	interval		1.10	1.11	1.11	1.14	1.11	1.13	1.15	1.14	1.15	1.53			3.32	3.38	3.44
		velocity	5.01	8.31	8.23	8.23	8.02	8.23	8.09	7.95	8.02	7.95	9.16	7.63		8.26	8.11	7.97
Guo Zhongjie (CHN) (2001)		time	2.73	3.84	4.92	6.01	7.12	8.22	9.36	10.51	11.66	12.85		14.42	5 / 5			
reaction time	0.193	interval		1.11	1.08	1.09	1.11	1.10	1.14	1.15	1.15	1.19	1.57			3.28	3.35	3.49
		velocity	5.03	8.23	8.46	8.39	8.23	8.31	8.02	7.95	7.95	7.68	8.93	7.63		8.36	8.19	7.86
Yang Jianxing (CHN) (1996)		time	2.70	3.85	4.97	6.10	7.22	8.37	9.53	10.69	11.89	13.15		14.79	3 / 6			
reaction time	0.174	interval		1.15	1.12	1.13	1.12	1.15	1.16	1.16	1.20	1.26	1.64			3.40	3.43	3.62
		velocity	5.08	7.95	8.16	8.09	8.16	7.95	7.88	7.88	7.62	7.25	8.55	7.44		8.06	7.99	7.57
Zhu Shenglong (CHN) (2000)		time	2.80	3.92	4.99	6.09	7.19	8.30	9.46	10.59	11.85	13.11		14.85	6 / 7			
reaction time	0.184	interval		1.12	1.07	1.10	1.10	1.11	1.16	1.13	1.26	1.26	1.74			3.29	3.37	3.65
		velocity	4.90	8.16	8.54	8.31	8.31	8.23	7.88	8.09	7.25	7.25	8.06	7.41		8.33	8.14	7.51
Lu Yang (CHN) (1996)		time	2.84	4.00	5.15									dnf	2 / --			
reaction time	0.179	interval		1.16	1.15													
		velocity	4.83	7.88	7.95													

Decathlon - Heat 2

date 23-Aug-19 wind ?? m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Li Xiaodong (CHN) (1995)		time	2.79	3.94	5.09	6.26	7.41	8.58	9.78	10.94	12.11	13.30		14.86	4 / 1			
reaction time	0.165	interval		1.15	1.15	1.17	1.15	1.17	1.20	1.16	1.17	1.19	1.56			3.47	3.52	3.52
		velocity	4.92	7.95	7.95	7.81	7.95	7.81	7.62	7.88	7.81	7.68	8.99	7.40		7.90	7.79	7.79
Fei Xiang (CHN) (1998)		time	2.87	4.10	5.30	6.54	7.74	8.96	10.19	11.41	12.64	13.88		15.46	5 / 2			
reaction time	0.197	interval		1.23	1.20	1.24	1.20	1.22	1.23	1.22	1.23	1.24	1.58			3.67	3.65	3.69
		velocity	4.78	7.43	7.62	7.37	7.62	7.49	7.43	7.49	7.43	7.37	8.87	7.12		7.47	7.51	7.43
Chen Xinghua (CHN) (2002)		time	2.85	4.09	5.29	6.49	7.71	8.91	10.14	11.33	12.58	13.83		15.51	9 / 3			
reaction time	0.196	interval		1.24	1.20	1.20	1.22	1.20	1.23	1.19	1.25	1.25	1.68			3.64	3.65	3.69
		velocity	4.81	7.37	7.62	7.62	7.49	7.62	7.43	7.68	7.31	7.31	8.35	7.09		7.53	7.51	7.43
Hua Zihui (CHN) (2000)		time	2.84	4.05	5.29	6.56	7.79	9.02	10.29	11.59	12.86	14.25		15.94	8 / 4			
reaction time	0.190	interval		1.21	1.24	1.27	1.23	1.23	1.27	1.30	1.27	1.39	1.69			3.72	3.73	3.96
		velocity	4.83	7.55	7.37	7.20	7.43	7.43	7.20	7.03	7.20	6.58	8.30	6.90		7.37	7.35	6.92

Decathlon - Heat 1

date 23-Aug-19 wind ?? m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cao Jin (CHN) (1996)		time	2.78	3.90	5.04	6.14	7.29	8.41	9.53	10.71	11.86	13.05		14.61	4 / 1			
reaction time	0.209	interval	7 steps	1.12	1.14	1.10	1.15	1.12	1.12	1.18	1.15	1.19	1.56			3.36	3.39	3.52
		velocity	4.94	8.16	8.02	8.31	7.95	8.16	8.16	7.75	7.95	7.68	8.99	7.53		8.16	8.09	7.79
Yang Zihao (CHN) (1998)		time	2.82	4.00	5.16	6.32	7.49	8.69	9.89	11.13	12.33	13.61		15.25	7 / 2			
reaction time	0.187	interval		1.18	1.16	1.16	1.17	1.20	1.20	1.24	1.20	1.28	1.64			3.50	3.57	3.72
		velocity	4.87	7.75	7.88	7.88	7.81	7.62	7.62	7.37	7.62	7.14	8.55	7.21		7.83	7.68	7.37
Qin Guoyuan (CHN) (1996)		time	2.84	4.00	5.17	6.38	7.56	8.77	9.99	11.23	12.46	13.78		15.40	5 / 3			
reaction time	0.183	interval		1.16	1.17	1.21	1.18	1.21	1.22	1.24	1.23	1.32	1.62			3.54	3.61	3.79
		velocity	4.83	7.88	7.81	7.55	7.75	7.55	7.49	7.37	7.43	6.92	8.65	7.14		7.75	7.60	7.23
Qian Wenze (CHN) (2001)		time	2.87	4.02	5.30	6.54	7.76	9.01	10.24	11.51	12.80	14.11		15.76	6 / 4			
reaction time	0.194	interval		1.15	1.28	1.24	1.22	1.25	1.23	1.27	1.29	1.31	1.65			3.67	3.70	3.87
		velocity	4.78	7.95	7.14	7.37	7.49	7.31	7.43	7.20	7.09	6.98	8.50	6.98		7.47	7.41	7.09
Zhao Guorui (CHN) (1996)		time	2.84	4.07	5.29	6.52	7.81	9.06	10.31	11.63	12.90	14.25		16.02	8 / 5			
reaction time	0.207	interval		1.23	1.22	1.23	1.29	1.25	1.25	1.32	1.27	1.35	1.77			3.68	3.79	3.94
		velocity	4.83	7.43	7.49	7.43	7.09	7.31	7.31	6.92	7.20	6.77	7.92	6.87		7.45	7.23	6.96
Xiang Qingqiang (CHN) (1999)		time	2.90	4.12	5.37	6.65	7.96	9.28	10.59	11.89	13.28	14.65		16.43	3 / 6			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.183	interval		1.22	1.25	1.28	1.31	1.32	1.31	1.30	1.39	1.37	1.78			3.75	3.94	4.06
		velocity	4.73	7.49	7.31	7.14	6.98	6.92	6.98	7.03	6.58	6.67	7.88	6.70		7.31	6.96	6.75

2019 Müller Grand Prix (Birmingham, GBR) (TV Analysis)

FINAL date 18-Aug-19 wind -0.2 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time	2.54	3.56	4.57	5.58	6.57	7.61	8.59	9.63	10.65	11.73		13.21	5 / 1			
reaction time	0.139	interval		1.02	1.01	1.01	0.99	1.04	0.98	1.04	1.02	1.08	1.48			3.04	3.01	3.14
		velocity	5.40	8.96	9.05	9.05	9.23	8.79	9.33	8.79	8.96	8.46	9.47	8.33		9.02	9.11	8.73
Crittenden, Freddie (USA) (199		time	2.54	3.58	4.62	5.65	6.63	7.65	8.67	9.69	10.72	11.78		13.31	4 / 2			
reaction time	0.116	interval		1.04	1.04	1.03	0.98	1.02	1.02	1.02	1.03	1.06	1.53			3.11	3.02	3.11
		velocity	5.40	8.79	8.79	8.87	9.33	8.96	8.96	8.96	8.87	8.62	9.16	8.26		8.82	9.08	8.82
Xie Wenjun (CHN) (1990)		time	2.58	3.63	4.66	5.68	6.70	7.72	8.73	9.77	10.81	11.90		13.43	7 / 3			
reaction time	0.140	interval	7 steps	1.05	1.03	1.02	1.02	1.02	1.01	1.04	1.04	1.09	1.53			3.10	3.05	3.17
		velocity	5.32	8.70	8.87	8.96	8.96	8.96	9.05	8.79	8.79	8.39	9.16	8.19		8.85	8.99	8.65
Roberts, Daniel (USA) (1998)		time	2.54	3.56	4.61	5.64	6.62	7.64	8.66	9.69	10.77	11.87		13.48	6 / 4			
reaction time	0.200	interval		1.02	1.05	1.03	0.98	1.02	1.02	1.03	1.08	1.10	1.61			3.10	3.02	3.21
		velocity	5.40	8.96	8.70	8.87	9.33	8.96	8.96	8.87	8.46	8.31	8.71	8.16		8.85	9.08	8.54
Fillery, Cameron (GBR) (1998)		time	2.58	3.65	4.74	5.76	6.77	7.78	8.83	9.88	10.92	12.02		13.54	9 / 5			
reaction time	0.109	interval	7 steps	1.07	1.09	1.02	1.01	1.01	1.05	1.05	1.04	1.10	1.52	PB		3.18	3.07	3.19
		velocity	5.32	8.54	8.39	8.96	9.05	9.05	8.70	8.70	8.79	8.31	9.22	8.12		8.62	8.93	8.60
Hough, Nicholas (AUS) (1993)		time	2.62	3.69	4.75	5.77	6.77	7.78	8.84	9.90	10.94	12.10		13.66	8 / 6			
reaction time	0.149	interval	7 steps	1.07	1.06	1.02	1.00	1.01	1.06	1.06	1.04	1.16	1.56			3.15	3.07	3.26
		velocity	5.24	8.54	8.62	8.96	9.14	9.05	8.62	8.62	8.79	7.88	8.99	8.05		8.70	8.93	8.41
King, David (GBR) (1994)		time	2.62	3.73	4.80	5.83	6.86	7.89	8.91	9.96	11.05	12.15		13.69	3 / 7			
reaction time	0.136	interval	7 steps	1.11	1.07	1.03	1.03	1.03	1.02	1.05	1.09	1.10	1.54			3.21	3.08	3.24
		velocity	5.24	8.23	8.54	8.87	8.87	8.87	8.96	8.70	8.39	8.31	9.10	8.04		8.54	8.90	8.46
Moore, Isaiah (USA) (1996)		time	2.64	3.73	4.80	5.87	6.91	7.93	9.00	10.09	11.16	12.26		13.81	2 / 8			
reaction time	0.144	interval		1.09	1.07	1.07	1.04	1.02	1.07	1.09	1.07	1.10	1.55			3.23	3.13	3.26
		velocity	5.20	8.39	8.54	8.54	8.79	8.96	8.54	8.39	8.54	8.31	9.05	7.97		8.49	8.76	8.41

2019 Athlete Night Games (Fukui, JPN)

FINAL date 17-Aug-19 wind 1.1 m/s

(2019) - http://tfdata-store.com/2019/09/03/post-1615/

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994)		time	2.54	3.57	4.59	5.62	6.63	7.65	8.68	9.72	10.77	11.82		13.25	4 / 1			
reaction time		interval		1.03	1.02	1.03	1.01	1.02	1.03	1.04	1.05	1.05	1.43	NR		3.08	3.06	3.14
		velocity	5.40	8.87	8.96	8.87	9.05	8.96	8.87	8.79	8.70	8.70	9.80	8.30		8.90	8.96	8.73

2019 Chinese National Youth Games (Taiyuan, CHN)

U18 FINAL (91cm) date 14-Aug-19 wind -0.1 m/s

CAA Hurdle Development (2019)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yang Jiajun (CHN) (2002)		time	2.62	3.69	4.69	5.70	6.71	7.69	8.71	9.73	10.78	11.81		13.30	6 / 1			
reaction time	0.152	interval		1.07	1.00	1.01	1.01	0.98	1.02	1.02	1.05	1.03	1.49			3.08	3.01	3.10
		velocity	5.24	8.54	9.14	9.05	9.05	9.33	8.96	8.96	8.70	8.87	9.41	8.27		8.90	9.11	8.85
Zheng Wang (CHN) (2003)		time	2.64	3.74	4.80	5.87	6.93	8.02	9.09	10.18	11.33	12.46		14.06	7 / 2			
reaction time	0.167	interval		1.10	1.06	1.07	1.06	1.09	1.07	1.09	1.15	1.13	1.60			3.23	3.22	3.37
		velocity	5.20	8.31	8.62	8.54	8.62	8.39	8.54	8.39	7.95	8.09	8.76	7.82		8.49	8.52	8.14
Mao Chenchen (CHN) (2002)		time	2.67	3.82	4.93	6.02	7.09	8.19	9.29	10.44	11.59	12.73		14.35	5 / 3			
reaction time	0.162	interval		1.15	1.11	1.09	1.07	1.10	1.10	1.15	1.15	1.14	1.62			3.35	3.27	3.44
		velocity	5.14	7.95	8.23	8.39	8.54	8.31	8.31	7.95	7.95	8.02	8.65	7.67		8.19	8.39	7.97
Zhong Shulun (CHN) (2003)		time	2.80	3.97	5.12	6.23	7.36	8.51	9.66	10.79	11.93	13.10		14.72	8 / 4			
reaction time	0.225	interval		1.17	1.15	1.11	1.13	1.15	1.15	1.13	1.14	1.17	1.62			3.43	3.43	3.44
		velocity	4.90	7.81	7.95	8.23	8.09	7.95	7.95	8.09	8.02	7.81	8.65	7.47		7.99	7.99	7.97
Ni Mengfan (CHN) (2003)		time	2.70	3.87	5.02	6.17	7.31	8.44	9.64	10.81	11.98	13.16		14.73	2 / 5			
reaction time	0.199	interval		1.17	1.15	1.15	1.14	1.13	1.20	1.17	1.17	1.18	1.57			3.47	3.47	3.52
		velocity	5.08	7.81	7.95	7.95	8.02	8.09	7.62	7.81	7.81	7.75	8.93	7.47		7.90	7.90	7.79
Zhou Jun (CHN) (2002)		time	2.83	3.99	5.11	6.25	7.36	8.51	9.66	10.79	11.98	13.16		14.80	9 / 6			
reaction time	0.173	interval		1.16	1.12	1.14	1.11	1.15	1.15	1.13	1.19	1.18	1.64			3.42	3.41	3.50
		velocity	4.85	7.88	8.16	8.02	8.23	7.95	7.95	8.09	7.68	7.75	8.55	7.43		8.02	8.04	7.83
Yan Yuwei (CHN) (2002)		time	2.75	3.93	5.12	6.29	7.47	8.64	9.84	11.03	12.24	13.46		15.15	3 / 7			
reaction time	0.172	interval		1.18	1.19	1.17	1.18	1.17	1.20	1.19	1.21	1.22	1.69			3.54	3.55	3.62
		velocity	4.99	7.75	7.68	7.81	7.75	7.81	7.62	7.68	7.55	7.49	8.30	7.26		7.75	7.72	7.57

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Liu Junxi (CHN) (2003)		time	2.61	3.78								dnf	4 / --				
reaction time		interval		1.17													
		velocity	5.26	7.81													

U20 FINAL (99cm)

date 14-Aug-19 wind -0.3 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)		time	2.57	3.62	4.65	5.67	6.69	7.71	8.74	9.78	10.83	11.91		13.39	4 / 1			
reaction time	0.134	interval		1.05	1.03	1.02	1.02	1.02	1.03	1.04	1.05	1.08	1.48	PB		3.10	3.07	3.17
		velocity	5.34	8.70	8.87	8.96	8.96	8.96	8.87	8.79	8.70	8.46	9.47	8.22		8.85	8.93	8.65
Liu Bowen (CHN) (2001)		time	2.54	3.61	4.67	5.69	6.73	7.76	8.80	9.86	10.91	11.99		13.47	5 / 2			
reaction time	0.144	interval		1.07	1.06	1.02	1.04	1.03	1.04	1.06	1.05	1.08	1.48	PB		3.15	3.11	3.19
		velocity	5.40	8.54	8.62	8.96	8.79	8.87	8.79	8.62	8.70	8.46	9.47	8.17		8.70	8.82	8.60
Shi Guoxing (CHN) (2000)		time	2.67	3.76	4.81	5.85	6.87	7.91	8.96	10.00	11.07	12.13		13.52	8 / 3			
reaction time	0.144	interval		1.09	1.05	1.04	1.02	1.04	1.05	1.04	1.07	1.06	1.39	PB		3.18	3.11	3.17
		velocity	5.14	8.39	8.70	8.79	8.96	8.79	8.70	8.79	8.54	8.62	10.09	8.14		8.62	8.82	8.65
Lu Wei (CHN) (2000)		time	2.67	3.73	4.77	5.82	6.82	7.86	8.89	9.93	11.01	12.09		13.55	7 / 4			
reaction time	0.170	interval		1.06	1.04	1.05	1.00	1.04	1.03	1.04	1.08	1.08	1.46	PB		3.15	3.07	3.20
		velocity	5.14	8.62	8.79	8.70	9.14	8.79	8.87	8.79	8.46	8.46	9.60	8.12		8.70	8.93	8.57
Guo Zhongjie (CHN) (2001)		time	2.64	3.70	4.75	5.77	6.79	7.82	8.87	9.93	11.03	12.14		13.68	9 / 5			
reaction time	0.162	interval		1.06	1.05	1.02	1.02	1.03	1.05	1.06	1.10	1.11	1.54	PB		3.13	3.10	3.27
		velocity	5.20	8.62	8.70	8.96	8.96	8.87	8.70	8.62	8.31	8.23	9.10	8.04		8.76	8.85	8.39
Ji Haohao (CHN) (2001)		time	2.69	3.77	4.84	5.90	6.94	8.04	9.09	10.19	11.31	12.43		13.96	2 / 6			
reaction time	0.187	interval		1.08	1.07	1.06	1.04	1.10	1.05	1.10	1.12	1.12	1.53			3.21	3.19	3.34
		velocity	5.10	8.46	8.54	8.62	8.79	8.31	8.70	8.31	8.16	8.16	9.16	7.88		8.54	8.60	8.21
Fung Kin Hei (HKG) (2000)		time	2.68	3.78	4.90	5.99	7.07	8.17	9.24	10.37	11.48	12.61		14.10	3 / 7			
reaction time	0.155	interval		1.10	1.12	1.09	1.08	1.10	1.07	1.13	1.11	1.13	1.49			3.31	3.25	3.37
		velocity	5.12	8.31	8.16	8.39	8.46	8.31	8.54	8.09	8.23	8.09	9.41	7.80		8.28	8.44	8.14

U20 Heat 3 (99cm)

date 14-Aug-19 wind 0.6 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)		time	2.58	3.62	4.64	5.67	6.69	7.71	8.74	9.80	10.88	12.04		13.59	6 / 1			
reaction time	0.135	interval		1.04	1.02	1.03	1.02	1.02	1.03	1.06	1.08	1.16	1.55			3.09	3.07	3.30
		velocity	5.32	8.79	8.96	8.87	8.96	8.96	8.87	8.62	8.46	7.88	9.05	8.09		8.87	8.93	8.31
Liu Bowen (CHN) (2001)		time	2.57	3.61	4.67	5.71	6.74	7.77	8.83	9.89	10.98	12.08		13.66	7 / 2			
reaction time	0.152	interval		1.04	1.06	1.04	1.03	1.03	1.06	1.06	1.09	1.10	1.58			3.14	3.12	3.25
		velocity	5.34	8.79	8.62	8.79	8.87	8.87	8.62	8.62	8.39	8.31	8.87	8.05		8.73	8.79	8.44
Yu Haonan (CHN) (2000)		time	2.64	3.75	4.83	5.94	7.02	8.12	9.21	10.31	11.41	12.53		14.04	4 / 3			
reaction time	0.154	interval		1.11	1.08	1.11	1.08	1.10	1.09	1.10	1.10	1.12	1.51			3.30	3.27	3.32
		velocity	5.20	8.23	8.46	8.23	8.46	8.31	8.39	8.31	8.31	8.16	9.28	7.83		8.31	8.39	8.26
Pan Yicheng (CHN) (2000)		time	2.70	3.79	4.87	5.95	7.04	8.11	9.21	10.31	11.44	12.58		14.05	5 / 4			
reaction time	0.163	interval		1.09	1.08	1.08	1.09	1.07	1.10	1.10	1.13	1.14	1.47			3.25	3.26	3.37
		velocity	5.08	8.39	8.46	8.46	8.39	8.54	8.31	8.31	8.09	8.02	9.54	7.83		8.44	8.41	8.14
Gao Shunyang (CHN) (2001)		time	2.75	3.85	4.95	6.02	7.11	8.19	9.28	10.38	11.49	12.64		14.21	2 / 5			
reaction time	0.184	interval		1.10	1.10	1.07	1.09	1.08	1.09	1.10	1.11	1.15	1.57			3.27	3.26	3.36
		velocity	4.99	8.31	8.31	8.54	8.39	8.46	8.39	8.31	8.23	7.95	8.93	7.74		8.39	8.41	8.16
Li Fuqiang (CHN) (2000)		time	2.65	3.77	4.90	6.01	7.15	8.26	9.39	10.55	11.68	12.83		14.35	8 / 6			
reaction time	0.162	interval		1.12	1.13	1.11	1.14	1.11	1.13	1.16	1.13	1.15	1.52			3.36	3.38	3.44
		velocity	5.18	8.16	8.09	8.23	8.02	8.23	8.09	7.88	8.09	7.95	9.22	7.67		8.16	8.11	7.97
Xu Xin (MAC) (2000)		time	2.69	3.87	5.02	6.22	7.44	8.61	9.83	11.06	12.31	13.56		15.26	3 / 7			
reaction time	0.138	interval		1.18	1.15	1.20	1.22	1.17	1.22	1.23	1.25	1.25	1.70			3.53	3.61	3.73
		velocity	5.10	7.75	7.95	7.62	7.49	7.81	7.49	7.43	7.31	7.31	8.25	7.21		7.77	7.60	7.35

U20 Heat 2 (99cm)

date 14-Aug-19 wind -0.3 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Lu Wei (CHN) (2000)		time	2.71	3.80	4.84	5.89	6.91	7.94	8.99	10.04	11.13	12.21		13.72	6 / 1			
reaction time	0.205	interval		1.09	1.04	1.05	1.02	1.03	1.05	1.05	1.09	1.08	1.51			3.18	3.10	3.22
		velocity	5.06	8.39	8.79	8.70	8.96	8.87	8.70	8.70	8.39	8.46	9.28	8.02		8.62	8.85	8.52
Shi Guoxing (CHN) (2000)		time	2.72	3.81	4.86	5.91	6.97	8.04	9.11	10.19	11.26	12.34		13.77	5 / 2			
reaction time	0.179	interval		1.09	1.05	1.05	1.06	1.07	1.07	1.08	1.07	1.08	1.43			3.19	3.20	3.23
		velocity	5.04	8.39	8.70	8.70	8.62	8.54	8.54	8.46	8.54	8.46	9.80	7.99		8.60	8.57	8.49
Fung Kin Hei (HKG) (2000)		time	2.65	3.72	4.81	5.91	6.97	8.07	9.18	10.28	11.39	12.53		14.04	7 / 3			

reaction time 0.160	interval		1.07	1.09	1.10	1.06	1.10	1.11	1.10	1.11	1.14	1.51			3.26	3.27	3.35
	velocity	5.18	8.54	8.39	8.31	8.62	8.31	8.23	8.31	8.23	8.02	9.28	7.83		8.41	8.39	8.19
Wang Weihao (CHN) (2001)	time	2.64	3.72	4.80	5.87	6.96	8.09	9.20	10.33	11.45	12.63		14.15	4 / 4			
reaction time 0.174	interval		1.08	1.08	1.07	1.09	1.13	1.11	1.13	1.12	1.18	1.52			3.23	3.33	3.43
	velocity	5.20	8.46	8.46	8.54	8.39	8.09	8.23	8.09	8.16	7.75	9.22	7.77		8.49	8.23	7.99
Jiang Jinlong (CHN) (2000)	time	2.70	3.80	4.90	5.99	7.09	8.18	9.26	10.37	11.48	12.61		14.16	3 / 5			
reaction time 0.168	interval		1.10	1.10	1.09	1.10	1.09	1.08	1.11	1.11	1.13	1.55			3.29	3.27	3.35
	velocity	5.08	8.31	8.31	8.39	8.31	8.39	8.46	8.23	8.23	8.09	9.05	7.77		8.33	8.39	8.19
Xu Jialin (CHN) (2001)	time	2.69	3.81	4.91	6.04	7.17	8.29	9.44	10.59	11.80	12.98		14.63	8 / 6			
reaction time 0.166	interval		1.12	1.10	1.13	1.13	1.12	1.15	1.15	1.21	1.18	1.65			3.35	3.40	3.54
	velocity	5.10	8.16	8.31	8.09	8.09	8.16	7.95	7.95	7.55	7.75	8.50	7.52		8.19	8.06	7.75

U20 Heat 1 (99cm)

date 14-Aug-19 wind 0.5 m/s *CAA Hurdle Development (2019)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhu Shenglong (CHN) (2000)	time	2.54	3.63	4.71	5.74	6.77	7.82	8.87	9.94	11.04	12.14		13.82	5 / 1			
reaction time 0.145	interval		1.09	1.08	1.03	1.03	1.05	1.05	1.07	1.10	1.10	1.68			3.20	3.13	3.27
	velocity	5.40	8.39	8.46	8.87	8.87	8.70	8.70	8.54	8.31	8.31	8.35	7.96		8.57	8.76	8.39
Guo Zhongjie (CHN) (2001)	time	2.60	3.68	4.75	5.77	6.81	7.86	8.92	10.03	11.11	12.26		13.90	4 / 2			
reaction time 0.211	interval		1.08	1.07	1.02	1.04	1.05	1.06	1.11	1.08	1.15	1.64			3.17	3.15	3.34
	velocity	5.28	8.46	8.54	8.96	8.79	8.70	8.62	8.23	8.46	7.95	8.55	7.91		8.65	8.70	8.21
Ji Haohao (CHN) (2001)	time	2.56	3.64	4.71	5.77	6.82	7.88	8.96	10.05	11.16	12.28		13.91	6 / 3			
reaction time 0.168	interval		1.08	1.07	1.06	1.05	1.06	1.08	1.09	1.11	1.12	1.63			3.21	3.19	3.32
	velocity	5.36	8.46	8.54	8.62	8.70	8.62	8.46	8.39	8.23	8.16	8.60	7.91		8.54	8.60	8.26
Wang Luoxi (CHN) (2001)	time	2.57	3.67	4.74	5.80	6.87	7.96	9.04	10.14	11.24	12.39		14.04	3 / 4			
reaction time 0.178	interval		1.10	1.07	1.06	1.07	1.09	1.08	1.10	1.10	1.15	1.65			3.23	3.24	3.35
	velocity	5.34	8.31	8.54	8.62	8.54	8.39	8.46	8.31	8.31	7.95	8.50	7.83		8.49	8.46	8.19
Jia Qihang (CHN) (2001)	time	2.59	3.72	4.81	5.91	6.99	8.14	9.26	10.41	11.51	12.70		14.30	7 / 5			
reaction time 0.177	interval		1.13	1.09	1.10	1.08	1.15	1.12	1.15	1.10	1.19	1.60			3.32	3.35	3.44
	velocity	5.30	8.09	8.39	8.31	8.46	7.95	8.16	7.95	8.31	7.68	8.76	7.69		8.26	8.19	7.97
Huan Jiaxing (CHN) (2001)	time	2.59	3.69	4.81	5.89	6.99	8.11	9.23	10.36	11.49	12.66		14.32	8 / 6			
reaction time 0.196	interval		1.10	1.12	1.08	1.10	1.12	1.12	1.13	1.13	1.17	1.66			3.30	3.34	3.43
	velocity	5.30	8.31	8.16	8.46	8.31	8.16	8.16	8.09	8.09	7.81	8.45	7.68		8.31	8.21	7.99

2019 Pan American Games (Lima, PER) (TV Analysis)

FINAL date 10-Aug-19 wind 1.8 m/s *Henson (2020) - Athlete First: 2019 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Brathwaite, Shane (BAR) (1990	time	2.63	3.68	4.72	5.74	6.74	7.77	8.79	9.81	10.84	11.89		13.31	7 / 1			
reaction time 0.153	interval		1.05	1.04	1.02	1.00	1.03	1.02	1.02	1.03	1.05	1.42			3.11	3.05	3.10
	velocity	5.22	8.70	8.79	8.96	9.14	8.87	8.96	8.96	8.87	8.70	9.87	8.26		8.82	8.99	8.85
Crittenden, Freddie (USA) (199	time	2.63	3.67	4.68	5.70	6.70	7.72	8.76	9.79	10.84	11.89		13.32	6 / 2			
reaction time 0.140	interval		1.04	1.01	1.02	1.00	1.02	1.04	1.03	1.05	1.05	1.43			3.07	3.06	3.13
	velocity	5.22	8.79	9.05	8.96	9.14	8.96	8.79	8.87	8.70	8.70	9.80	8.26		8.93	8.96	8.76
Santos Rodriques, Eduardo (B	time	2.70	3.74	4.77	5.77	6.80	7.80	8.84	9.88	10.92	12.03		13.48	8 / 3			
reaction time 0.193	interval		1.04	1.03	1.00	1.03	1.00	1.04	1.04	1.04	1.11	1.45			3.07	3.07	3.19
	velocity	5.08	8.79	8.87	9.14	8.87	9.14	8.79	8.79	8.79	8.23	9.67	8.16		8.93	8.93	8.60
Swift, Greggmar (BAR) (1991)	time	2.60	3.60	4.65	5.68	6.70	7.74	8.79	9.86	10.95	12.05		13.51	4 / 4			
reaction time 0.140	interval		1.00	1.05	1.03	1.02	1.04	1.05	1.07	1.09	1.10	1.46			3.08	3.11	3.26
	velocity	5.28	9.14	8.70	8.87	8.96	8.79	8.70	8.54	8.39	8.31	9.60	8.14		8.90	8.82	8.41

2019 Japanese National High School Championships (Okinawa, JPN) (99cm)

FINAL date 08-Aug-19 wind -3.0 m/s *Kota (2019) - 72nd high school championships: JAF scientific committee - biomechanics data collection*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Muratake, Rachid (JPN) (2002)	time	2.64	3.73	4.83	5.92	7.02	8.13	9.25	10.37	11.49	12.63		14.04	6 / 1			
reaction time	interval		1.09	1.10	1.09	1.10	1.11	1.12	1.12	1.12	1.14	1.41	PB		3.28	3.33	3.38
	velocity	5.20	8.39	8.31	8.39	8.31	8.23	8.16	8.16	8.16	8.02	9.94	7.83		8.36	8.23	8.11
Kondo, Mizuki (JPN) (2003)	time	2.69	3.80	4.92	6.00	7.12	8.23	9.33	10.46	11.57	12.72		14.21	5 / 2			
reaction time	interval		1.11	1.12	1.08	1.12	1.11	1.10	1.13	1.11	1.15	1.49	PB		3.31	3.33	3.39
	velocity	5.10	8.23	8.16	8.46	8.16	8.23	8.31	8.09	8.23	7.95	9.41	7.74		8.28	8.23	8.09
Sugaya, Takumi (JPN) (2001)	time	2.74	3.86	4.99	6.12	7.24	8.37	9.50	10.63	11.75	12.91		14.40	7 / 3			
reaction time	interval		1.12	1.13	1.13	1.12	1.13	1.13	1.13	1.12	1.16	1.49	PB		3.38	3.38	3.41
	velocity	5.01	8.16	8.09	8.09	8.16	8.09	8.09	8.09	8.16	7.88	9.41	7.64		8.11	8.11	8.04

Fujiwara, Koki (JPN) (2002)	time	2.71	3.84	4.93	6.01	7.10	8.26	9.37	10.54	11.71	12.93		14.47	3 / 4			
reaction time	interval		1.13	1.09	1.08	1.09	1.16	1.11	1.17	1.17	1.22	1.54			3.30	3.36	3.56
	velocity	5.06	8.09	8.39	8.46	8.39	7.88	8.23	7.81	7.81	7.49	9.10	7.60		8.31	8.16	7.70
Kurokawa, Kazuki (JPN) (2001)	time	2.72	3.90	5.03	6.19	7.35	8.52	9.68	10.84	12.01	13.22		14.76	4 / 5			
reaction time	interval		1.18	1.13	1.16	1.16	1.17	1.16	1.16	1.17	1.21	1.54	PB		3.47	3.49	3.54
	velocity	5.04	7.75	8.09	7.88	7.88	7.81	7.88	7.88	7.81	7.55	9.10	7.45		7.90	7.86	7.75
Bondoreo, Sho (JPN)	time	2.78	3.95	5.12	6.27	7.41	8.60	9.78	10.95	12.14	13.33		14.91	2 / 6			
reaction time	interval		1.17	1.17	1.15	1.14	1.19	1.18	1.17	1.19	1.19	1.58			3.49	3.51	3.55
	velocity	4.94	7.81	7.81	7.95	8.02	7.68	7.75	7.81	7.68	7.68	8.87	7.38		7.86	7.81	7.72
Tochioka, Takei (JPN) (2001)	time	2.76	3.96	5.13	6.29	7.47	8.67	9.93	11.18	12.45	13.78		15.49	1 / 7			
reaction time	interval		1.20	1.17	1.16	1.18	1.20	1.26	1.25	1.27	1.33	1.71			3.53	3.64	3.85
	velocity	4.97	7.62	7.81	7.88	7.75	7.62	7.25	7.31	7.20	6.87	8.20	7.10		7.77	7.53	7.12

2019 Chinese World Championship Trials (Shenyang, CHN)

FINAL

date 02-Aug-19 wind 0.0 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.61	3.64	4.67	5.70	6.72	7.74	8.77	9.80	10.87	11.97		13.43	4 / 1			
reaction time	0.153	interval	7 steps	1.03	1.03	1.03	1.02	1.02	1.03	1.03	1.07	1.10	1.46			3.09	3.07	3.20
		velocity	5.26	8.87	8.87	8.87	8.96	8.96	8.87	8.87	8.54	8.31	9.60	8.19		8.87	8.93	8.57
Zeng Jianhang (CHN) (1998)		time	2.56	3.60	4.64	5.67	6.74	7.76	8.82	9.88	10.96	12.08		13.54	3 / 2			
reaction time	0.150	interval		1.04	1.04	1.03	1.07	1.02	1.06	1.06	1.08	1.12	1.46			3.11	3.15	3.26
		velocity	5.36	8.79	8.79	8.87	8.54	8.96	8.62	8.62	8.46	8.16	9.60	8.12		8.82	8.70	8.41
Pan Zijie (CHN) (1995)		time	2.62	3.70	4.77	5.84	6.91	7.96	9.04	10.11	11.21	12.32		13.77	8 / 3			
reaction time	0.171	interval		1.08	1.07	1.07	1.07	1.05	1.08	1.07	1.10	1.11	1.45	PB		3.22	3.20	3.28
		velocity	5.24	8.46	8.54	8.54	8.54	8.70	8.46	8.54	8.31	8.23	9.67	7.99		8.52	8.57	8.36
Jiang Fan (CHN) (1989)		time	2.65	3.74	4.80	5.87	6.92	7.99	9.07	10.16	11.26	12.38		13.89	5 / 4			
reaction time	0.148	interval		1.09	1.06	1.07	1.05	1.07	1.08	1.09	1.10	1.12	1.51			3.22	3.20	3.31
		velocity	5.18	8.39	8.62	8.54	8.70	8.54	8.46	8.39	8.31	8.16	9.28	7.92		8.52	8.57	8.28
Zhang Tao (CHN) (1997)		time	2.69	3.78	4.87	5.94	7.01	8.07	9.14	10.24	11.34	12.48		13.98	6 / 5			
reaction time	0.159	interval		1.09	1.09	1.07	1.07	1.06	1.07	1.10	1.10	1.14	1.50			3.25	3.20	3.34
		velocity	5.10	8.39	8.39	8.54	8.54	8.62	8.54	8.31	8.31	8.02	9.35	7.87		8.44	8.57	8.21
Li Jiming (CHN) (1996)		time	2.64	3.73	4.80	5.91	7.00	8.09	9.18	10.29	11.40	12.58		14.14	1 / 6			
reaction time	0.176	interval		1.09	1.07	1.11	1.09	1.09	1.09	1.11	1.11	1.18	1.56			3.27	3.27	3.40
		velocity	5.20	8.39	8.54	8.23	8.39	8.39	8.39	8.23	8.23	7.75	8.99	7.78		8.39	8.39	8.06
Wu Zhenhua (CHN) (1998)		time	2.70	3.82	4.93	6.02	7.12	8.21	9.32	10.43	11.58	12.75		14.25	7 / 7			
reaction time	0.151	interval		1.12	1.11	1.09	1.10	1.09	1.11	1.11	1.15	1.17	1.50			3.32	3.30	3.43
		velocity	5.08	8.16	8.23	8.39	8.31	8.39	8.23	8.23	7.95	7.81	9.35	7.72		8.26	8.31	7.99

Heat 2

date 02-Aug-19 wind -0.2 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)		time	2.62	3.70	4.78	5.86	6.94	8.02	9.10	10.20	11.31	12.47		13.99	7 / 1			
reaction time	0.153	interval		1.08	1.08	1.08	1.08	1.08	1.08	1.10	1.11	1.16	1.52			3.24	3.24	3.37
		velocity	5.24	8.46	8.46	8.46	8.46	8.46	8.46	8.31	8.23	7.88	9.22	7.86		8.46	8.46	8.14
Zhang Tao (CHN) (1997)		time	2.70	3.82	4.90	5.96	7.07	8.16	9.24	10.36	11.48	12.65		14.20	4 / 2			
reaction time	0.174	interval		1.12	1.08	1.06	1.11	1.09	1.08	1.12	1.12	1.17	1.55			3.26	3.28	3.41
		velocity	5.08	8.16	8.46	8.62	8.23	8.39	8.46	8.16	8.16	7.81	9.05	7.75		8.41	8.36	8.04
Wu Zhenhua (CHN) (1998)		time	2.74	3.87	4.98	6.10	7.21	8.34	9.48	10.61	11.74	12.91		14.43	8 / 3			
reaction time	0.174	interval		1.13	1.11	1.12	1.11	1.13	1.14	1.13	1.13	1.17	1.52			3.36	3.38	3.43
		velocity	5.01	8.09	8.23	8.16	8.23	8.09	8.02	8.09	8.09	7.81	9.22	7.62		8.16	8.11	7.99
Li Jiming (CHN) (1996)		time	2.71	3.85	4.96	6.06	7.17	8.31	9.46	10.63	11.81	13.01		14.69	3 / 4			
reaction time	0.191	interval		1.14	1.11	1.10	1.11	1.14	1.15	1.17	1.18	1.20	1.68			3.35	3.40	3.55
		velocity	5.06	8.02	8.23	8.31	8.23	8.02	7.95	7.81	7.75	7.62	8.35	7.49		8.19	8.06	7.72
Lu Yang (CHN) (1996)		time	2.85	4.01	5.15	6.30	7.44	8.61	9.80	11.05	12.34	13.72		15.90	6 / 5			
reaction time	0.196	interval		1.16	1.14	1.15	1.14	1.17	1.19	1.25	1.29	1.38	2.18			3.45	3.50	3.92
		velocity	4.81	7.88	8.02	7.95	8.02	7.81	7.68	7.31	7.09	6.62	6.43	6.92		7.95	7.83	6.99
Sun Zhenjiang (CHN) (1999)		time	2.72											dnf	5 / --			
reaction time	0.166	interval	7 steps															
		velocity	5.04															

Heat 1

date 02-Aug-19 wind -0.3 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.63	3.72	4.80	5.88	6.97	8.06	9.12	10.21	11.31	12.42		13.94	6 / 1			
reaction time	0.175	interval	7 steps	1.09	1.08	1.08	1.09	1.09	1.06	1.09	1.10	1.11	1.52			3.25	3.24	3.30
		velocity	5.22	8.39	8.46	8.46	8.39	8.39	8.62	8.39	8.31	8.23	9.22	7.89		8.44	8.46	8.31
Jiang Fan (CHN) (1989)		time	2.68	3.78	4.88	5.97	7.05	8.12	9.24	10.36	11.48	12.61		14.13	7 / 2			
reaction time	0.144	interval		1.10	1.10	1.09	1.08	1.07	1.12	1.12	1.12	1.13	1.52			3.29	3.27	3.37
		velocity	5.12	8.31	8.31	8.39	8.46	8.54	8.16	8.16	8.16	8.09	9.22	7.78		8.33	8.39	8.14
Pan Zijie (CHN) (1995)		time	2.65	3.77	4.87	6.00	7.14	8.24	9.35	10.46	11.57	12.68		14.17	3 / 3			
reaction time	0.173	interval		1.12	1.10	1.13	1.14	1.10	1.11	1.11	1.11	1.11	1.49			3.35	3.35	3.33
		velocity	5.18	8.16	8.31	8.09	8.02	8.31	8.23	8.23	8.23	8.23	9.41	7.76		8.19	8.19	8.23
Zhao Pengchuan (CHN) (1993)		time	2.69	3.82	4.93	6.01	7.12	8.21	9.32	10.43	11.56	12.69		14.25	4 / 4			
reaction time	0.168	interval		1.13	1.11	1.08	1.11	1.09	1.11	1.11	1.13	1.13	1.56			3.32	3.31	3.37
		velocity	5.10	8.09	8.23	8.46	8.23	8.39	8.23	8.23	8.09	8.09	8.99	7.72		8.26	8.28	8.14
Zhu Shenglong (CHN) (2000)		time	2.74	3.88	5.02	6.14	7.28	8.42	9.55	10.73	11.89	13.11		14.82	5 / 5			
reaction time	0.154	interval		1.14	1.14	1.12	1.14	1.14	1.13	1.18	1.16	1.22	1.71			3.40	3.41	3.56
		velocity	5.01	8.02	8.02	8.16	8.02	8.02	8.09	7.75	7.88	7.49	8.20	7.42		8.06	8.04	7.70

2019 USATF National Championships (Des Moines, IA) (TV Analysis)

FINAL date 28-Jul-19 wind -0.8 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)		time	2.46	3.50	4.54	5.57	6.57	7.60	8.61	9.64	10.67	11.73		13.23	4 / 1			
reaction time		interval		1.04	1.04	1.03	1.00	1.03	1.01	1.03	1.03	1.06	1.50			3.11	3.04	3.12
		velocity	5.58	8.79	8.79	8.87	9.14	8.87	9.05	8.87	8.87	8.62	9.35	8.31		8.82	9.02	8.79
Holloway, Grant (USA) (1997)		time	2.46	3.50	4.48	5.47	6.47	7.48	8.54	9.58	10.67	11.77		13.36	7 / 2			
reaction time		interval	7 steps	1.04	0.98	0.99	1.00	1.01	1.06	1.04	1.09	1.10	1.59			3.01	3.07	3.23
		velocity	5.58	8.79	9.33	9.23	9.14	9.05	8.62	8.79	8.39	8.31	8.82	8.23		9.11	8.93	8.49
Allen, Devon (USA) (1994)		time	2.50	3.60	4.63	5.67	6.69	7.70	8.74	9.77	10.83	11.90		13.38	8 / 3			
reaction time		interval		1.10	1.03	1.04	1.02	1.01	1.04	1.03	1.06	1.07	1.48			3.17	3.07	3.16
		velocity	5.49	8.31	8.87	8.79	8.96	9.05	8.79	8.87	8.62	8.54	9.47	8.22		8.65	8.93	8.68
Crittendon, Freddie (USA) (19		time	2.60	3.67	4.70	5.70	6.73	7.73	8.74	9.77	10.84	11.88		13.39	6 / 4			
reaction time		interval		1.07	1.03	1.00	1.03	1.00	1.01	1.03	1.07	1.04	1.51			3.10	3.04	3.14
		velocity	5.28	8.54	8.87	9.14	8.87	9.14	9.05	8.87	8.54	8.79	9.28	8.22		8.85	9.02	8.73
Dickson, Michael (USA) (1989)		time	2.56	3.60	4.67	5.70	6.74	7.77	8.80	9.85	10.94	12.00		13.45	3 / 5			
reaction time		interval		1.04	1.07	1.03	1.04	1.03	1.03	1.05	1.09	1.06	1.45	PB		3.14	3.10	3.20
		velocity	5.36	8.79	8.54	8.87	8.79	8.87	8.87	8.70	8.39	8.62	9.67	8.18		8.73	8.85	8.57
Eaton, Jarret (USA) (1989)		time	2.50	3.54	4.54	5.57	6.57	7.60	8.60	9.71	10.81	11.93		13.51	1 / 6			
reaction time		interval	7 steps	1.04	1.00	1.03	1.00	1.03	1.00	1.11	1.10	1.12	1.58			3.07	3.03	3.33
		velocity	5.49	8.79	9.14	8.87	9.14	8.87	9.14	8.23	8.31	8.16	8.87	8.14		8.93	9.05	8.23
Mallett, Aaron (USA) (1994)		time	2.53	3.60	4.63	5.67	6.67	7.73	8.78	9.84	10.91	11.97		13.51	5 / 7			
reaction time		interval	7 steps	1.07	1.03	1.04	1.00	1.06	1.05	1.06	1.07	1.06	1.54			3.14	3.11	3.19
		velocity	5.42	8.54	8.87	8.79	9.14	8.62	8.70	8.62	8.54	8.62	9.10	8.14		8.73	8.82	8.60
Cunningham, Trey (USA) (199		time	2.51	3.57	4.60	5.63	6.67	7.70	8.76	9.85	10.94	12.11		13.72	2 / 8			
reaction time		interval	7 steps	1.06	1.03	1.03	1.04	1.03	1.06	1.09	1.09	1.17	1.61			3.12	3.13	3.35
		velocity	5.47	8.62	8.87	8.87	8.79	8.87	8.62	8.39	8.39	7.81	8.71	8.02		8.79	8.76	8.19

2019 Corporate Team vs College Team (Hiratsukai, JPN)

FINAL date 27-Jul-19 wind 1.9 m/s

(2019) - http://tfdata-store.com/2019/09/03/post-1615/

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994		time	2.55	3.58	4.62	5.63	6.66	7.71	8.75	9.79	10.84	11.91		13.30	4 / 1			
reaction time	0.129	interval		1.03	1.04	1.01	1.03	1.05	1.04	1.04	1.05	1.07	1.39	NR		3.08	3.12	3.16
		velocity	5.38	8.87	8.79	9.05	8.87	8.70	8.79	8.79	8.70	8.54	10.09	8.27		8.90	8.79	8.68

2019 Müller Anniversary Games (London, GBR) (TV Analysis)

FINAL date 21-Jul-19 wind 0.4 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.46	3.53	4.55	5.57	6.58	7.59	8.63	9.66	10.69	11.72		13.28	5 / 1			
reaction time	0.135	interval	7 steps	1.07	1.02	1.02	1.01	1.01	1.04	1.03	1.03	1.03	1.56			3.11	3.06	3.09
		velocity	5.58	8.54	8.96	8.96	9.05	9.05	8.79	8.87	8.87	8.87	8.99	8.28		8.82	8.96	8.87
Belocian, Wilhem (FRA) (1995)		time	2.43	3.46	4.48	5.50	6.50	7.53	8.56	9.58	10.61	11.66		13.28	6 / 2			
reaction time	0.125	interval		1.03	1.02	1.02	1.00	1.03	1.03	1.02	1.03	1.05	1.62			3.07	3.06	3.10
		velocity	5.65	8.87	8.96	8.96	9.14	8.87	8.87	8.96	8.87	8.70	8.65	8.28		8.93	8.96	8.85
McLeod, Omar (JAM) (1994)		time	2.39	3.45	4.48	5.53	6.55	7.56	8.58	9.64	10.72	11.77		13.32	4 / 3			
reaction time	0.134	interval		1.06	1.03	1.05	1.02	1.01	1.02	1.06	1.08	1.05	1.55			3.14	3.05	3.19

		velocity	5.74	8.62	8.87	8.70	8.96	9.05	8.96	8.62	8.46	8.70	9.05	8.26		8.73	8.99	8.60
Martinot-Lagarde, Pascal (FRA		time	2.45	3.51	4.55	5.58	6.60	7.63	8.66	9.73	10.80	11.90		13.49	8 / 4			
reaction time	0.152	interval	7 steps	1.06	1.04	1.03	1.02	1.03	1.03	1.07	1.07	1.10	1.59			3.13	3.08	3.24
		velocity	5.60	8.62	8.79	8.87	8.96	8.87	8.87	8.54	8.54	8.31	8.82	8.15		8.76	8.90	8.46
Alkana, Antonio (RSA) (1990)		time	2.43	3.46	4.51	5.53	6.55	7.57	8.62	9.71	10.78	11.91		13.51	7 / 5			
reaction time	0.111	interval		1.03	1.05	1.02	1.02	1.02	1.05	1.09	1.07	1.13	1.60			3.10	3.09	3.29
		velocity	5.65	8.87	8.70	8.96	8.96	8.96	8.70	8.39	8.54	8.09	8.76	8.14		8.85	8.87	8.33
Pozzi, Andy (GBR) (1992)		time	2.38	3.43	4.45	5.46	6.46	7.50	8.55	9.63	10.77	11.89		13.52	3 / 6			
reaction time	0.131	interval	7 steps	1.05	1.02	1.01	1.00	1.04	1.05	1.08	1.14	1.12	1.63			3.08	3.09	3.34
		velocity	5.76	8.70	8.96	9.05	9.14	8.79	8.70	8.46	8.02	8.16	8.60	8.14		8.90	8.87	8.21
Levy, Ronald (JAM) (1992)		time	2.43	3.51	4.56	5.61	6.63	7.70	8.73	9.82	10.92	11.99		13.60	2 / 7			
reaction time	0.165	interval	7 steps	1.08	1.05	1.05	1.02	1.07	1.03	1.09	1.10	1.07	1.61			3.18	3.12	3.26
		velocity	5.65	8.46	8.70	8.70	8.96	8.54	8.87	8.39	8.31	8.54	8.71	8.09		8.62	8.79	8.41
King, David (GBR) (1994)		time	2.45	3.51	4.56	5.61	6.65	7.72	8.77	9.85	10.92	12.05		13.66	1 / 8			
reaction time	0.135	interval	7 steps	1.06	1.05	1.05	1.04	1.07	1.05	1.08	1.07	1.13	1.61			3.16	3.16	3.28
		velocity	5.60	8.62	8.70	8.70	8.79	8.54	8.70	8.46	8.54	8.09	8.71	8.05		8.68	8.68	8.36

2019 Chinese National Championships (Shenyang, CHN)

Decathlon - Heat 3

date 11-Jul-19 wind 0.0 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yue Xuesong (CHN) (1997)		time	2.77	3.92	5.05	6.20	7.36	8.52	9.69	10.86	12.03	13.23		14.76	5 / 1			
reaction time	0.203	interval		1.15	1.13	1.15	1.16	1.16	1.17	1.17	1.17	1.20	1.53	PB		3.43	3.49	3.54
		velocity	4.95	7.95	8.09	7.95	7.88	7.88	7.81	7.81	7.81	7.62	9.16	7.45		7.99	7.86	7.75
Li Xiaodong (CHN) (1995)		time	2.74	3.90	5.05	6.19	7.34	8.50	9.66	10.87	12.06	13.26		14.79	2 / 2			
reaction time	0.153	interval		1.16	1.15	1.14	1.15	1.16	1.16	1.21	1.19	1.20	1.53			3.45	3.47	3.60
		velocity	5.01	7.88	7.95	8.02	7.95	7.88	7.88	7.55	7.68	7.62	9.16	7.44		7.95	7.90	7.62
Li Shuo (CHN) (1994)		time	2.87	4.07	5.25	6.42	7.59	8.76	9.94	11.13	12.34	13.56		15.19	3 / 3			
reaction time	0.179	interval		1.20	1.18	1.17	1.17	1.17	1.18	1.19	1.21	1.22	1.63			3.55	3.52	3.62
		velocity	4.78	7.62	7.75	7.81	7.81	7.81	7.75	7.68	7.55	7.49	8.60	7.24		7.72	7.79	7.57
Wang Chi (CHN) (1997)		time	2.82	4.04	5.24	6.44	7.67	8.89	10.12	11.39	12.64	13.91		15.55	6 / 4			
reaction time	0.177	interval		1.22	1.20	1.20	1.23	1.22	1.23	1.27	1.25	1.27	1.64	PB		3.62	3.68	3.79
		velocity	4.87	7.49	7.62	7.62	7.43	7.49	7.43	7.20	7.31	7.20	8.55	7.07		7.57	7.45	7.23
Wei Peng (CHN) (2002)		time	2.95	4.27	5.60	6.97	8.32	9.71	11.09	12.48	13.88	15.66		18.65	4 / 5			
reaction time	0.189	interval		1.32	1.33	1.37	1.35	1.39	1.38	1.39	1.40	1.78	2.99	PB		4.02	4.12	4.57
		velocity	4.65	6.92	6.87	6.67	6.77	6.58	6.62	6.58	6.53	5.13	4.69	5.90		6.82	6.66	6.00

Decathlon - Heat 2

date 11-Jul-19 wind -0.1 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hu Yufei (CHN) (1993)		time	2.72	3.85	4.97	6.07	7.20	8.35	9.51	10.66	11.84	12.98		14.56	7 / 1			
reaction time	0.162	interval	7 steps	1.13	1.12	1.10	1.13	1.15	1.16	1.15	1.18	1.14	1.58			3.35	3.44	3.47
		velocity	5.04	8.09	8.16	8.31	8.09	7.95	7.88	7.95	7.75	8.02	8.87	7.55		8.19	7.97	7.90
Yang Zihao (CHN) (1998)		time	2.75	3.90	5.05	6.19	7.32	8.49	9.69	10.84	12.04	13.21		14.78	5 / 2			
reaction time	0.171	interval		1.15	1.15	1.14	1.13	1.17	1.20	1.15	1.20	1.17	1.57	PB		3.44	3.50	3.52
		velocity	4.99	7.95	7.95	8.02	8.09	7.81	7.62	7.95	7.62	7.81	8.93	7.44		7.97	7.83	7.79
Tian Yang (CHN) (1997)		time	2.85	4.00	5.15	6.29	7.44	8.61	9.77	10.96	12.14	13.40		15.02	2 / 3			
reaction time	0.223	interval		1.15	1.15	1.14	1.15	1.17	1.16	1.19	1.18	1.26	1.62	PB		3.44	3.48	3.63
		velocity	4.81	7.95	7.95	8.02	7.95	7.81	7.88	7.68	7.75	7.25	8.65	7.32		7.97	7.88	7.55
Zhang Zhen (CHN) (1996)		time	2.83	4.00	5.13	6.29	7.43	8.59	9.77	10.96	12.18	13.42		15.10	3 / 4			
reaction time	0.169	interval		1.17	1.13	1.16	1.14	1.16	1.18	1.19	1.22	1.24	1.68			3.46	3.48	3.65
		velocity	4.85	7.81	8.09	7.88	8.02	7.88	7.75	7.68	7.49	7.37	8.35	7.28		7.92	7.88	7.51
Zhao Guorui (CHN) (1996)		time	2.78	4.02	5.24	6.44	7.64	8.86	10.09	11.33	12.59	13.86		15.63	6 / 5			
reaction time	0.198	interval		1.24	1.22	1.20	1.20	1.22	1.23	1.24	1.26	1.27	1.77	PB		3.66	3.65	3.77
		velocity	4.94	7.37	7.49	7.62	7.62	7.49	7.43	7.37	7.25	7.20	7.92	7.04		7.49	7.51	7.27
Jiang Yuhong (CHN) (1997)		time	2.98	4.25	5.51	6.79	8.10	9.56	11.04	12.50	13.98	15.48		17.39	4 / 6			
reaction time	0.247	interval		1.27	1.26	1.28	1.31	1.46	1.48	1.46	1.48	1.50	1.91			3.81	4.25	4.44
		velocity	4.60	7.20	7.25	7.14	6.98	6.26	6.18	6.26	6.18	6.09	7.34	6.33		7.20	6.45	6.18

Decathlon - Heat 1

date 11-Jul-19 wind -0.6 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Cao Jin (CHN) (1996)		time	2.72	3.84	4.93	6.02	7.17	8.29	9.46	10.62	11.78	13.00		14.57	5 / 1			
reaction time	0.169	interval	7 steps	1.12	1.09	1.09	1.15	1.12	1.17	1.16	1.16	1.22	1.57			3.30	3.44	3.54

		velocity	5.04	8.16	8.39	8.39	7.95	8.16	7.81	7.88	7.88	7.49	8.93	7.55		8.31	7.97	7.75
Guo Qi (CHN) (1990)		time	2.75	3.91	5.05	6.19	7.32	8.47	9.62	10.77	11.98	13.16		14.75	6 / 2			
reaction time	0.169	interval	7 steps	1.16	1.14	1.14	1.13	1.15	1.15	1.15	1.21	1.18	1.59			3.44	3.43	3.54
		velocity	4.99	7.88	8.02	8.02	8.09	7.95	7.95	7.95	7.55	7.75	8.82	7.46		7.97	7.99	7.75
Fei Xiang (CHN) (1998)		time	2.82	4.00	5.17	6.34	7.52	8.71	9.89	11.11	12.31	13.54		15.10	3 / 3			
reaction time	0.165	interval		1.18	1.17	1.17	1.18	1.19	1.18	1.22	1.20	1.23	1.56	PB		3.52	3.55	3.65
		velocity	4.87	7.75	7.81	7.81	7.75	7.68	7.75	7.49	7.62	7.43	8.99	7.28		7.79	7.72	7.51
Qian Wenze (CHN) (2001)		time	2.87	4.10	5.29	6.50	7.72	8.96	10.17	11.43	12.71	13.96		15.59	4 / 4			
reaction time	0.211	interval		1.23	1.19	1.21	1.22	1.24	1.21	1.26	1.28	1.25	1.63	PB		3.63	3.67	3.79
		velocity	4.78	7.43	7.68	7.55	7.49	7.37	7.55	7.25	7.14	7.31	8.60	7.06		7.55	7.47	7.23
Aihaiti Yisikandaer (CHN) (199		time	2.88	4.10	5.34	6.59	7.81	9.07	10.34	11.58	12.84	14.14		15.80	8 / 5			
reaction time	0.193	interval		1.22	1.24	1.25	1.22	1.26	1.27	1.24	1.26	1.30	1.66			3.71	3.75	3.80
		velocity	4.76	7.49	7.37	7.31	7.49	7.25	7.20	7.37	7.25	7.03	8.45	6.96		7.39	7.31	7.22
Chen Junyi (CHN) (1999)		time	2.95	4.30	5.64	6.94	8.27	9.61	10.96	12.28	13.61	14.95		16.62	2 / 6			
reaction time	0.190	interval	7 steps	1.35	1.34	1.30	1.33	1.34	1.35	1.32	1.33	1.34	1.67			3.99	4.02	3.99
		velocity	4.65	6.77	6.82	7.03	6.87	6.82	6.77	6.92	6.87	6.82	8.40	6.62		6.87	6.82	6.87

FINAL

date 08-Jul-19 wind 0.1 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)		time	2.58	3.65	4.70	5.75	6.77	7.86	8.92	9.99	11.09	12.18		13.59	8 / 1			
reaction time	0.174	interval		1.07	1.05	1.05	1.02	1.09	1.06	1.07	1.10	1.09	1.41			3.17	3.17	3.26
		velocity	5.32	8.54	8.70	8.70	8.96	8.39	8.62	8.54	8.31	8.39	9.94	8.09		8.65	8.65	8.41
Sun Zhenjiang (CHN) (1999)		time	2.58	3.64	4.69	5.72	6.77	7.82	8.88	9.96	11.04	12.13		13.60	5 / 2			
reaction time	0.164	interval	7 steps	1.06	1.05	1.03	1.05	1.05	1.06	1.08	1.08	1.09	1.47	PB		3.14	3.16	3.25
		velocity	5.32	8.62	8.70	8.87	8.70	8.70	8.62	8.46	8.46	8.39	9.54	8.09		8.73	8.68	8.44
Pan Zijie (CHN) (1995)		time	2.63	3.70	4.80	5.87	6.96	8.02	9.11	10.21	11.31	12.41		13.87	3 / 3			
reaction time	0.187	interval		1.07	1.10	1.07	1.09	1.06	1.09	1.10	1.10	1.10	1.46			3.24	3.24	3.30
		velocity	5.22	8.54	8.31	8.54	8.39	8.62	8.39	8.31	8.31	8.31	9.60	7.93		8.46	8.46	8.31
Zhu Shenglong (CHN) (2000)		time	2.72	3.80	4.87	5.92	6.99	8.04	9.09	10.18	11.29	12.40		13.90	2 / 4			
reaction time	0.170	interval		1.08	1.07	1.05	1.07	1.05	1.05	1.09	1.11	1.11	1.50	PB		3.20	3.17	3.31
		velocity	5.04	8.46	8.54	8.70	8.54	8.70	8.70	8.39	8.23	8.23	9.35	7.91		8.57	8.65	8.28
Jiang Fan (CHN) (1989)		time	2.63	3.73	4.80	5.89	6.97	8.06	9.15	10.24	11.34	12.48		13.96	7 / 5			
reaction time	0.143	interval		1.10	1.07	1.09	1.08	1.09	1.09	1.09	1.10	1.14	1.48			3.26	3.26	3.33
		velocity	5.22	8.31	8.54	8.39	8.46	8.39	8.39	8.39	8.31	8.02	9.47	7.88		8.41	8.41	8.23
Li Jiming (CHN) (1996)		time	2.65	3.74	4.80	5.87	6.95	8.02	9.12	10.21	11.31	12.46		13.96	1 / 6			
reaction time	0.180	interval		1.09	1.06	1.07	1.08	1.07	1.10	1.09	1.10	1.15	1.50			3.22	3.25	3.34
		velocity	5.18	8.39	8.62	8.54	8.46	8.54	8.31	8.39	8.31	7.95	9.35	7.88		8.52	8.44	8.21
Zhao Pengchuan (CHN) (1993)		time	2.67	3.77	4.84	5.90	6.96	8.02	9.11	10.22	11.35	12.46		14.04	4 / 7			
reaction time	0.164	interval		1.10	1.07	1.06	1.06	1.06	1.09	1.11	1.13	1.11	1.58			3.23	3.21	3.35
		velocity	5.14	8.31	8.54	8.62	8.62	8.62	8.39	8.23	8.09	8.23	8.87	7.83		8.49	8.54	8.19

Heat 3

date 08-Jul-19 wind -0.5 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Tao (CHN) (1997)		time	2.65	3.75	4.82	5.91	6.96	7.99	9.07	10.16	11.26	12.41		13.89	2 / 1			
reaction time	0.158	interval		1.10	1.07	1.09	1.05	1.03	1.08	1.09	1.10	1.15	1.48			3.26	3.16	3.34
		velocity	5.18	8.31	8.54	8.39	8.70	8.87	8.46	8.39	8.31	7.95	9.47	7.92		8.41	8.68	8.21
Zeng Jianhang (CHN) (1998)		time	2.69	3.79	4.85	5.94	7.02	8.11	9.18	10.27	11.39	12.51		13.98	6 / 2			
reaction time	0.204	interval		1.10	1.06	1.09	1.08	1.09	1.07	1.09	1.12	1.12	1.47			3.25	3.24	3.33
		velocity	5.10	8.31	8.62	8.39	8.46	8.39	8.54	8.39	8.16	8.16	9.54	7.87		8.44	8.46	8.23
Zhu Shenglong (CHN) (2000)		time	2.71	3.80	4.89	5.95	7.02	8.09	9.20	10.31	11.43	12.57		14.08	5 / 3			
reaction time	0.169	interval		1.09	1.09	1.06	1.07	1.07	1.11	1.11	1.12	1.14	1.51			3.24	3.25	3.37
		velocity	5.06	8.39	8.39	8.62	8.54	8.54	8.23	8.23	8.16	8.02	9.28	7.81		8.46	8.44	8.14
Lu Yang (CHN) (1996)		time	2.70	3.79	4.89	5.94	7.01	8.07	9.15	10.26	11.34	12.55		14.10	3 / 4			
reaction time	0.170	interval		1.09	1.10	1.05	1.07	1.06	1.08	1.11	1.08	1.21	1.55			3.24	3.21	3.40
		velocity	5.08	8.39	8.31	8.70	8.54	8.62	8.46	8.23	8.46	7.55	9.05	7.80		8.46	8.54	8.06
Si Zhengdong (CHN) (1997)		time	2.72	3.84	4.92	6.01	7.09	8.17	9.27	10.38	11.57	12.80		14.43	7 / 5			
reaction time	0.185	interval		1.12	1.08	1.09	1.08	1.08	1.10	1.11	1.19	1.23	1.63	PB		3.29	3.26	3.53
		velocity	5.04	8.16	8.46	8.39	8.46	8.46	8.31	8.23	7.68	7.43	8.60	7.62		8.33	8.41	7.77
Zhang Jinzhao (CHN) (1999)		time	2.82	3.95	5.06	6.17	7.29	8.41	9.54	10.69	11.85	13.03		14.55	4 / 6			
reaction time	0.233	interval		1.13	1.11	1.11	1.12	1.12	1.13	1.15	1.16	1.18	1.52	PB		3.35	3.37	3.49

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	4.87	8.09	8.23	8.23	8.16	8.16	8.09	7.95	7.88	7.75	9.22	7.56		8.19	8.14	7.86
Zhang Shuai (CHN) (1996)		time	2.69	3.84	5.01	6.14	7.26	8.37	9.53	10.69	11.86	13.05		14.67	8 / 7			
reaction time	0.260	interval		1.15	1.17	1.13	1.12	1.11	1.16	1.16	1.17	1.19	1.62			3.45	3.39	3.52
		velocity	5.10	7.95	7.81	8.09	8.16	8.23	7.88	7.88	7.81	7.68	8.65	7.50		7.95	8.09	7.79

Heat 2

date 08-Jul-19 wind 0.4 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhao Pengchuan (CHN) (1993)		time	2.65	3.77	4.82	5.89	6.95	8.02	9.10	10.18	11.26	12.37		13.85	3 / 1			
reaction time	0.168	interval		1.12	1.05	1.07	1.06	1.07	1.08	1.08	1.08	1.11	1.48			3.24	3.21	3.27
		velocity	5.18	8.16	8.70	8.54	8.62	8.54	8.46	8.46	8.46	8.23	9.47	7.94		8.46	8.54	8.39
Pan Zijie (CHN) (1995)		time	2.65	3.77	4.83	5.90	6.97	8.06	9.14	10.23	11.33	12.43		13.88	4 / 2			
reaction time	0.191	interval		1.12	1.06	1.07	1.07	1.09	1.08	1.09	1.10	1.10	1.45			3.25	3.24	3.29
		velocity	5.18	8.16	8.62	8.54	8.54	8.39	8.46	8.39	8.31	8.31	9.67	7.93		8.44	8.46	8.33
Li Jiming (CHN) (1996)		time	2.65	3.75	4.80	5.87	6.94	8.01	9.09	10.21	11.34	12.48		14.03	5 / 3			
reaction time	0.182	interval		1.10	1.05	1.07	1.07	1.07	1.08	1.12	1.13	1.14	1.55			3.22	3.22	3.39
		velocity	5.18	8.31	8.70	8.54	8.54	8.54	8.46	8.16	8.09	8.02	9.05	7.84		8.52	8.52	8.09
Sun Haoru (CHN) (1998)		time	2.65	3.77	4.87	5.98	7.06	8.14	9.25	10.36	11.48	12.63		14.14	6 / 4			
reaction time	0.174	interval		1.12	1.10	1.11	1.08	1.08	1.11	1.11	1.12	1.15	1.51	PB		3.33	3.27	3.38
		velocity	5.18	8.16	8.31	8.23	8.46	8.46	8.23	8.23	8.16	7.95	9.28	7.78		8.23	8.39	8.11
Yang Yuxuan (CHN) (2002)		time	2.70	3.82	4.90	6.00	7.11	8.22	9.34	10.46	11.59	12.74		14.23	8 / 5			
reaction time	0.158	interval		1.12	1.08	1.10	1.11	1.11	1.12	1.12	1.13	1.15	1.49	PB		3.30	3.34	3.40
		velocity	5.08	8.16	8.46	8.31	8.23	8.23	8.16	8.16	8.09	7.95	9.41	7.73		8.31	8.21	8.06
Wu Zhenhua (CHN) (1998)		time	2.70	3.81	4.94	6.04	7.20	8.34	9.51	10.68	11.86	13.05		14.69	7 / 6			
reaction time	0.157	interval		1.11	1.13	1.10	1.16	1.14	1.17	1.17	1.18	1.19	1.64			3.34	3.47	3.54
		velocity	5.08	8.23	8.09	8.31	7.88	8.02	7.81	7.81	7.75	7.68	8.55	7.49		8.21	7.90	7.75
Zhao Jiefu (CHN) (2001)		time	2.83	3.99	5.12	6.26	7.37	8.51	9.66	10.79	11.97	13.16		14.78	2 / 7			
reaction time	0.218	interval		1.16	1.13	1.14	1.11	1.14	1.15	1.13	1.18	1.19	1.62			3.43	3.40	3.50
		velocity	4.85	7.88	8.09	8.02	8.23	8.02	7.95	8.09	7.75	7.68	8.65	7.44		7.99	8.06	7.83

Heat 1

date 08-Jul-19 wind 0.1 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)		time	2.60	3.70	4.76	5.86	6.94	8.05	9.13	10.24	11.34	12.47		13.96	5 / 1			
reaction time	0.163	interval	7 steps	1.10	1.06	1.10	1.08	1.11	1.08	1.11	1.10	1.13	1.49			3.26	3.27	3.34
		velocity	5.28	8.31	8.62	8.31	8.46	8.23	8.46	8.23	8.31	8.09	9.41	7.88		8.41	8.39	8.21
Jiang Fan (CHN) (1989)		time	2.69	3.80	4.87	5.95	7.05	8.12	9.22	10.34	11.44	12.59		14.12	6 / 2			
reaction time	0.150	interval		1.11	1.07	1.08	1.10	1.07	1.10	1.12	1.10	1.15	1.53			3.26	3.27	3.37
		velocity	5.10	8.23	8.54	8.46	8.31	8.54	8.31	8.16	8.31	7.95	9.16	7.79		8.41	8.39	8.14
Ning Xiaohan (CHN) (2000)		time	2.68	3.77	4.85	5.94	7.02	8.12	9.22	10.34	11.46	12.60		14.17	4 / 3			
reaction time	0.163	interval		1.09	1.08	1.09	1.08	1.10	1.10	1.12	1.12	1.14	1.57			3.26	3.28	3.38
		velocity	5.12	8.39	8.46	8.39	8.46	8.31	8.31	8.16	8.16	8.02	8.93	7.76		8.41	8.36	8.11
Ma Lei (CHN) (1989)		time	2.72	3.85	4.95	6.04	7.14	8.22	9.31	10.43	11.54	12.69		14.21	7 / 4			
reaction time	0.155	interval	7 steps	1.13	1.10	1.09	1.10	1.08	1.09	1.12	1.11	1.15	1.52			3.32	3.27	3.38
		velocity	5.04	8.09	8.31	8.39	8.31	8.46	8.39	8.16	8.23	7.95	9.22	7.74		8.26	8.39	8.11
Guo Zhongjie (CHN) (2001)		time	2.70	3.80	4.92	6.00	7.11	8.19	9.32	10.43	11.58	12.73		14.30	8 / 5			
reaction time	0.190	interval		1.10	1.12	1.08	1.11	1.08	1.13	1.11	1.15	1.15	1.57			3.30	3.32	3.41
		velocity	5.08	8.31	8.16	8.46	8.23	8.46	8.09	8.23	7.95	7.95	8.93	7.69		8.31	8.26	8.04
Yang Jianxing (CHN) (1996)		time	2.69	3.82	4.94	6.07	7.16	8.31	9.44	10.57	11.73	12.88		14.43	3 / 6			
reaction time	0.141	interval		1.13	1.12	1.13	1.09	1.15	1.13	1.13	1.16	1.15	1.55			3.38	3.37	3.44
		velocity	5.10	8.09	8.16	8.09	8.39	7.95	8.09	8.09	7.88	7.95	9.05	7.62		8.11	8.14	7.97

2019 Athletissima (Lausanne, SUI) (TV Analysis)

FINAL

date 05-Jul-19 wind 1.0 m/s *Henson (2020) - Athlete First: 2019 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)		time	2.52	3.52	4.54	5.54	6.54	7.54	8.54	9.56	10.58	11.62		13.05	4 / 1			
reaction time	0.134	interval	7 steps	1.00	1.02	1.00	1.00	1.00	1.00	1.02	1.02	1.04	1.43			3.02	3.00	3.08
		velocity	5.44	9.14	8.96	9.14	9.14	9.14	9.14	8.96	8.96	8.79	9.80	8.43		9.08	9.14	8.90
Roberts, Daniel (USA) (1998)		time	2.50	3.54	4.56	5.58	6.58	7.58	8.60	9.62	10.64	11.66		13.11	5 / 2			
reaction time	0.204	interval		1.04	1.02	1.02	1.00	1.00	1.02	1.02	1.02	1.02	1.45			3.08	3.02	3.06
		velocity	5.49	8.79	8.96	8.96	9.14	9.14	8.96	8.96	8.96	8.96	9.67	8.39		8.90	9.08	8.96
Levy, Ronald (JAM) (1992)		time	2.46	3.50	4.52	5.50	6.50	7.50	8.50	9.52	10.68	11.72		13.25	6 / 3			
reaction time	0.138	interval	7 steps	1.04	1.02	0.98	1.00	1.00	1.00	1.02	1.16	1.04	1.53			3.04	3.00	3.22

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

	velocity	5.58	8.79	8.96	9.33	9.14	9.14	9.14	8.96	7.88	8.79	9.16	8.30		9.02	9.14	8.52
Pozzi, Andy (GBR) (1992)	time	2.50	3.54	4.58	5.58	6.60	7.62	8.64	9.68	10.74	11.80		13.28	8 / 4			
reaction time 0.150	interval	7 steps	1.04	1.04	1.00	1.02	1.02	1.02	1.04	1.06	1.06	1.48			3.08	3.06	3.16
	velocity	5.49	8.79	8.79	9.14	8.96	8.96	8.96	8.79	8.62	8.62	9.47	8.28		8.90	8.96	8.68
Xie Wenjun (CHN) (1990)	time	2.52	3.56	4.60	5.60	6.60	7.64	8.68	9.72	10.76	11.84		13.29	3 / 5			
reaction time 0.135	interval	7 steps	1.04	1.04	1.00	1.00	1.04	1.04	1.04	1.04	1.08	1.45			3.08	3.08	3.16
	velocity	5.44	8.79	8.79	9.14	9.14	8.79	8.79	8.79	8.79	8.46	9.67	8.28		8.90	8.90	8.68
Martinot-Lagarde, Pascal (FRA	time	2.56	3.60	4.60	5.60	6.62	7.64	8.66	9.68	10.76	11.84		13.34	2 / 6			
reaction time 0.157	interval	7 steps	1.04	1.00	1.00	1.02	1.02	1.02	1.02	1.08	1.08	1.50			3.04	3.06	3.18
	velocity	5.36	8.79	9.14	9.14	8.96	8.96	8.96	8.96	8.46	8.46	9.35	8.25		9.02	8.96	8.62
Allen, Devon (USA) (1994)	time	2.56	3.58	4.58	5.60	6.60	7.64	8.68	9.72	10.78	11.86		13.35	1 / 7			
reaction time 0.133	interval		1.02	1.00	1.02	1.00	1.04	1.04	1.04	1.06	1.08	1.49			3.04	3.08	3.18
	velocity	5.36	8.96	9.14	8.96	9.14	8.79	8.79	8.79	8.62	8.46	9.41	8.24		9.02	8.90	8.62

2019 Prefontaine Classic (Stanford, CA) (TV Analysis)

FINAL date 30-Jun-19 wind 0.3 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.55	3.60	4.62	5.63	6.62	7.64	8.68	9.70	10.75	11.80		13.24	4 / 1			
reaction time 0.163	interval	7 steps	1.05	1.02	1.01	0.99	1.02	1.04	1.02	1.05	1.05	1.44			3.08	3.05	3.12
	velocity	5.38	8.70	8.96	9.05	9.23	8.96	8.79	8.96	8.70	8.70	9.74	8.31		8.90	8.99	8.79
Belocian, Wilhem (FRA) (1995)	time	2.56	3.60	4.63	5.63	6.63	7.65	8.68	9.70	10.76	11.83		13.29	2 / 2			
reaction time 0.151	interval		1.04	1.03	1.00	1.00	1.02	1.03	1.02	1.06	1.07	1.46			3.07	3.05	3.15
	velocity	5.36	8.79	8.87	9.14	9.14	8.96	8.87	8.96	8.62	8.54	9.60	8.28		8.93	8.99	8.70
McLeod, Omar (JAM) (1994)	time	2.53	3.60	4.62	5.64	6.66	7.70	8.75	9.80	10.83	11.88		13.29	5 / 3			
reaction time 0.164	interval		1.07	1.02	1.02	1.02	1.04	1.05	1.05	1.03	1.05	1.41			3.11	3.11	3.13
	velocity	5.42	8.54	8.96	8.96	8.96	8.79	8.70	8.70	8.87	8.70	9.94	8.28		8.82	8.82	8.76
Levy, Ronald (JAM) (1992)	time	2.60	3.63	4.66	5.73	6.73	7.73	8.75	9.78	10.83	11.86		13.30	6 / 4			
reaction time 0.224	interval	7 steps	1.03	1.03	1.07	1.00	1.00	1.02	1.03	1.05	1.03	1.44			3.13	3.02	3.11
	velocity	5.28	8.87	8.87	8.54	9.14	9.14	8.96	8.87	8.70	8.87	9.74	8.27		8.76	9.08	8.82
Allen, Devon (USA) (1994)	time	2.56	3.60	4.62	5.64	6.66	7.68	8.75	9.76	10.82	11.86		13.33	3 / 5			
reaction time 0.145	interval		1.04	1.02	1.02	1.02	1.02	1.07	1.01	1.06	1.04	1.47			3.08	3.11	3.11
	velocity	5.36	8.79	8.96	8.96	8.96	8.96	8.54	9.05	8.62	8.79	9.54	8.25		8.90	8.82	8.82
Xie Wenjun (CHN) (1990)	time	2.56	3.60	4.63	5.66	6.70	7.73	8.76	9.80	10.83	11.88		13.36	7 / 6			
reaction time 0.175	interval	7 steps	1.04	1.03	1.03	1.04	1.03	1.03	1.04	1.03	1.05	1.48			3.10	3.10	3.12
	velocity	5.36	8.79	8.87	8.87	8.79	8.87	8.87	8.79	8.87	8.70	9.47	8.23		8.85	8.85	8.79
Crittendon, Freddie (USA) (19	time	2.60	3.63	4.66	5.66	6.70	7.73	8.78	9.82	10.85	11.92		13.38	8 / 7			
reaction time 0.220	interval		1.03	1.03	1.00	1.04	1.03	1.05	1.04	1.03	1.07	1.46			3.06	3.12	3.14
	velocity	5.28	8.87	8.87	9.14	8.79	8.87	8.70	8.79	8.87	8.54	9.60	8.22		8.96	8.79	8.73
Harris, Aleec (USA) (1990)	time	2.60	3.63	4.66	5.72	6.74	7.76	8.78	9.82	10.88	11.94		13.39	1 / 8			
reaction time 0.161	interval		1.03	1.03	1.06	1.02	1.02	1.02	1.04	1.06	1.06	1.45			3.12	3.06	3.16
	velocity	5.28	8.87	8.87	8.62	8.96	8.96	8.96	8.79	8.62	8.62	9.67	8.22		8.79	8.96	8.68
Swift, Greggmar (BAR) (1991)	time	2.55	3.58	4.62	5.68	6.70	7.74	8.82	9.86	10.93	12.03		13.56	9 / 9			
reaction time 0.150	interval		1.03	1.04	1.06	1.02	1.04	1.08	1.04	1.07	1.10	1.53			3.13	3.14	3.21
	velocity	5.38	8.87	8.79	8.62	8.96	8.79	8.46	8.79	8.54	8.31	9.16	8.11		8.76	8.73	8.54

2019 Japanese National Championships (Fukuoka, JPN)

FINAL date 30-Jun-19 wind -0.6 m/s

Yamanaka (2019) - research on athlete performance and technique- 2019 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994	time	2.54	3.59	4.61	5.63	6.66	7.69	8.73	9.78	10.84	11.92		13.36	7 / 1			
reaction time 0.146	interval		1.05	1.02	1.02	1.03	1.03	1.04	1.05	1.06	1.08	1.44	**=NR =PB**		3.09	3.10	3.19
	velocity	5.40	8.70	8.96	8.96	8.87	8.87	8.79	8.70	8.62	8.46	9.74	8.23		8.87	8.85	8.60
Izumiya, Shunsuke (JPN) (2000	time	2.55	3.59	4.63	5.65	6.68	7.72	8.75	9.80	10.89	11.97		13.36	6 / 2			
reaction time 0.144	interval		1.04	1.04	1.02	1.03	1.04	1.03	1.05	1.09	1.08	1.39	**=NR NJR PB**		3.10	3.10	3.22
	velocity	5.38	8.79	8.79	8.96	8.87	8.79	8.87	8.70	8.39	8.46	10.09	8.23		8.85	8.85	8.52
Ishikawa, Shuhei (JPN) (1995)	time	2.57	3.65	4.71	5.76	6.83	7.87	8.93	10.00	11.08	12.20		13.67	4 / 3			
reaction time 0.137	interval	7 steps	1.08	1.06	1.05	1.07	1.04	1.06	1.07	1.08	1.12	1.47			3.19	3.17	3.27
	velocity	5.34	8.46	8.62	8.70	8.54	8.79	8.62	8.54	8.46	8.16	9.54	8.05		8.60	8.65	8.39
Yazawa, Wataru (JPN) (1991)	time	2.64	3.71	4.77	5.83	6.87	7.92	9.00	10.07	11.18	12.29		13.76	9 / 4			
reaction time 0.138	interval	7 steps	1.07	1.06	1.06	1.04	1.05	1.08	1.07	1.11	1.11	1.47			3.19	3.17	3.29
	velocity	5.20	8.54	8.62	8.62	8.79	8.70	8.46	8.54	8.23	8.23	9.54	7.99		8.60	8.65	8.33

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Kuriki, Anthony Tyrell (JPN) (1	time	2.64	3.74	4.79	5.87	6.94	8.01	9.10	10.20	11.30	12.42		13.92	3 / 5				
reaction time 0.136	interval	7 steps	1.10	1.05	1.08	1.07	1.07	1.09	1.10	1.10	1.12	1.50			3.23	3.23	3.32	
	velocity	5.20	8.31	8.70	8.46	8.54	8.54	8.39	8.31	8.31	8.16	9.35	7.90		8.49	8.49	8.26	
Fujii, Ryota (JPN) (1996)	time	2.64	3.72	4.79	5.87	6.95	8.05	9.15	10.26	11.39	12.52		13.99	2 / 6				
reaction time 0.148	interval		1.08	1.07	1.08	1.08	1.10	1.10	1.11	1.13	1.13	1.47			3.23	3.28	3.37	
	velocity	5.20	8.46	8.54	8.46	8.46	8.31	8.31	8.23	8.09	8.09	9.54	7.86		8.49	8.36	8.14	
Fudaba, Hiroki (JPN) (1994)	time	2.66	3.75	4.81	5.91	6.98	8.07	9.15	10.26	11.37	12.49		14.00	8 / 7				
reaction time 0.148	interval	7 steps	1.09	1.06	1.10	1.07	1.09	1.08	1.11	1.11	1.12	1.51			3.25	3.24	3.34	
	velocity	5.16	8.39	8.62	8.31	8.54	8.39	8.46	8.23	8.23	8.16	9.28	7.86		8.44	8.46	8.21	
Sato, Hiroyuki (JPN) (1990)	time	2.58	3.68	4.75	5.84	6.92	8.00	9.10	10.21	11.44	12.63		14.16	5 / 8				
reaction time 0.157	interval		1.10	1.07	1.09	1.08	1.08	1.10	1.11	1.23	1.19	1.53			3.26	3.26	3.53	
	velocity	5.32	8.31	8.54	8.39	8.46	8.46	8.31	8.23	7.43	7.68	9.16	7.77		8.41	8.41	7.77	

2019 Meeting International Mohammed VI d'Athlétisme (Rabat, MAR) (TV Analysis)

FINAL date 16-Jun-19 wind 0.3 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199	time	2.50	3.54	4.56	5.58	6.58	7.60	8.60	9.62	10.66	11.70		13.12	6 / 1			
reaction time 0.135	interval	7 steps	1.04	1.02	1.02	1.00	1.02	1.00	1.02	1.04	1.04	1.42			3.08	3.02	3.10	
	velocity	5.49	8.79	8.96	8.96	9.14	8.96	9.14	8.96	8.79	8.79	9.87	8.38		8.90	9.08	8.85	
Pozzi, Andy (GBR) (1992)	time	2.48	3.52	4.52	5.52	6.54	7.58	8.62	9.66	10.72	11.78		13.30	4 / 2				
reaction time 0.118	interval	7 steps	1.04	1.00	1.00	1.02	1.04	1.04	1.04	1.06	1.06	1.52			3.04	3.10	3.16	
	velocity	5.53	8.79	9.14	9.14	8.96	8.79	8.79	8.79	8.62	8.62	9.22	8.27		9.02	8.85	8.68	
Constantino, Gabriel (BRA) (1!	time	2.54	3.58	4.60	5.64	6.68	7.70	8.72	9.76	10.82	11.90		13.41	2 / 3				
reaction time 0.177	interval	7 steps	1.04	1.02	1.04	1.04	1.02	1.02	1.04	1.06	1.08	1.51			3.10	3.08	3.18	
	velocity	5.40	8.79	8.96	8.79	8.79	8.96	8.96	8.79	8.62	8.46	9.28	8.20		8.85	8.90	8.62	
Belocian, Wilhem (FRA) (1995)	time	2.54	3.58	4.60	5.60	6.64	7.66	8.70	9.74	10.80	11.90		13.43	7 / 4				
reaction time 0.137	interval		1.04	1.02	1.00	1.04	1.02	1.04	1.04	1.06	1.10	1.53			3.06	3.10	3.20	
	velocity	5.40	8.79	8.96	9.14	8.79	8.96	8.79	8.79	8.62	8.31	9.16	8.19		8.96	8.85	8.57	
McLeod, Omar (JAM) (1994)	time	2.44	3.46	4.48	5.48	6.50	7.52	8.56	9.58	10.62	11.72		13.48	5 / 5				
reaction time 0.145	interval		1.02	1.02	1.00	1.02	1.02	1.04	1.02	1.04	1.10	1.76			3.04	3.08	3.16	
	velocity	5.62	8.96	8.96	9.14	8.96	8.96	8.79	8.96	8.79	8.31	7.97	8.16		9.02	8.90	8.68	
Alkana, Antonio (RSA) (1990)	time	2.48	3.52	4.52	5.56	6.60	7.64	8.68	9.74	10.88	11.98		13.51	3 / 6				
reaction time 0.168	interval		1.04	1.00	1.04	1.04	1.04	1.04	1.06	1.14	1.10	1.53			3.08	3.12	3.30	
	velocity	5.53	8.79	9.14	8.79	8.79	8.79	8.79	8.62	8.02	8.31	9.16	8.14		8.90	8.79	8.31	
Trajkovic, Milan (CYP) (1992)	time	2.54	3.62	4.64	5.68	6.70	7.74	8.80	9.86	10.90	12.00		13.53	8 / 7				
reaction time 0.098	interval	7 steps	1.08	1.02	1.04	1.02	1.04	1.06	1.06	1.04	1.10	1.53			3.14	3.12	3.20	
	velocity	5.40	8.46	8.96	8.79	8.96	8.79	8.62	8.62	8.79	8.31	9.16	8.13		8.73	8.79	8.57	
Santos Rodriques, Eduardo (B	time	2.58	3.66	4.70	5.74	6.78	7.80	8.86	9.90	10.98	12.06		13.58	9 / 8				
reaction time 0.156	interval		1.08	1.04	1.04	1.04	1.02	1.06	1.04	1.08	1.08	1.52			3.16	3.12	3.20	
	velocity	5.32	8.46	8.79	8.79	8.79	8.96	8.62	8.79	8.46	8.46	9.22	8.10		8.68	8.79	8.57	
Manga, Aurel (FRA) (1992)	time	2.52	3.58	4.66	5.72	6.80	7.86	8.94	10.04	11.12	12.26		13.88	1 / 9				
reaction time 0.163	interval	7 steps	1.06	1.08	1.06	1.08	1.06	1.08	1.10	1.08	1.14	1.62			3.20	3.22	3.32	
	velocity	5.44	8.62	8.46	8.62	8.46	8.62	8.46	8.31	8.46	8.02	8.65	7.93		8.57	8.52	8.26	

2019 Japanese National Multi-Event Championships (Nagano, JPN)

Decathlon - Heat 2 date 09-Jun-19 wind 2.1 m/s

Matsubayashi (2019) - research on athlete performance and technique- 2019 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.69	3.80	4.88	5.98	7.07	8.17	9.26	10.37	11.50	12.62		14.06	4 / 2			
reaction time	interval		1.11	1.08	1.10	1.09	1.10	1.09	1.11	1.13	1.12	1.44			3.29	3.28	3.36	
	velocity	5.10	8.23	8.46	8.31	8.39	8.31	8.39	8.23	8.09	8.16	9.74	7.82		8.33	8.36	8.16	
Maruyama, Yuma (JPN) (1998)	time	2.69	3.80	4.91	5.99	7.08	8.19	9.28	10.41	11.53	12.68		14.19	5 / 3				
reaction time	interval		1.11	1.11	1.08	1.09	1.11	1.09	1.13	1.12	1.15	1.51			3.30	3.29	3.40	
	velocity	5.10	8.23	8.23	8.46	8.39	8.23	8.39	8.09	8.16	7.95	9.28	7.75		8.31	8.33	8.06	

Decathlon - Heat 1 date 09-Jun-19 wind 1.8 m/s

Matsubayashi (2019) - research on athlete performance and technique- 2019 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.74	3.92	5.11	6.39	7.63	8.83	10.07	11.27	12.47	13.69		15.36	6 / 4			
reaction time	interval		1.18	1.19	1.28	1.24	1.20	1.24	1.20	1.20	1.22	1.67			3.65	3.68	3.62	
	velocity	5.01	7.75	7.68	7.14	7.37	7.62	7.37	7.62	7.62	7.49	8.40	7.16		7.51	7.45	7.57	

2019 NCAA National Championships (Austin, TX) (TV Analysis)

FINAL date 07-Jun-19 wind 0.8 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.47	3.47	4.47	5.44	6.41	7.40	8.40	9.43	10.47	11.54		12.98	5 / 1			
reaction time 0.180	interval	7 steps	1.00	1.00	0.97	0.97	0.99	1.00	1.03	1.04	1.07	1.44	PB		2.97	2.96	3.14
	velocity	5.55	9.14	9.14	9.42	9.42	9.23	9.14	8.87	8.79	8.54	9.74	8.47		9.23	9.26	8.73
Roberts, Daniel (USA) (1998)	time	2.50	3.53	4.53	5.53	6.51	7.51	8.51	9.54	10.55	11.60		13.00	4 / 2			
reaction time 0.191	interval		1.03	1.00	1.00	0.98	1.00	1.00	1.03	1.01	1.05	1.40	PB		3.03	2.98	3.09
	velocity	5.49	8.87	9.14	9.14	9.33	9.14	9.14	8.87	9.05	8.70	10.01	8.46		9.05	9.20	8.87
Moore, Isaiah (USA) (1996)	time	2.60	3.67	4.70	5.70	6.74	7.77	8.81	9.84	10.87	11.94		13.37	3 / 3			
reaction time 0.176	interval		1.07	1.03	1.00	1.04	1.03	1.04	1.03	1.03	1.07	1.43	PB		3.10	3.11	3.13
	velocity	5.28	8.54	8.87	9.14	8.79	8.87	8.79	8.87	8.87	8.54	9.80	8.23		8.85	8.82	8.76
Jackson, Dashaun (USA) (1997	time	2.54	3.60	4.64	5.67	6.70	7.70	8.71	9.76	10.81	11.91		13.38	6 / 4			
reaction time 0.175	interval		1.06	1.04	1.03	1.03	1.00	1.01	1.05	1.05	1.10	1.47			3.13	3.04	3.20
	velocity	5.40	8.62	8.79	8.87	8.87	9.14	9.05	8.70	8.70	8.31	9.54	8.22		8.76	9.02	8.57

Semi-Final 1

date 05-Jun-19 wind 0.9 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.33	3.35	4.35	5.35	6.35	7.38	8.41	9.43	10.46	11.50		13.06	6 / 1			
reaction time 0.203	interval		1.02	1.00	1.00	1.00	1.03	1.03	1.02	1.03	1.04	1.56	PB		3.02	3.06	3.09
	velocity	5.89	8.96	9.14	9.14	9.14	8.87	8.87	8.96	8.87	8.79	8.99	8.42		9.08	8.96	8.87
Jackson, Dashaun (USA) (1997	time	2.38	3.43	4.46	5.48	6.50	7.50	8.60	9.63	10.68	11.74		13.37	7 / 2			
reaction time 0.213	interval		1.05	1.03	1.02	1.02	1.00	1.10	1.03	1.05	1.06	1.63	PB		3.10	3.12	3.14
	velocity	5.76	8.70	8.87	8.96	8.96	9.14	8.31	8.87	8.70	8.62	8.60	8.23		8.85	8.79	8.73

2019 Asian Grand Prix 2 (Chongqing, CHN)

FINAL

date 07-Jun-19 wind 1.2 m/s

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Kuei-Ru (TPE) (1993)	time	2.58	3.63	4.67	5.69	6.72	7.75	8.79	9.84	10.91	11.99		13.43	5 / 1			
reaction time 0.164	interval	7 steps	1.05	1.04	1.02	1.03	1.03	1.04	1.05	1.07	1.08	1.44			3.11	3.10	3.20
	velocity	5.32	8.70	8.79	8.96	8.87	8.87	8.79	8.70	8.54	8.46	9.74	8.19		8.82	8.85	8.57
Zeng Jianhang (CHN) (1998)	time	2.58	3.62	4.66	5.67	6.70	7.72	8.76	9.80	10.92	12.03		13.45	3 / 2			
reaction time 0.168	interval		1.04	1.04	1.01	1.03	1.02	1.04	1.04	1.12	1.11	1.42	PB		3.09	3.09	3.27
	velocity	5.32	8.79	8.79	9.05	8.87	8.96	8.79	8.79	8.16	8.23	9.87	8.18		8.87	8.87	8.39
Kuriki, Anthony Tyrell (JPN) (1	time	2.60	3.70	4.74	5.79	6.82	7.86	8.92	9.99	11.07	12.17		13.62	4 / 3			
reaction time 0.130	interval	7 steps	1.10	1.04	1.05	1.03	1.04	1.06	1.07	1.08	1.10	1.45			3.19	3.13	3.25
	velocity	5.28	8.31	8.79	8.70	8.87	8.79	8.62	8.54	8.46	8.31	9.67	8.08		8.60	8.76	8.44
Efremov, David (KAZ) (1999)	time	2.66	3.75	4.78	5.84	6.90	7.95	9.02	10.12	11.20	12.32		13.81	8 / 4			
reaction time 0.186	interval	7 steps	1.09	1.03	1.06	1.06	1.05	1.07	1.10	1.08	1.12	1.49	PB		3.18	3.18	3.30
	velocity	5.16	8.39	8.87	8.62	8.62	8.70	8.54	8.31	8.46	8.16	9.41	7.97		8.62	8.62	8.31
Ogata, Akihiro (JPN) (1993)	time	2.66	3.75	4.80	5.87	6.92	7.98	9.07	10.16	11.27	12.41		13.90	6 / 5			
reaction time 0.201	interval	7 steps	1.09	1.05	1.07	1.05	1.06	1.09	1.09	1.11	1.14	1.49			3.21	3.20	3.34
	velocity	5.16	8.39	8.70	8.54	8.70	8.62	8.39	8.39	8.23	8.02	9.41	7.91		8.54	8.57	8.21
Chan Chung Wang (HKG) (19	time	2.70	3.78	4.85	5.91	6.96	8.02	9.07	10.16	11.31	12.49		14.07	7 / 6			
reaction time 0.158	interval		1.08	1.07	1.06	1.05	1.06	1.05	1.09	1.15	1.18	1.58			3.21	3.16	3.42
	velocity	5.08	8.46	8.54	8.62	8.70	8.62	8.70	8.39	7.95	7.75	8.87	7.82		8.54	8.68	8.02
Bautista, Clinton Kingsley (PH	time	2.65	3.77	4.87	5.99	7.07	8.17	9.29	10.41	11.52	12.67		14.13	2 / 7			
reaction time 0.180	interval	7 steps	1.12	1.10	1.12	1.08	1.10	1.12	1.12	1.11	1.15	1.46	PB		3.34	3.30	3.38
	velocity	5.18	8.16	8.31	8.16	8.46	8.31	8.16	8.16	8.23	7.95	9.60	7.78		8.21	8.31	8.11

2019 Golden Gala Pietro Mennea (Rome, ITA) (TV Analysis)

FINAL

date 06-Jun-19 wind 0.4 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199	time	2.61	3.66	4.68	5.67	6.68	7.69	8.71	9.73	10.75	11.83		13.26	5 / 1			
reaction time 0.132	interval	7 steps	1.05	1.02	0.99	1.01	1.01	1.02	1.02	1.02	1.08	1.43			3.06	3.04	3.12
	velocity	5.26	8.70	8.96	9.23	9.05	9.05	8.96	8.96	8.96	8.46	9.80	8.30		8.96	9.02	8.79
Pozzi, Andy (GBR) (1992)	time	2.53	3.55	4.56	5.55	6.55	7.60	8.63	9.68	10.73	11.80		13.29	7 / 2			
reaction time 0.139	interval	7 steps	1.02	1.01	0.99	1.00	1.05	1.03	1.05	1.05	1.07	1.49			3.02	3.08	3.17
	velocity	5.42	8.96	9.05	9.23	9.14	8.70	8.87	8.70	8.70	8.54	9.41	8.28		9.08	8.90	8.65
Alkana, Antonio (RSA) (1990)	time	2.53	3.60	4.62	5.63	6.63	7.63	8.68	9.72	10.78	11.83		13.30	8 / 3			
reaction time 0.133	interval		1.07	1.02	1.01	1.00	1.00	1.05	1.04	1.06	1.05	1.47			3.10	3.05	3.15
	velocity	5.42	8.54	8.96	9.05	9.14	9.14	8.70	8.79	8.62	8.70	9.54	8.27		8.85	8.99	8.70
Constantino, Gabriel (BRA) (1	time	2.55	3.60	4.62	5.63	6.66	7.70	8.75	9.80	10.88	11.98		13.50	4 / 4			
reaction time 0.160	interval	7 steps	1.05	1.02	1.01	1.03	1.04	1.05	1.05	1.08	1.10	1.52			3.08	3.12	3.23

		velocity	5.38	8.70	8.96	9.05	8.87	8.79	8.70	8.70	8.46	8.31	9.22	8.15		8.90	8.79	8.49
Trajkovic, Milan (CYP) (1992)		time	2.55	3.63	4.68	5.70	6.73	7.82	8.82	9.92	10.95	12.06		13.50	3 / 5			
reaction time	0.136	interval	7 steps	1.08	1.05	1.02	1.03	1.09	1.00	1.10	1.03	1.11	1.44			3.15	3.12	3.24
		velocity	5.38	8.46	8.70	8.96	8.87	8.39	9.14	8.31	8.87	8.23	9.74	8.15		8.70	8.79	8.46
Manga, Aurel (FRA) (1992)		time	2.53	3.60	4.62	5.65	6.71	7.75	8.80	9.88	10.94	12.03		13.51	2 / 6			
reaction time	0.150	interval	7 steps	1.07	1.02	1.03	1.06	1.04	1.05	1.08	1.06	1.09	1.48			3.12	3.15	3.23
		velocity	5.42	8.54	8.96	8.87	8.62	8.79	8.70	8.46	8.62	8.39	9.47	8.14		8.79	8.70	8.49
Perini, Lorenzo (ITA) (1994)		time	2.60	3.66	4.72	5.75	6.78	7.83	8.88	9.94	11.00	12.08		13.58	9 / 7			
reaction time	0.161	interval		1.06	1.06	1.03	1.03	1.05	1.05	1.06	1.06	1.08	1.50			3.15	3.13	3.20
		velocity	5.28	8.62	8.62	8.87	8.87	8.70	8.70	8.62	8.62	8.46	9.35	8.10		8.70	8.76	8.57
Cabral, Johathan (CAN) (1992)		time	2.60	3.68	4.71	5.75	6.78	7.83	8.88	9.95	11.00	12.11		13.61	1 / 8			
reaction time	0.142	interval	7 steps	1.08	1.03	1.04	1.03	1.05	1.05	1.07	1.05	1.11	1.50			3.15	3.13	3.23
		velocity	5.28	8.46	8.87	8.79	8.87	8.70	8.70	8.54	8.70	8.23	9.35	8.08		8.70	8.76	8.49
Ortega, Orlando (ESP) (1991)		time	2.60	3.71	4.80	5.82	6.87	7.89	8.97	10.02	11.13	12.27		14.00	6 / 9			
reaction time	0.127	interval	7 steps	1.11	1.09	1.02	1.05	1.02	1.08	1.05	1.11	1.14	1.73			3.22	3.15	3.30
		velocity	5.28	8.23	8.39	8.96	8.70	8.96	8.46	8.70	8.23	8.02	8.10	7.86		8.52	8.70	8.31

2019 Asian Grand Prix 1 (Chongqing, CHN)

FINAL date 04-Jun-19 wind -0.3 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Kuei-Ru (TPE) (1993)		time	2.61	3.67	4.70	5.74	6.79	7.84	8.90	9.96	11.02	12.13		13.58	4 / 1			
reaction time	0.187	interval	7 steps	1.06	1.03	1.04	1.05	1.05	1.06	1.06	1.06	1.11	1.45			3.13	3.16	3.23
		velocity	5.26	8.62	8.87	8.79	8.70	8.70	8.62	8.62	8.62	8.23	9.67	8.10		8.76	8.68	8.49
Zeng Jianhang (CHN) (1998)		time	2.58	3.65	4.70	5.75	6.83	7.90	8.95	10.05	11.16	12.26		13.72	6 / 2			
reaction time	0.159	interval		1.07	1.05	1.05	1.08	1.07	1.05	1.10	1.11	1.10	1.46			3.17	3.20	3.31
		velocity	5.32	8.54	8.70	8.70	8.46	8.54	8.70	8.31	8.23	8.31	9.60	8.02		8.65	8.57	8.28
Chan Chung Wang (HKG) (19		time	2.65	3.73	4.78	5.85	6.89	7.94	9.04	10.11	11.20	12.29		13.75	7 / 3			
reaction time	0.149	interval		1.08	1.05	1.07	1.04	1.05	1.10	1.07	1.09	1.09	1.46			3.20	3.19	3.25
		velocity	5.18	8.46	8.70	8.54	8.79	8.70	8.31	8.54	8.39	8.39	9.60	8.00		8.57	8.60	8.44
Efremov, David (KAZ) (1999)		time	2.65	3.70	4.77	5.79	6.87	7.95	9.05	10.16	11.26	12.39		13.91	9 / 4			
reaction time	0.174	interval	7 steps	1.05	1.07	1.02	1.08	1.08	1.10	1.11	1.10	1.13	1.52			3.14	3.26	3.34
		velocity	5.18	8.70	8.54	8.96	8.46	8.46	8.31	8.23	8.31	8.09	9.22	7.91		8.73	8.41	8.21
Ogata, Akihiro (JPN) (1993)		time	2.65	3.73	4.82	5.90	6.95	8.04	9.12	10.22	11.34	12.44		13.94	5 / 5			
reaction time	0.173	interval		1.08	1.09	1.08	1.05	1.09	1.08	1.10	1.12	1.10	1.50			3.25	3.22	3.32
		velocity	5.18	8.46	8.39	8.46	8.70	8.39	8.46	8.31	8.16	8.31	9.35	7.89		8.44	8.52	8.26
Bautista, Clinton Kingsley (PH		time	2.60	3.70	4.80	5.88	6.99	8.10	9.25	10.41	11.57	12.72		14.22	2 / 6			
reaction time	0.169	interval	7 steps	1.10	1.10	1.08	1.11	1.11	1.15	1.16	1.16	1.15	1.50			3.28	3.37	3.47
		velocity	5.28	8.31	8.31	8.46	8.23	8.23	7.95	7.88	7.88	7.95	9.35	7.74		8.36	8.14	7.90

2019 Fuse Sprint (Tottori, JPN)

FINAL date 02-Jun-19 wind 1.9 m/s *Kijima (2019) - research on athlete performance and technique- 2019 data book*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994		time	2.54	3.58	4.62	5.66	6.68	7.70	8.75	9.80	10.87	11.92		13.36	7 / 1			
reaction time	0.128	interval		1.04	1.04	1.04	1.02	1.02	1.05	1.05	1.07	1.05	1.44	**=NR PB**		3.12	3.09	3.17
		velocity	5.40	8.79	8.79	8.79	8.96	8.96	8.70	8.70	8.54	8.70	9.74	8.23		8.79	8.87	8.65
Ishikawa, Shuhei (JPN) (1995)		time	2.57	3.62	4.66	5.70	6.73	7.77	8.83	9.88	10.94	12.04		13.49	5 / 2			
reaction time	0.149	interval	7 steps	1.05	1.04	1.04	1.03	1.04	1.06	1.05	1.06	1.10	1.45	**PB**		3.13	3.13	3.21
		velocity	5.34	8.70	8.79	8.79	8.87	8.79	8.62	8.70	8.62	8.31	9.67	8.15		8.76	8.76	8.54
Yazawa, Wataru (JPN) (1991)		time	2.61	3.69	4.78	5.83	6.86	7.91	8.95	10.01	11.08	12.16		13.60	4 / 3			
reaction time	0.128	interval	7 steps	1.08	1.09	1.05	1.03	1.05	1.04	1.06	1.07	1.08	1.44			3.22	3.12	3.21
		velocity	5.26	8.46	8.39	8.70	8.87	8.70	8.79	8.62	8.54	8.46	9.74	8.09		8.52	8.79	8.54
Sato, Hiroyuki (JPN) (1990)		time	2.53	3.61	4.67	5.73	6.77	7.85	8.93	10.05	11.16	12.30		13.77	6 / 4			
reaction time	0.126	interval		1.08	1.06	1.06	1.04	1.08	1.08	1.12	1.11	1.14	1.47			3.20	3.20	3.37
		velocity	5.42	8.46	8.62	8.62	8.79	8.46	8.46	8.16	8.23	8.02	9.54	7.99		8.57	8.57	8.14
Fujii, Ryota (JPN) (1996)		time	2.60	3.68	4.74	5.81	6.87	7.95	9.02	10.11	11.21	12.31		13.78	8 / 5			
reaction time	0.146	interval		1.08	1.06	1.07	1.06	1.08	1.07	1.09	1.10	1.10	1.47	**PB**		3.21	3.21	3.29
		velocity	5.28	8.46	8.62	8.54	8.62	8.46	8.54	8.39	8.31	8.31	9.54	7.98		8.54	8.54	8.33
Wado, Tatsuya (JPN) (1990)		time	2.58	3.67	4.75	5.82	6.87	7.95	9.03	10.11	11.22	12.33		13.82	9 / 6			
reaction time	0.131	interval	7 steps	1.09	1.08	1.07	1.05	1.08	1.08	1.08	1.11	1.11	1.49			3.24	3.21	3.30
		velocity	5.32	8.39	8.46	8.54	8.70	8.46	8.46	8.46	8.23	8.23	9.41	7.96		8.46	8.54	8.31

Fudaba, Hiroki (JPN) (1994)		time	2.66	3.75	4.84	5.89	6.96	8.04	9.11	10.20	11.29	12.39		13.89	3 / 7			
reaction time	0.150	interval	7 steps	1.09	1.09	1.05	1.07	1.08	1.07	1.09	1.09	1.10	1.50			3.23	3.22	3.28
		velocity	5.16	8.39	8.39	8.70	8.54	8.46	8.54	8.39	8.39	8.31	9.35	7.92		8.49	8.52	8.36
Shimizu, Koichiro (JPN) (2000)		time	2.69	3.77	4.87	5.92	7.00	8.09	9.20	10.29	11.39	12.52		13.96	2 / 8			
reaction time	0.156	interval		1.08	1.10	1.05	1.08	1.09	1.11	1.09	1.10	1.13	1.44	PB		3.23	3.28	3.32
		velocity	5.10	8.46	8.31	8.70	8.46	8.39	8.23	8.39	8.31	8.09	9.74	7.88		8.49	8.36	8.26

2019 Chinese National Grand Prix 4 (Luoyang, CHN)

FINAL date 30-May-19 wind 0.0 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhao Pengchuan (CHN) (1993)		time	2.67	3.77	4.84	5.93	6.99	8.07	9.16	10.26	11.35	12.46		13.94	6 / 1			
reaction time	0.165	interval		1.10	1.07	1.09	1.06	1.08	1.09	1.10	1.09	1.11	1.48			3.26	3.23	3.30
		velocity	5.14	8.31	8.54	8.39	8.62	8.46	8.39	8.31	8.39	8.23	9.47	7.89		8.41	8.49	8.31
Li Jiming (CHN) (1996)		time	2.70	3.78	4.86	5.92	7.00	8.06	9.17	10.26	11.36	12.47		14.00	5 / 2			
reaction time	0.183	interval		1.08	1.08	1.06	1.08	1.06	1.11	1.09	1.10	1.11	1.53			3.22	3.25	3.30
		velocity	5.08	8.46	8.46	8.62	8.46	8.62	8.23	8.39	8.31	8.23	9.16	7.86		8.52	8.44	8.31
Zhu Shenglong (CHN) (2000)		time	2.71	3.80	4.89	5.96	7.03	8.09	9.16	10.26	11.37	12.51		14.01	8 / 3			
reaction time	0.171	interval		1.09	1.09	1.07	1.07	1.06	1.07	1.10	1.11	1.14	1.50	PB		3.25	3.20	3.35
		velocity	5.06	8.39	8.39	8.54	8.54	8.62	8.54	8.31	8.23	8.02	9.35	7.85		8.44	8.57	8.19
Pan Zijie (CHN) (1995)		time	2.64	3.72	4.82	5.89	6.97	8.05	9.14	10.24	11.34	12.51		14.03	2 / 4			
reaction time	0.177	interval		1.08	1.10	1.07	1.08	1.08	1.09	1.10	1.10	1.17	1.52			3.25	3.25	3.37
		velocity	5.20	8.46	8.31	8.54	8.46	8.46	8.39	8.31	8.31	7.81	9.22	7.84		8.44	8.44	8.14
Wu Zhenhua (CHN) (1998)		time	2.67	3.78	4.87	5.97	7.06	8.17	9.27	10.36	11.46	12.63		14.09	7 / 5			
reaction time	0.145	interval		1.11	1.09	1.10	1.09	1.11	1.10	1.09	1.10	1.17	1.46	PB		3.30	3.30	3.36
		velocity	5.14	8.23	8.39	8.31	8.39	8.23	8.31	8.39	8.31	7.81	9.60	7.81		8.31	8.31	8.16
Sun Zhenjiang (CHN) (1999)		time	2.62	3.70	4.74	5.80	6.86	7.93	9.02	10.11	11.22	12.38		14.15	3 / 6			
reaction time	0.173	interval	7 steps	1.08	1.04	1.06	1.06	1.07	1.09	1.09	1.11	1.16	1.77			3.18	3.22	3.36
		velocity	5.24	8.46	8.79	8.62	8.62	8.54	8.39	8.39	8.23	7.88	7.92	7.77		8.62	8.52	8.16
Guo Zhongjie (CHN) (2001)		time	2.68	3.77	4.87	5.96	7.05	8.12	9.24	10.36	11.53	12.68		14.22	1 / 7			
reaction time	0.192	interval		1.09	1.10	1.09	1.09	1.07	1.12	1.12	1.17	1.15	1.54			3.28	3.28	3.44
		velocity	5.12	8.39	8.31	8.39	8.39	8.54	8.16	8.16	7.81	7.95	9.10	7.74		8.36	8.36	7.97
Zhang Shuai (CHN) (1996)		time	2.68	3.78	4.88	5.97	7.07	8.19	9.30	10.41	11.54	12.72		14.27	4 / 8			
reaction time	0.174	interval		1.10	1.10	1.09	1.10	1.12	1.11	1.11	1.13	1.18	1.55			3.29	3.33	3.42
		velocity	5.12	8.31	8.31	8.39	8.31	8.16	8.23	8.23	8.09	7.75	9.05	7.71		8.33	8.23	8.02

2019 Shimane High School Championships (Izumo, JPN)

FINAL date 26-May-19 wind 2.3 m/s *Shimizu (2019) - shimane high school championships 2019 - biomechanics data analysis*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Adachi, Hayato (JPN)		time	2.82	3.99	5.14	6.29	7.47	8.62	9.79	11.01	12.24	13.42		14.99	4 / 1			
reaction time		interval		1.17	1.15	1.15	1.18	1.15	1.17	1.22	1.23	1.18	1.57			3.47	3.50	3.63
		velocity	4.87	7.81	7.95	7.95	7.75	7.95	7.81	7.49	7.43	7.75	8.93	7.34		7.90	7.83	7.55
Haruka, Eda (JPN)		time	2.85	4.09	5.29	6.54	7.77	9.00	10.22	11.46	12.71	13.99		15.53	6 / 2			
reaction time		interval		1.24	1.20	1.25	1.23	1.23	1.22	1.24	1.25	1.28	1.54			3.69	3.68	3.77
		velocity	4.81	7.37	7.62	7.31	7.43	7.43	7.49	7.37	7.31	7.14	9.10	7.08		7.43	7.45	7.27
Harada, Mahiro (JPN)		time	2.75	3.95	5.19	6.40	7.64	8.85	10.09	11.37	12.62	13.89		15.53	5 / 3			
reaction time		interval		1.20	1.24	1.21	1.24	1.21	1.24	1.28	1.25	1.27	1.64			3.65	3.69	3.80
		velocity	4.99	7.62	7.37	7.55	7.37	7.55	7.37	7.14	7.31	7.20	8.55	7.08		7.51	7.43	7.22
Hata, Nobuyuki (JPN)		time	2.87	4.12	5.32	6.60	7.82	9.04	10.31	11.56	12.82	14.11		15.74	7 / 4			
reaction time		interval		1.25	1.20	1.28	1.22	1.22	1.27	1.25	1.26	1.29	1.63			3.73	3.71	3.80
		velocity	4.78	7.31	7.62	7.14	7.49	7.49	7.20	7.31	7.25	7.09	8.60	6.99		7.35	7.39	7.22
Hori, Shion (JPN)		time	2.80	3.99	5.25	6.50	7.72	8.97	10.27	11.56	12.89	14.24		15.90	2 / 5			
reaction time		interval		1.19	1.26	1.25	1.22	1.25	1.30	1.29	1.33	1.35	1.66			3.70	3.77	3.97
		velocity	4.90	7.68	7.25	7.31	7.49	7.31	7.03	7.09	6.87	6.77	8.45	6.92		7.41	7.27	6.91
Matoba, Manakato (JPN)		time	3.02	4.34	5.64	6.90	8.20	9.47	10.72	12.06	13.41	14.81		16.60	9 / 6			
reaction time		interval		1.32	1.30	1.26	1.30	1.27	1.25	1.34	1.35	1.40	1.79			3.88	3.82	4.09
		velocity	4.54	6.92	7.03	7.25	7.03	7.20	7.31	6.82	6.77	6.53	7.83	6.63		7.07	7.18	6.70

2019 NCAA Championships - East Preliminary Round (Jacksonville, FL) (TV Analysis)

Quarter-Final 3 date 25-May-19 wind 1.5 m/s *Henson (2020) - Athlete First: 2019 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.36	3.40	4.40	5.44	6.48	7.48	8.50	9.54	10.56	11.62		13.13	5 / 1			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval		1.04	1.00	1.04	1.04	1.00	1.02	1.04	1.02	1.06	1.51			3.08	3.06	3.12
	velocity	5.81	8.79	9.14	8.79	8.79	9.14	8.96	8.79	8.96	8.62	9.28	8.38		8.90	8.96	8.79

Quarter-Final 1

date 25-May-19 wind 1.3 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time		2.36	3.36	4.36	5.36	6.36	7.36	8.38	9.40	10.44	11.50		13.10	6 / 1			
reaction time	interval	7 steps	1.00	1.00	1.00	1.00	1.00	1.02	1.02	1.04	1.06	1.60				3.00	3.02	3.12
	velocity	5.81	9.14	9.14	9.14	9.14	9.14	8.96	8.96	8.79	8.62	8.76	8.40			9.14	9.08	8.79

2019 Chinese National Grand Prix 3 (Jinhau, CHN)

FINAL

date 23-May-19 wind 2.5 m/s

CAA Hurdle Development (2019)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)	time		2.62	3.68	4.74	5.78	6.82	7.90	8.96	10.02	11.12	12.22		13.71	2 / 1			
reaction time 0.179	interval	7 steps	1.06	1.06	1.04	1.04	1.08	1.06	1.06	1.10	1.10	1.49				3.16	3.18	3.26
	velocity		5.24	8.62	8.62	8.79	8.79	8.46	8.62	8.62	8.31	8.31	9.41	8.02		8.68	8.62	8.41
Pan Zijie (CHN) (1995)	time		2.68	3.76	4.84	5.92	7.00	8.08	9.14	10.20	11.30	12.38		13.83	5 / 2			
reaction time 0.182	interval			1.08	1.08	1.08	1.08	1.08	1.06	1.06	1.10	1.08	1.45			3.24	3.22	3.24
	velocity		5.12	8.46	8.46	8.46	8.46	8.46	8.62	8.62	8.31	8.46	9.67	7.95		8.46	8.52	8.46
Li Jiming (CHN) (1996)	time		2.66	3.74	4.80	5.88	6.92	8.02	9.08	10.16	11.28	12.40		13.89	6 / 3			
reaction time 0.181	interval			1.08	1.06	1.08	1.04	1.10	1.06	1.08	1.12	1.12	1.49			3.22	3.20	3.32
	velocity		5.16	8.46	8.62	8.46	8.79	8.31	8.62	8.46	8.16	8.16	9.41	7.92		8.52	8.57	8.26
Ma Lei (CHN) (1989)	time		2.68	3.78	4.86	5.92	6.98	8.06	9.14	10.22	11.32	12.42		13.91	4 / 4			
reaction time 0.158	interval	7 steps	1.10	1.08	1.06	1.06	1.08	1.08	1.08	1.10	1.10	1.49				3.24	3.22	3.28
	velocity		5.12	8.31	8.46	8.62	8.62	8.46	8.46	8.46	8.31	8.31	9.41	7.91		8.46	8.52	8.36
Yang Yuxuan (CHN) (2002)	time		2.70	3.82	4.90	5.98	7.06	8.12	9.22	10.30	11.38	12.50		13.94	8 / 5			
reaction time 0.166	interval			1.12	1.08	1.08	1.08	1.06	1.10	1.08	1.08	1.12	1.44			3.28	3.24	3.28
	velocity		5.08	8.16	8.46	8.46	8.46	8.62	8.31	8.46	8.46	8.16	9.74	7.89		8.36	8.46	8.36
Zhang Tao (CHN) (1997)	time		2.70	3.82	4.92	6.00	7.08	8.16	9.22	10.32	11.42	12.52		13.99	7 / 6			
reaction time 0.174	interval			1.12	1.10	1.08	1.08	1.08	1.06	1.10	1.10	1.10	1.47			3.30	3.22	3.30
	velocity		5.08	8.16	8.31	8.46	8.46	8.46	8.62	8.31	8.31	8.31	9.54	7.86		8.31	8.52	8.31
Sun Haoru (CHN) (1998)	time		2.70	3.82	4.92	6.00	7.08	8.20	9.28	10.38	11.50	12.60		14.13	9 / 7			
reaction time 0.231	interval			1.12	1.10	1.08	1.08	1.12	1.08	1.10	1.12	1.10	1.53			3.30	3.28	3.32
	velocity		5.08	8.16	8.31	8.46	8.46	8.16	8.46	8.31	8.16	8.31	9.16	7.78		8.31	8.36	8.26
Guo Zhongjie (CHN) (2001)	time		2.74	3.82	4.88	5.94	7.02	8.12	9.22	10.32	11.46	12.66		14.25	3 / 8			
reaction time 0.219	interval			1.08	1.06	1.06	1.08	1.10	1.10	1.10	1.14	1.20	1.59			3.20	3.28	3.44
	velocity		5.01	8.46	8.62	8.62	8.46	8.31	8.31	8.31	8.02	7.62	8.82	7.72		8.57	8.36	7.97

2019 Nanjing World Challenge (Nanjing, CHN)

FINAL

date 21-May-19 wind 0.1 m/s

CAA Hurdle Development (2019)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time		2.57	3.63	4.65	5.68	6.68	7.72	8.74	9.78	10.81	11.87		13.27	5 / 1			
reaction time 0.145	interval	7 steps	1.06	1.02	1.03	1.00	1.04	1.02	1.04	1.03	1.06	1.40				3.11	3.06	3.13
	velocity		5.34	8.62	8.96	8.87	9.14	8.79	8.96	8.79	8.87	8.62	10.01	8.29		8.82	8.96	8.76
McLeod, Omar (JAM) (1994)	time		2.55	3.57	4.58	5.60	6.64	7.66	8.71	9.75	10.79	11.89		13.28	6 / 2			
reaction time 0.152	interval			1.02	1.01	1.02	1.04	1.02	1.05	1.04	1.04	1.10	1.39			3.05	3.11	3.18
	velocity		5.38	8.96	9.05	8.96	8.79	8.96	8.70	8.79	8.79	8.31	10.09	8.28		8.99	8.82	8.62
Crittenden, Freddie (USA) (199	time		2.55	3.59	4.64	5.69	6.71	7.74	8.78	9.83	10.88	11.96		13.37	9 / 3			
reaction time 0.137	interval			1.04	1.05	1.05	1.02	1.03	1.04	1.05	1.05	1.08	1.41			3.14	3.09	3.18
	velocity		5.38	8.79	8.70	8.70	8.96	8.87	8.79	8.70	8.70	8.46	9.94	8.23		8.73	8.87	8.62
Shubenkov, Sergey (ANA) (199	time		2.62	3.66	4.68	5.68	6.71	7.73	8.76	9.79	10.85	11.94		13.37	7 / 4			
reaction time 0.165	interval	7 steps	1.04	1.02	1.00	1.03	1.02	1.03	1.03	1.06	1.09	1.43				3.06	3.08	3.18
	velocity		5.24	8.79	8.96	9.14	8.87	8.96	8.87	8.87	8.62	8.39	9.80	8.23		8.96	8.90	8.62
Chen Kuei-Ru (TPE) (1993)	time		2.56	3.62	4.64	5.66	6.70	7.74	8.80	9.87	10.94	12.01		13.49	2 / 5			
reaction time 0.169	interval	7 steps	1.06	1.02	1.02	1.04	1.04	1.06	1.07	1.07	1.07	1.48				3.10	3.14	3.21
	velocity		5.36	8.62	8.96	8.96	8.79	8.79	8.62	8.54	8.54	8.54	9.47	8.15		8.85	8.73	8.54
Trajkovic, Milan (CYP) (1992)	time		2.62	3.67	4.73	5.76	6.79	7.85	8.90	9.96	11.02	12.11		13.56	4 / 6			
reaction time 0.192	interval	7 steps	1.05	1.06	1.03	1.03	1.06	1.05	1.06	1.06	1.09	1.45				3.14	3.14	3.21
	velocity		5.24	8.70	8.62	8.87	8.87	8.62	8.70	8.62	8.62	8.39	9.67	8.11		8.73	8.73	8.54
Alkana, Antonio (RSA) (1990)	time		2.55	3.60	4.66	5.72	6.76	7.81	8.87	9.95	11.03	12.14		13.61	3 / 7			
reaction time 0.140	interval			1.05	1.06	1.06	1.04	1.05	1.06	1.08	1.08	1.11	1.47			3.17	3.15	3.27
	velocity		5.38	8.70	8.62	8.62	8.79	8.70	8.62	8.46	8.46	8.23	9.54	8.08		8.65	8.70	8.39

Zeng Jianhang (CHN) (1998)	time	2.59	3.64	4.70	5.73	6.76	7.82	8.87	9.95	11.04	12.16		13.62	10 / 8				
reaction time 0.146	interval		1.05	1.06	1.03	1.03	1.06	1.05	1.08	1.09	1.12	1.46	PB		3.14	3.14	3.29	
	velocity	5.30	8.70	8.62	8.87	8.87	8.62	8.70	8.46	8.39	8.16	9.60	8.08		8.73	8.73	8.33	
Pozzi, Andy (GBR) (1992)	time	2.57	3.60	4.60	5.61	6.64	7.67	8.73	9.78	10.88	12.02		13.66	8 / 9				
reaction time 0.146	interval	7 steps	1.03	1.00	1.01	1.03	1.03	1.06	1.05	1.10	1.14	1.64			3.04	3.12	3.29	
	velocity	5.34	8.87	9.14	9.05	8.87	8.87	8.62	8.70	8.31	8.02	8.55	8.05		9.02	8.79	8.33	

2019 Seiko Golden Grand Prix (Osaka, JPN)

FINAL date 19-May-19 wind 2.9 m/s

Shibayama (2019) - race analysis of men's 110m hurdles in the 2019 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000	time	2.53	3.60	4.62	5.66	6.71	7.72	8.74	9.79	10.84	11.93		13.26	3 / 1			
reaction time 0.121	interval		1.07	1.02	1.04	1.05	1.01	1.02	1.05	1.05	1.09	1.33			3.13	3.08	3.19
	velocity	5.42	8.54	8.96	8.79	8.70	9.05	8.96	8.70	8.70	8.39	10.54	8.30		8.76	8.90	8.60
Swift, Greggmar (BAR) (1991)	time	2.54	3.61	4.66	5.69	6.70	7.76	8.79	9.84	10.91	12.02		13.45	2 / 2			
reaction time 0.150	interval		1.07	1.05	1.03	1.01	1.06	1.03	1.05	1.07	1.11	1.43			3.15	3.10	3.23
	velocity	5.40	8.54	8.70	8.87	9.05	8.62	8.87	8.70	8.54	8.23	9.80	8.18		8.70	8.85	8.49
Kanai, Taio (JPN) (1995)	time	2.54	3.61	4.67	5.71	6.75	7.79	8.82	9.90	10.98	12.06		13.47	5 / 3			
reaction time 0.102	interval	7 steps	1.07	1.06	1.04	1.04	1.04	1.03	1.08	1.08	1.08	1.41			3.17	3.11	3.24
	velocity	5.40	8.54	8.62	8.79	8.79	8.79	8.87	8.46	8.46	8.46	9.94	8.17		8.65	8.82	8.46
Takayama, Shunya (JPN) (1994	time	2.57	3.62	4.68	5.72	6.76	7.80	8.84	9.90	10.96	12.05		13.51	7 / 4			
reaction time 0.143	interval		1.05	1.06	1.04	1.04	1.04	1.04	1.06	1.06	1.09	1.46			3.15	3.12	3.21
	velocity	5.34	8.70	8.62	8.79	8.79	8.79	8.79	8.62	8.62	8.39	9.60	8.14		8.70	8.79	8.54
Ishikawa, Shuhei (JPN) (1995)	time	2.60	3.68	4.76	5.83	6.88	7.92	8.99	10.03	11.10	12.20		13.63	9 / 5			
reaction time 0.172	interval	7 steps	1.08	1.08	1.07	1.05	1.04	1.07	1.04	1.07	1.10	1.43			3.23	3.16	3.21
	velocity	5.28	8.46	8.46	8.54	8.70	8.79	8.54	8.79	8.54	8.31	9.80	8.07		8.49	8.68	8.54
Fontenot, Ryan (USA) (1986)	time	2.67	3.75	4.82	5.91	6.95	8.01	9.06	10.10	11.18	12.27		13.70	6 / 6			
reaction time 0.157	interval		1.08	1.07	1.09	1.04	1.06	1.05	1.04	1.08	1.09	1.43			3.24	3.15	3.21
	velocity	5.14	8.46	8.54	8.39	8.79	8.62	8.70	8.79	8.46	8.39	9.80	8.03		8.46	8.70	8.54
Cabral, Johnathan (CAN) (199	time	2.72	3.83	4.88	5.92	6.95	7.99	9.04	10.10	11.16	12.26		13.74	8 / 7			
reaction time 0.245	interval	7 steps	1.11	1.05	1.04	1.03	1.04	1.05	1.06	1.06	1.10	1.48			3.20	3.12	3.22
	velocity	5.04	8.23	8.70	8.79	8.87	8.79	8.70	8.62	8.62	8.31	9.47	8.01		8.57	8.79	8.52
Omuro, Hideki (JPN) (1990)	time	2.59	3.70	4.77	5.86	6.95	8.03	9.08	10.16	11.24	12.33		13.76	1 / 8			
reaction time 0.143	interval		1.11	1.07	1.09	1.09	1.08	1.05	1.08	1.08	1.09	1.43			3.27	3.22	3.25
	velocity	5.30	8.23	8.54	8.39	8.39	8.46	8.70	8.46	8.46	8.39	9.80	7.99		8.39	8.52	8.44
Walters, Ruebin (TTO) (1995)	time	2.67	3.77	4.85	5.92	6.97	8.02	9.06	10.13	11.22	12.34		13.84	4 / 9			
reaction time 0.147	interval		1.10	1.08	1.07	1.05	1.05	1.04	1.07	1.09	1.12	1.50			3.25	3.14	3.28
	velocity	5.14	8.31	8.46	8.54	8.70	8.70	8.79	8.54	8.39	8.16	9.35	7.95		8.44	8.73	8.36

2019 Shanghai Diamond League (Shanghai, CHN)

FINAL date 18-May-19 wind 0.7 m/s

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.52	3.56	4.58	5.56	6.56	7.58	8.60	9.62	10.68	11.76		13.12	4 / 1			
reaction time 0.149	interval		1.04	1.02	0.98	1.00	1.02	1.02	1.02	1.06	1.08	1.36			3.04	3.04	3.16
	velocity	5.44	8.79	8.96	9.33	9.14	8.96	8.96	8.96	8.62	8.46	10.31	8.38		9.02	9.02	8.68
Xie Wenjun (CHN) (1990)	time	2.58	3.62	4.62	5.64	6.62	7.64	8.64	9.68	10.70	11.78		13.17	3 / 2			
reaction time 0.145	interval	7 steps	1.04	1.00	1.02	0.98	1.02	1.00	1.04	1.02	1.08	1.39	PB		3.06	3.00	3.14
	velocity	5.32	8.79	9.14	8.96	9.33	8.96	9.14	8.79	8.96	8.46	10.09	8.35		8.96	9.14	8.73
Shubenkov, Sergey (ANA) (199	time	2.60	3.66	4.68	5.66	6.66	7.68	8.74	9.76	10.82	11.90		13.28	5 / 3			
reaction time 0.126	interval	7 steps	1.06	1.02	0.98	1.00	1.02	1.06	1.02	1.06	1.08	1.38			3.06	3.08	3.16
	velocity	5.28	8.62	8.96	9.33	9.14	8.96	8.62	8.96	8.62	8.46	10.16	8.28		8.96	8.90	8.68
Ortega, Orlando (ESP) (1991)	time	2.58	3.62	4.64	5.64	6.66	7.68	8.70	9.74	10.80	11.86		13.28	6 / 4			
reaction time 0.154	interval	7 steps	1.04	1.02	1.00	1.02	1.02	1.02	1.04	1.06	1.06	1.42			3.06	3.06	3.16
	velocity	5.32	8.79	8.96	9.14	8.96	8.96	8.96	8.79	8.62	8.62	9.87	8.28		8.96	8.96	8.68
Crittenden, Freddie (USA) (199	time	2.58	3.64	4.68	5.70	6.72	7.76	8.78	9.82	10.86	11.94		13.36	8 / 5			
reaction time 0.151	interval		1.06	1.04	1.02	1.02	1.04	1.02	1.04	1.04	1.08	1.42			3.12	3.08	3.16
	velocity	5.32	8.62	8.79	8.96	8.96	8.79	8.96	8.79	8.79	8.46	9.87	8.23		8.79	8.90	8.68
Pozzi, Andy (GBR) (1992)	time	2.52	3.58	4.58	5.62	6.62	7.66	8.70	9.74	10.82	11.92		13.39	7 / 6			
reaction time 0.133	interval	7 steps	1.06	1.00	1.04	1.00	1.04	1.04	1.04	1.08	1.10	1.47			3.10	3.08	3.22
	velocity	5.44	8.62	9.14	8.79	9.14	8.79	8.79	8.79	8.46	8.31	9.54	8.22		8.85	8.90	8.52
Trajkovic, Milan (CYP) (1992)	time	2.60	3.68	4.70	5.70	6.72	7.74	8.76	9.80	10.84	11.94		13.41	9 / 7			

reaction time	0.145	interval	7 steps	1.08	1.02	1.00	1.02	1.02	1.02	1.04	1.04	1.10	1.47			3.10	3.06	3.18
		velocity		5.28	8.46	8.96	9.14	8.96	8.96	8.96	8.79	8.79	8.31	9.54	8.20	8.85	8.96	8.62
Alkana, Antonio (RSA) (1990)		time		2.54	3.60	4.68	5.72	6.76	7.78	8.82	9.86	10.92	12.02		13.47	2 / 8		
reaction time	0.132	interval			1.06	1.08	1.04	1.04	1.02	1.04	1.04	1.06	1.10	1.45		3.18	3.10	3.20
		velocity		5.40	8.62	8.46	8.79	8.79	8.96	8.79	8.79	8.62	8.31	9.67	8.17	8.62	8.85	8.57
Zeng Jianhang (CHN) (1998)		time		2.58	3.68	4.72	5.78	6.82	7.88	8.96	10.02	11.12	12.24		13.71	1 / 9		
reaction time	0.154	interval			1.10	1.04	1.06	1.04	1.06	1.08	1.06	1.10	1.12	1.47		3.20	3.18	3.28
		velocity		5.32	8.31	8.79	8.62	8.79	8.62	8.46	8.62	8.31	8.16	9.54	8.02	8.57	8.62	8.36

2019 South Eastern Conference Championships (Fayetteville, AR) (TV Analysis)

FINAL

date 11-May-19 wind 1.0 m/s

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Roberts, Daniel (USA) (1998)	time	2.53	3.56	4.58	5.60	6.60	7.58	8.60	9.62	10.66	11.72		13.07	4 / 1			
reaction time	interval		1.03	1.02	1.02	1.00	0.98	1.02	1.02	1.04	1.06	1.35	PB		3.07	3.00	3.12
	velocity	5.42	8.87	8.96	8.96	9.14	9.33	8.96	8.96	8.79	8.62	10.39	8.42		8.93	9.14	8.79
Holloway, Grant (USA) (1997)	time	2.53	3.53	4.53	5.53	6.50	7.50	8.50	9.53	10.58	11.68		13.12	5 / 2			
reaction time	interval	7 steps	1.00	1.00	1.00	0.97	1.00	1.00	1.03	1.05	1.10	1.44			3.00	2.97	3.18
	velocity	5.42	9.14	9.14	9.14	9.42	9.14	9.14	8.87	8.70	8.31	9.74	8.38		9.14	9.23	8.62
Moore, Isaiah (USA) (1996)	time	2.66	3.75	4.80	5.84	6.86	7.86	8.90	9.93	10.96	12.03		13.42	6 / 3			
reaction time	interval		1.09	1.05	1.04	1.02	1.00	1.04	1.03	1.03	1.07	1.39			3.18	3.06	3.13
	velocity	5.16	8.39	8.70	8.79	8.96	9.14	8.79	8.87	8.87	8.54	10.09	8.20		8.62	8.96	8.76

2019 IAAF World Relays - Shuttle Hurdle Relay (Yokohama, JPN)

Heat 2 - 2nd Leg

date 11-May-19 wind na

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)	time	2.45	3.53	4.62	5.72	6.79	7.87	8.97	10.07	11.21	12.34		13.88	4 /			
reaction time	interval	7 steps	1.08	1.09	1.10	1.07	1.08	1.10	1.10	1.14	1.13	1.54			3.27	3.25	3.37
	velocity	5.60	8.46	8.39	8.31	8.54	8.46	8.31	8.31	8.02	8.09	9.10	7.93	***57.54***	8.39	8.44	8.14

Heat 2 - 4th Leg

date 11-May-19 wind na

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.50	3.58	4.68	5.78	6.88	7.97	9.04	10.17	11.27	12.41		13.90	4 / 3			
reaction time	interval		1.08	1.10	1.10	1.10	1.09	1.07	1.13	1.10	1.14	1.49			3.28	3.26	3.37
	velocity	5.49	8.46	8.31	8.31	8.31	8.39	8.54	8.09	8.31	8.02	9.41	7.91	***57.54***	8.36	8.41	8.14

2019 Kinami Memorial (Osaka, JPN)

FINAL

date 06-May-19 wind 0.3 m/s

Matsubayashi (2019) - research on athlete performance and technique- 2019 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Crittenden, Freddie (USA) (199	time	2.58	3.62	4.65	5.67	6.70	7.72	8.75	9.81	10.86	11.95		13.38	4 / 1			
reaction time	interval		1.04	1.03	1.02	1.03	1.02	1.03	1.06	1.05	1.09	1.43			3.09	3.08	3.20
	velocity	5.32	8.79	8.87	8.96	8.87	8.96	8.87	8.62	8.70	8.39	9.80	8.22		8.87	8.90	8.57
Ishikawa, Shuhei (JPN) (1995)	time	2.57	3.61	4.66	5.72	6.77	7.81	8.85	9.91	10.96	12.06		13.50	6 / 2			
reaction time	interval	7 steps	1.04	1.05	1.06	1.05	1.04	1.04	1.06	1.05	1.10	1.44	PB		3.15	3.13	3.21
	velocity	5.34	8.79	8.70	8.62	8.70	8.79	8.79	8.62	8.70	8.31	9.74	8.15		8.70	8.76	8.54
Izumiya, Shunsuke (JPN) (2000	time	2.59	3.63	4.71	5.76	6.78	7.87	8.96	10.01	11.07	12.20		13.58	7 / 3			
reaction time	interval		1.04	1.08	1.05	1.02	1.09	1.09	1.05	1.06	1.13	1.38			3.17	3.20	3.24
	velocity	5.30	8.79	8.46	8.70	8.96	8.39	8.39	8.70	8.62	8.09	10.16	8.10		8.65	8.57	8.46
Yazawa, Wataru (JPN) (1991)	time	2.64	3.73	4.80	5.86	6.92	7.97	9.04	10.11	11.19	12.27		13.71	8 / 4			
reaction time	interval	7 steps	1.09	1.07	1.06	1.06	1.05	1.07	1.07	1.08	1.08	1.44			3.22	3.18	3.23
	velocity	5.20	8.39	8.54	8.62	8.62	8.70	8.54	8.54	8.46	8.46	9.74	8.02		8.52	8.62	8.49
Wado, Tatsuya (JPN) (1990)	time	2.60	3.67	4.73	5.78	6.84	7.90	8.99	10.08	11.17	12.32		13.79	5 / 5			
reaction time	interval	7 steps	1.07	1.06	1.05	1.06	1.06	1.09	1.09	1.09	1.15	1.47			3.18	3.21	3.33
	velocity	5.28	8.54	8.62	8.70	8.62	8.62	8.39	8.39	8.39	7.95	9.54	7.98		8.62	8.54	8.23
Sato, Hiroyuki (JPN) (1990)	time	2.58	3.64	4.71	5.78	6.86	7.92	9.01	10.11	11.22	12.35		13.81	2 / 6			
reaction time	interval		1.06	1.07	1.07	1.08	1.06	1.09	1.10	1.11	1.13	1.46			3.20	3.23	3.34
	velocity	5.32	8.62	8.54	8.54	8.46	8.62	8.39	8.31	8.23	8.09	9.60	7.97		8.57	8.49	8.21
Fujii, Ryota (JPN) (1996)	time	2.60	3.70	4.78	5.87	6.97	8.05	9.15	10.24	11.35	12.49		13.94	3 / 7			
reaction time	interval		1.10	1.08	1.09	1.10	1.08	1.10	1.09	1.11	1.14	1.45			3.27	3.28	3.34
	velocity	5.28	8.31	8.46	8.39	8.31	8.46	8.31	8.39	8.23	8.02	9.67	7.89		8.39	8.36	8.21
Kagimoto, Masahiro (JPN) (19	time	2.66	3.74	4.80	5.90	6.97	8.05	9.16	10.26	11.38	12.49		13.95	9 / 8			
reaction time	interval		1.08	1.06	1.10	1.07	1.08	1.11	1.10	1.12	1.11	1.46			3.24	3.26	3.33
	velocity	5.16	8.46	8.62	8.31	8.54	8.46	8.23	8.31	8.16	8.23	9.60	7.89		8.46	8.41	8.23

2019 Mikio Oda Memorial (Hiroshima, JPN)

A FINAL

date 28-Apr-19 wind 0.6 m/s

Kobayashi (2019) - research on athlete performance and technique- 2019 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ishikawa, Shuhei (JPN) (1995)	time	2.59	3.65	4.68	5.70	6.74	7.77	8.81	9.86	10.97	12.09		13.54	6 / 1			
reaction time	interval	7 steps	1.06	1.03	1.02	1.04	1.03	1.04	1.05	1.11	1.12	1.45	PB		3.11	3.11	3.28
	velocity	5.30	8.62	8.87	8.96	8.79	8.87	8.79	8.70	8.23	8.16	9.67	8.12		8.82	8.82	8.36
Izumiya, Shunsuke (JPN) (2000	time	2.56	3.62	4.68	5.72	6.77	7.82	8.88	9.95	11.04	12.13		13.56	4 / 2			
reaction time	interval		1.06	1.06	1.04	1.05	1.05	1.06	1.07	1.09	1.09	1.43	NJR PB		3.16	3.16	3.25
	velocity	5.36	8.62	8.62	8.79	8.70	8.70	8.62	8.54	8.39	8.39	9.80	8.11		8.68	8.68	8.44
Omuro, Hideki (JPN) (1990)	time	2.64	3.73	4.79	5.83	6.89	7.95	9.04	10.12	11.23	12.35		13.78	2 / 3			
reaction time	interval		1.09	1.06	1.04	1.06	1.06	1.09	1.08	1.11	1.12	1.43			3.19	3.21	3.31
	velocity	5.20	8.39	8.62	8.79	8.62	8.62	8.39	8.46	8.23	8.16	9.80	7.98		8.60	8.54	8.28
Yazawa, Wataru (JPN) (1991)	time	2.70	3.80	4.86	5.92	6.97	8.03	9.10	10.19	11.29	12.41		13.83	7 / 4			
reaction time	interval	7 steps	1.10	1.06	1.06	1.05	1.06	1.07	1.09	1.10	1.12	1.42			3.22	3.18	3.31
	velocity	5.08	8.31	8.62	8.62	8.70	8.62	8.54	8.39	8.31	8.16	9.87	7.95		8.52	8.62	8.28
Wado, Tatsuya (JPN) (1990)	time	2.60	3.69	4.75	5.80	6.86	7.93	9.00	10.10	11.22	12.35		13.88	8 / 5			
reaction time	interval	7 steps	1.09	1.06	1.05	1.06	1.07	1.07	1.10	1.12	1.13	1.53			3.20	3.20	3.35
	velocity	5.28	8.39	8.62	8.70	8.62	8.54	8.54	8.31	8.16	8.09	9.16	7.93		8.57	8.57	8.19
Ogata, Akihiro (JPN) (1993)	time	2.65	3.73	4.78	5.82	6.89	7.97	9.07	10.17	11.29	12.42		13.97	3 / 6			
reaction time	interval	7 steps	1.08	1.05	1.04	1.07	1.08	1.10	1.10	1.12	1.13	1.55			3.17	3.25	3.35
	velocity	5.18	8.46	8.70	8.79	8.54	8.46	8.31	8.31	8.16	8.09	9.05	7.87		8.65	8.44	8.19
Fujii, Ryota (JPN) (1996)	time	2.74	3.84	4.89	5.96	7.03	8.12	9.22	10.32	11.44	12.58		14.07	1 / 7			
reaction time	interval		1.10	1.05	1.07	1.07	1.09	1.10	1.10	1.12	1.14	1.49			3.22	3.26	3.36
	velocity	5.01	8.31	8.70	8.54	8.54	8.39	8.31	8.31	8.16	8.02	9.41	7.82		8.52	8.41	8.16

B FINAL

date 28-Apr-19 wind 1.4 m/s

Kobayashi (2019) - research on athlete performance and technique- 2019 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kagimoto, Masahiro (JPN) (19	time	2.67	3.76	4.83	5.90	6.98	8.07	9.18	10.29	11.40	12.51		13.97	5 / 1			
reaction time	interval		1.09	1.07	1.07	1.08	1.09	1.11	1.11	1.11	1.11	1.46			3.23	3.28	3.33
	velocity	5.14	8.39	8.54	8.54	8.46	8.39	8.23	8.23	8.23	8.23	9.60	7.87		8.49	8.36	8.23
Kokubu, Toru (JPN) (1984)	time	2.69	3.79	4.88	5.96	7.05	8.15	9.25	10.38	11.52	12.67		14.17	6 / 2			
reaction time	interval	7 steps	1.10	1.09	1.08	1.09	1.10	1.10	1.13	1.14	1.15	1.50			3.27	3.29	3.42
	velocity	5.10	8.31	8.39	8.46	8.39	8.31	8.31	8.09	8.02	7.95	9.35	7.76		8.39	8.33	8.02
McCorry, Jacob (AUS) (1997)	time	2.67	3.76	4.83	5.92	7.03	8.14	9.25	10.36	11.46	12.63		14.20	3 / 3			
reaction time	interval		1.09	1.07	1.09	1.11	1.11	1.11	1.11	1.10	1.17	1.57			3.25	3.33	3.38
	velocity	5.14	8.39	8.54	8.39	8.23	8.23	8.23	8.23	8.31	7.81	8.93	7.75		8.44	8.23	8.11
Sato, Hiroyuki (JPN) (1990)	time	2.59	3.69	4.76	5.84	6.93	8.03	9.13	10.28	11.47	12.65		14.21	2 / 4			
reaction time	interval		1.10	1.07	1.08	1.09	1.10	1.10	1.15	1.19	1.18	1.56			3.25	3.29	3.52
	velocity	5.30	8.31	8.54	8.46	8.39	8.31	8.31	7.95	7.68	7.75	8.99	7.74		8.44	8.33	7.79
Furuya, Takumu (JPN) (1997)	time	2.73	3.82	4.93	6.00	7.10	8.20	9.31	10.43	11.57	12.73		14.28	4 / 5			
reaction time	interval		1.09	1.11	1.07	1.10	1.10	1.11	1.12	1.14	1.16	1.55			3.27	3.31	3.42
	velocity	5.03	8.39	8.23	8.54	8.31	8.31	8.23	8.16	8.02	7.88	9.05	7.70		8.39	8.28	8.02
Tokuoka, Ryo (JPN) (1999)	time	2.74	3.86	4.99	6.11	7.20	8.33	9.44	10.60	11.75	12.91		14.44	1 / 6			
reaction time	interval		1.12	1.13	1.12	1.09	1.13	1.11	1.16	1.15	1.16	1.53			3.37	3.33	3.47
	velocity	5.01	8.16	8.09	8.16	8.39	8.09	8.23	7.88	7.95	7.88	9.16	7.62		8.14	8.23	7.90
Inui, Daisuke (JPN) (1995)	time	2.69	3.83	4.92	6.02	7.13	8.27	9.41	10.56	11.71	12.91		14.47	7 / 7			
reaction time	interval		1.14	1.09	1.10	1.11	1.14	1.14	1.15	1.15	1.20	1.56			3.33	3.39	3.50
	velocity	5.10	8.02	8.39	8.31	8.23	8.02	8.02	7.95	7.95	7.62	8.99	7.60		8.23	8.09	7.83

2019 Asian Athletics Championships (Doha, QAT)

FINAL

date 24-Apr-19 wind 1.7 m/s

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.55	3.58	4.63	5.63	6.64	7.65	8.65	9.67	10.72	11.79		13.21	7 / 1			
reaction time 0.151	interval	7 steps	1.03	1.05	1.00	1.01	1.01	1.00	1.02	1.05	1.07	1.42	CR PB		3.08	3.02	3.14
	velocity	5.38	8.87	8.70	9.14	9.05	9.05	9.14	8.96	8.70	8.54	9.87	8.33		8.90	9.08	8.73
Al-Yoha, Yaqoub (KUW) (1993	time	2.51	3.56	4.58	5.60	6.62	7.64	8.69	9.74	10.82	11.91		13.35	6 / 2			
reaction time 0.120	interval		1.05	1.02	1.02	1.02	1.02	1.05	1.05	1.08	1.09	1.44	NR PB		3.09	3.09	3.22
	velocity	5.47	8.70	8.96	8.96	8.96	8.96	8.70	8.70	8.46	8.39	9.74	8.24		8.87	8.87	8.52
Chen Kuei-Ru (TPE) (1993)	time	2.53	3.58	4.60	5.63	6.65	7.69	8.74	9.79	10.84	11.94		13.39	5 / 3			
reaction time 0.137	interval	7 steps	1.05	1.02	1.03	1.02	1.04	1.05	1.05	1.05	1.10	1.45	=NR =PB		3.10	3.11	3.20
	velocity	5.42	8.70	8.96	8.87	8.96	8.79	8.70	8.70	8.70	8.31	9.67	8.22		8.85	8.82	8.57

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Takayama, Shunya (JPN) (1994	time	2.57	3.59	4.65	5.69	6.75	7.82	8.89	9.98	11.08	12.16		13.59	4 / 4				
reaction time 0.145	interval		1.02	1.06	1.04	1.06	1.07	1.07	1.09	1.10	1.08	1.43			3.12	3.20	3.27	
	velocity	5.34	8.96	8.62	8.79	8.62	8.54	8.54	8.39	8.31	8.46	9.80	8.09		8.79	8.57	8.39	
Kanai, Taio (JPN) (1995)	time	2.58	3.64	4.70	5.73	6.80	7.87	8.94	10.02	11.11	12.21		13.64	9 / 5				
reaction time 0.138	interval	7 steps	1.06	1.06	1.03	1.07	1.07	1.07	1.08	1.09	1.10	1.43			3.15	3.21	3.27	
	velocity	5.32	8.62	8.62	8.87	8.54	8.54	8.54	8.46	8.39	8.31	9.80	8.06		8.70	8.54	8.39	
Efremov, David (KAZ) (1999)	time	2.65	3.72	4.76	5.81	6.82	7.89	8.96	10.03	11.13	12.25		13.83	3 / 6				
reaction time 0.168	interval	7 steps	1.07	1.04	1.05	1.01	1.07	1.07	1.07	1.10	1.12	1.58	PB		3.16	3.15	3.29	
	velocity	5.18	8.54	8.79	8.70	9.05	8.54	8.54	8.54	8.31	8.16	8.87	7.95		8.68	8.70	8.33	
Zeng Jianhang (CHN) (1998)	time	2.59	3.63	4.67	5.72	6.75	7.81	8.85	9.92	11.03	12.03		13.85	2 / 7				
reaction time 0.152	interval		1.04	1.04	1.05	1.03	1.06	1.04	1.07	1.11	1.00	1.82			3.13	3.13	3.18	
	velocity	5.30	8.79	8.79	8.70	8.87	8.62	8.79	8.54	8.23	9.14	7.70	7.94		8.76	8.76	8.62	
Mui Ching Yeung (HKG) (1993	time	2.63	3.71	4.78	5.84	6.92	7.97	9.10	10.22	11.36	12.51		13.96	8 / 8				
reaction time 0.151	interval		1.08	1.07	1.06	1.08	1.05	1.13	1.12	1.14	1.15	1.45			3.21	3.26	3.41	
	velocity	5.22	8.46	8.54	8.62	8.46	8.70	8.09	8.16	8.02	7.95	9.67	7.88		8.54	8.41	8.04	

Heat 3

date 23-Apr-19 wind 1.6 m/s *CAA Hurdle Development (2019)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.61	3.67	4.71	5.77	6.79	7.82	8.86	9.91	10.95	12.01		13.47	3 / 1			
reaction time 0.159	interval	7 steps	1.06	1.04	1.06	1.02	1.03	1.04	1.05	1.04	1.06	1.46			3.16	3.09	3.15	
	velocity	5.26	8.62	8.79	8.62	8.96	8.87	8.79	8.70	8.79	8.62	9.60	8.17		8.68	8.87	8.70	

Heat 1

date 23-Apr-19 wind 2.1 m/s *CAA Hurdle Development (2019)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.55	3.60	4.67	5.70	6.76	7.82	8.89	9.98	11.07	12.21		13.69	7 / 3			
reaction time 0.153	interval		1.05	1.07	1.03	1.06	1.06	1.07	1.09	1.09	1.14	1.48			3.15	3.19	3.32	
	velocity	5.38	8.70	8.54	8.87	8.62	8.62	8.54	8.39	8.39	8.02	9.47	8.04		8.70	8.60	8.26	

2019 Chinese National Grand Prix 2 (Huangshi, CHN)

FINAL

date 13-Apr-19 wind -0.3 m/s *CAA Hurdle Development (2019)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.62	3.70	4.74	5.78	6.82	7.86	8.94	10.02	11.12	12.22		13.67	4 / 1			
reaction time 0.186	interval		1.08	1.04	1.04	1.04	1.04	1.08	1.08	1.10	1.10	1.45			3.16	3.16	3.28	
	velocity	5.24	8.46	8.79	8.79	8.79	8.79	8.46	8.46	8.31	8.31	9.67	8.05		8.68	8.68	8.36	
Sun Zhenjiang (CHN) (1999)	time	2.65	3.72	4.76	5.80	6.84	7.90	8.98	10.06	11.14	12.26		13.75	2 / 2			
reaction time 0.181	interval	7 steps	1.07	1.04	1.04	1.04	1.06	1.08	1.08	1.08	1.12	1.49	PB		3.15	3.18	3.28	
	velocity	5.18	8.54	8.79	8.79	8.79	8.62	8.46	8.46	8.46	8.16	9.41	8.00		8.70	8.62	8.36	
Lu Yang (CHN) (1996)	time	2.74	3.86	4.92	6.00	7.06	8.14	9.22	10.32	11.42	12.56		14.03	6 / 3			
reaction time 0.187	interval		1.12	1.06	1.08	1.06	1.08	1.08	1.10	1.10	1.14	1.47			3.26	3.22	3.34	
	velocity	5.01	8.16	8.62	8.46	8.62	8.46	8.46	8.31	8.31	8.02	9.54	7.84		8.41	8.52	8.21	
Zhang Tao (CHN) (1997)	time	2.76	3.86	4.96	6.06	7.14	8.23	9.32	10.42	11.52	12.66		14.11	9 / 4			
reaction time 0.216	interval		1.10	1.10	1.10	1.08	1.09	1.09	1.10	1.10	1.14	1.45			3.30	3.26	3.34	
	velocity	4.97	8.31	8.31	8.31	8.46	8.39	8.39	8.31	8.31	8.02	9.67	7.80		8.31	8.41	8.21	
Ning Xiaohan (CHN) (2000)	time	2.68	3.80	4.86	5.96	7.02	8.14	9.24	10.38	11.52	12.67		14.19	5 / 5			
reaction time 0.163	interval		1.12	1.06	1.10	1.06	1.12	1.10	1.14	1.14	1.15	1.52			3.28	3.28	3.43	
	velocity	5.12	8.16	8.62	8.31	8.62	8.16	8.31	8.02	8.02	7.95	9.22	7.75		8.36	8.36	7.99	
Wu Zhenhua (CHN) (1998)	time	2.72	3.81	4.92	6.03	7.10	8.19	9.34	10.45	11.57	12.73		14.19	8 / 6			
reaction time 0.178	interval		1.09	1.11	1.11	1.07	1.09	1.15	1.11	1.12	1.16	1.46	PB		3.31	3.31	3.39	
	velocity	5.04	8.39	8.23	8.23	8.54	8.39	7.95	8.23	8.16	7.88	9.60	7.75		8.28	8.28	8.09	
Zhao Pengchuan (CHN) (1993)	time	2.68	3.81	4.90	5.96	7.06	8.18	9.28	10.42	11.54	12.68		14.24	7 / 7			
reaction time 0.176	interval		1.13	1.09	1.06	1.10	1.12	1.10	1.14	1.12	1.14	1.56			3.28	3.32	3.40	
	velocity	5.12	8.09	8.39	8.62	8.31	8.16	8.31	8.02	8.16	8.02	8.99	7.72		8.36	8.26	8.06	
Sun Haoru (CHN) (1998)	time	2.70	3.81	4.92	6.02	7.12	8.20	9.29	10.42	11.54	12.70		14.25	3 / 8			
reaction time 0.181	interval		1.11	1.11	1.10	1.10	1.08	1.09	1.13	1.12	1.16	1.55	PB		3.32	3.27	3.41	
	velocity	5.08	8.23	8.23	8.31	8.31	8.46	8.39	8.09	8.16	7.88	9.05	7.72		8.26	8.39	8.04	

Heat 5

date 13-Apr-19 wind 0.6 m/s *CAA Hurdle Development (2019)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhao Pengchuan (CHN) (1993)	time	2.62	3.73	4.80	5.85	6.92	8.00	9.08	10.16	11.30	12.44		14.00	6 / 1			
reaction time 0.161	interval		1.11	1.07	1.05	1.07	1.08	1.08	1.08	1.14	1.14	1.56			3.23	3.23	3.36	
	velocity	5.24	8.23	8.54	8.70	8.54	8.46	8.46	8.46	8.02	8.02	8.99	7.86		8.49	8.49	8.16	
Si Zhengdong (CHN) (1997)	time	2.72	3.86	5.00	6.14	7.24	8.34	9.46	10.59	11.76	12.94		14.55	5 / 3			
reaction time 0.197	interval		1.14	1.14	1.14	1.10	1.10	1.12	1.13	1.17	1.18	1.61			3.42	3.32	3.48	

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
		velocity	5.04	8.02	8.02	8.02	8.31	8.31	8.16	8.09	7.81	7.75	8.71	7.56		8.02	8.26	7.88

Heat 4

date 13-Apr-19 wind -0.8 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wu Zhenhua (CHN) (1998)		time	2.70	3.80	4.90	5.99	7.11	8.22	9.36	10.46	11.60	12.72		14.23	6 / 1			
reaction time	0.174	interval		1.10	1.10	1.09	1.12	1.11	1.14	1.10	1.14	1.12	1.51	PB		3.29	3.37	3.36
		velocity	5.08	8.31	8.31	8.39	8.16	8.23	8.02	8.31	8.02	8.16	9.28	7.73		8.33	8.14	8.16
Ma Lei (CHN) (1989)		time	2.76	3.88	4.98	6.09	7.17	8.28	9.38	10.50	11.66	12.80		14.36	7 / 2			
reaction time	0.164	interval	7 steps	1.12	1.10	1.11	1.08	1.11	1.10	1.12	1.16	1.14	1.56			3.33	3.29	3.42
		velocity	4.97	8.16	8.31	8.23	8.46	8.23	8.31	8.16	7.88	8.02	8.99	7.66		8.23	8.33	8.02
Jiang Fan (CHN) (1989)		time	2.69	3.84	4.96	6.08	7.22	8.40						dnf	8 / --			
reaction time	0.153	interval		1.15	1.12	1.12	1.14	1.18								3.39		
		velocity	5.10	7.95	8.16	8.16	8.02	7.75								8.09		

Heat 3

date 13-Apr-19 wind 0.0 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Lu Yang (CHN) (1996)		time	2.68	3.78	4.84	5.92	6.98	8.03	9.11	10.22	11.34	12.52		14.07	9 / 1			
reaction time	0.160	interval		1.10	1.06	1.08	1.06	1.05	1.08	1.11	1.12	1.18	1.55			3.24	3.19	3.41
		velocity	5.12	8.31	8.62	8.46	8.62	8.70	8.46	8.23	8.16	7.75	9.05	7.82		8.46	8.60	8.04
Ning Xiaohan (CHN) (2000)		time	2.68	3.78	4.86	5.94	7.02	8.10	9.22	10.32	11.45	12.60		14.15	5 / 2			
reaction time	0.145	interval		1.10	1.08	1.08	1.08	1.08	1.12	1.10	1.13	1.15	1.55			3.26	3.28	3.38
		velocity	5.12	8.31	8.46	8.46	8.46	8.46	8.16	8.31	8.09	7.95	9.05	7.77		8.41	8.36	8.11
Zhang Tao (CHN) (1997)		time	2.72	3.82	4.90	5.98	7.06	8.16	9.26	10.40	11.52	12.68		14.16	8 / 3			
reaction time	0.198	interval		1.10	1.08	1.08	1.08	1.10	1.10	1.14	1.12	1.16	1.48			3.26	3.28	3.42
		velocity	5.04	8.31	8.46	8.46	8.46	8.31	8.31	8.02	8.16	7.88	9.47	7.77		8.41	8.36	8.02

Heat 2

date 13-Apr-19 wind 0.1 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)		time	2.62	3.67	4.73	5.78	6.82	7.88	8.96	10.06	11.20	12.39		13.98	5 / 1			
reaction time	0.176	interval		1.05	1.06	1.05	1.04	1.06	1.08	1.10	1.14	1.19	1.59			3.16	3.18	3.43
		velocity	5.24	8.70	8.62	8.70	8.79	8.62	8.46	8.31	8.02	7.68	8.82	7.87		8.68	8.62	7.99
Sun Zhenjiang (CHN) (1999)		time	2.64	3.72	4.79	5.86	6.94	8.04	9.18	10.31	11.45	12.68		14.33	3 / 2			
reaction time	0.169	interval	7 steps	1.08	1.07	1.07	1.08	1.10	1.14	1.13	1.14	1.23	1.65			3.22	3.32	3.50
		velocity	5.20	8.46	8.54	8.54	8.46	8.31	8.02	8.09	8.02	7.43	8.50	7.68		8.52	8.26	7.83
Li Jiming (CHN) (1996)		time	2.70	3.80	4.90	6.00	7.10	8.22	9.34	10.47	11.64	12.83		14.48	1 / 5			
reaction time	0.179	interval		1.10	1.10	1.10	1.10	1.12	1.12	1.13	1.17	1.19	1.65			3.30	3.34	3.49
		velocity	5.08	8.31	8.31	8.31	8.31	8.16	8.16	8.09	7.81	7.68	8.50	7.60		8.31	8.21	7.86

Heat 1

date 13-Apr-19 wind 0.0 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Haoru (CHN) (1998)		time	2.67	3.79	4.90	5.97	7.07	8.19	9.31	10.46	11.61	12.78		14.35	9 / 1			
reaction time	0.185	interval		1.12	1.11	1.07	1.10	1.12	1.12	1.15	1.15	1.17	1.57			3.30	3.34	3.47
		velocity	5.14	8.16	8.23	8.54	8.31	8.16	8.16	7.95	7.95	7.81	8.93	7.67		8.31	8.21	7.90
Lu Wei (CHN) (2000)		time	2.77	3.90	5.02	6.11	7.22	8.36	9.50	10.67	11.82	12.98		14.52	7 / 2			
reaction time	0.170	interval		1.13	1.12	1.09	1.11	1.14	1.14	1.17	1.15	1.16	1.54	PB		3.34	3.39	3.48
		velocity	4.95	8.09	8.16	8.39	8.23	8.02	8.02	7.81	7.95	7.88	9.10	7.58		8.21	8.09	7.88

2019 Chinese National Grand Prix 1 (Zhaoqing, CHN)

FINAL

date 09-Apr-19 wind 0.2 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)		time	2.62	3.70	4.78	5.82	6.88	7.94	9.02	10.10	11.22	12.32		13.83	4 / 1			
reaction time	0.177	interval	7 steps	1.08	1.08	1.04	1.06	1.06	1.08	1.08	1.12	1.10	1.51	PB		3.20	3.20	3.30
		velocity	5.24	8.46	8.46	8.79	8.62	8.62	8.46	8.46	8.16	8.31	9.28	7.95		8.57	8.57	8.31
Zeng Jianhang (CHN) (1998)		time	2.58	3.65	4.70	5.73	6.77	7.80	8.96	10.22	11.35	12.51		14.00	9 / 2			
reaction time	0.180	interval		1.07	1.05	1.03	1.04	1.03	1.16	1.26	1.13	1.16	1.49			3.15	3.23	3.55
		velocity	5.32	8.54	8.70	8.87	8.79	8.87	7.88	7.25	8.09	7.88	9.41	7.86		8.70	8.49	7.72
Zhang Tao (CHN) (1997)		time	2.70	3.81	4.90	5.99	7.07	8.16	9.26	10.34	11.44	12.55		14.03	5 / 3			
reaction time	0.195	interval		1.11	1.09	1.09	1.08	1.09	1.10	1.08	1.10	1.11	1.48			3.29	3.27	3.29
		velocity	5.08	8.23	8.39	8.39	8.46	8.39	8.31	8.46	8.31	8.23	9.47	7.84		8.33	8.39	8.33
Ning Xiaohan (CHN) (2000)		time	2.64	3.71	4.81	5.89	6.98	8.05	9.16	10.26	11.38	12.52		14.07	7 / 4			
reaction time	0.165	interval		1.07	1.10	1.08	1.09	1.07	1.11	1.10	1.12	1.14	1.55	PB		3.25	3.27	3.36
		velocity	5.20	8.54	8.31	8.46	8.39	8.54	8.23	8.31	8.16	8.02	9.05	7.82		8.44	8.39	8.16
Lu Yang (CHN) (1996)		time	2.78	3.90	4.98	6.06	7.13	8.20	9.30	10.37	11.48	12.60		14.09	6 / 5			
reaction time	0.192	interval		1.12	1.08	1.08	1.07	1.07	1.10	1.07	1.11	1.12	1.49			3.28	3.24	3.30

		velocity	4.94	8.16	8.46	8.46	8.54	8.54	8.31	8.54	8.23	8.16	9.41	7.81		8.36	8.46	8.31
Mui Ching Yeung (HKG) (1993)		time	2.68	3.79	4.88	6.00	7.10	8.20	9.27	10.41	11.52	12.66		14.11	1 / --			
reaction time	0.184	interval		1.11	1.09	1.12	1.10	1.10	1.07	1.14	1.11	1.14	1.45			3.32	3.27	3.39
		velocity	5.12	8.23	8.39	8.16	8.31	8.31	8.54	8.02	8.23	8.02	9.67	7.80		8.26	8.39	8.09
Yang Yuxuan (CHN) (2002)		time	2.76	3.88	4.98	6.08	7.18	8.26	9.38	10.52	11.66	12.82		14.36	3 / 6			
reaction time	0.180	interval		1.12	1.10	1.10	1.10	1.08	1.12	1.14	1.14	1.16	1.54			3.32	3.30	3.44
		velocity	4.97	8.16	8.31	8.31	8.31	8.46	8.16	8.02	8.02	7.88	9.10	7.66		8.26	8.31	7.97
Jiang Fan (CHN) (1989)		time	2.76	3.88	4.97	6.11	7.21	8.34	9.48	10.63	11.80	12.98		14.65	8 / 7			
reaction time	0.209	interval		1.12	1.09	1.14	1.10	1.13	1.14	1.15	1.17	1.18	1.67			3.35	3.37	3.50
		velocity	4.97	8.16	8.39	8.02	8.31	8.09	8.02	7.95	7.81	7.75	8.40	7.51		8.19	8.14	7.83
Ma Lei (CHN) (1989)		time	2.94	4.10	5.22	6.34	7.46	8.59	9.71	10.87	12.04	13.24		14.87	2 / 8			
reaction time	0.328	interval	7 steps	1.16	1.12	1.12	1.12	1.13	1.12	1.16	1.17	1.20	1.63			3.40	3.37	3.53
		velocity	4.67	7.88	8.16	8.16	8.16	8.09	8.16	7.88	7.81	7.62	8.60	7.40		8.06	8.14	7.77

Heat 5

date 08-Apr-19 wind 0.6 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Lu Yang (CHN) (1996)		time	2.74	3.84	4.92	5.98	7.06	8.15	9.24	10.31	11.44	12.58		14.11	2 / 1			
reaction time	0.201	interval		1.10	1.08	1.06	1.08	1.09	1.09	1.07	1.13	1.14	1.53			3.24	3.26	3.34
		velocity	5.01	8.31	8.46	8.62	8.46	8.39	8.39	8.54	8.09	8.02	9.16	7.80		8.46	8.41	8.21
Ma Lei (CHN) (1989)		time	2.75	3.89	5.00	6.09	7.18	8.30	9.42	10.54	11.68	12.82		14.34	8 / 2			
reaction time	0.159	interval	7 steps	1.14	1.11	1.09	1.09	1.12	1.12	1.12	1.14	1.14	1.52			3.34	3.33	3.40
		velocity	4.99	8.02	8.23	8.39	8.39	8.16	8.16	8.16	8.02	8.02	9.22	7.67		8.21	8.23	8.06

Heat 4

date 08-Apr-19 wind -0.8 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)		time	2.62	3.72	4.80	5.88	6.95	8.05	9.14	10.26	11.40	12.58		14.17	4 / 1			
reaction time	0.158	interval		1.10	1.08	1.08	1.07	1.10	1.09	1.12	1.14	1.18	1.59	PB		3.26	3.26	3.44
		velocity	5.24	8.31	8.46	8.46	8.54	8.31	8.39	8.16	8.02	7.75	8.82	7.76		8.41	8.41	7.97
Li Jiming (CHN) (1996)		time	2.73	3.85	4.96	6.06	7.14	8.26	9.37	10.52	11.68	12.87		14.46	6 / 2			
reaction time	0.190	interval		1.12	1.11	1.10	1.08	1.12	1.11	1.15	1.16	1.19	1.59			3.33	3.31	3.50
		velocity	5.03	8.16	8.23	8.31	8.46	8.16	8.23	7.95	7.88	7.68	8.82	7.61		8.23	8.28	7.83

Heat 3

date 08-Apr-19 wind 0.0 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)		time	2.63	3.72	4.78	5.83	6.88	7.97	9.06	10.16	11.30	12.43		14.00	6 / 1			
reaction time	0.177	interval	7 steps	1.09	1.06	1.05	1.05	1.09	1.09	1.10	1.14	1.13	1.57	PB		3.20	3.23	3.37
		velocity	5.22	8.39	8.62	8.70	8.70	8.39	8.39	8.31	8.02	8.09	8.93	7.86		8.57	8.49	8.14
Yang Yuxuan (CHN) (2002)		time	2.76	3.88	4.99	6.13	7.25	8.36	9.46	10.58	11.70	12.83		14.34	8 / 2			
reaction time	0.165	interval		1.12	1.11	1.14	1.12	1.11	1.10	1.12	1.12	1.13	1.51	PB		3.37	3.33	3.37
		velocity	4.97	8.16	8.23	8.02	8.16	8.23	8.31	8.16	8.16	8.09	9.28	7.67		8.14	8.23	8.14

Heat 2

date 08-Apr-19 wind -0.6 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Tao (CHN) (1997)		time	2.72	3.82	4.90	5.98	7.06	8.14	9.26	10.34	11.44	12.58		14.05	7 / 1			
reaction time	0.200	interval		1.10	1.08	1.08	1.08	1.08	1.12	1.08	1.10	1.14	1.47			3.26	3.28	3.32
		velocity	5.04	8.31	8.46	8.46	8.46	8.46	8.16	8.46	8.31	8.02	9.54	7.83		8.41	8.36	8.26
Mui Ching Yeung (HKG) (1993)		time	2.68	3.77	4.85	5.91	7.01	8.09	9.21	10.31	11.47	12.62		14.09	6 / --			
reaction time	0.172	interval		1.09	1.08	1.06	1.10	1.08	1.12	1.10	1.16	1.15	1.47			3.23	3.30	3.41
		velocity	5.12	8.39	8.46	8.62	8.31	8.46	8.16	8.31	7.88	7.95	9.54	7.81		8.49	8.31	8.04
Jiang Fan (CHN) (1989)		time	2.71	3.85	4.95	6.05	7.15	8.26	9.38	10.50	11.65	12.79		14.33	5 / 2			
reaction time	0.176	interval		1.14	1.10	1.10	1.10	1.11	1.12	1.12	1.15	1.14	1.54			3.34	3.33	3.41
		velocity	5.06	8.02	8.31	8.31	8.31	8.23	8.16	8.16	7.95	8.02	9.10	7.68		8.21	8.23	8.04

Heat 1

date 08-Apr-19 wind -1.5 m/s *CAA Hurdle Development (2019)*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)		time	2.69	3.81	4.87	5.96	7.08	8.20	9.33	10.44	11.58	12.73		14.31	2 / 1			
reaction time	0.290	interval		1.12	1.06	1.09	1.12	1.12	1.13	1.11	1.14	1.15	1.58			3.27	3.37	3.40
		velocity	5.10	8.16	8.62	8.39	8.16	8.16	8.09	8.23	8.02	7.95	8.87	7.69		8.39	8.14	8.06
Zhao Pengchuan (CHN) (1993)		time	2.78	3.89	4.98	6.06	7.18	8.26	9.38	10.48	11.60	12.75		14.38	3 / 2			
reaction time	0.288	interval		1.11	1.09	1.08	1.12	1.08	1.12	1.10	1.12	1.15	1.63			3.28	3.32	3.37
		velocity	4.94	8.23	8.39	8.46	8.16	8.46	8.16	8.31	8.16	7.95	8.60	7.65		8.36	8.26	8.14

2019 Chinese Indoor National Grand Prix Final (Hangzhou, CHN)

A-FINAL

date 20-Mar-19 *CAA Hurdle Development (2019)*

	H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Zeng Jianhang (CHN) (1998)	time	2.55	3.62	4.68	5.69	6.74			7.62	3 / 1		
reaction time	interval		1.07	1.06	1.01	1.05	0.88	PB			3.14	
	velocity	5.38	8.54	8.62	9.05	8.70	11.05	7.87			8.73	
Sun Zhenjiang (CHN) (1999)	time	2.61	3.69	4.73	5.77	6.86			7.79	5 / 2		
reaction time	interval	7 steps	1.08	1.04	1.04	1.09	0.93				3.16	
	velocity	5.26	8.46	8.79	8.79	8.39	10.45	7.70			8.68	
Ning Xiaohan (CHN) (2000)	time	2.64	3.71	4.79	5.82	6.91			7.85	4 / 3		
reaction time	interval		1.07	1.08	1.03	1.09	0.94				3.18	
	velocity	5.20	8.54	8.46	8.87	8.39	10.34	7.64			8.62	
Zhao Pengchuan (CHN) (1993)	time	2.64	3.75	4.84	5.92	7.02			8.00	2 / 4		
reaction time	interval		1.11	1.09	1.08	1.10	0.98				3.28	
	velocity	5.20	8.23	8.39	8.46	8.31	9.92	7.50			8.36	

B-FINAL

date 20-Mar-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Li Jiming (CHN) (1996)	time	2.68	3.80	4.88	5.97	7.04		7.96	3 / 1			
reaction time	interval		1.12	1.08	1.09	1.07	0.92			3.29		
	velocity	5.12	8.16	8.46	8.39	8.54	10.57	7.54		8.33		
Zhu Shenglong (CHN) (2000)	time	2.71	3.79	4.87	5.97	7.04		7.97	2 / 2			
reaction time	interval		1.08	1.08	1.10	1.07	0.93			3.26		
	velocity	5.06	8.46	8.46	8.31	8.54	10.45	7.53		8.41		
Pan Zijie (CHN) (1995)	time	2.66	3.76	4.89	5.96	7.05		7.97	4 / 3			
reaction time	interval		1.10	1.13	1.07	1.09	0.92			3.30		
	velocity	5.16	8.31	8.09	8.54	8.39	10.57	7.53		8.31		

2019 NCAA National Indoor Championships (Birmingham, AL) (TV Analysis)

FINAL

date 9-Mar-19

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.51	3.52	4.53	5.51	6.48		7.35	4 / 1			
reaction time 0.170	interval	7 steps	1.01	1.01	0.98	0.97	0.87	AR PB		3.00		
	velocity	5.47	9.05	9.05	9.33	9.42	11.17	8.16		9.14		
Roberts, Daniel (USA) (1998)	time	2.53	3.54	4.54	5.54	6.57		7.41	3 / 2			
reaction time 0.181	interval		1.01	1.00	1.00	1.03	0.84	PB		3.01		
	velocity	5.42	9.05	9.14	9.14	8.87	11.57	8.10		9.11		
Cunningham, Trey (USA) (199	time	2.56	3.61	4.64	5.71	6.73		7.64	5 / 3			
reaction time 0.179	interval	7 steps	1.05	1.03	1.07	1.02	0.91			3.15		
	velocity	5.36	8.70	8.87	8.54	8.96	10.68	7.85		8.70		

2019 Chinese Indoor National Grand Prix 4 (Xi'an, CHN)

A-FINAL

date 4-Mar-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhao Pengchuan (CHN) (1993)	time	2.62	3.72	4.80	5.86	6.90		7.82	3 / 1			
reaction time	interval		1.10	1.08	1.06	1.04	0.92			3.24		
	velocity	5.24	8.31	8.46	8.62	8.79	10.57	7.67		8.46		
Ning Xiaohan (CHN) (2000)	time	2.64	3.72	4.78	5.82	6.88		7.82	4 / 2			
reaction time	interval		1.08	1.06	1.04	1.06	0.94	PB		3.18		
	velocity	5.20	8.46	8.62	8.79	8.62	10.34	7.67		8.62		
Zhang Honglin (CHN) (1994)	time	2.67	3.75	4.83	5.91	7.01		7.93	5 / 3			
reaction time	interval		1.08	1.08	1.08	1.10	0.92			3.24		
	velocity	5.14	8.46	8.46	8.46	8.31	10.57	7.57		8.46		
Zhu Shenglong (CHN) (2000)	time	2.68	3.76	4.83	5.90	6.99		7.96	2 / 4			
reaction time	interval		1.08	1.07	1.07	1.09	0.97	PB		3.22		
	velocity	5.12	8.46	8.54	8.54	8.39	10.02	7.54		8.52		

B-FINAL

date 4-Mar-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Haoru (CHN) (1998)	time	2.65	3.75	4.85	5.93	7.02		7.97	2 / 1			
reaction time	interval		1.10	1.10	1.08	1.09	0.95	PB		3.28		
	velocity	5.18	8.31	8.31	8.46	8.39	10.23	7.53		8.36		
Jiang Wei (CHN) (1994)	time	2.69	3.79	4.87	5.93	7.01		7.98	3 / 2			
reaction time	interval	7 steps	1.10	1.08	1.06	1.08	0.97			3.24		
	velocity	5.10	8.31	8.46	8.62	8.46	10.02	7.52		8.46		
Wu Zhenhua (CHN) (1998)	time	2.66	3.80	4.91	6.03	7.11		8.07	5 / 3			

reaction time	interval		1.14	1.11	1.12	1.08	0.96	PB		3.37		
	velocity	5.16	8.02	8.23	8.16	8.46	10.13	7.43		8.14		
Zhang Shuai (CHN) (1996)	time	2.70	3.79	4.96	6.08	7.21		8.26	4 / 4			
reaction time	interval		1.09	1.17	1.12	1.13	1.05			3.38		
	velocity	5.08	8.39	7.81	8.16	8.09	9.26	7.26		8.11		

2019 Chinese Indoor National Grand Prix 3 (Xi'an, CHN)

A-FINAL

date 28-Feb-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sun Zhenjiang (CHN) (1999)	time	2.58	3.63	4.69	5.75	6.81		7.80	3 / 1			
reaction time	interval	7 steps	1.05	1.06	1.06	1.06	0.99			3.17		
	velocity	5.32	8.70	8.62	8.62	8.62	9.82	7.69		8.65		
Zhao Pengchuan (CHN) (1993)	time	2.61	3.71	4.77	5.85	6.91		7.84	4 / 2			
reaction time	interval		1.10	1.06	1.08	1.06	0.93			3.24		
	velocity	5.26	8.31	8.62	8.46	8.62	10.45	7.65		8.46		
Lei Yiwen (CHN) (1993)	time	2.64	3.74	4.86	5.96	7.08		8.06	2 / 3			
reaction time	interval		1.10	1.12	1.10	1.12	0.98			3.32		
	velocity	5.20	8.31	8.16	8.31	8.16	9.92	7.44		8.26		
Si Zhengdong (CHN) (1997)	time	2.62						DQ	5 / --			
reaction time	interval											
	velocity	5.24										

B-FINAL

date 28-Feb-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Honglin (CHN) (1994)	time	2.69	3.81	4.89	5.96	7.06		7.94	3 / 1			
reaction time	interval		1.12	1.08	1.07	1.10	0.88			3.27		
	velocity	5.10	8.16	8.46	8.54	8.31	11.05	7.56		8.39		
Zhu Shenglong (CHN) (2000)	time	2.72	3.80	4.88	5.94	7.04		7.98	4 / 2			
reaction time	interval		1.08	1.08	1.06	1.10	0.94	PB		3.22		
	velocity	5.04	8.46	8.46	8.62	8.31	10.34	7.52		8.52		
Sun Haoru (CHN) (1998)	time	2.70	3.80	4.90	5.96	7.06		8.00	5 / 3			
reaction time	interval		1.10	1.10	1.06	1.10	0.94	PB		3.26		
	velocity	5.08	8.31	8.31	8.62	8.31	10.34	7.50		8.41		
Yang Quanlei (CHN) (1999)	time	2.67	3.81	4.91	6.01	7.15		8.10	2 / 4			
reaction time	interval		1.14	1.10	1.10	1.14	0.95			3.34		
	velocity	5.14	8.02	8.31	8.31	8.02	10.23	7.41		8.21		

2019 Chinese Indoor National Grand Prix 2 (Nanjing, CHN)

A-FINAL

date 24-Feb-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.60	3.69	4.73	5.77	6.81		7.70	3 / 1			
reaction time	interval		1.09	1.04	1.04	1.04	0.89			3.17		
	velocity	5.28	8.39	8.79	8.79	8.79	10.92	7.79		8.65		
Pan Zijie (CHN) (1995)	time	2.60	3.75	4.85	5.94	7.04		7.97	4 / 2			
reaction time	interval		1.15	1.10	1.09	1.10	0.93			3.34		
	velocity	5.28	7.95	8.31	8.39	8.31	10.45	7.53		8.21		
Jiang Fan (CHN) (1989)	time	2.68	3.80	4.89	5.99	7.09		8.03	5 / 3			
reaction time	interval		1.12	1.09	1.10	1.10	0.94			3.31		
	velocity	5.12	8.16	8.39	8.31	8.31	10.34	7.47		8.28		
Yang Jianxing (CHN) (1996)	time	2.68	3.82	4.94	6.04	7.16		8.10	2 / 4	0.00		
reaction time	interval		1.14	1.12	1.10	1.12	0.94			3.36		
	velocity	5.12	8.02	8.16	8.31	8.16	10.34	7.41		8.16		

B-FINAL

date 24-Feb-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Guo Zhongjie (CHN) (2001)	time	2.70	3.82	4.90	5.97	7.10		8.04	4 / 1			
reaction time	interval		1.12	1.08	1.07	1.13	0.94			3.27		
	velocity	5.08	8.16	8.46	8.54	8.09	10.34	7.46		8.39		
Yang Yuxuan (CHN) (2002)	time	2.73	3.85	4.99	6.09	7.20		8.12	5 / 2			
reaction time	interval		1.12	1.14	1.10	1.11	0.92	PB		3.36		
	velocity	5.03	8.16	8.02	8.31	8.23	10.57	7.39		8.16		
Li Huaihai (CHN) (1999)	time	2.67	3.80	4.89	6.03	7.15		8.15	2 / 3			
reaction time	interval		1.13	1.09	1.14	1.12	1.00	PB		3.36		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

	velocity	5.14	8.09	8.39	8.02	8.16	9.72	7.36		8.16	
Lu Wei (CHN) (2000)	time	2.77	3.89	4.99	6.09	7.19		8.17	3 / 4		
reaction time	interval		1.12	1.10	1.10	1.10	0.98			3.32	
	velocity	4.95	8.16	8.31	8.31	8.31	9.92	7.34		8.26	

2019 South Eastern Conference Indoor Championships (Fayetteville, AR) (TV Analysis)

FINAL

date 23-Feb-19

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.55	3.57	4.57	5.56	6.54		7.44	4 / 1			
reaction time	interval	7 steps	1.02	1.00	0.99	0.98	0.90			3.01		
	velocity	5.38	8.96	9.14	9.23	9.33	10.80	8.06		9.11		
Roberts, Daniel (USA) (1998)	time	2.55	3.60	4.61	5.60	6.62		7.48	5 / 2			
reaction time	interval		1.05	1.01	0.99	1.02	0.86			3.05		
	velocity	5.38	8.70	9.05	9.23	8.96	11.30	8.02		8.99		

2019 PSD Bank Meeting (Düsseldorf, GER) (TV Analysis)

FINAL

date 20-Feb-19

Henson (2020) - Athlete First: 2019 year end hurdle report

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.43	3.46	4.48	5.50	6.48		7.52	4 / 1			
reaction time 0.120	interval	7 steps	1.03	1.02	1.02	0.98	1.04			3.07		
	velocity	5.65	8.87	8.96	8.96	9.33	9.35	7.98		8.93		
Trajkovic, Milan (CYP) (1992)	time	2.40	3.42	4.44	5.44	6.44		7.52	7 / 2			
reaction time 0.153	interval	7 steps	1.02	1.02	1.00	1.00	1.08			3.04		
	velocity	5.72	8.96	8.96	9.14	9.14	9.00	7.98		9.02		
Crittenden, Freddie (USA) (199	time	2.42	3.44	4.48	5.52	6.54		7.60	5 / 3			
reaction time 0.156	interval		1.02	1.04	1.04	1.02	1.06			3.10		
	velocity	5.67	8.96	8.79	8.79	8.96	9.17	7.89		8.85		
Mallett, Aaron (USA) (1994)	time	2.40	3.46	4.50	5.52	6.56		7.66	6 / 4			
reaction time 0.166	interval	7 steps	1.06	1.04	1.02	1.04	1.10			3.12		
	velocity	5.72	8.62	8.79	8.96	8.79	8.84	7.83		8.79		
Pozzi, Andy (GBR) (1992)	time	2.43	3.46	4.52	5.52	6.56		7.67	3 / 5			
reaction time 0.106	interval	7 steps	1.03	1.06	1.00	1.04	1.11			3.09		
	velocity	5.65	8.87	8.62	9.14	8.79	8.76	7.82		8.87		
Balnuweit, Erik (GER) (1988)	time	2.42	3.46	4.52	5.52	6.56		7.67	1 / 6			
reaction time 0.148	interval		1.04	1.06	1.00	1.04	1.11			3.10		
	velocity	5.67	8.79	8.62	9.14	8.79	8.76	7.82		8.85		

2019 Chinese Indoor National Grand Prix 1 (Nanjing, CHN)

A-FINAL

date 20-Feb-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jiang Fan (CHN) (1989)	time	2.67	3.79	4.85	5.94	7.02		7.94	5 / 1			
reaction time	interval		1.12	1.06	1.09	1.08	0.92			3.27		
	velocity	5.14	8.16	8.62	8.39	8.46	10.57	7.56		8.39		
Li Jiming (CHN) (1996)	time	2.65	3.79	4.83	5.94	7.02		7.95	4 / 2			
reaction time	interval		1.14	1.04	1.11	1.08	0.93			3.29		
	velocity	5.18	8.02	8.79	8.23	8.46	10.45	7.55		8.33		
Guo Zhongjie (CHN) (2001)	time	2.73	3.82	4.90	6.00	7.09		8.03	2 / 3			
reaction time	interval		1.09	1.08	1.10	1.09	0.94	**PB**		3.27		
	velocity	5.03	8.39	8.46	8.31	8.39	10.34	7.47		8.39		
Zhang Tao (CHN) (1997)	time	2.71	3.82	4.92	6.00	7.14		8.12	3 / 4			
reaction time	interval		1.11	1.10	1.08	1.14	0.98			3.29		
	velocity	5.06	8.23	8.31	8.46	8.02	9.92	7.39		8.33		

B-FINAL

date 20-Feb-19

CAA Hurdle Development (2019)

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.60	3.68	4.74	5.79	6.84		7.75	4 / 1			
reaction time	interval		1.08	1.06	1.05	1.05	0.91			3.19		
	velocity	5.28	8.46	8.62	8.70	8.70	10.68	7.74		8.60		
Pan Zijie (CHN) (1995)	time	2.68	3.78	4.89	5.95	7.04		7.96	3 / 2			
reaction time	interval		1.10	1.11	1.06	1.09	0.92			3.27		
	velocity	5.12	8.31	8.23	8.62	8.39	10.57	7.54		8.39		
Lu Yang (CHN) (1996)	time	2.73	3.85	4.95	6.02	7.12		8.04	5 / 3			
reaction time	interval		1.12	1.10	1.07	1.10	0.92			3.29		

	velocity	5.03	8.16	8.31	8.54	8.31			10.57	7.46		8.33	
Yang Yuxuan (CHN) (2002)	time	2.75	3.85	4.95	6.02	7.12				8.19	2 / 4		
reaction time	interval		1.10	1.10	1.07	1.10			1.07			3.27	
	velocity	4.99	8.31	8.31	8.54	8.31			9.08	7.33		8.39	

2019 Müller Indoor Grand Prix (Birmingham, GBR) (TV Analysis)

FINAL date 16-Feb-19

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5			Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Eaton, Jarret (USA) (1989)		time	2.50	3.54	4.54	5.54	6.56				7.51	4 / 1			
reaction time	0.136	interval	7 steps	1.04	1.00	1.00	1.02			0.95			3.04		
		velocity	5.49	8.79	9.14	9.14	8.96			10.23	7.99		9.02		
Crittenden, Freddie (USA) (199		time	2.50	3.52	4.55	5.55	6.56				7.53	8 / 2			
reaction time	0.146	interval		1.02	1.03	1.00	1.01			0.97			3.05		
		velocity	5.49	8.96	8.87	9.14	9.05			10.02	7.97		8.99		
Trajkovic, Milan (CYP) (1992)		time	2.52	3.55	4.55	5.55	6.56				7.54	6 / 3			
reaction time	0.166	interval	7 steps	1.03	1.00	1.00	1.01			0.98			3.03		
		velocity	5.44	8.87	9.14	9.14	9.05			9.92	7.96		9.05		
Constantino, Gabriel (BRA) (1!		time	2.54	3.54	4.58	5.62	6.66				7.62	5 / 4			
reaction time	0.136	interval	7 steps	1.00	1.04	1.04	1.04			0.96			3.08		
		velocity	5.40	9.14	8.79	8.79	8.79			10.13	7.87		8.90		
Mallett, Aaron (USA) (1994)		time	2.54	3.58	4.65	5.65	6.68				7.63	7 / 5			
reaction time	0.152	interval	7 steps	1.04	1.07	1.00	1.03			0.95			3.11		
		velocity	5.40	8.79	8.54	9.14	8.87			10.23	7.86		8.82		
King, David (GBR) (1994)		time	2.54	3.58	4.65	5.68	6.72				7.68	3 / 6			
reaction time	0.130	interval	7 steps	1.04	1.07	1.03	1.04			0.96			3.14		
		velocity	5.40	8.79	8.54	8.87	8.79			10.13	7.81		8.73		

2019 French National Indoor Championships (Miramas, FRA) (TV Analysis)

FINAL date 16-Feb-19

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5			Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Martinot-Lagarde, Pascal (FRA		time	2.48	3.52	4.54	5.54	6.54				7.52	5 / 1			
reaction time	0.150	interval	7 steps	1.04	1.02	1.00	1.00			0.98			3.06		
		velocity	5.53	8.79	8.96	9.14	9.14			9.92	7.98		8.96		
Manga, Aurel (FRA) (1992)		time	2.52	3.58	4.58	5.58	6.58				7.57	4 / 2			
reaction time	0.155	interval	7 steps	1.06	1.00	1.00	1.00			0.99			3.06		
		velocity	5.44	8.62	9.14	9.14	9.14			9.82	7.93		8.96		
Belocian, Wilhem (FRA) (1995)		time	2.56	3.58	4.62	5.64	6.66				7.63	3 / 3			
reaction time	0.147	interval		1.02	1.04	1.02	1.02			0.97			3.08		
		velocity	5.36	8.96	8.79	8.96	8.96			10.02	7.86		8.90		

2019 Tyson Indoor Invitaitional (Fayetteville, AR) (TV Analysis)

FINAL date 8-Feb-19

Henson (2020) - Athlete First: 2019 year end hurdle report

			H1	H2	H3	H4	H5			Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)		time	2.43	3.44	4.43	5.42	6.44				7.43	4 / 1			
reaction time		interval	7 steps	1.01	0.99	0.99	1.02			0.99			2.99		
		velocity	5.65	9.05	9.23	9.23	8.96			9.82	8.08		9.17		

2018 Japanese U20 National Championships (Nagoya, JPN) (99cm)

FINAL date 19-Oct-18 wind -0.6 m/s

Shibayama (2021) race analysis of men's 110m hurdles in the 2021 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000		time	2.53	3.57	4.61	5.64	6.63	7.66	8.68	9.71	10.75	11.81		13.19	6 / 1			
reaction time	0.123	interval		1.04	1.04	1.03	0.99	1.03	1.02	1.03	1.04	1.06	1.38	**NJR PB**		3.11	3.04	3.13
		velocity	5.42	8.79	8.79	8.87	9.23	8.87	8.96	8.87	8.79	8.62	10.16	8.34		8.82	9.02	8.76

2018 National Sports Festival (Fukui, JPN)

A FINAL date 08-Oct-18 wind 1.2 m/s

Shibayama (2018) - Race analysis of men's 110m hurdle run in 2018 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)		time	2.56	3.63	4.66	5.70	6.73	7.78	8.83	9.88	10.95	12.03		13.46	6 / 1			
reaction time	0.121	interval		1.07	1.03	1.04	1.03	1.05	1.05	1.05	1.07	1.08	1.43			3.14	3.13	3.20
		velocity	5.36	8.54	8.87	8.79	8.87	8.70	8.70	8.70	8.54	8.46	9.80	8.17		8.73	8.76	8.57
Masuno, Genta (JPN) (1993)		time	2.60	3.65	4.67	5.70	6.74	7.78	8.84	9.91	10.98	12.07		13.50	5 / 2			
reaction time	0.143	interval		1.05	1.02	1.03	1.04	1.04	1.06	1.07	1.07	1.09	1.43			3.10	3.14	3.23
		velocity	5.28	8.70	8.96	8.87	8.79	8.79	8.62	8.54	8.54	8.39	9.80	8.15		8.85	8.73	8.49
Ogata, Akihiro (JPN) (1993)		time	2.60	3.66	4.72	5.75	6.80	7.87	8.93	10.00	11.08	12.18		13.65	4 / 3			

reaction time	0.161	interval		1.06	1.06	1.03	1.05	1.07	1.06	1.07	1.08	1.10	1.47	=PB		3.15	3.18	3.25
		velocity	5.28	8.62	8.62	8.87	8.70	8.54	8.62	8.54	8.46	8.31	9.54	8.06		8.70	8.62	8.44
Ishikawa, Shuhei (JPN) (1995)		time	2.59	3.67	4.74	5.80	6.87	7.93	8.99	10.07	11.15	12.27		13.74	3 / 4			
reaction time	0.139	interval		1.08	1.07	1.06	1.07	1.06	1.06	1.08	1.08	1.12	1.47			3.21	3.19	3.28
		velocity	5.30	8.46	8.54	8.62	8.54	8.62	8.62	8.46	8.46	8.16	9.54	8.01		8.54	8.60	8.36
Kuriki, Anthony Tyrell (JPN) (1		time	2.64	3.70	4.78	5.87	6.92	8.00	9.06	10.15	11.23	12.30		13.77	8 / 5			
reaction time	0.129	interval		1.06	1.08	1.09	1.05	1.08	1.06	1.09	1.08	1.07	1.47			3.23	3.19	3.24
		velocity	5.20	8.62	8.46	8.39	8.70	8.46	8.62	8.39	8.46	8.54	9.54	7.99		8.49	8.60	8.46
Fujii, Ryota (JPN) (1996)		time	2.61	3.70	4.75	5.82	6.89	7.98	9.05	10.14	11.24	12.33		13.81	1 / 6			
reaction time	0.142	interval		1.09	1.05	1.07	1.07	1.09	1.07	1.09	1.10	1.09	1.48	PB		3.21	3.23	3.28
		velocity	5.26	8.39	8.70	8.54	8.54	8.39	8.54	8.39	8.31	8.39	9.47	7.97		8.54	8.49	8.36
Furukawa, Yutaro (JPN) (1985)		time	2.63	3.70	4.76	5.84	6.90	7.97	9.05	10.15	11.24	12.36		13.86	2 / 7			
reaction time	0.145	interval		1.07	1.06	1.08	1.06	1.07	1.08	1.10	1.09	1.12	1.50			3.21	3.21	3.31
		velocity	5.22	8.54	8.62	8.46	8.62	8.54	8.46	8.31	8.39	8.16	9.35	7.94		8.54	8.54	8.28
Kagimoto, Masahiro (JPN) (19		time	2.66	3.79	4.92	5.99	7.09	8.20	9.29	10.39	11.50	12.62		14.09	7 / 8			
reaction time	0.144	interval		1.13	1.13	1.07	1.10	1.11	1.09	1.10	1.11	1.12	1.47			3.33	3.30	3.33
		velocity	5.16	8.09	8.09	8.54	8.31	8.23	8.39	8.31	8.23	8.16	9.54	7.81		8.23	8.31	8.23

U20 FINAL (99cm)

date 07-Oct-18 wind 1.5 m/s

Joshi (2018) - research on athlete performance and technique- 2018 data book

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tawada, Asahi (JPN) (2001)		time	2.59	3.66	4.69	5.73	6.75	7.78	8.80	9.83	10.86	11.91		13.31	3 / 1			
reaction time	0.122	interval		1.07	1.03	1.04	1.02	1.03	1.02	1.03	1.03	1.05	1.40			3.14	3.07	3.11
		velocity	5.30	8.54	8.87	8.79	8.96	8.87	8.96	8.87	8.87	8.70	10.01	8.26		8.73	8.93	8.82
Amaoka, Naoki (JPN) (2000)		time	2.64	3.71	4.77	5.83	6.86	7.91	8.96	10.02	11.08	12.17		13.57	5 / 2			
reaction time	0.140	interval		1.07	1.06	1.06	1.03	1.05	1.05	1.06	1.06	1.09	1.40			3.19	3.13	3.21
		velocity	5.20	8.54	8.62	8.62	8.87	8.70	8.70	8.62	8.62	8.39	10.01	8.11		8.60	8.76	8.54
Morita, Kanon (JPN) (2000)		time	2.59	3.67	4.72	5.79	6.83	7.90	8.97	10.04	11.11	12.20		13.60	6 / 3			
reaction time	0.126	interval		1.08	1.05	1.07	1.04	1.07	1.07	1.07	1.07	1.09	1.40			3.20	3.18	3.23
		velocity	5.30	8.46	8.70	8.54	8.79	8.54	8.54	8.54	8.54	8.39	10.01	8.09		8.57	8.62	8.49
Yamashita, Tomoki (JPN) (2000		time	2.65	3.75	4.81	5.85	6.91	7.97	9.04	10.12	11.20	12.28		13.71	4 / 4			
reaction time	0.134	interval		1.10	1.06	1.04	1.06	1.06	1.07	1.08	1.08	1.08	1.43			3.20	3.19	3.24
		velocity	5.18	8.31	8.62	8.79	8.62	8.62	8.54	8.46	8.46	8.46	9.80	8.02		8.57	8.60	8.46
Fukumoto, Ren (JPN) (2000)		time	2.62	3.70	4.76	5.82	6.88	7.96	9.03	10.11	11.20	12.31		13.72	1 / 5			
reaction time	0.135	interval		1.08	1.06	1.06	1.06	1.08	1.07	1.08	1.09	1.11	1.41			3.20	3.21	3.28
		velocity	5.24	8.46	8.62	8.62	8.62	8.46	8.54	8.46	8.39	8.23	9.94	8.02		8.57	8.54	8.36
Soga, Kentaro (JPN) (2001)		time	2.69	3.78	4.85	5.92	6.96	8.04	9.09	10.14	11.25	12.34		13.79	2 / 6			
reaction time	0.178	interval		1.09	1.07	1.07	1.04	1.08	1.05	1.05	1.11	1.09	1.45			3.23	3.17	3.25
		velocity	5.10	8.39	8.54	8.54	8.79	8.46	8.70	8.70	8.23	8.39	9.67	7.98		8.49	8.65	8.44
Kumagai, Kai (JPN)		time	2.62	3.73	4.80	5.86	6.93	8.02	9.10	10.19	11.29	12.40		13.84	7 / 7			
reaction time	0.147	interval		1.11	1.07	1.06	1.07	1.09	1.08	1.09	1.10	1.11	1.44			3.24	3.24	3.30
		velocity	5.24	8.23	8.54	8.62	8.54	8.39	8.46	8.39	8.31	8.23	9.74	7.95		8.46	8.46	8.31

2018 Chinese National Sports School Championships (Jinjiang, CHN) (91.4cm)

FINAL

date ??? wind ??

Zhang (2019) - comparative analysis of characteristics of Chinese elite men's 110m hurdles in different age groups

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Qin Weibo (CHN) (2002)	time	2.69	3.77	4.82	5.86	6.89	7.92	8.96	10.02	11.09	12.18		13.71	5 / 1			
reaction time	interval		1.08	1.05	1.04	1.03	1.03	1.04	1.06	1.07	1.09	1.53			3.17	3.10	3.22
	velocity	5.10	8.46	8.70	8.79	8.87	8.87	8.79	8.62	8.54	8.39	9.16	8.02		8.65	8.85	8.52
Yang Yuxuan (CHN) (2002)	time	2.72	3.79	4.86	5.90	6.94	8.00	9.06	10.13	11.23	12.33		13.85	4 / 2			
reaction time	interval		1.07	1.07	1.04	1.04	1.06	1.06	1.07	1.10	1.10	1.52			3.18	3.16	3.27
	velocity	5.04	8.54	8.54	8.79	8.79	8.62	8.62	8.54	8.31	8.31	9.22	7.94		8.62	8.68	8.39
Guo Zhongjie (CHN) (2001)	time	2.72	3.80	4.85	5.91	6.96	8.01	9.06	10.11	11.23	12.35		13.93	7 / ??			
reaction time	interval		1.08	1.05	1.06	1.05	1.05	1.05	1.05	1.12	1.12	1.58			3.19	3.15	3.29
	velocity	5.04	8.46	8.70	8.62	8.70	8.70	8.70	8.70	8.16	8.16	8.87	7.90		8.60	8.70	8.33
Xi Xianxuan (CHN) (2002)	time	2.74	3.84	4.90	5.96	7.01	8.05	9.14	10.22	11.33	12.42		13.93	9 / ??			
reaction time	interval		1.10	1.06	1.06	1.05	1.04	1.09	1.08	1.11	1.09	1.51			3.22	3.18	3.28
	velocity	5.01	8.31	8.62	8.62	8.70	8.79	8.39	8.46	8.23	8.39	9.28	7.90		8.52	8.62	8.36
Zeng Pan (CHN) (2001)	time	2.75	3.88	4.96	6.09	7.18	8.27	9.39	10.53	11.65	12.78		14.31	6 / 5			
reaction time	interval		1.13	1.08	1.13	1.09	1.09	1.12	1.14	1.12	1.13	1.53			3.34	3.30	3.39
	velocity	4.99	8.09	8.46	8.09	8.39	8.39	8.16	8.02	8.16	8.09	9.16	7.69		8.21	8.31	8.09

Tong Zhangwei (CHN) (2002)	time	2.72	3.83	4.97	6.08	7.19	8.32	9.46	10.57	11.72	12.86		14.38	2 / 6			
reaction time	interval		1.11	1.14	1.11	1.11	1.13	1.14	1.11	1.15	1.14	1.52			3.36	3.38	3.40
	velocity	5.04	8.23	8.02	8.23	8.23	8.09	8.02	8.23	7.95	8.02	9.22	7.65		8.16	8.11	8.06
Yang Libo (CHN)	time	2.81	3.93	5.03	6.14	7.22	8.32	9.42	10.55	11.69	12.85		14.39	3 / ??			
reaction time	interval		1.12	1.10	1.11	1.08	1.10	1.10	1.13	1.14	1.16	1.54			3.33	3.28	3.43
	velocity	4.88	8.16	8.31	8.23	8.46	8.31	8.31	8.09	8.02	7.88	9.10	7.64		8.23	8.36	7.99
Ji Haohao (CHN) (2001)	time	2.74	3.85	4.94	6.03	7.14	8.20	9.32	10.50	11.66	12.81		14.39	8 / ??			
reaction time	interval		1.11	1.09	1.09	1.11	1.06	1.12	1.18	1.16	1.15	1.58			3.29	3.29	3.49
	velocity	5.01	8.23	8.39	8.39	8.23	8.62	8.16	7.75	7.88	7.95	8.87	7.64		8.33	8.33	7.86

2018 Chinese National Championships (Taiyuan, CHN)

FINAL

date 16-Sep-18 wind -0.3 m/s

Henson (2018) - coaching observations

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.59	3.64	4.67	5.71	6.72	7.76	8.77	9.83	10.88	11.96		13.40	6 / 1			
reaction time	interval	7 steps	1.05	1.03	1.04	1.01	1.04	1.01	1.06	1.05	1.08	1.44			3.12	3.06	3.19
	velocity	5.30	8.70	8.87	8.79	9.05	8.79	9.05	8.62	8.70	8.46	9.74	8.21		8.79	8.96	8.60
Zeng Jianhang (CHN) (1998)	time	2.72	3.78	4.81	5.84	6.87	7.92	8.99	10.07	11.14	12.30		13.77	4 / 2			
reaction time	interval		1.06	1.03	1.03	1.03	1.05	1.07	1.08	1.07	1.16	1.47			3.12	3.15	3.31
	velocity	5.04	8.62	8.87	8.87	8.87	8.70	8.54	8.46	8.54	7.88	9.54	7.99		8.79	8.70	8.28
Zhao Pengchuan (CHN) (1993)	time	2.67	3.79	4.87	5.94	7.06	8.09	9.20	10.29	11.39	12.51		13.99	7 / 3			
reaction time	interval		1.12	1.08	1.07	1.12	1.03	1.11	1.09	1.10	1.12	1.48			3.27	3.26	3.31
	velocity	5.14	8.16	8.46	8.54	8.16	8.87	8.23	8.39	8.31	8.16	9.47	7.86		8.39	8.41	8.28
Zhu Shenglong (CHN) (2000)	time	2.72	3.82	4.89	5.96	7.04	8.12	9.22	10.33	11.46	12.58		14.09	2 / 4			
reaction time	interval		1.10	1.07	1.07	1.08	1.08	1.10	1.11	1.13	1.12	1.51	PB		3.24	3.26	3.36
	velocity	5.04	8.31	8.54	8.54	8.46	8.46	8.31	8.23	8.09	8.16	9.28	7.81		8.46	8.41	8.16
Pan Zijie (CHN) (1995)	time	2.64	3.75	4.84	5.96	7.04	8.13	9.23	10.33	11.46	12.60		14.12	8 / 5			
reaction time	interval		1.11	1.09	1.12	1.08	1.09	1.10	1.10	1.13	1.14	1.52			3.32	3.27	3.37
	velocity	5.20	8.23	8.39	8.16	8.46	8.39	8.31	8.31	8.09	8.02	9.22	7.79		8.26	8.39	8.14
Li Jiming (CHN) (1996)	time	2.70	3.80	4.87	5.94	7.05	8.12	9.23	10.39	11.53	12.68		14.26	1 / 6			
reaction time	interval		1.10	1.07	1.07	1.11	1.07	1.11	1.16	1.14	1.15	1.58			3.24	3.29	3.45
	velocity	5.08	8.31	8.54	8.54	8.23	8.54	8.23	7.88	8.02	7.95	8.87	7.71		8.46	8.33	7.95
Ma Lei (CHN) (1989)	time	2.74	3.87	4.96	6.07	7.21	8.36	9.53	10.69	11.89	13.11		14.80	5 / 7			
reaction time	interval	7 steps	1.13	1.09	1.11	1.14	1.15	1.17	1.16	1.20	1.22	1.69			3.33	3.46	3.58
	velocity	5.01	8.09	8.39	8.23	8.02	7.95	7.81	7.88	7.62	7.49	8.30	7.43		8.23	7.92	7.66
Zhang Tao (CHN) (1997)	time	2.80	3.89	4.96	6.02	7.12	8.19	9.29	10.39	11.50	12.53		16.34	3 / 8			
reaction time	interval		1.09	1.07	1.06	1.10	1.07	1.10	1.10	1.11	1.03	3.81			3.22	3.27	3.24
	velocity	4.90	8.39	8.54	8.62	8.31	8.54	8.31	8.31	8.23	8.87	3.68	6.73		8.52	8.39	8.46

Heat 2

date 15-Sep-18 wind 0.7 m/s

Henson (2018) - coaching observations

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.58	3.67	4.71	5.77	6.84	7.90	8.98	10.08	11.17	12.29		13.83	3 / 1			
reaction time	interval		1.09	1.04	1.06	1.07	1.06	1.08	1.10	1.09	1.12	1.54			3.19	3.21	3.31
	velocity	5.32	8.39	8.79	8.62	8.54	8.62	8.46	8.31	8.39	8.16	9.10	7.95		8.60	8.54	8.28
Ma Lei (CHN) (1989)	time	2.72	3.82	4.90	5.99	7.07	8.14	9.24	10.34	11.46	12.61		14.10	5 / 2			
reaction time	interval	7 steps	1.10	1.08	1.09	1.08	1.07	1.10	1.10	1.12	1.15	1.49			3.27	3.25	3.37
	velocity	5.04	8.31	8.46	8.39	8.46	8.54	8.31	8.31	8.16	7.95	9.41	7.80		8.39	8.44	8.14
Pan Zijie (CHN) (1995)	time	2.70	3.80	4.87	5.98	7.07	8.15	9.26	10.38	11.48	12.64		14.11	7 / 3			
reaction time	interval		1.10	1.07	1.11	1.09	1.08	1.11	1.12	1.10	1.16	1.47			3.28	3.28	3.38
	velocity	5.08	8.31	8.54	8.23	8.39	8.46	8.23	8.16	8.31	7.88	9.54	7.80		8.36	8.36	8.11
Zhu Shenglong (CHN) (2000)	time	2.74	3.85	4.94	6.00	7.09	8.19	9.26	10.38	11.49	12.61		14.13	2 / 4			
reaction time	interval		1.11	1.09	1.06	1.09	1.10	1.07	1.12	1.11	1.12	1.52	PB		3.26	3.26	3.35
	velocity	5.01	8.23	8.39	8.62	8.39	8.31	8.54	8.16	8.23	8.16	9.22	7.78		8.41	8.41	8.19
Jian Wei (CHN) (1994)	time	2.68	3.78	4.87	5.94	7.02	8.12	9.22	10.36	11.50	12.66		14.22	8 / 5			
reaction time	interval	7 steps	1.10	1.09	1.07	1.08	1.10	1.10	1.14	1.14	1.16	1.56			3.26	3.28	3.44
	velocity	5.12	8.31	8.39	8.54	8.46	8.31	8.31	8.02	8.02	7.88	8.99	7.74		8.41	8.36	7.97
Yang Jianxing (CHN) (1996)	time	2.67	3.77	4.87	5.98	7.07	8.16	9.29	10.44	11.61	12.80		14.34	6 / 6			
reaction time	interval		1.10	1.10	1.11	1.09	1.09	1.13	1.15	1.17	1.19	1.54			3.31	3.31	3.51
	velocity	5.14	8.31	8.31	8.23	8.39	8.39	8.09	7.95	7.81	7.68	9.10	7.67		8.28	8.28	7.81
Guo Zhongjie (CHN) (2001)	time	2.70	3.80	4.92	6.00	7.15	8.31	9.46	10.61	11.78	13.00		14.59	4 / 7			
reaction time	interval		1.10	1.12	1.08	1.15	1.16	1.15	1.15	1.17	1.22	1.59			3.30	3.46	3.54
	velocity	5.08	8.31	8.16	8.46	7.95	7.88	7.95	7.95	7.81	7.49	8.82	7.54		8.31	7.92	7.75

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Heat 1

date 15-Sep-18 wind -0.2 m/s

Henson (2018) - coaching observations

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.63	3.69	4.74	5.77	6.82	7.87	8.93	10.02	11.11	12.21		13.76	5 / 1			
reaction time	interval	7 steps	1.06	1.05	1.03	1.05	1.05	1.06	1.09	1.09	1.10	1.55			3.14	3.16	3.28
	velocity	5.22	8.62	8.70	8.87	8.70	8.70	8.62	8.39	8.39	8.31	9.05	7.99		8.73	8.68	8.36
Zhang Tao (CHN) (1997)	time	2.77	3.85	4.90	5.99	7.50	8.11	9.18	10.29	11.36	12.51		14.00	8 / 2			
reaction time	interval		1.08	1.05	1.09	1.51	0.61	1.07	1.11	1.07	1.15	1.49			3.22	3.19	3.33
	velocity	4.95	8.46	8.70	8.39	6.05	14.98	8.54	8.23	8.54	7.95	9.41	7.86		8.52	8.60	8.23
Zhao Pengchuan (CHN) (1993)	time	2.67	3.77	4.84	5.92	6.99	8.09	9.17	10.28	11.40	12.50		14.03	2 / 3			
reaction time	interval		1.10	1.07	1.08	1.07	1.10	1.08	1.11	1.12	1.10	1.53			3.25	3.25	3.33
	velocity	5.14	8.31	8.54	8.46	8.54	8.31	8.46	8.23	8.16	8.31	9.16	7.84		8.44	8.44	8.23
Li Jiming (CHN) (1996)	time	2.67	3.77	4.84	5.91	6.97	8.06	9.14	10.23	11.36	12.51		14.07	4 / 4			
reaction time	interval		1.10	1.07	1.07	1.06	1.09	1.08	1.09	1.13	1.15	1.56			3.24	3.23	3.37
	velocity	5.14	8.31	8.54	8.54	8.62	8.39	8.46	8.39	8.09	7.95	8.99	7.82		8.46	8.49	8.14
Chu Pengfei (CHN) (1993)	time	2.78	3.92	5.00	6.09	7.17	8.27	9.36	10.46	11.61	12.76		14.27	7 / 5			
reaction time	interval		1.14	1.08	1.09	1.08	1.10	1.09	1.10	1.15	1.15	1.51			3.31	3.27	3.40
	velocity	4.94	8.02	8.46	8.39	8.46	8.31	8.39	8.31	7.95	7.95	9.28	7.71		8.28	8.39	8.06
Qin Weibo (CHN) (2002)	time	2.75	3.84	4.92	5.97	7.07	8.14	9.31	10.47	11.64	12.80		14.34	3 / 6			
reaction time	interval		1.09	1.08	1.05	1.10	1.07	1.17	1.16	1.17	1.16	1.54			3.22	3.34	3.49
	velocity	4.99	8.39	8.46	8.70	8.31	8.54	7.81	7.88	7.81	7.88	9.10	7.67		8.52	8.21	7.86
Wu Zhenhua (CHN) (1998)	time	2.72	3.84	4.96	6.06	7.17	8.31	9.43	10.56	11.68	12.84		14.36	6 / 7			
reaction time	interval		1.12	1.12	1.10	1.11	1.14	1.12	1.13	1.12	1.16	1.52			3.34	3.37	3.41
	velocity	5.04	8.16	8.16	8.31	8.23	8.02	8.16	8.09	8.16	7.88	9.22	7.66		8.21	8.14	8.04

2018 IAAF Continental Cup (Ostrava, CZE) (TV Analysis)

FINAL

date 09-Sep-18 wind 0.9 m/s

Henson (2021) - Athlete First: 2018 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199	time	2.52	3.58	4.60	5.56	6.54	7.54	8.54	9.54	10.54	11.58		13.03	2 / 1			
reaction time 0.143	interval	7 steps	1.06	1.02	0.96	0.98	1.00	1.00	1.00	1.00	1.04	1.45			3.04	2.98	3.04
	velocity	5.44	8.62	8.96	9.52	9.33	9.14	9.14	9.14	9.14	8.79	9.67	8.44		9.02	9.20	9.02
Levy, Ronald (JAM) (1992)	time	2.46	3.50	4.52	5.54	6.54	7.56	8.58	9.60	10.62	11.68		13.12	3 / 2			
reaction time 0.115	interval	7 steps	1.04	1.02	1.02	1.00	1.02	1.02	1.02	1.02	1.06	1.44			3.08	3.04	3.10
	velocity	5.58	8.79	8.96	8.96	9.14	8.96	8.96	8.96	8.96	8.62	9.74	8.38		8.90	9.02	8.85
Martinot-Lagarde, Pascal (FRA	time	2.48	3.56	4.58	5.60	6.60	7.60	8.60	9.64	10.70	11.78		13.31	6 / 3			
reaction time 0.146	interval	7 steps	1.08	1.02	1.02	1.00	1.00	1.00	1.04	1.06	1.08	1.53			3.12	3.00	3.18
	velocity	5.53	8.46	8.96	8.96	9.14	9.14	9.14	8.79	8.62	8.46	9.16	8.26		8.79	9.14	8.62
Alkana, Antonio (RSA) (1990)	time	2.48	3.56	4.60	5.62	6.64	7.64	8.66	9.68	10.76	11.84		13.36	4 / 4			
reaction time 0.117	interval		1.08	1.04	1.02	1.02	1.00	1.02	1.02	1.08	1.08	1.52			3.14	3.04	3.18
	velocity	5.53	8.46	8.79	8.96	8.96	9.14	8.96	8.96	8.46	8.46	9.22	8.23		8.73	9.02	8.62
Allen, Devon (USA) (1994)	time	2.52	3.60	4.64	5.68	6.72	7.72	8.80	9.88	10.96	12.02		13.57	7 / 5			
reaction time 0.118	interval		1.08	1.04	1.04	1.04	1.00	1.08	1.08	1.08	1.06	1.55			3.16	3.12	3.22
	velocity	5.44	8.46	8.79	8.79	8.79	9.14	8.46	8.46	8.46	8.62	9.05	8.11		8.68	8.79	8.52
Kanai, Taio (JPN) (1995)	time	2.52	3.64	4.68	5.74	6.80	7.84	8.88	10.00	11.08	12.18		13.72	5 / 6			
reaction time 0.119	interval	7 steps	1.12	1.04	1.06	1.06	1.04	1.04	1.12	1.08	1.10	1.54			3.22	3.14	3.30
	velocity	5.44	8.16	8.79	8.62	8.62	8.79	8.79	8.16	8.46	8.31	9.10	8.02		8.52	8.73	8.31
Al-Moualad, Ahmad (KSA) (19	time	2.56	3.62	4.68	5.72	6.76	7.86	8.92	10.04	11.16	12.28		13.83	1 / 7			
reaction time 0.143	interval		1.06	1.06	1.04	1.04	1.10	1.06	1.12	1.12	1.12	1.55			3.16	3.20	3.36
	velocity	5.36	8.62	8.62	8.79	8.79	8.31	8.62	8.16	8.16	8.16	9.05	7.95		8.68	8.57	8.16
Oyeniyi, Abejoye (NGR) (1993)	time	2.60	3.76	4.82	5.88	6.96	8.00	9.08	10.14	11.20	12.30		13.85	8 / 8			
reaction time 0.225	interval	7 steps	1.16	1.06	1.06	1.08	1.04	1.08	1.06	1.06	1.10	1.55	PB		3.28	3.20	3.22
	velocity	5.28	7.88	8.62	8.62	8.46	8.79	8.46	8.62	8.62	8.31	9.05	7.94		8.36	8.57	8.52

2018 Japanese University National Championships (Nagoya, JPN)

FINAL

date 09-Sep-18 wind -1.1 m/s

Shibayama (2021) race analysis of men's 110m hurdles in the 2021 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Izumiya, Shunsuke (JPN) (2000	time	2.60	3.65	4.69	5.77	6.80	7.88	8.94	10.04	11.15	12.28		13.75	/ 1			
reaction time	interval		1.05	1.04	1.08	1.03	1.08	1.06	1.10	1.11	1.13	1.47	PB		3.17	3.17	3.34
	velocity	5.28	8.70	8.79	8.46	8.87	8.46	8.62	8.31	8.23	8.09	9.54	8.00		8.65	8.65	8.21

2018 Meeting Cittá di Padova (Padova, ITA) (TV Analysis)

FINAL

date 02-Sep-18 wind 1.7 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199		time	2.56	3.58	4.60	5.58	6.56	7.56	8.56	9.56	10.56	11.60		13.09	4 / 1			
reaction time		interval	7 steps	1.02	1.02	0.98	0.98	1.00	1.00	1.00	1.00	1.04	1.49			3.02	2.98	3.04
		velocity	5.36	8.96	8.96	9.33	9.33	9.14	9.14	9.14	9.14	8.79	9.41	8.40		9.08	9.20	9.02

2018 AG Memorial van Damme (Brussels, BEL) (TV Analysis)

FINAL date 31-Aug-18 wind -0.1 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199		time	2.54	3.56	4.58	5.58	6.56	7.54	8.52	9.52	10.54	11.56		12.97	5 / 1			
reaction time	0.168	interval	7 steps	1.02	1.02	1.00	0.98	0.98	0.98	1.00	1.02	1.02	1.41			3.04	2.94	3.04
		velocity	5.40	8.96	8.96	9.14	9.33	9.33	9.33	9.14	8.96	8.96	9.94	8.48		9.02	9.33	9.02
Ortega, Orlando (ESP) (1991)		time	2.54	3.56	4.58	5.58	6.56	7.56	8.58	9.58	10.62	11.66		13.10	6 / 2			
reaction time	0.124	interval	7 steps	1.02	1.02	1.00	0.98	1.00	1.02	1.00	1.04	1.04	1.44			3.04	3.00	3.08
		velocity	5.40	8.96	8.96	9.14	9.33	9.14	8.96	9.14	8.79	8.79	9.74	8.40		9.02	9.14	8.90
Parchment, Hansle (JAM) (199(		time	2.56	3.62	4.66	5.66	6.70	7.72	8.74	9.78	10.82	11.86		13.35	7 / 3			
reaction time	0.152	interval	7 steps	1.06	1.04	1.00	1.04	1.02	1.02	1.04	1.04	1.04	1.49			3.10	3.08	3.12
		velocity	5.36	8.62	8.79	9.14	8.79	8.96	8.96	8.79	8.79	8.79	9.41	8.24		8.85	8.90	8.79
Martinot-Lagarde, Pascal (FRA		time	2.50	3.54	4.56	5.58	6.58	7.64	8.68	9.74	10.80	11.88		13.36	3 / 4			
reaction time	0.153	interval	7 steps	1.04	1.02	1.02	1.00	1.06	1.04	1.06	1.06	1.08	1.48			3.08	3.10	3.20
		velocity	5.49	8.79	8.96	8.96	9.14	8.62	8.79	8.62	8.62	8.46	9.47	8.23		8.90	8.85	8.57
Crittenden, Freddie (USA) (199		time	2.52	3.56	4.60	5.62	6.66	7.68	8.72	9.76	10.82	11.90		13.39	8 / 5			
reaction time	0.151	interval		1.04	1.04	1.02	1.04	1.02	1.04	1.04	1.06	1.08	1.49			3.10	3.10	3.18
		velocity	5.44	8.79	8.79	8.96	8.79	8.96	8.79	8.79	8.62	8.46	9.41	8.22		8.85	8.85	8.62
Allen, Devon (USA) (1994)		time	2.54	3.56	4.60	5.62	6.64	7.68	8.72	9.78	10.84	11.94		13.41	2 / 6			
reaction time	0.126	interval		1.02	1.04	1.02	1.02	1.04	1.04	1.06	1.06	1.10	1.47			3.08	3.10	3.22
		velocity	5.40	8.96	8.79	8.96	8.96	8.79	8.79	8.62	8.62	8.31	9.54	8.20		8.90	8.85	8.52
Levy, Ronald (JAM) (1992)		time	2.50	3.56	4.60	5.62	6.62	7.64	8.68	9.74	10.86	11.96		13.47	4 / 7			
reaction time	0.148	interval	7 steps	1.06	1.04	1.02	1.00	1.02	1.04	1.06	1.12	1.10	1.51			3.12	3.06	3.28
		velocity	5.49	8.62	8.79	8.96	9.14	8.96	8.79	8.62	8.16	8.31	9.28	8.17		8.79	8.96	8.36
Baji, Balázs (HUN) (1989)		time	2.56	3.62	4.64	5.68	6.70	7.72	8.82	9.88	10.96	12.08		13.63	1 / 8			
reaction time	0.140	interval	7 steps	1.06	1.02	1.04	1.02	1.02	1.10	1.06	1.08	1.12	1.55			3.12	3.14	3.26
		velocity	5.36	8.62	8.96	8.79	8.96	8.96	8.31	8.62	8.46	8.16	9.05	8.07		8.79	8.73	8.41

2018 Asian Games (Jakarta, INA)

FINAL date 28-Aug-18 wind 0.0 m/s

Shibayama (2018) - Race analysis of men's 110m hurdle run in 2018 season

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.58	3.63	4.66	5.69	6.71	7.73	8.76	9.81	10.85	11.93		13.34	6 / 1			
reaction time	0.142	interval	7 steps	1.05	1.03	1.03	1.02	1.02	1.03	1.05	1.04	1.08	1.41			3.11	3.07	3.17
		velocity	5.32	8.70	8.87	8.87	8.96	8.96	8.87	8.70	8.79	8.46	9.94	8.25		8.82	8.93	8.65
Chen Kuei-Ru (TPE) (1993)		time	2.53	3.60	4.62	5.64	6.67	7.69	8.71	9.78	10.83	11.94		13.39	5 / 2			
reaction time	0.165	interval		1.07	1.02	1.02	1.03	1.02	1.02	1.07	1.05	1.11	1.45	**NR PB**		3.11	3.07	3.23
		velocity	5.42	8.54	8.96	8.96	8.87	8.96	8.96	8.54	8.70	8.23	9.67	8.22		8.82	8.93	8.49
Takayama, Shunya (JPN) (1994		time	2.56	3.60	4.63	5.66	6.70	7.74	8.78	9.85	10.93	12.03		13.48	4 / 3			
reaction time	0.147	interval		1.04	1.03	1.03	1.04	1.04	1.04	1.07	1.08	1.10	1.45			3.10	3.12	3.25
		velocity	5.36	8.79	8.87	8.87	8.79	8.79	8.79	8.54	8.46	8.31	9.67	8.16		8.85	8.79	8.44
Al-Moualed, Ahmad (KSA) (19		time	2.53	3.58	4.62	5.63	6.66	7.70	8.73	9.82	10.92	12.03		13.50	3 / 4			
reaction time	0.115	interval		1.05	1.04	1.01	1.03	1.04	1.03	1.09	1.10	1.11	1.47			3.10	3.10	3.30
		velocity	5.42	8.70	8.79	9.05	8.87	8.79	8.87	8.39	8.31	8.23	9.54	8.15		8.85	8.85	8.31
Kim Byung-Jun (KOR) (1991)		time	2.62	3.69	4.72	5.75	6.79	7.82	8.86	9.93	11.00	12.09		13.57	2 / 5			
reaction time	0.188	interval		1.07	1.03	1.03	1.04	1.03	1.04	1.07	1.07	1.09	1.48			3.13	3.11	3.23
		velocity	5.24	8.54	8.87	8.87	8.79	8.87	8.79	8.54	8.54	8.39	9.47	8.11		8.76	8.82	8.49
Zeng Jianhang (CHN) (1998)		time	2.63	3.66	4.70	5.76	6.79	7.85	8.90	9.98	11.06	12.19		13.65	1 / 6			
reaction time	0.221	interval		1.03	1.04	1.06	1.03	1.06	1.05	1.08	1.08	1.13	1.46	**=PB**		3.13	3.14	3.29
		velocity	5.22	8.87	8.79	8.62	8.87	8.62	8.70	8.46	8.46	8.09	9.60	8.06		8.76	8.73	8.33
Kanai, Taio (JPN) (1995)		time	2.58	3.65	4.70	5.76	6.82	7.88	8.96	10.06	11.16	12.28		13.74	7 / 7			
reaction time	0.125	interval		1.07	1.05	1.06	1.06	1.06	1.08	1.10	1.10	1.12	1.46			3.18	3.20	3.32
		velocity	5.32	8.54	8.70	8.62	8.62	8.62	8.46	8.31	8.31	8.16	9.60	8.01		8.62	8.57	8.26
Yang Wei-Ting (TPE) (1994)		time	2.62	3.68	4.72	5.76	6.82	7.87	8.95	10.05	11.13	12.29		13.75	8 / 8			
reaction time	0.136	interval		1.06	1.04	1.04	1.06	1.05	1.08	1.10	1.08	1.16	1.46			3.14	3.19	3.34
		velocity	5.24	8.62	8.79	8.79	8.62	8.70	8.46	8.31	8.46	7.88	9.60	8.00		8.73	8.60	8.21

2018 Müller Grand Prix (Birmingham, GBR) (TV Analysis)

FINAL date 18-Aug-18 wind 1.3 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)		time	2.48	3.52	4.54	5.54	6.52	7.52	8.52	9.54	10.56	11.58		13.08	6 / 1			
reaction time 0.139		interval	7 steps	1.04	1.02	1.00	0.98	1.00	1.00	1.02	1.02	1.02	1.50			3.06	2.98	3.06
		velocity	5.53	8.79	8.96	9.14	9.33	9.14	9.14	8.96	8.96	8.96	9.35	8.41		8.96	9.20	8.96
Levy, Ronald (JAM) (1992)		time	2.42	3.54	4.56	5.58	6.58	7.58	8.62	9.62	10.66	11.72		13.22	3 / 2			
reaction time 0.132		interval	7 steps	1.12	1.02	1.02	1.00	1.00	1.04	1.00	1.04	1.06	1.50			3.16	3.04	3.10
		velocity	5.67	8.16	8.96	8.96	9.14	9.14	8.79	9.14	8.79	8.62	9.35	8.32		8.68	9.02	8.85
Martinot-Lagarde, Pascal (FRA		time	2.46	3.52	4.56	5.56	6.54	7.58	8.58	9.60	10.62	11.70		13.27	7 / 3			
reaction time 0.166		interval	7 steps	1.06	1.04	1.00	0.98	1.04	1.00	1.02	1.02	1.08	1.57			3.10	3.02	3.12
		velocity	5.58	8.62	8.79	9.14	9.33	8.79	9.14	8.96	8.96	8.46	8.93	8.29		8.85	9.08	8.79
Crittenden, Freddie (USA) (199		time	2.46	3.50	4.54	5.56	6.58	7.60	8.60	9.62	10.66	11.74		13.27	2 / 4			
reaction time 0.128		interval		1.04	1.04	1.02	1.02	1.02	1.00	1.02	1.04	1.08	1.53	PB		3.10	3.04	3.14
		velocity	5.58	8.79	8.79	8.96	8.96	8.96	9.14	8.96	8.79	8.46	9.16	8.29		8.85	9.02	8.73
Pozzi, Andy (GBR) (1992)		time	2.42	3.46	4.48	5.48	6.50	7.54	8.58	9.62	10.70	11.78		13.35	5 / 5			
reaction time 0.128		interval	7 steps	1.04	1.02	1.00	1.02	1.04	1.04	1.04	1.08	1.08	1.57			3.06	3.10	3.20
		velocity	5.67	8.79	8.96	9.14	8.96	8.79	8.79	8.79	8.46	8.46	8.93	8.24		8.96	8.85	8.57
Constantino, Gabriel (BRA) (1!		time	2.48	3.52	4.56	5.58	6.60	7.62	8.66	9.70	10.78	11.88		13.41	8 / 6			
reaction time 0.126		interval	7 steps	1.04	1.04	1.02	1.02	1.02	1.04	1.04	1.08	1.10	1.53			3.10	3.08	3.22
		velocity	5.53	8.79	8.79	8.96	8.96	8.96	8.79	8.79	8.46	8.31	9.16	8.20		8.85	8.90	8.52
Cabral, Johnathan (CAN) (199		time	2.52	3.60	4.64	5.68	6.72	7.76	8.78	9.78	10.88	11.90		13.46	4 / 7			
reaction time 0.117		interval	7 steps	1.08	1.04	1.04	1.04	1.04	1.02	1.00	1.10	1.02	1.56			3.16	3.10	3.12
		velocity	5.44	8.46	8.79	8.79	8.79	8.79	8.96	9.14	8.31	8.96	8.99	8.17		8.68	8.85	8.79
King, David (GBR) (1994)		time	2.52	3.58	4.62	5.64	6.66	7.70	8.74	9.78	10.84	11.92		13.53	9 / 8			
reaction time 0.124		interval	7 steps	1.06	1.04	1.02	1.02	1.04	1.04	1.04	1.06	1.08	1.61			3.12	3.10	3.18
		velocity	5.44	8.62	8.79	8.96	8.96	8.79	8.79	8.79	8.62	8.46	8.71	8.13		8.79	8.85	8.62

2018 Japanese National High School Championships (Nagoya, JPN) (99cm)

FINAL date 06-Aug-18 wind 1.6 m/s

Kota (2018) - 71st high school championships: JAF scientific committee - biomechanics data collection

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Abe, Ryuto (JPN) (2000)	time	2.62	3.69	4.79	5.86	6.96	8.06	9.17	10.28	11.41	12.58		14.09	8 / 1			
reaction time	interval		1.07	1.10	1.07	1.10	1.10	1.11	1.11	1.13	1.17	1.51	PB		3.24	3.31	3.41
	velocity	5.24	8.54	8.31	8.54	8.31	8.31	8.23	8.23	8.09	7.81	9.28	7.81		8.46	8.28	8.04
Iizuka, Kaisei (JPN) (2001)	time	2.71	3.82	4.94	6.03	7.13	8.21	9.31	10.42	11.52	12.62		14.12	5 / 2			
reaction time	interval		1.11	1.12	1.09	1.10	1.08	1.10	1.11	1.10	1.10	1.50	PB		3.32	3.28	3.31
	velocity	5.06	8.23	8.16	8.39	8.31	8.46	8.31	8.23	8.31	8.31	9.35	7.79		8.26	8.36	8.28
Kubota, Taichi (JPN) (2000)	time	2.70	3.80	4.90	6.00	7.10	8.21	9.29	10.41	11.52	12.64		14.12	3 / 3			
reaction time	interval		1.10	1.10	1.10	1.10	1.11	1.08	1.12	1.11	1.12	1.48	PB		3.30	3.29	3.35
	velocity	5.08	8.31	8.31	8.31	8.31	8.23	8.46	8.16	8.23	8.16	9.47	7.79		8.31	8.33	8.19
Sasa, Atsuhiro (JPN) (2001)	time	2.76	3.87	4.98	6.08	7.20	8.31	9.44	10.56	11.69	12.83		14.29	2 / 4			
reaction time	interval		1.11	1.11	1.10	1.12	1.11	1.13	1.12	1.13	1.14	1.46			3.32	3.36	3.39
	velocity	4.97	8.23	8.23	8.31	8.16	8.23	8.09	8.16	8.09	8.02	9.60	7.70		8.26	8.16	8.09
Tawada, Asahi (JPN) (2001)	time	2.65	3.76	4.88	6.00	7.09	8.19	9.30	10.45	11.59	12.75		14.31	6 / 5			
reaction time	interval		1.11	1.12	1.12	1.09	1.10	1.11	1.15	1.14	1.16	1.56			3.35	3.30	3.45
	velocity	5.18	8.23	8.16	8.16	8.39	8.31	8.23	7.95	8.02	7.88	8.99	7.69		8.19	8.31	7.95
Yamamura, Keita (JPN) (1999)	time	2.69	3.82	4.95	6.05	7.15	8.26	9.38	10.50	11.65	12.80		14.32	9 / 6			
reaction time	interval		1.13	1.13	1.10	1.10	1.11	1.12	1.12	1.15	1.15	1.52			3.36	3.33	3.42
	velocity	5.10	8.09	8.09	8.31	8.31	8.23	8.16	8.16	7.95	7.95	9.22	7.68		8.16	8.23	8.02
Eida, Ryusei (JPN) (2000)	time	2.70	3.83	4.94	6.06	7.18	8.32	9.47	10.60	11.76	12.89		14.35	7 / 7			
reaction time	interval		1.13	1.11	1.12	1.12	1.14	1.15	1.13	1.16	1.13	1.46			3.36	3.41	3.42
	velocity	5.08	8.09	8.23	8.16	8.16	8.02	7.95	8.09	7.88	8.09	9.60	7.67		8.16	8.04	8.02
Muratake, Rachid (JPN) (2002)	time	2.66	3.75	4.89	5.99	7.11	8.24	9.43	10.60	11.77	12.98		14.43	4 / 8			
reaction time	interval		1.09	1.14	1.10	1.12	1.13	1.19	1.17	1.17	1.21	1.45			3.33	3.44	3.55
	velocity	5.16	8.39	8.02	8.31	8.16	8.09	7.68	7.81	7.81	7.55	9.67	7.62		8.23	7.97	7.72

2018 Müller Anniversary Games (London, GBR) (TV Analysis)

FINAL date 22-Jul-18 wind 0.2 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levy, Ronald (JAM) (1992)		time	2.48	3.52	4.56	5.54	6.56	7.56	8.56	9.58	10.62	11.70		13.13	5 / 1			
reaction time 0.134		interval	7 steps	1.04	1.04	0.98	1.02	1.00	1.00	1.02	1.04	1.08	1.43			3.06	3.02	3.14

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	5.53	8.79	8.79	9.33	8.96	9.14	9.14	8.96	8.79	8.46	9.80	8.38		8.96	9.08	8.73
Allen, Devon (USA) (1994)		time	2.54	3.58	4.62	5.62	6.62	7.66	8.70	9.74	10.78	11.90		13.30	6 / 2			
reaction time	0.111	interval		1.04	1.04	1.00	1.00	1.04	1.04	1.04	1.04	1.12	1.40			3.08	3.08	3.20
		velocity	5.40	8.79	8.79	9.14	9.14	8.79	8.79	8.79	8.79	8.16	10.01	8.27		8.90	8.90	8.57
Crittenden, Freddie (USA) (199		time	2.50	3.54	4.58	5.62	6.66	7.70	8.72	9.82	10.84	11.92		13.33	2 / 3			
reaction time	0.137	interval		1.04	1.04	1.04	1.04	1.04	1.02	1.10	1.02	1.08	1.41			3.12	3.10	3.20
		velocity	5.49	8.79	8.79	8.79	8.79	8.79	8.96	8.31	8.96	8.46	9.94	8.25		8.79	8.85	8.57
Pozzi, Andy (GBR) (1992)		time	2.50	3.54	4.56	5.56	6.58	7.60	8.66	9.70	10.76	11.84		13.36	3 / 4			
reaction time	0.129	interval	7 steps	1.04	1.02	1.00	1.02	1.02	1.06	1.04	1.06	1.08	1.52			3.06	3.10	3.18
		velocity	5.49	8.79	8.96	9.14	8.96	8.96	8.62	8.79	8.62	8.46	9.22	8.23		8.96	8.85	8.62
Alkana, Antonio (RSA) (1990)		time	2.52	3.56	4.58	5.60	6.62	7.66	8.70	9.74	10.84	11.94		13.40	7 / 5			
reaction time	0.140	interval		1.04	1.02	1.02	1.02	1.04	1.04	1.04	1.10	1.10	1.46			3.08	3.10	3.24
		velocity	5.44	8.79	8.96	8.96	8.96	8.79	8.79	8.79	8.31	8.31	9.60	8.21		8.90	8.85	8.46
Brathwaite, Shane (BAR) (1990		time	2.56	3.62	4.66	5.68	6.70	7.74	8.78	9.84	10.88	11.96		13.41	9 / 6			
reaction time	0.119	interval	7 steps	1.06	1.04	1.02	1.02	1.04	1.04	1.06	1.04	1.08	1.45			3.12	3.10	3.18
		velocity	5.36	8.62	8.79	8.96	8.96	8.79	8.79	8.62	8.79	8.46	9.67	8.20		8.79	8.85	8.62
Baji, Balázs (HUN) (1989)		time	2.54	3.60	4.64	5.66	6.68	7.70	8.74	9.78	10.86	11.94		13.42	8 / 7			
reaction time	0.146	interval	7 steps	1.06	1.04	1.02	1.02	1.02	1.04	1.04	1.08	1.08	1.48			3.12	3.08	3.20
		velocity	5.40	8.62	8.79	8.96	8.96	8.96	8.79	8.79	8.46	8.46	9.47	8.20		8.79	8.90	8.57
Merritt, Aries (USA) (1985)		time	2.54	3.60	4.64	5.66	6.70	7.74	8.76	9.82	10.86	11.94		13.44	4 / 8			
reaction time	0.132	interval	7 steps	1.06	1.04	1.02	1.04	1.04	1.02	1.06	1.04	1.08	1.50			3.12	3.10	3.18
		velocity	5.40	8.62	8.79	8.96	8.79	8.79	8.96	8.62	8.79	8.46	9.35	8.18		8.79	8.85	8.62

2018 Herculis Meeting International d'Athletisme (Monaco, MON) (TV Analysis)

FINAL date 20-Jul-18 wind -0.2 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199		time	2.52	3.56	4.56	5.56	6.56	7.56	8.56	9.56	10.58	11.60		13.07	4 / 1			
reaction time	0.132	interval	7 steps	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.02	1.47			3.04	3.00	3.04
		velocity	5.44	8.79	9.14	9.14	9.14	9.14	9.14	9.14	8.96	8.96	9.54	8.42		9.02	9.14	9.02
Ortega, Orlando (ESP) (1991)		time	2.48	3.56	4.56	5.56	6.58	7.60	8.60	9.64	10.66	11.70		13.18	5 / 2			
reaction time	0.129	interval	7 steps	1.08	1.00	1.00	1.02	1.02	1.00	1.04	1.02	1.04	1.48			3.08	3.04	3.10
		velocity	5.53	8.46	9.14	9.14	8.96	8.96	9.14	8.79	8.96	8.79	9.47	8.35		8.90	9.02	8.85
Martinot-Lagarde, Pascal (FRA		time	2.46	3.50	4.52	5.52	6.52	7.52	8.56	9.60	10.64	11.70		13.20	6 / 3			
reaction time	0.157	interval	7 steps	1.04	1.02	1.00	1.00	1.00	1.04	1.04	1.04	1.06	1.50			3.06	3.04	3.14
		velocity	5.58	8.79	8.96	9.14	9.14	9.14	8.79	8.79	8.79	8.62	9.35	8.33		8.96	9.02	8.73
Parchment, Hansle (JAM) (199(		time	2.52	3.56	4.58	5.58	6.58	7.58	8.60	9.62	10.66	11.70		13.21	3 / 4			
reaction time	0.155	interval	7 steps	1.04	1.02	1.00	1.00	1.00	1.02	1.02	1.04	1.04	1.51			3.06	3.02	3.10
		velocity	5.44	8.79	8.96	9.14	9.14	9.14	8.96	8.96	8.79	8.79	9.28	8.33		8.96	9.08	8.85
Allen, Devon (USA) (1994)		time	2.50	3.56	4.60	5.62	6.66	7.70	8.74	9.78	10.82	11.88		13.38	2 / 5			
reaction time	0.141	interval		1.06	1.04	1.02	1.04	1.04	1.04	1.04	1.04	1.06	1.50			3.12	3.12	3.14
		velocity	5.49	8.62	8.79	8.96	8.79	8.79	8.79	8.79	8.79	8.62	9.35	8.22		8.79	8.79	8.73
Baji, Balázs (HUN) (1989)		time	2.48	3.52	4.56	5.58	6.60	7.62	8.66	9.70	10.74	11.82		13.38	7 / 6			
reaction time	0.139	interval	7 steps	1.04	1.04	1.02	1.02	1.02	1.04	1.04	1.04	1.08	1.56			3.10	3.08	3.16
		velocity	5.53	8.79	8.79	8.96	8.96	8.96	8.79	8.79	8.79	8.46	8.99	8.22		8.85	8.90	8.68
Merritt, Aries (USA) (1985)		time	2.46	3.52	4.58	5.60	6.62	7.66	8.70	9.74	10.82	11.90		13.49	8 / 7			
reaction time	0.136	interval	7 steps	1.06	1.06	1.02	1.02	1.04	1.04	1.04	1.08	1.08	1.59			3.14	3.10	3.20
		velocity	5.58	8.62	8.62	8.96	8.96	8.79	8.79	8.79	8.46	8.46	8.82	8.15		8.73	8.85	8.57

2018 IAAF World Junior Championships (Tampere, FIN) (99cm)

FINAL date 12-Jul-18 wind 0.3 m/s

Koyama (2018) - research on athlete performance and technique- 2018 data book

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Thomas, Damion (JAM) (1999)		time	2.58	3.63	4.66	5.69	6.70	7.76	8.79	9.86	10.92	11.98		13.16	6 / 1			
reaction time	0.186	interval		1.05	1.03	1.03	1.01	1.06	1.03	1.07	1.06	1.06	1.18			3.11	3.10	3.19
		velocity	5.32	8.70	8.87	8.87	9.05	8.62	8.87	8.54	8.62	8.62	11.88	8.36		8.82	8.85	8.60
Bennett, Orlando (JAM) (1999)		time	2.62	3.66	4.68	5.68	6.69	7.69	8.69	9.71	10.74	11.79		13.33	4 / 2			
reaction time	0.171	interval		1.04	1.02	1.00	1.01	1.00	1.00	1.02	1.03	1.05	1.54			3.06	3.01	3.10
		velocity	5.24	8.79	8.96	9.14	9.05	9.14	9.14	8.96	8.87	8.70	9.10	8.25		8.96	9.11	8.85
Izumiya, Shunsuke (JPN) (2000		time	2.59	3.63	4.70	5.69	6.70	7.73	8.78	9.81	10.87	11.92		13.38	2 / 3			
reaction time	0.170	interval		1.04	1.07	0.99	1.01	1.03	1.05	1.03	1.06	1.05	1.46	PB		3.10	3.09	3.14
		velocity	5.30	8.79	8.54	9.23	9.05	8.87	8.70	8.87	8.62	8.70	9.60	8.22		8.85	8.87	8.73

Heat 3

date 11-Jul-18 wind 0.7 m/s

Koyama (2018) - research on athlete performance and technique- 2018 data book

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hiraga, Kentaro (JPN) (1999)		time	2.63	3.72	4.80	5.86	6.92	8.02	9.10	10.19	11.29	12.38		13.80	5 / 4			
reaction time	0.147	interval		1.09	1.08	1.06	1.06	1.10	1.08	1.09	1.10	1.09	1.42			3.23	3.24	3.28
		velocity	5.22	8.39	8.46	8.62	8.62	8.31	8.46	8.39	8.31	8.39	9.87	7.97		8.49	8.46	8.36

2018 Athletissima (Lausanne, SUI) (TV Analysis)

FINAL

date 05-Jul-18 wind 0.6 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199		time	2.59	3.61	4.62	5.60	6.58	7.56	8.54	9.54	10.58	11.65		12.95	6 / 1			
reaction time	0.147	interval	7 steps	1.02	1.01	0.98	0.98	0.98	0.98	1.00	1.04	1.07	1.30			3.01	2.94	3.11
		velocity	5.30	8.96	9.05	9.33	9.33	9.33	9.33	9.14	8.79	8.54	10.78	8.49		9.11	9.33	8.82
Allen, Devon (USA) (1994)		time	2.57	3.59	4.63	5.63	6.64	7.68	8.70	9.72	10.80	11.87		13.29	4 / 2			
reaction time	0.121	interval		1.02	1.04	1.00	1.01	1.04	1.02	1.02	1.08	1.07	1.42			3.06	3.07	3.17
		velocity	5.34	8.96	8.79	9.14	9.05	8.79	8.96	8.96	8.46	8.54	9.87	8.28		8.96	8.93	8.65
Martinot-Lagarde, Pascal (FRA		time	2.57	3.59	4.63	5.63	6.64	7.68	8.70	9.72	10.80	11.86		13.30	3 / 3			
reaction time	0.147	interval	7 steps	1.02	1.04	1.00	1.01	1.04	1.02	1.02	1.08	1.06	1.44			3.06	3.07	3.16
		velocity	5.34	8.96	8.79	9.14	9.05	8.79	8.96	8.96	8.46	8.62	9.74	8.27		8.96	8.93	8.68
Baji, Balázs (HUN) (1989)		time	2.59	3.63	4.67	5.69	6.71	7.71	8.74	9.76	10.86	11.93		13.36	7 / 4			
reaction time	0.135	interval	7 steps	1.04	1.04	1.02	1.02	1.00	1.03	1.02	1.10	1.07	1.43			3.10	3.05	3.19
		velocity	5.30	8.79	8.79	8.96	8.96	9.14	8.87	8.96	8.31	8.54	9.80	8.23		8.85	8.99	8.60
McLeod, Omar (JAM) (1994)		time	2.57	3.59	4.61	5.60	6.61	7.62	8.63	9.66	10.81	11.95		13.41	5 / 5			
reaction time	0.134	interval		1.02	1.02	0.99	1.01	1.01	1.01	1.03	1.15	1.14	1.46			3.03	3.03	3.32
		velocity	5.34	8.96	8.96	9.23	9.05	9.05	9.05	8.87	7.95	8.02	9.60	8.20		9.05	9.05	8.26
Merritt, Aries (USA) (1985)		time	2.59	3.61	4.63	5.65	6.69	7.73	8.77	9.83	10.87	11.95		13.44	2 / 6			
reaction time	0.129	interval	7 steps	1.02	1.02	1.02	1.04	1.04	1.04	1.06	1.04	1.08	1.49			3.06	3.12	3.18
		velocity	5.30	8.96	8.96	8.96	8.79	8.79	8.79	8.62	8.79	8.46	9.41	8.18		8.96	8.79	8.62

2018 István Gyulai Memorial (Székesfehérvár, HUN) (TV Analysis)

FINAL

date 02-Jul-18 wind 0.6 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199		time	2.52	3.54	4.54	5.52	6.50	7.48	8.46	9.46	10.48	11.52		12.92	6 / 1			
reaction time	0.169	interval	7 steps	1.02	1.00	0.98	0.98	0.98	0.98	1.00	1.02	1.04	1.40	NR PB		3.00	2.94	3.06
		velocity	5.44	8.96	9.14	9.33	9.33	9.33	9.33	9.14	8.96	8.79	10.01	8.51		9.14	9.33	8.96
Baji, Balázs (HUN) (1989)		time	2.48	3.54	4.56	5.58	6.58	7.62	8.64	9.68	10.72	11.76		13.27	2 / 2			
reaction time	0.143	interval	7 steps	1.06	1.02	1.02	1.00	1.04	1.02	1.04	1.04	1.04	1.51			3.10	3.06	3.12
		velocity	5.53	8.62	8.96	8.96	9.14	8.79	8.96	8.79	8.79	8.79	9.28	8.29		8.85	8.96	8.79
Allen, Devon (USA) (1994)		time	2.52	3.58	4.62	5.64	6.66	7.70	8.74	9.78	10.84	11.90		13.36	5 / 3			
reaction time	0.130	interval		1.06	1.04	1.02	1.02	1.04	1.04	1.04	1.06	1.06	1.46			3.12	3.10	3.16
		velocity	5.44	8.62	8.79	8.96	8.96	8.79	8.79	8.79	8.62	8.62	9.60	8.23		8.79	8.85	8.68
Merritt, Aries (USA) (1985)		time	2.46	3.54	4.58	5.62	6.64	7.68	8.72	9.76	10.80	11.86		13.37	3 / 4			
reaction time	0.144	interval	7 steps	1.08	1.04	1.04	1.02	1.04	1.04	1.04	1.04	1.06	1.51			3.16	3.10	3.14
		velocity	5.58	8.46	8.79	8.79	8.96	8.79	8.79	8.79	8.79	8.62	9.28	8.23		8.68	8.85	8.73
Harris, Aleec (USA) (1990)		time	2.56	3.60	4.64	5.68	6.72	7.74	8.78	9.84	10.88	11.96		13.43	7 / 5			
reaction time	0.163	interval		1.04	1.04	1.04	1.04	1.02	1.04	1.06	1.04	1.08	1.47			3.12	3.10	3.18
		velocity	5.36	8.79	8.79	8.79	8.79	8.96	8.79	8.62	8.79	8.46	9.54	8.19		8.79	8.85	8.62
McLeod, Omar (JAM) (1994)		time	2.48	3.52	4.54	5.56	6.56	7.56	8.58	9.74	10.82	11.94		13.45	4 / 6			
reaction time	0.152	interval		1.04	1.02	1.02	1.00	1.00	1.02	1.16	1.08	1.12	1.51			3.08	3.02	3.36
		velocity	5.53	8.79	8.96	8.96	9.14	9.14	8.96	7.88	8.46	8.16	9.28	8.18		8.90	9.08	8.16

2018 Meeting de Paris (Paris, FRA) (TV Analysis)

FINAL

date 30-Jun-18 wind 1.5 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levy, Ronald (JAM) (1992)		time	2.46	3.50	4.54	5.58	6.58	7.58	8.60	9.62	10.70	11.76		13.18	3 / 1			
reaction time	0.123	interval	7 steps	1.04	1.04	1.04	1.00	1.00	1.02	1.02	1.08	1.06	1.42			3.12	3.02	3.16
		velocity	5.58	8.79	8.79	8.79	9.14	9.14	8.96	8.96	8.46	8.62	9.87	8.35		8.79	9.08	8.68
Parchment, Hansle (JAM) (199		time	2.54	3.58	4.62	5.62	6.62	7.62	8.62	9.66	10.66	11.74		13.22	6 / 2			
reaction time	0.160	interval	7 steps	1.04	1.04	1.00	1.00	1.00	1.00	1.04	1.00	1.08	1.48			3.08	3.00	3.12
		velocity	5.40	8.79	8.79	9.14	9.14	9.14	9.14	8.79	9.14	8.46	9.47	8.32		8.90	9.14	8.79
Allen, Devon (USA) (1994)		time	2.52	3.56	4.60	5.64	6.64	7.68	8.70	9.70	10.72	11.76		13.23	1 / 3			
reaction time	0.123	interval		1.04	1.04	1.04	1.00	1.04	1.02	1.00	1.02	1.04	1.47			3.12	3.06	3.06
		velocity	5.44	8.79	8.79	8.79	9.14	8.79	8.96	9.14	8.96	8.79	9.54	8.31		8.79	8.96	8.96

Alkana, Antonio (RSA) (1990)	time	2.50	3.54	4.58	5.58	6.60	7.64	8.66	9.72	10.74	11.82		13.32	7 / 4				
reaction time 0.138	interval		1.04	1.04	1.00	1.02	1.04	1.02	1.06	1.02	1.08	1.50			3.08	3.08	3.16	
	velocity	5.49	8.79	8.79	9.14	8.96	8.79	8.96	8.62	8.96	8.46	9.35	8.26		8.90	8.90	8.68	
Eaton, Jarret (USA) (1989)	time	2.44	3.48	4.52	5.54	6.54	7.58	8.60	9.64	10.74	11.84		13.40	2 / 5				
reaction time 0.129	interval	7 steps	1.04	1.04	1.02	1.00	1.04	1.02	1.04	1.10	1.10	1.56			3.10	3.06	3.24	
	velocity	5.62	8.79	8.79	8.96	9.14	8.79	8.96	8.79	8.31	8.31	8.99	8.21		8.85	8.96	8.46	
Ortega, Orlando (ESP) (1991)	time	2.52	3.60	4.64	5.68	6.68	7.70	8.72	9.74	10.80	11.88		13.44	5 / 6				
reaction time 0.135	interval	7 steps	1.08	1.04	1.04	1.00	1.02	1.02	1.02	1.06	1.08	1.56			3.16	3.04	3.16	
	velocity	5.44	8.46	8.79	8.79	9.14	8.96	8.96	8.96	8.62	8.46	8.99	8.18		8.68	9.02	8.68	
Manga, Aurel (FRA) (1992)	time	2.50	3.56	4.60	5.64	6.66	7.70	8.74	9.78	10.86	11.94		13.48	8 / 7				
reaction time 0.157	interval	7 steps	1.06	1.04	1.04	1.02	1.04	1.04	1.04	1.08	1.08	1.54			3.14	3.10	3.20	
	velocity	5.49	8.62	8.79	8.79	8.96	8.79	8.79	8.79	8.46	8.46	9.10	8.16		8.73	8.85	8.57	

2018 USATF Championships (Des Moines, IA) (TV Analysis)

FINAL date 24-Jun-18 wind -1.8 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.50	3.55	4.62	5.66	6.70	7.74	8.77	9.82	10.88	11.95		13.46	3 / 1			
reaction time	interval		1.05	1.07	1.04	1.04	1.04	1.03	1.05	1.06	1.07	1.51			3.16	3.11	3.18	
	velocity	5.49	8.70	8.54	8.79	8.79	8.79	8.87	8.70	8.62	8.54	9.28	8.17		8.68	8.82	8.62	
Holloway, Grant (USA) (1997)	time	2.43	3.44	4.46	5.48	6.50	7.52	8.57	9.65	10.74	11.88		13.46	5 / 2				
reaction time	interval	7 steps	1.01	1.02	1.02	1.02	1.02	1.05	1.08	1.09	1.14	1.58			3.05	3.09	3.31	
	velocity	5.65	9.05	8.96	8.96	8.96	8.96	8.70	8.46	8.39	8.02	8.87	8.17		8.99	8.87	8.28	
Eaton, Jarret (USA) (1989)	time	2.47	3.50	4.52	5.54	6.56	7.56	8.60	9.68	10.76	11.88		13.51	7 / 3				
reaction time	interval	7 steps	1.03	1.02	1.02	1.02	1.00	1.04	1.08	1.08	1.12	1.63			3.07	3.06	3.28	
	velocity	5.55	8.87	8.96	8.96	8.96	9.14	8.79	8.46	8.46	8.16	8.60	8.14		8.93	8.96	8.36	
Merritt, Aries (USA) (1985)	time	2.47	3.54	4.60	5.65	6.68	7.72	8.76	9.81	10.88	11.96		13.52	4 / 4				
reaction time	interval	7 steps	1.07	1.06	1.05	1.03	1.04	1.04	1.05	1.07	1.08	1.56			3.18	3.11	3.20	
	velocity	5.55	8.54	8.62	8.70	8.87	8.79	8.79	8.70	8.54	8.46	8.99	8.14		8.62	8.82	8.57	
Cunningham, Trey (USA) (199	time	2.50	3.57	4.63	5.67	6.72	7.77	8.84	9.94	11.04	12.14		13.71	1 / 5				
reaction time	interval		1.07	1.06	1.04	1.05	1.05	1.07	1.10	1.10	1.10	1.57			3.17	3.17	3.30	
	velocity	5.49	8.54	8.62	8.79	8.70	8.70	8.54	8.31	8.31	8.31	8.93	8.02		8.65	8.65	8.31	
Lloyd, Antoine (USA) (1996)	time	2.47	3.57	4.63	5.70	6.74	7.77	8.84	9.94	11.04	12.14		13.72	2 / 6				
reaction time	interval	7 steps	1.10	1.06	1.07	1.04	1.03	1.07	1.10	1.10	1.10	1.58			3.23	3.14	3.30	
	velocity	5.55	8.31	8.62	8.54	8.79	8.87	8.54	8.31	8.31	8.31	8.87	8.02		8.49	8.73	8.31	
Harris, Aleec (USA) (1990)	time	2.57	3.63	4.70	5.77	6.80	7.85	8.90	10.01	11.11	12.21		13.76	6 / 7				
reaction time	interval		1.06	1.07	1.07	1.03	1.05	1.05	1.11	1.10	1.10	1.55			3.20	3.13	3.31	
	velocity	5.34	8.62	8.54	8.54	8.87	8.70	8.70	8.23	8.31	8.31	9.05	7.99		8.57	8.76	8.28	

2018 Japanese National Championships (Yamaguchi, JPN)

FINAL date 24-Jun-18 wind 0.7 m/s

Shibayama (2018) - Race analysis of men's 110m hurdle run in 2018 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.56	3.60	4.62	5.66	6.68	7.71	8.77	9.83	10.89	11.96		13.36	4 / 1			
reaction time 0.144	interval	7 steps	1.04	1.02	1.04	1.02	1.03	1.06	1.06	1.06	1.07	1.40	**NR PB**		3.10	3.11	3.19	
	velocity	5.36	8.79	8.96	8.79	8.96	8.87	8.62	8.62	8.62	8.54	10.01	8.23		8.85	8.82	8.60	
Takayama, Shunya (JPN) (1994	time	2.56	3.60	4.63	5.66	6.69	7.72	8.77	9.84	10.90	12.01		13.45	7 / 2				
reaction time 0.145	interval		1.04	1.03	1.03	1.03	1.03	1.05	1.07	1.06	1.11	1.44			3.10	3.11	3.24	
	velocity	5.36	8.79	8.87	8.87	8.87	8.87	8.70	8.54	8.62	8.23	9.74	8.18		8.85	8.82	8.46	
Tanaka, Shinya (JPN) (1985)	time	2.60	3.66	4.70	5.73	6.83	7.90	8.98	10.06	11.15	12.23		13.64	5 / 3				
reaction time 0.145	interval		1.06	1.04	1.03	1.10	1.07	1.08	1.08	1.09	1.08	1.41	**=PB**		3.13	3.25	3.25	
	velocity	5.28	8.62	8.79	8.87	8.31	8.54	8.46	8.46	8.39	8.46	9.94	8.06		8.76	8.44	8.44	
Fudaba, Hiroki (JPN) (1994)	time	2.68	3.75	4.82	5.85	6.92	7.97	9.04	10.11	11.20	12.32		13.76	3 / 4				
reaction time 0.164	interval	7 steps	1.07	1.07	1.03	1.07	1.05	1.07	1.07	1.09	1.12	1.44			3.17	3.19	3.28	
	velocity	5.12	8.54	8.54	8.87	8.54	8.70	8.54	8.54	8.39	8.16	9.74	7.99		8.65	8.60	8.36	
Ogata, Akihiro (JPN) (1993)	time	2.62	3.69	4.75	5.78	6.86	7.85	9.03	10.11	11.20	12.32		13.80	9 / 5				
reaction time 0.183	interval	7 steps	1.07	1.06	1.03	1.08	0.99	1.18	1.08	1.09	1.12	1.48			3.16	3.25	3.29	
	velocity	5.24	8.54	8.62	8.87	8.46	9.23	7.75	8.46	8.39	8.16	9.47	7.97		8.68	8.44	8.33	
Ishikawa, Shuhei (JPN) (1995)	time	2.60	3.69	4.76	5.81	6.89	7.97	9.04	10.12	11.22	12.34		13.81	8 / 6				
reaction time 0.155	interval	7 steps	1.09	1.07	1.05	1.08	1.08	1.07	1.08	1.10	1.12	1.47			3.21	3.23	3.30	
	velocity	5.28	8.39	8.54	8.70	8.46	8.46	8.54	8.46	8.31	8.16	9.54	7.97		8.54	8.49	8.31	

Masuno, Genta (JPN) (1993)		time	2.61	3.68	4.72	5.76	6.81	7.87	8.95	10.08	11.20	12.30		13.82	6 / 7			
reaction time	0.152	interval		1.07	1.04	1.04	1.05	1.06	1.08	1.13	1.12	1.10	1.52			3.15	3.19	3.35
		velocity	5.26	8.54	8.79	8.79	8.70	8.62	8.46	8.09	8.16	8.31	9.22	7.96		8.70	8.60	8.19
Wado, Tatsuya (JPN) (1990)		time	2.55	3.64	4.70	5.74	6.83	7.92	9.01	10.13	11.26	12.40		13.91	2 / 8			
reaction time	0.117	interval		1.09	1.06	1.04	1.09	1.09	1.09	1.12	1.13	1.14	1.51			3.19	3.27	3.39
		velocity	5.38	8.39	8.62	8.79	8.39	8.39	8.39	8.16	8.09	8.02	9.28	7.91		8.60	8.39	8.09

2018 Meeting International de Montreuil (Montreuil, FRA) (TV Analysis)

FINAL date 19-Jun-18 wind 0.5 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199		time	2.62	3.64	4.64	5.62	6.60	7.58	8.56	9.56	10.58	11.62		12.99	5 / 1			
reaction time	0.143	interval	7 steps	1.02	1.00	0.98	0.98	0.98	0.98	1.00	1.02	1.04	1.37			3.00	2.94	3.06
		velocity	5.24	8.96	9.14	9.33	9.33	9.33	9.33	9.14	8.96	8.79	10.23	8.47		9.14	9.33	8.96
Constantino, Gabriel (BRA) (1!		time	2.64	3.66	4.68	5.68	6.68	7.68	8.70	9.74	10.78	11.86		13.23	1 / 2			
reaction time	0.165	interval	7 steps	1.02	1.02	1.00	1.00	1.00	1.02	1.04	1.04	1.08	1.37	**AR PB**		3.04	3.02	3.16
		velocity	5.20	8.96	8.96	9.14	9.14	9.14	8.96	8.79	8.79	8.46	10.23	8.31		9.02	9.08	8.68
Martinot-Lagarde, Pascal (FRA		time	2.58	3.62	4.66	5.68	6.68	7.68	8.70	9.72	10.74	11.86		13.28	4 / 3			
reaction time	0.156	interval	7 steps	1.04	1.04	1.02	1.00	1.00	1.02	1.02	1.02	1.12	1.42			3.10	3.02	3.16
		velocity	5.32	8.79	8.79	8.96	9.14	9.14	8.96	8.96	8.96	8.16	9.87	8.28		8.85	9.08	8.68

2018 National Grand Prix Final (Guiyang, CHN) (Altitude)

FINAL date 17-Jun-18 wind -0.3 m/s

Zhang (2019) - comparative analysis of characteristics of Chinese elite men's 110m hurdles in different age groups

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zeng Jianhang (CHN) (1998)	time	2.60	3.64	4.69	5.72	6.75	7.78	8.85	9.91	11.00	12.11		13.65	4 / 1			
reaction time	interval		1.04	1.05	1.03	1.03	1.03	1.07	1.06	1.09	1.11	1.54	**PB**		3.12	3.13	3.26
	velocity	5.28	8.79	8.70	8.87	8.87	8.87	8.54	8.62	8.39	8.23	9.10	8.06		8.79	8.76	8.41
Zhang Tao (CHN) (1997)	time	2.71	3.78	4.86	5.91	6.99	8.05	9.14	10.21	11.32	12.41		13.92	6 / 2			
reaction time	interval		1.07	1.08	1.05	1.08	1.06	1.09	1.07	1.11	1.09	1.51			3.20	3.23	3.27
	velocity	5.06	8.54	8.46	8.70	8.46	8.62	8.39	8.54	8.23	8.39	9.28	7.90		8.57	8.49	8.39
Ma Lei (CHN) (1989)	time	2.69	3.78	4.84	5.91	6.98	8.04	9.13	10.21	11.32	12.45		13.93	8 / 3			
reaction time	interval	7 steps	1.09	1.06	1.07	1.07	1.06	1.09	1.08	1.11	1.13	1.48			3.22	3.22	3.32
	velocity	5.10	8.39	8.62	8.54	8.54	8.62	8.39	8.46	8.23	8.09	9.47	7.90		8.52	8.52	8.26
Zhang Honglin (CHN) (1994)	time	2.69	3.77	4.83	5.92	6.99	8.06	9.15	10.24	11.35	12.47		13.98	7 / 4			
reaction time	interval		1.08	1.06	1.09	1.07	1.07	1.09	1.09	1.11	1.12	1.51			3.23	3.23	3.32
	velocity	5.10	8.46	8.62	8.39	8.54	8.54	8.39	8.39	8.23	8.16	9.28	7.87		8.49	8.49	8.26
Chu Pengfei (CHN) (1993)	time	2.75	3.86	4.96	6.03	7.10	8.18	9.26	10.35	11.45	12.55		14.03	5 / 5			
reaction time	interval		1.11	1.10	1.07	1.07	1.08	1.08	1.09	1.10	1.10	1.48			3.28	3.23	3.29
	velocity	4.99	8.23	8.31	8.54	8.54	8.46	8.46	8.39	8.31	8.31	9.47	7.84		8.36	8.49	8.33
Li Jiming (CHN) (1996)	time	2.70	3.81	4.89	5.97	7.03	8.10	9.18	10.28	11.40	12.58		14.12	3 / 6			
reaction time	interval		1.11	1.08	1.08	1.06	1.07	1.08	1.10	1.12	1.18	1.54			3.27	3.21	3.40
	velocity	5.08	8.23	8.46	8.46	8.62	8.54	8.46	8.31	8.16	7.75	9.10	7.79		8.39	8.54	8.06
Zhang Xiangyu (CHN) (1991)	time	2.71	3.80	4.89	5.97	7.08	8.16	9.27	10.37	11.50	12.62		14.15	9 / 7			
reaction time	interval		1.09	1.09	1.08	1.11	1.08	1.11	1.10	1.13	1.12	1.53			3.26	3.30	3.35
	velocity	5.06	8.39	8.39	8.46	8.23	8.46	8.23	8.31	8.09	8.16	9.16	7.77		8.41	8.31	8.19
Jiang Wei (CHN) (1994)	time	2.69	3.80	4.93	6.06	7.18	8.29	9.42	10.57	11.71	12.86		14.45	2 / 8			
reaction time	interval		1.11	1.13	1.13	1.12	1.11	1.13	1.15	1.14	1.15	1.59			3.37	3.36	3.44
	velocity	5.10	8.23	8.09	8.09	8.16	8.23	8.09	7.95	8.02	7.95	8.82	7.61		8.14	8.16	7.97

2018 Japanese National Multi-Event Championships (Nagano, JPN)

Decathlon - Heat 3

date 17-Jun-18 wind 0.2 m/s

Matsubayashi (2018) - research on athlete performance and technique- 2018 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Maruyama, Yuma (JPN) (1998)	time	2.70	3.81	4.91	5.99	7.07	8.14	9.22	10.34	11.45	12.61		14.08	6 / 1			
reaction time	interval		1.11	1.10	1.08	1.08	1.07	1.08	1.12	1.11	1.16	1.47	**PB**		3.29	3.23	3.39
	velocity	5.08	8.23	8.31	8.46	8.46	8.54	8.46	8.16	8.23	7.88	9.54	7.81		8.33	8.49	8.09
Nakamura, Akihiko (JPN) (1990	time	2.69	3.85	4.95	6.04	7.14	8.25	9.34	10.48	11.61	12.75		14.20	4 / 2			
reaction time	interval		1.16	1.10	1.09	1.10	1.11	1.09	1.14	1.13	1.14	1.45			3.35	3.30	3.41
	velocity	5.10	7.88	8.31	8.39	8.31	8.23	8.39	8.02	8.09	8.02	9.67	7.75		8.19	8.31	8.04

Decathlon - Heat 2

date 17-Jun-18 wind 0.5 m/s

Matsubayashi (2018) - research on athlete performance and technique- 2018 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Morimoto, Kimihito (JPN) (199	time	2.70	3.89	5.07	6.23	7.39	8.55	9.76	10.95	12.13	13.35		14.91	5 / 1			
reaction time	interval		1.19	1.18	1.16	1.16	1.16	1.21	1.19	1.18	1.22	1.56			3.53	3.53	3.59
	velocity	5.08	7.68	7.75	7.88	7.88	7.88	7.55	7.68	7.75	7.49	8.99	7.38		7.77	7.77	7.64

Ushiro, Keisuke (JPN) (1986)	time	2.71	3.87	5.03	6.21	7.37	8.55	9.74	10.94	12.17	13.42		15.05	4 / 5			
reaction time	interval		1.16	1.16	1.18	1.16	1.18	1.19	1.20	1.23	1.25	1.63			3.50	3.53	3.68
	velocity	5.06	7.88	7.88	7.75	7.88	7.75	7.68	7.62	7.43	7.31	8.60	7.31		7.83	7.77	7.45

2018 NCAA Championships (Eugene, OR) (TV Analysis)

FINAL date 08-Jun-18 wind -1.1 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Holloway, Grant (USA) (1997)	time	2.45	3.48	4.52	5.53	6.56	7.58	8.65	9.72	10.78	11.92		13.42	4 / 1			
reaction time	interval	7 steps	1.03	1.04	1.01	1.03	1.02	1.07	1.07	1.06	1.14	1.50			3.08	3.12	3.27
	velocity	5.60	8.87	8.79	9.05	8.87	8.96	8.54	8.54	8.62	8.02	9.35	8.20		8.90	8.79	8.39
Kendziera, Dave (USA) (1994)	time	2.54	3.63	4.67	5.70	6.71	7.74	8.78	9.82	10.87	11.92		13.43	6 / 2			
reaction time	interval	7 steps	1.09	1.04	1.03	1.01	1.03	1.04	1.04	1.05	1.05	1.51			3.16	3.08	3.14
	velocity	5.40	8.39	8.79	8.87	9.05	8.87	8.79	8.79	8.70	8.70	9.28	8.19		8.68	8.90	8.73
Thomas, Damion (JAM) (1999)	time	2.60	3.67	4.67	5.70	6.71	7.74	8.78	9.82	10.89	11.95		13.45	3 / 3			
reaction time	interval		1.07	1.00	1.03	1.01	1.03	1.04	1.04	1.07	1.06	1.50			3.10	3.08	3.17
	velocity	5.28	8.54	9.14	8.87	9.05	8.87	8.79	8.79	8.54	8.62	9.35	8.18		8.85	8.90	8.65
Cunningham, Trey (USA) (199	time	2.58	3.65	4.68	5.72	6.76	7.80	8.85	9.90	11.00	12.08		13.64	8 / 4			
reaction time	interval		1.07	1.03	1.04	1.04	1.04	1.05	1.05	1.10	1.08	1.56			3.14	3.13	3.23
	velocity	5.32	8.54	8.87	8.79	8.79	8.79	8.70	8.70	8.31	8.46	8.99	8.06		8.73	8.76	8.49

2018 Fuse Sprint (Tottori, JPN)

FINAL date 03-Jun-18 wind 0.5 m/s

Shibayama (2018) - Race analysis of men's 110m hurdle run in 2018 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.58	3.63	4.67	5.73	6.75	7.80	8.85	9.92	10.99	12.10		13.52	/ 1			
reaction time	interval		1.05	1.04	1.06	1.02	1.05	1.05	1.07	1.07	1.11	1.42			3.15	3.12	3.25
	velocity	5.32	8.70	8.79	8.62	8.96	8.70	8.70	8.54	8.54	8.23	9.87	8.14		8.70	8.79	8.44
Takayama, Shunya (JPN) (1994	time	2.63	3.69	4.74	5.79	6.83	7.88	8.96	10.03	11.11	12.20		13.67	/ 2			
reaction time	interval		1.06	1.05	1.05	1.04	1.05	1.08	1.07	1.08	1.09	1.47			3.16	3.17	3.24
	velocity	5.22	8.62	8.70	8.70	8.79	8.70	8.46	8.54	8.46	8.39	9.54	8.05		8.68	8.65	8.46
Ogata, Akihiro (JPN) (1993)	time	2.58	3.64	4.69	5.73	6.77	7.82	8.89	9.98	11.07	12.18		13.71	/ 3			
reaction time	interval		1.06	1.05	1.04	1.04	1.05	1.07	1.09	1.09	1.11	1.53			3.15	3.16	3.29
	velocity	5.32	8.62	8.70	8.79	8.79	8.70	8.54	8.39	8.39	8.23	9.16	8.02		8.70	8.68	8.33
Ishikawa, Shuhei (JPN) (1995)	time	2.61	3.68	4.77	5.83	6.90	7.96	9.05	10.14	11.24	12.35		13.86	/ 4			
reaction time	interval		1.07	1.09	1.06	1.07	1.06	1.09	1.09	1.10	1.11	1.51			3.22	3.22	3.30
	velocity	5.26	8.54	8.39	8.62	8.54	8.62	8.39	8.39	8.31	8.23	9.28	7.94		8.52	8.52	8.31
Wado, Tatsuya (JPN) (1990)	time	2.60	3.70	4.77	5.83	6.88	7.95	9.04	10.14	11.24	12.37		13.88	/ 5			
reaction time	interval		1.10	1.07	1.06	1.05	1.07	1.09	1.10	1.10	1.13	1.51			3.23	3.21	3.33
	velocity	5.28	8.31	8.54	8.62	8.70	8.54	8.39	8.31	8.31	8.09	9.28	7.93		8.49	8.54	8.23
Kagimoto, Masahiro (JPN) (19	time	2.65	3.74	4.80	5.86	6.93	8.02	9.11	10.23	11.33	12.46		13.93	/ 6			
reaction time	interval		1.09	1.06	1.06	1.07	1.09	1.09	1.12	1.10	1.13	1.47			3.21	3.25	3.35
	velocity	5.18	8.39	8.62	8.62	8.54	8.39	8.39	8.16	8.31	8.09	9.54	7.90		8.54	8.44	8.19
Tanaka, Shinya (JPN) (1985)	time	2.65	3.75	4.83	5.92	7.00	8.11	9.25	10.38	11.53	12.70		14.25	/ 7			
reaction time	interval		1.10	1.08	1.09	1.08	1.11	1.14	1.13	1.15	1.17	1.55			3.27	3.33	3.45
	velocity	5.18	8.31	8.46	8.39	8.46	8.23	8.02	8.09	7.95	7.81	9.05	7.72		8.39	8.23	7.95

2018 Shimane High School Championships (Izumo, JPN)

FINAL date 27-May-18 wind 1.2 m/s

Shimizu (2018) - shimane high school championships 2018 - biomechanics data analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kyogoku, Fumiya (JPN)	time	2.82	3.98	5.15	6.32	7.50	8.67	9.92	11.17	12.40	13.63		15.28	5 / 1			
reaction time	interval		1.16	1.17	1.17	1.18	1.17	1.25	1.25	1.23	1.23	1.65			3.50	3.60	3.71
	velocity	4.87	7.88	7.81	7.81	7.75	7.81	7.31	7.31	7.43	7.43	8.50	7.20		7.83	7.62	7.39
Adachi, Hayato (JPN)	time	2.85	4.03	5.23	6.43	7.65	8.90	10.17	11.45	12.73	14.03		15.65	4 / 2			
	interval		1.18	1.20	1.20	1.22	1.25	1.27	1.28	1.28	1.30	1.62			3.58	3.74	3.86
	velocity	4.81	7.75	7.62	7.62	7.49	7.31	7.20	7.14	7.14	7.03	8.65	7.03		7.66	7.33	7.10
Harada, Mahiro (JPN)	time	2.83	4.03	5.30	6.53	7.78	9.07	10.38	11.68	13.02	14.35		16.06	6 / 3			
reaction time	interval		1.20	1.27	1.23	1.25	1.29	1.31	1.30	1.34	1.33	1.71			3.70	3.85	3.97
	velocity	4.85	7.62	7.20	7.43	7.31	7.09	6.98	7.03	6.82	6.87	8.20	6.85		7.41	7.12	6.91
Fujioka, Tetsuya (JPN) (2000)	time	2.92	4.15	5.42	6.68	7.98	9.27	10.55	11.83	13.13	14.48		16.10	3 / 4			
reaction time	interval		1.23	1.27	1.26	1.30	1.29	1.28	1.28	1.30	1.35	1.62			3.76	3.87	3.93
	velocity	4.70	7.43	7.20	7.25	7.03	7.09	7.14	7.14	7.03	6.77	8.65	6.83		7.29	7.09	6.98
Matoba, Manakato (JPN)	time	2.92	4.20	5.50	6.75	8.05	9.35	10.65	11.97	13.32	14.63		16.28	8 / 5			
reaction time	interval		1.28	1.30	1.25	1.30	1.30	1.30	1.32	1.35	1.31	1.65			3.83	3.90	3.98

	velocity	4.70	7.14	7.03	7.31	7.03	7.03	7.03	6.92	6.77	6.98	8.50	6.76		7.16	7.03	6.89
Haruka, Eda (JPN)	time	2.87	4.13	5.43	6.73	8.05	9.35	10.65	11.97	13.30	14.65		16.32	7 / 6			
reaction time	interval		1.26	1.30	1.30	1.32	1.30	1.30	1.32	1.33	1.35	1.67			3.86	3.92	4.00
	velocity	4.78	7.25	7.03	7.03	6.92	7.03	7.03	6.92	6.87	6.77	8.40	6.74		7.10	6.99	6.86

2018 Prefontaine Classic (Eugene, OR) (TV Analysis)

FINAL date 26-May-18 wind 3.0 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.54	3.54	4.56	5.56	6.56	7.54	8.52	9.54	10.54	11.58		13.01	4 / 1			
reaction time 0.176	interval		1.00	1.02	1.00	1.00	0.98	0.98	1.02	1.00	1.04	1.43			3.02	2.96	3.06
	velocity	5.40	9.14	8.96	9.14	9.14	9.33	9.33	8.96	9.14	8.79	9.80	8.46		9.08	9.26	8.96
Shubenkov, Sergey (ANA) (199	time	2.56	3.58	4.58	5.56	6.56	7.56	8.56	9.58	10.62	11.66		13.08	6 / 2			
reaction time 0.173	interval	7 steps	1.02	1.00	0.98	1.00	1.00	1.00	1.02	1.04	1.04	1.42			3.00	3.00	3.10
	velocity	5.36	8.96	9.14	9.33	9.14	9.14	9.14	8.96	8.79	8.79	9.87	8.41		9.14	9.14	8.85
Allen, Devon (USA) (1994)	time	2.52	3.56	4.58	5.60	6.60	7.60	8.62	9.66	10.68	11.72		13.13	8 / 3			
reaction time 0.122	interval		1.04	1.02	1.02	1.00	1.00	1.02	1.04	1.02	1.04	1.41			3.08	3.02	3.10
	velocity	5.44	8.79	8.96	8.96	9.14	9.14	8.96	8.79	8.96	8.79	9.94	8.38		8.90	9.08	8.85
Ortega, Orlando (ESP) (1991)	time	2.54	3.60	4.62	5.62	6.62	7.64	8.64	9.66	10.66	11.72		13.17	5 / 4			
reaction time 0.158	interval	7 steps	1.06	1.02	1.00	1.00	1.02	1.00	1.02	1.00	1.06	1.45			3.08	3.02	3.08
	velocity	5.40	8.62	8.96	9.14	9.14	8.96	9.14	8.96	9.14	8.62	9.67	8.35		8.90	9.08	8.90
Levy, Ronald (JAM) (1992)	time	2.56	3.60	4.62	5.64	6.66	7.70	8.74	9.76	10.80	11.82		13.26	2 / 5			
reaction time 0.171	interval	7 steps	1.04	1.02	1.02	1.02	1.04	1.04	1.02	1.04	1.02	1.44			3.08	3.10	3.08
	velocity	5.36	8.79	8.96	8.96	8.96	8.79	8.79	8.96	8.79	8.96	9.74	8.30		8.90	8.85	8.90
Merritt, Aries (USA) (1985)	time	2.52	3.58	4.60	5.60	6.62	7.64	8.66	9.70	10.74	11.80		13.27	7 / 6			
reaction time 0.144	interval	7 steps	1.06	1.02	1.00	1.02	1.02	1.02	1.04	1.04	1.06	1.47			3.08	3.06	3.14
	velocity	5.44	8.62	8.96	9.14	8.96	8.96	8.96	8.79	8.79	8.62	9.54	8.29		8.90	8.96	8.73
Pozzi, Andy (GBR) (1992)	time	2.54	3.60	4.60	5.60	6.60	7.64	8.68	9.74	10.84	11.94		13.51	3 / 7			
reaction time 0.164	interval	7 steps	1.06	1.00	1.00	1.00	1.04	1.04	1.06	1.10	1.10	1.57			3.06	3.08	3.26
	velocity	5.40	8.62	9.14	9.14	9.14	8.79	8.79	8.62	8.31	8.31	8.93	8.14		8.96	8.90	8.41
Harris, Aleec (USA) (1990)	time	2.58	3.64	4.68	5.72	6.76	7.84	8.88	9.92	10.98	12.06		13.52	1 / 8			
reaction time 0.170	interval		1.06	1.04	1.04	1.04	1.08	1.04	1.04	1.06	1.08	1.46			3.14	3.16	3.18
	velocity	5.32	8.62	8.79	8.79	8.79	8.46	8.79	8.79	8.62	8.46	9.60	8.14		8.73	8.68	8.62

2018 Seiko Golden Grand Prix (Osaka, JPN)

FINAL date 20-May-18 wind -0.4 m/s

Shibayama (2018) - Race analysis of men's 110m hurdle run in 2018 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Kuei-Ru (TPE) (1993)	time	2.60	3.66	4.71	5.75	6.78	7.83	8.90	9.96	11.05	12.13		13.49	5 / 1			
reaction time 0.153	interval	7 steps	1.06	1.05	1.04	1.03	1.05	1.07	1.06	1.09	1.08	1.36	NR PB		3.15	3.15	3.23
	velocity	5.28	8.62	8.70	8.79	8.87	8.70	8.54	8.62	8.39	8.46	10.31	8.15		8.70	8.70	8.49
Kanai, Taio (JPN) (1995)	time	2.67	3.74	4.77	5.81	6.87	7.91	8.96	10.02	11.10	12.18		13.53	8 / 2			
reaction time 0.159	interval	7 steps	1.07	1.03	1.04	1.06	1.04	1.05	1.06	1.08	1.08	1.35	=PB		3.14	3.15	3.22
	velocity	5.14	8.54	8.87	8.79	8.62	8.79	8.70	8.62	8.46	8.46	10.39	8.13		8.73	8.70	8.52
Takayama, Shunya (JPN) (1994	time	2.61	3.69	4.74	5.78	6.83	7.89	8.94	10.00	11.07	12.17		13.55	6 / 3			
reaction time 0.150	interval		1.08	1.05	1.04	1.05	1.06	1.05	1.06	1.07	1.10	1.38			3.17	3.16	3.23
	velocity	5.26	8.46	8.70	8.79	8.70	8.62	8.70	8.62	8.54	8.31	10.16	8.12		8.65	8.68	8.49
Furuya, Takumu (JPN) (1994)	time	2.66	3.73	4.77	5.82	6.86	7.92	8.98	10.04	11.12	12.22		13.61	2 / 4			
reaction time 0.133	interval		1.07	1.04	1.05	1.04	1.06	1.06	1.06	1.08	1.10	1.39	PB		3.16	3.16	3.24
	velocity	5.16	8.54	8.79	8.70	8.79	8.62	8.62	8.62	8.46	8.31	10.09	8.08		8.68	8.68	8.46
Kuriki, Anthony Tyrell (JPN) (1	time	2.64	3.71	4.78	5.83	6.89	7.95	9.01	10.09	11.17	12.25		13.64	3 / 5			
reaction time 0.134	interval	7 steps	1.07	1.07	1.05	1.06	1.06	1.06	1.08	1.08	1.08	1.39			3.19	3.18	3.24
	velocity	5.20	8.54	8.54	8.70	8.62	8.62	8.62	8.46	8.46	8.46	10.09	8.06		8.60	8.62	8.46
Kim Byung-Jun (KOR) (1991)	time	2.64	3.73	4.80	5.85	6.91	7.97	9.04	10.15	11.23	12.34		13.85	4 / 6			
reaction time 0.162	interval		1.09	1.07	1.05	1.06	1.06	1.07	1.11	1.08	1.11	1.51			3.21	3.19	3.30
	velocity	5.20	8.39	8.54	8.70	8.62	8.62	8.54	8.23	8.46	8.23	9.28	7.94		8.54	8.60	8.31

2018 Chinese National U18 Championships (Jinzhou, CHN) (99.1cm)

FINAL date 17-May-18 wind ??

Zhang (2019) - comparative analysis of characteristics of Chinese elite men's 110m hurdles in different age groups

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Qin Weibo (CHN) (2002)	time	2.67	3.73	4.78	5.81	6.84	7.88	8.92	9.99	11.05	12.14		13.63	3 / 1			
reaction time	interval		1.06	1.05	1.03	1.03	1.04	1.04	1.07	1.06	1.09	1.49			3.14	3.11	3.22
	velocity	5.14	8.62	8.70	8.87	8.87	8.79	8.79	8.54	8.62	8.39	9.41	8.07		8.73	8.82	8.52

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wei Pinyang (CHN) (2001)	time	2.69	3.76	4.82	5.86	6.90	7.94	8.99	10.05	11.13	12.23		13.78	7 / ??			
reaction time	interval		1.07	1.06	1.04	1.04	1.04	1.05	1.06	1.08	1.10	1.55			3.17	3.13	3.24
	velocity	5.10	8.54	8.62	8.79	8.79	8.79	8.70	8.62	8.46	8.31	9.05	7.98		8.65	8.76	8.46
Wang Yuyan (CHN) (2001)	time	2.58	3.68	4.75	5.79	6.82	7.89	8.96	10.06	11.13	12.25		13.78	2 / ??			
reaction time	interval		1.10	1.07	1.04	1.03	1.07	1.07	1.10	1.07	1.12	1.53			3.21	3.17	3.29
	velocity	5.32	8.31	8.54	8.79	8.87	8.54	8.54	8.31	8.54	8.16	9.16	7.98		8.54	8.65	8.33
Yi Yulong (CHN) (2001)	time	2.67	3.77	4.84	5.90	6.98	8.03	9.09	10.17	11.23	12.33		13.79	6 / 4			
reaction time	interval		1.10	1.07	1.06	1.08	1.05	1.06	1.08	1.06	1.10	1.46			3.23	3.19	3.24
	velocity	5.14	8.31	8.54	8.62	8.46	8.70	8.62	8.46	8.62	8.31	9.60	7.98		8.49	8.60	8.46
Yang Yuxuan (CHN) (2002)	time	2.64	3.72	4.81	5.85	6.92	7.98	9.04	10.13	11.23	12.34		13.83	4 / 5			
reaction time	interval		1.08	1.09	1.04	1.07	1.06	1.06	1.09	1.10	1.11	1.49			3.21	3.19	3.30
	velocity	5.20	8.46	8.39	8.79	8.54	8.62	8.62	8.39	8.31	8.23	9.41	7.95		8.54	8.60	8.31
Guo Zhongjie (CHN) (2001)	time	2.67	3.76	4.79	5.83	6.86	7.92	8.97	10.05	11.16	12.31		13.94	8 / 6			
reaction time	interval		1.09	1.03	1.04	1.03	1.06	1.05	1.08	1.11	1.15	1.63			3.16	3.14	3.34
	velocity	5.14	8.39	8.87	8.79	8.87	8.62	8.70	8.46	8.23	7.95	8.60	7.89		8.68	8.73	8.21
Zhao Baixian (CHN) (	time	2.62	3.73	4.82	5.89	6.97	8.07	9.15	10.25	11.37	12.50		14.05	5 / 7			
reaction time	interval		1.11	1.09	1.07	1.08	1.10	1.08	1.10	1.12	1.13	1.55			3.27	3.26	3.35
	velocity	5.24	8.23	8.39	8.54	8.46	8.31	8.46	8.31	8.16	8.09	9.05	7.83		8.39	8.41	8.19

2018 Chinese National U20 Championships (Nanchang, CHN) (99.1cm)

FINAL date 13-May-18 wind 1.0 m/s

Zhang (2019) - comparative analysis of characteristics of Chinese elite men's 110m hurdles in different age groups

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ning Xiaohan (CHN) (2000)	time	2.63	3.69	4.74	5.79	6.84	7.89	8.93	10.00	11.07	12.17		13.40	5 / 1			
reaction time	interval		1.06	1.05	1.05	1.05	1.05	1.04	1.07	1.07	1.10	1.23			3.16	3.14	3.24
	velocity	5.22	8.62	8.70	8.70	8.70	8.70	8.79	8.54	8.54	8.31	11.40	8.21		8.68	8.73	8.46
Shi Guoxing (CHN) (2000)	time	2.72	3.82	4.89	5.97	7.01	8.07	9.12	10.19	11.29	12.38		13.81	3 / 2			
reaction time	interval		1.10	1.07	1.08	1.04	1.06	1.05	1.07	1.10	1.09	1.43			3.25	3.15	3.26
	velocity	5.04	8.31	8.54	8.46	8.79	8.62	8.70	8.54	8.31	8.39	9.80	7.97		8.44	8.70	8.41
Zhu Shenglong (CHN) (2000)	time	2.69	3.79	4.85	5.90	6.94	8.00	9.06	10.15	11.24	12.36		13.83	4 / 3			
reaction time	interval		1.10	1.06	1.05	1.04	1.06	1.06	1.09	1.09	1.12	1.47			3.21	3.16	3.30
	velocity	5.10	8.31	8.62	8.70	8.79	8.62	8.62	8.39	8.39	8.16	9.54	7.95		8.54	8.68	8.31
Sun Zhenjiang (CHN) (1999)	time	2.61	3.70	4.76	5.83	6.92	7.99	9.08	10.18	11.30	12.42		13.96	6 / 4			
reaction time	interval	7 steps	1.09	1.06	1.07	1.09	1.07	1.09	1.10	1.12	1.12	1.54			3.22	3.25	3.34
	velocity	5.26	8.39	8.62	8.54	8.39	8.54	8.39	8.31	8.16	8.16	9.10	7.88		8.52	8.44	8.21
Chen Mingjie (CHN) (2000)	time	2.24	3.41	4.52	5.61	6.69	7.77	8.86	9.94	11.06	12.22		14.12	7 / 5			
reaction time	interval		1.17	1.11	1.09	1.08	1.08	1.09	1.08	1.12	1.16	1.90			3.37	3.25	3.36
	velocity	6.13	7.81	8.23	8.39	8.46	8.46	8.39	8.46	8.16	7.88	7.38	7.79		8.14	8.44	8.16
Yang Quanlei (CHN) (1999)	time	2.70	3.82	4.90	5.98	7.06	8.15	9.22	10.32	11.44	12.57		14.13	8 / 6			
reaction time	interval		1.12	1.08	1.08	1.08	1.09	1.07	1.10	1.12	1.13	1.56			3.28	3.24	3.35
	velocity	5.08	8.16	8.46	8.46	8.46	8.39	8.54	8.31	8.16	8.09	8.99	7.78		8.36	8.46	8.19
Shi Hanlin (CHN) (1999)	time	2.78	3.89	4.98	6.07	7.16	8.27	9.38	10.50	11.63	12.78		14.31	2 / 7			
reaction time	interval		1.11	1.09	1.09	1.09	1.11	1.11	1.12	1.13	1.15	1.53			3.29	3.31	3.40
	velocity	4.94	8.23	8.39	8.39	8.39	8.23	8.23	8.16	8.09	7.95	9.16	7.69		8.33	8.28	8.06

2018 Shanghai Diamond League (Shanghai, CHN) (TV Analysis)

FINAL date 12-May-18 wind 0.2 m/s

Henson (2020) - Athlete First: 2018 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.52	3.58	4.60	5.60	6.60	7.62	8.64	9.66	10.68	11.74		13.16	5 / 1			
reaction time 0.119	interval		1.06	1.02	1.00	1.00	1.02	1.02	1.02	1.02	1.06	1.42			3.08	3.04	3.10
	velocity	5.44	8.62	8.96	9.14	9.14	8.96	8.96	8.96	8.96	8.62	9.87	8.36		8.90	9.02	8.85
Ortega, Orlando (ESP) (1991)	time	2.52	3.58	4.60	5.60	6.62	7.64	8.64	9.64	10.68	11.72		13.17	8 / 2			
reaction time 0.135	interval	7 steps	1.06	1.02	1.00	1.02	1.02	1.00	1.00	1.04	1.04	1.45			3.08	3.04	3.08
	velocity	5.44	8.62	8.96	9.14	8.96	8.96	9.14	9.14	8.79	8.79	9.67	8.35		8.90	9.02	8.90
Shubenkov, Sergey (ANA) (199	time	2.52	3.58	4.62	5.66	6.68	7.70	8.72	9.76	10.78	11.82		13.27	6 / 3			
reaction time 0.148	interval	7 steps	1.06	1.04	1.04	1.02	1.02	1.02	1.04	1.02	1.04	1.45			3.14	3.06	3.10
	velocity	5.44	8.62	8.79	8.79	8.96	8.96	8.96	8.79	8.96	8.79	9.67	8.29		8.73	8.96	8.85
Levy, Ronald (JAM) (1992)	time	2.52	3.56	4.60	5.62	6.66	7.70	8.74	9.78	10.82	11.88		13.33	4 / 4			
reaction time 0.122	interval	7 steps	1.04	1.04	1.02	1.04	1.04	1.04	1.04	1.04	1.06	1.45			3.10	3.12	3.14
	velocity	5.44	8.79	8.79	8.96	8.79	8.79	8.79	8.79	8.79	8.62	9.67	8.25		8.85	8.79	8.73
Parchment, Hansle (JAM) (199(	time	2.58	3.64	4.68	5.70	6.74	7.74	8.78	9.82	10.86	11.94		13.48	2 / 5			

reaction time	0.137	interval	7 steps	1.06	1.04	1.02	1.04	1.00	1.04	1.04	1.04	1.08	1.54			3.12	3.08	3.16
		velocity		5.32	8.62	8.79	8.96	8.79	9.14	8.79	8.79	8.79	8.46	9.10	8.16	8.79	8.90	8.68
Merritt, Aries (USA) (1985)		time		2.48	3.54	4.60	5.64	6.68	7.72	8.84	9.92	11.00	12.10		13.65	7 / 6		
reaction time	0.126	interval	7 steps	1.06	1.06	1.04	1.04	1.04	1.12	1.08	1.08	1.10	1.55			3.16	3.20	3.26
		velocity		5.53	8.62	8.62	8.79	8.79	8.79	8.16	8.46	8.46	8.31	9.05	8.06	8.68	8.57	8.41
Darien, Garfield (FRA) (1987)		time		2.56	3.62	4.68	5.74	6.76	7.84	8.92	10.00	11.08	12.20		13.74	3 / 7		
reaction time	0.144	interval	7 steps	1.06	1.06	1.06	1.02	1.08	1.08	1.08	1.08	1.12	1.54			3.18	3.18	3.28
		velocity		5.36	8.62	8.62	8.62	8.96	8.46	8.46	8.46	8.46	8.16	9.10	8.01	8.62	8.62	8.36
Zeng Jianhang (CHN) (1998)		time		2.56	3.60	4.64	5.68	6.72	7.78	8.84	9.92	11.00	12.16		13.76	1 / 8		
reaction time	0.148	interval			1.04	1.04	1.04	1.04	1.06	1.06	1.08	1.08	1.16	1.60	PB	3.12	3.16	3.32
		velocity		5.36	8.79	8.79	8.79	8.79	8.62	8.62	8.46	8.46	7.88	8.76	7.99	8.79	8.68	8.26
Manga, Aurel (FRA) (1992)		time		2.52	3.60	4.70	5.76	6.82	7.90	8.96	10.04	11.16	12.28		13.86	9 / 9		
reaction time	0.147	interval	7 steps	1.08	1.10	1.06	1.06	1.08	1.06	1.08	1.12	1.12	1.58			3.24	3.20	3.32
		velocity		5.44	8.46	8.31	8.62	8.62	8.46	8.62	8.46	8.16	8.16	8.87	7.94	8.46	8.57	8.26

2018 Kinami Michitaka Memorial (Osaka, JPN)

FINAL date 06-May-18 wind 1.6 m/s

Shibayama (2018) - Race analysis of men's 110m hurdle run in 2018 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)	time	2.61	3.66	4.73	5.77	6.83	7.87	8.91	10.00	11.10	12.20		13.64	7 / 1			
reaction time	interval		1.05	1.07	1.04	1.06	1.04	1.04	1.09	1.10	1.10	1.44			3.16	3.14	3.29
	velocity	5.26	8.70	8.54	8.79	8.62	8.79	8.79	8.39	8.31	8.31	9.74	8.06		8.68	8.73	8.33
Sato, Hiroyuki (JPN) (1990)	time	2.58	3.67	4.76	5.82	6.87	7.93	9.00	10.08	11.18	12.28		13.72	4 / 2			
reaction time	interval		1.09	1.09	1.06	1.05	1.06	1.07	1.08	1.10	1.10	1.44			3.24	3.18	3.28
	velocity	5.32	8.39	8.39	8.62	8.70	8.62	8.54	8.46	8.31	8.31	9.74	8.02		8.46	8.62	8.36
Takeyoshi, Daiki (JPN) (1994)	time	2.65	3.72	4.79	5.85	6.90	7.95	9.03	10.12	11.22	12.34		13.83	5 / 3			
reaction time	interval		1.07	1.07	1.06	1.05	1.05	1.08	1.09	1.10	1.12	1.49			3.20	3.18	3.31
	velocity	5.18	8.54	8.54	8.62	8.70	8.70	8.46	8.39	8.31	8.16	9.41	7.95		8.57	8.62	8.28
Kagimoto, Masahiro (JPN) (19	time	2.65	3.72	4.80	5.86	6.94	8.00	9.10	10.20	11.33	12.47		13.91	8 / 4			
reaction time	interval		1.07	1.08	1.06	1.08	1.06	1.10	1.10	1.13	1.14	1.44			3.21	3.24	3.37
	velocity	5.18	8.54	8.46	8.62	8.46	8.62	8.31	8.31	8.09	8.02	9.74	7.91		8.54	8.46	8.14
Tanaka, Shinya (JPN) (1985)	time	2.63	3.78	4.87	5.95	7.03	8.10	9.16	10.28	11.38	12.50		13.96	6 / 5			
reaction time	interval		1.15	1.09	1.08	1.08	1.07	1.06	1.12	1.10	1.12	1.46			3.32	3.21	3.34
	velocity	5.22	7.95	8.39	8.46	8.46	8.54	8.62	8.16	8.31	8.16	9.60	7.88		8.26	8.54	8.21
Hatanaka, Yushi (JPN) (1994)	time	2.65	3.76	4.88	5.98	7.07	8.16	9.28	10.40	11.53	12.65		14.11	3 / 6			
reaction time	interval		1.11	1.12	1.10	1.09	1.09	1.12	1.12	1.13	1.12	1.46			3.33	3.30	3.37
	velocity	5.18	8.23	8.16	8.31	8.39	8.39	8.16	8.16	8.09	8.16	9.60	7.80		8.23	8.31	8.14
Maeda, Koki (JPN)	time	2.65	3.75	4.82	5.91	6.99	8.09	9.18	10.31	11.45	12.59		14.11	9 / 7			
reaction time	interval		1.10	1.07	1.09	1.08	1.10	1.09	1.13	1.14	1.14	1.52			3.26	3.27	3.41
	velocity	5.18	8.31	8.54	8.39	8.46	8.31	8.39	8.09	8.02	8.02	9.22	7.80		8.41	8.39	8.04
Kawamura, Naoya (JPN) (1996)	time	2.73	3.84	4.94	6.05	7.13	8.23	9.32	10.43	11.53	12.67		14.14	2 / 8			
reaction time	interval		1.11	1.10	1.11	1.08	1.10	1.09	1.11	1.10	1.14	1.47			3.32	3.27	3.35
	velocity	5.03	8.23	8.31	8.23	8.46	8.31	8.39	8.23	8.31	8.02	9.54	7.78		8.26	8.39	8.19

2018 Mikio Oda Memorial (Hiroshima, JPN)

FINAL date 29-Apr-18 wind 2.6 m/s

Shibayama (2018) - Race analysis of men's 110m hurdle run in 2018 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.60	3.66	4.71	5.75	6.78	7.83	8.90	9.96	11.05	12.13		13.52	6 / 1			
reaction time	interval		1.06	1.05	1.04	1.03	1.05	1.07	1.06	1.09	1.08	1.39			3.15	3.15	3.23
	velocity	5.28	8.62	8.70	8.79	8.87	8.70	8.54	8.62	8.39	8.46	10.09	8.14		8.70	8.70	8.49
Furuya, Takumu (JPN) (1997)	time	2.67	3.74	4.77	5.81	6.87	7.91	8.96	10.02	11.10	12.18		13.57	2 / 2			
reaction time	interval		1.07	1.03	1.04	1.06	1.04	1.05	1.06	1.08	1.08	1.39			3.14	3.15	3.22
	velocity	5.14	8.54	8.87	8.79	8.62	8.79	8.70	8.62	8.46	8.46	10.09	8.11		8.73	8.70	8.52
Omuro, Hideki (JPN) (1990)	time	2.61	3.69	4.74	5.78	6.83	7.89	8.94	10.00	11.07	12.17		13.57	3 / 3			
reaction time	interval		1.08	1.05	1.04	1.05	1.06	1.05	1.06	1.07	1.10	1.40			3.17	3.16	3.23
	velocity	5.26	8.46	8.70	8.79	8.70	8.62	8.70	8.62	8.54	8.31	10.01	8.11		8.65	8.68	8.49
Kuriki, Anthony Tyrell (JPN) (1	time	2.66	3.73	4.77	5.82	6.86	7.92	8.98	10.04	11.12	12.22		13.64	4 / 4			
reaction time	interval		1.07	1.04	1.05	1.04	1.06	1.06	1.06	1.08	1.10	1.42			3.16	3.16	3.24
	velocity	5.16	8.54	8.79	8.70	8.79	8.62	8.62	8.62	8.46	8.31	9.87	8.06		8.68	8.68	8.46
Takayama, Shunya (JPN) (1994	time	2.64	3.71	4.78	5.83	6.89	7.95	9.01	10.09	11.20	12.32		13.76	5 / 5			
reaction time	interval		1.07	1.07	1.05	1.06	1.06	1.06	1.08	1.11	1.12	1.44			3.19	3.18	3.31

	velocity	5.20	8.54	8.54	8.70	8.62	8.62	8.62	8.46	8.23	8.16	9.74	7.99		8.60	8.62	8.28
Sato, Hiroyuki (JPN) (1990)	time	2.64	3.72	4.79	5.84	6.90	7.97	9.05	10.15	11.27	12.39		13.82	8 / 6			
reaction time	interval		1.08	1.07	1.05	1.06	1.07	1.08	1.10	1.12	1.12	1.43			3.20	3.21	3.34
	velocity	5.20	8.46	8.54	8.70	8.62	8.54	8.46	8.31	8.16	8.16	9.80	7.96		8.57	8.54	8.21
Ishikawa, Shuhei (JPN) (1995)	time	2.69	3.77	4.81	5.87	6.93	8.00	9.08	10.18	11.29	12.41		13.85	1 / 7			
reaction time	interval		1.08	1.04	1.06	1.06	1.07	1.08	1.10	1.11	1.12	1.44			3.18	3.21	3.33
	velocity	5.10	8.46	8.79	8.62	8.62	8.54	8.46	8.31	8.23	8.16	9.74	7.94		8.62	8.54	8.23
Masuno, Genta (JPN) (1993)	time	2.57	3.78	4.91	5.97	7.03	8.09	9.15	10.22	11.32	12.40		13.88	7 / 8			
reaction time	interval		1.21	1.13	1.06	1.06	1.06	1.06	1.07	1.10	1.08	1.48			3.40	3.18	3.25
	velocity	5.34	7.55	8.09	8.62	8.62	8.62	8.62	8.54	8.31	8.46	9.47	7.93		8.06	8.62	8.44

Heat 3

date 29-Apr-18 wind 2.2 m/s *(2018.05.01) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furuya, Takumu (JPN) (1997)	time	2.65	3.71	4.77	5.83	6.88	7.95	9.00	10.07	11.15	12.24		13.70	2 / 3			
reaction time	interval		1.06	1.06	1.06	1.05	1.07	1.05	1.07	1.08	1.09	1.46			3.18	3.17	3.24
	velocity	5.18	8.62	8.62	8.62	8.70	8.54	8.70	8.54	8.46	8.39	9.60	8.03		8.62	8.65	8.46

2018 Tokyo Combined Event Meeting (Tokyo, JPN)

Decathlon - Heat 2

date 22-Apr-18 wind 1.1 m/s *Matsubayashi (2018) - research on athlete performance and technique- 2018 data book*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.73	3.85	4.96	6.06	7.16	8.26	9.36	10.49	11.62	12.76		14.22	5 / 1			
reaction time	interval		1.12	1.11	1.10	1.10	1.10	1.10	1.13	1.13	1.14	1.46			3.33	3.30	3.40
	velocity	5.03	8.16	8.23	8.31	8.31	8.31	8.31	8.09	8.09	8.02	9.60	7.74		8.23	8.31	8.06
Shimizu, Tsuyoshi (JPN) (1993	time	2.75	3.92	5.09	6.27	7.45	8.63	9.83	11.07	12.32	13.60		15.27	2 / 6			
reaction time	interval		1.17	1.17	1.18	1.18	1.18	1.20	1.24	1.25	1.28	1.67			3.52	3.56	3.77
	velocity	4.99	7.81	7.81	7.75	7.75	7.75	7.62	7.37	7.31	7.14	8.40	7.20		7.79	7.70	7.27

Decathlon - Heat 1

date 22-Apr-18 wind 1.8 m/s *Matsubayashi (2018) - research on athlete performance and technique- 2018 data book*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.73	3.90	5.05	6.24	7.39	8.58	9.76	10.94	12.12	13.31		14.92	6 / 3			
reaction time	interval		1.17	1.15	1.19	1.15	1.19	1.18	1.18	1.18	1.19	1.61			3.51	3.52	3.55
	velocity	5.03	7.81	7.95	7.68	7.95	7.68	7.75	7.75	7.75	7.68	8.71	7.37		7.81	7.79	7.72

2018 IAAF World Indoor Championships (Birmingham, GBR)

FINAL

date 04-Mar-18 *Walker (2019) - Biomechanical Report for the IAAF World Indoor Championships 2018: 60 Metres Hurdles Men*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pozzi, Andy (GBR) (1992)	time	2.51	3.54	4.59	5.58	6.57		7.46	4 / 1			
reaction time 0.143	interval	7 steps	1.03	1.05	0.99	0.99	0.89			3.07		
	velocity	5.47	8.87	8.70	9.23	9.23	10.92	8.04		8.93		
Eaton, Jarret (USA) (1989)	time	2.47	3.49	4.51	5.50	6.52		7.47	7 / 2			
reaction time 0.129	interval	7 steps	1.02	1.02	0.99	1.02	0.95			3.03		
	velocity	5.55	8.96	8.96	9.23	8.96	10.23	8.03		9.05		
Manga, Aurel (FRA) (1992)	time	2.57	3.63	4.68	5.69	6.68		7.54	5 / 3			
reaction time 0.169	interval	7 steps	1.06	1.05	1.01	0.99	0.86			3.12		
	velocity	5.34	8.62	8.70	9.05	9.23	11.30	7.96		8.79		
Merritt, Aries (USA) (1985)	time	2.53	3.58	4.62	5.63	6.64		7.56	1 / 4			
reaction time 0.141	interval	7 steps	1.05	1.04	1.01	1.01	0.92			3.10		
	velocity	5.42	8.70	8.79	9.05	9.05	10.57	7.94		8.85		
Martinot-Lagarde, Pascal (FRA	time	2.55	3.61	4.70	5.74	6.77		7.68	3 / 5			
reaction time 0.154	interval	7 steps	1.06	1.09	1.04	1.03	0.91			3.19		
	velocity	5.38	8.62	8.39	8.79	8.87	10.68	7.81		8.60		
Constantino, Gabriel (BRA) (1!	time	2.58	3.65	4.71	5.74	6.79		7.71	2 / 6			
reaction time 0.176	interval	7 steps	1.07	1.06	1.03	1.05	0.92			3.16		
	velocity	5.32	8.54	8.62	8.87	8.70	10.57	7.78		8.68		
Iribarne, Roger (CUB) (1996)	time	2.52	3.58	4.68	5.77	6.83		7.77	8 / 7			
reaction time 0.172	interval	7 steps	1.06	1.10	1.09	1.06	0.94			3.25		
	velocity	5.44	8.62	8.31	8.39	8.62	10.34	7.72		8.44		
Trajkovic, Milan (CYP) (1992)	*0.084*							DQ	6 / --			

2018 Müller Indoor Grand Prix (Glasgow, GBR)

FINAL

date 25-Feb-18 *(2018.03.04) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levy, Ronald (JAM) (1992)	time	2.54	3.59	4.61	5.63	6.63							7.49	/ 1			
reaction time 0.148	interval		1.05	1.02	1.02	1.00						0.86	PB		3.09		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
	velocity	5.40	8.70	8.96	8.96	9.14						11.30	8.01		8.87		

2018 Japanese National Indoor U20 Championships (Osaka, JPN) (99cm)

FINAL date 03-Feb-18 *(2018.03.04) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Higuchi, Rikuto (JPN) (1999)	time	2.62	3.71	4.75	5.77	6.81							7.71	4 / 1			
reaction time	interval		1.09	1.04	1.02	1.04						0.90	NJR		3.15		
	velocity	5.24	8.39	8.79	8.96	8.79						10.80	7.78		8.70		

2017 National Sports Festival (Matsuyama, JPN) (99cm)

U19 FINAL date 08-Oct-17 wind -0.1 m/s *(2017.10.10) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Higuchi, Rikuto (JPN) (1999)	time	2.62	3.68	4.70	5.74	6.77	7.81	8.84	9.87	10.93	11.99		13.40	5 / 1			
reaction time 0.172	interval		1.06	1.02	1.04	1.03	1.04	1.03	1.03	1.06	1.06	1.41	PB		3.12	3.10	3.15
	velocity	5.24	8.62	8.96	8.79	8.87	8.79	8.87	8.87	8.62	8.62	9.94	7.46		8.79	8.85	8.70

2017 Chinese National Games (Tianjin, CHN)

FINAL date 03-Sep-17 wind 0.3 m/s *Henson (2017) - coaching observations*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wunjun (CHN) (1990)	time	2.68	3.75	4.79	5.80	6.82	7.86	8.89	9.92	10.99	12.07		13.52	6 / 1			
reaction time	interval		1.07	1.04	1.01	1.02	1.04	1.03	1.03	1.07	1.08	1.45			3.12	3.09	3.18
	velocity	5.12	8.54	8.79	9.05	8.96	8.79	8.87	8.87	8.54	8.46	9.67	8.14		8.79	8.87	8.62
Jiang Fan (CHN) (1990)	time	2.65	3.72	4.79	5.84	6.89	7.94	9.02	10.11	11.20	12.31		13.78	2 / 2			
reaction time	interval		1.07	1.07	1.05	1.05	1.05	1.08	1.09	1.09	1.11	1.47			3.19	3.18	3.29
	velocity	5.18	8.54	8.54	8.70	8.70	8.70	8.46	8.39	8.39	8.23	9.54	7.98		8.60	8.62	8.33
Zhang Honglin (CHN) (1994)	time	2.67	3.75	4.82	5.87	6.94	7.99	9.09	10.16	11.26	12.36		13.78	4 / 3			
reaction time	interval		1.08	1.07	1.05	1.07	1.05	1.10	1.07	1.10	1.10	1.42			3.20	3.22	3.27
	velocity	5.14	8.46	8.54	8.70	8.54	8.70	8.31	8.54	8.31	8.31	9.87	7.98		8.57	8.52	8.39
Zhao Pengchuan (CHN) (1993)	time	2.63	3.74	4.82	5.89	6.97	8.04	9.12	10.22	11.32	12.46		13.94	3 / 4			
reaction time	interval	7 steps	1.11	1.08	1.07	1.08	1.07	1.08	1.10	1.10	1.14	1.48			3.26	3.23	3.34
	velocity	5.22	8.23	8.46	8.54	8.46	8.54	8.46	8.31	8.31	8.02	9.47	7.89		8.41	8.49	8.21
Ma Lei (CHN) (1989)	time	2.72	3.81	4.87	5.94	6.99	8.07	9.13	10.23	11.36	12.48		13.96	7 / 5			
reaction time	interval	7 steps	1.09	1.06	1.07	1.05	1.08	1.06	1.10	1.13	1.12	1.48			3.22	3.19	3.35
	velocity	5.04	8.39	8.62	8.54	8.70	8.46	8.62	8.31	8.09	8.16	9.47	7.88		8.52	8.60	8.19
Ji Wei (CHN) (1984)	time	2.73	3.84	4.92	5.99	7.03	8.08	9.16	10.26	11.36	12.50		14.01	9 / 6			
reaction time	interval		1.11	1.08	1.07	1.04	1.05	1.08	1.10	1.10	1.14	1.51			3.26	3.17	3.34
	velocity	5.03	8.23	8.46	8.54	8.79	8.70	8.46	8.31	8.31	8.02	9.28	7.85		8.41	8.65	8.21
Chu Pengfei (CHN) (1993)	time	2.71	3.83	4.89	5.97	7.02	8.09	9.21	10.32	11.43	12.54		14.01	5 / 7			
reaction time	interval		1.12	1.06	1.08	1.05	1.07	1.12	1.11	1.11	1.11	1.47			3.26	3.24	3.33
	velocity	5.06	8.16	8.62	8.46	8.70	8.54	8.16	8.23	8.23	8.23	9.54	7.85		8.41	8.46	8.23
Li Haifeng (CHN) (1989)	time	2.70	3.80	4.91	5.99	7.05	8.15	9.24	10.34	11.48	12.61		14.05	8 / 8			
reaction time	interval		1.10	1.11	1.08	1.06	1.10	1.09	1.10	1.14	1.13	1.44			3.29	3.25	3.37
	velocity	5.08	8.31	8.23	8.46	8.62	8.31	8.39	8.31	8.02	8.09	9.74	7.83		8.33	8.44	8.14

2017 Memorial van Damme (Brussels, BEL) (TV Analysis)

FINAL date 01-Sep-17 wind 0.5 m/s *Henson (2020) - Athlete First: 2017 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (ANA) (199	time	2.56	3.60	4.60	5.60	6.58	7.56	8.58	9.58	10.62	11.66		13.14	5 / 1			
reaction time 0.146	interval	7 steps	1.04	1.00	1.00	0.98	0.98	1.02	1.00	1.04	1.04	1.48			3.04	2.98	3.08
	velocity	5.36	8.79	9.14	9.14	9.33	9.33	8.96	9.14	8.79	8.79	9.47	8.37		9.02	9.20	8.90
Ortega, Orlando (ESP) (1991)	time	2.54	3.62	4.62	5.62	6.62	7.64	8.64	9.66	10.68	11.72		13.17	7 / 2			
reaction time 0.102	interval	7 steps	1.08	1.00	1.00	1.00	1.02	1.00	1.02	1.02	1.04	1.45			3.08	3.02	3.08
	velocity	5.40	8.46	9.14	9.14	9.14	8.96	9.14	8.96	8.96	8.79	9.67	8.35		8.90	9.08	8.90
Merritt, Aries (USA) (1985)	time	2.48	3.52	4.54	5.54	6.54	7.54	8.58	9.60	10.62	11.68		13.20	6 / 3			
reaction time 0.133	interval	7 steps	1.04	1.02	1.00	1.00	1.00	1.04	1.02	1.02	1.06	1.52			3.06	3.04	3.10
	velocity	5.53	8.79	8.96	9.14	9.14	9.14	8.79	8.96	8.96	8.62	9.22	8.33		8.96	9.02	8.85
Allen, Devon (USA) (1994)	time	2.52	3.58	4.62	5.62	6.66	7.68	8.72	9.74	10.78	11.82		13.24	4 / 4			
reaction time 0.122	interval		1.06	1.04	1.00	1.04	1.02	1.04	1.02	1.04	1.04	1.42			3.10	3.10	3.10
	velocity	5.44	8.62	8.79	9.14	8.79	8.96	8.79	8.96	8.79	8.79	9.87	8.31		8.85	8.85	8.85
Levy, Ronald (JAM) (1992)	time	2.54	3.58	4.62	5.62	6.64	7.68	8.72	9.78	10.86	11.92		13.41	8 / 5			
reaction time 0.108	interval	7 steps	1.04	1.04	1.00	1.02	1.04	1.04	1.06	1.08	1.06	1.49			3.08	3.10	3.20
	velocity	5.40	8.79	8.79	9.14	8.96	8.79	8.79	8.62	8.46	8.62	9.41	8.20		8.90	8.85	8.57
Darien, Garfield (FRA) (1987)	time	2.54	3.62	4.66	5.68	6.70	7.72	8.76	9.80	10.86	11.92		13.42	9 / 6			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.138	interval	7 steps	1.08	1.04	1.02	1.02	1.02	1.04	1.04	1.06	1.06	1.50			3.14	3.08	3.16
		velocity		5.40	8.46	8.79	8.96	8.96	8.96	8.79	8.79	8.62	8.62	9.35	8.20	8.73	8.90	8.68
Trajkovic, Milan (CYP) (1992)		time		2.52	3.58	4.62	5.64	6.68	7.72	8.76	9.82	10.88	11.96		13.47	2 / 7		
reaction time	0.142	interval	7 steps	1.06	1.04	1.02	1.04	1.04	1.04	1.06	1.06	1.08	1.51			3.12	3.12	3.20
		velocity		5.44	8.62	8.79	8.96	8.79	8.79	8.79	8.62	8.62	8.46	9.28	8.17	8.79	8.79	8.57
Brathwaite, Shane (BAR) (1990		time		2.54	3.60	4.64	5.66	6.70	7.74	8.78	9.84	10.92	12.00		13.49	3 / 8		
reaction time	0.141	interval	7 steps	1.06	1.04	1.02	1.04	1.04	1.04	1.06	1.08	1.08	1.49			3.12	3.12	3.22
		velocity		5.40	8.62	8.79	8.96	8.79	8.79	8.79	8.62	8.46	8.46	9.41	8.15	8.79	8.79	8.52

2017 Müller Grand Prix (Birmingham, GBR) (TV Analysis)

FINAL

date 20-Aug-17 wind -0.6 m/s

Henson (2020) - Athlete First: 2017 year end hurdle report

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)		time		2.48	3.52	4.54	5.52	6.56	7.60	8.62	9.66	10.70	11.78		13.29	6 / 1			
reaction time	0.127	interval	7 steps	1.04	1.02	0.98	1.04	1.04	1.02	1.04	1.04	1.04	1.08	1.51			3.04	3.10	3.16
		velocity		5.53	8.79	8.96	9.33	8.79	8.79	8.96	8.79	8.79	8.46	9.28	8.28		9.02	8.85	8.68
Shubenkov, Sergey (ANA) (199		time		2.54	3.58	4.58	5.60	6.62	7.64	8.66	9.72	10.78	11.82		13.31	7 / 2			
reaction time	0.133	interval	7 steps	1.04	1.00	1.02	1.02	1.02	1.02	1.06	1.06	1.04	1.49				3.06	3.06	3.16
		velocity		5.40	8.79	9.14	8.96	8.96	8.96	8.96	8.62	8.62	8.79	9.41	8.26		8.96	8.96	8.68
Allen, Devon (USA) (1994)		time		2.52	3.56	4.58	5.58	6.62	7.62	8.68	9.74	10.78	11.86		13.40	9 / 3			
reaction time	0.119	interval			1.04	1.02	1.00	1.04	1.00	1.06	1.06	1.04	1.08	1.54			3.06	3.10	3.18
		velocity		5.44	8.79	8.96	9.14	8.79	9.14	8.62	8.62	8.79	8.46	9.10	8.21		8.96	8.85	8.62
Baji, Balázs (HUN) (1989)		time		2.48	3.56	4.60	5.64	6.64	7.66	8.70	9.74	10.82	11.90		13.47	8 / 4			
reaction time	0.132	interval	7 steps	1.08	1.04	1.04	1.00	1.02	1.04	1.04	1.04	1.08	1.08	1.57			3.16	3.06	3.20
		velocity		5.53	8.46	8.79	8.79	9.14	8.96	8.79	8.79	8.46	8.46	8.93	8.17		8.68	8.96	8.57
Ortega, Orlando (ESP) (1991)		time		2.56	3.62	4.68	5.72	6.74	7.78	8.82	9.86	10.92	12.02		13.48	4 / 5			
reaction time	0.140	interval			1.06	1.06	1.04	1.02	1.04	1.04	1.04	1.06	1.10	1.46			3.16	3.10	3.20
		velocity		5.36	8.62	8.62	8.79	8.96	8.79	8.79	8.79	8.62	8.31	9.60	8.16		8.68	8.85	8.57
Pozzi, Andy (GBR) (1992)		time		2.50	3.54	4.56	5.58	6.62	7.70	8.74	9.80	10.88	11.98		13.53	3 / 6			
reaction time	0.119	interval	7 steps	1.04	1.02	1.02	1.04	1.08	1.04	1.06	1.08	1.10	1.55				3.08	3.16	3.24
		velocity		5.49	8.79	8.96	8.96	8.79	8.46	8.79	8.62	8.46	8.31	9.05	8.13		8.90	8.68	8.46
King, David (GBR) (19940		time		2.58	3.64	4.70	5.76	6.82	7.88	8.92	10.00	11.04	12.12		13.65	1 / 7			
reaction time	0.138	interval	7 steps	1.06	1.06	1.06	1.06	1.06	1.04	1.08	1.04	1.08	1.53				3.18	3.16	3.20
		velocity		5.32	8.62	8.62	8.62	8.62	8.62	8.79	8.46	8.79	8.46	9.16	8.06		8.62	8.68	8.57

2017 IAAF World Championships (London, GBR)

FINAL

date 07-Aug-17 wind 0.0 m/s

Pollitt (2018) - biomechanical report for the IAAF World Champs - London 2017 - Men's 110m Hurdles

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time		2.36	3.42	4.42	5.43	6.42	7.44	8.45	9.46	10.48	11.51		13.04	4 / 1			
reaction time	0.123	interval			1.06	1.00	1.01	0.99	1.02	1.01	1.01	1.02	1.03	1.53			3.07	3.02	3.06
		velocity		5.81	8.62	9.14	9.05	9.23	8.96	9.05	9.05	8.96	8.87	9.16	8.44		8.93	9.08	8.96
Shubenkov, Sergey (ANA) (199		time		2.41	3.45	4.45	5.46	6.45	7.46	8.47	9.48	10.52	11.57		13.14	2 / 2			
reaction time	0.132	interval	7 steps	1.04	1.00	1.01	0.99	1.01	1.01	1.01	1.04	1.05	1.57				3.05	3.01	3.10
		velocity		5.69	8.79	9.14	9.05	9.23	9.05	9.05	9.05	8.79	8.70	8.93	8.37		8.99	9.11	8.85
Baji, Balázs (HUN) (1989)		time		2.39	3.47	4.49	5.52	6.54	7.56	8.58	9.61	10.66	11.71		13.28	5 / 3			
reaction time	0.122	interval	7 steps	1.08	1.02	1.03	1.02	1.02	1.02	1.03	1.05	1.05	1.57				3.13	3.06	3.13
		velocity		5.74	8.46	8.96	8.87	8.96	8.96	8.96	8.87	8.70	8.70	8.93	8.28		8.76	8.96	8.76
Darien, Garfield (FRA) (1987)		time		2.38	3.44	4.46	5.48	6.52	7.54	8.56	9.58	10.62	11.72		13.30	6 / 4			
reaction time	0.115	interval	7 steps	1.06	1.02	1.02	1.04	1.02	1.02	1.02	1.04	1.10	1.58				3.10	3.08	3.16
		velocity		5.76	8.62	8.96	8.96	8.79	8.96	8.96	8.96	8.79	8.31	8.87	8.27		8.85	8.90	8.68
Merritt, Aries (USA) (1985)		time		2.43	3.48	4.50	5.51	6.53	7.55	8.57	9.60	10.66	11.72		13.31	9 / 5			
reaction time	0.163	interval	7 steps	1.05	1.02	1.01	1.02	1.02	1.02	1.03	1.06	1.06	1.59				3.08	3.06	3.15
		velocity		5.65	8.70	8.96	9.05	8.96	8.96	8.96	8.87	8.62	8.62	8.82	8.26		8.90	8.96	8.70
Brathwaite, Shane (BAR) (1990		time		2.43	3.47	4.52	5.58	6.61	7.62	8.64	9.67	10.72	11.77		13.32	7 / 6			
reaction time	0.169	interval	7 steps	1.04	1.05	1.06	1.03	1.01	1.02	1.03	1.05	1.05	1.55				3.15	3.06	3.13
		velocity		5.65	8.79	8.70	8.62	8.87	9.05	8.96	8.87	8.70	8.70	9.05	8.26		8.70	8.96	8.76
Ortega, Orlando (ESP) (1991)		time		2.45	3.51	4.55	5.60	6.62	7.65	8.68	9.71	10.73	11.78		13.37	3 / 7			
reaction time	0.140	interval			1.06	1.04	1.05	1.02	1.03	1.03	1.03	1.02	1.05	1.59			3.15	3.08	3.10
		velocity		5.60	8.62	8.79	8.70	8.96	8.87	8.87	8.87	8.96	8.70	8.82	8.23		8.70	8.90	8.85
Parchment, Hansle (JAM) (199		time		2.51	3.58	4.62	5.65	6.68	7.67	8.69	9.69	10.76	11.82		13.37	8 / 8			
reaction time	0.145	interval	7 steps	1.07	1.04	1.03	1.03	0.99	1.02	1.00	1.07	1.06	1.55				3.14	3.04	3.13

	velocity	5.47	8.54	8.79	8.87	8.87	9.23	8.96	9.14	8.54	8.62	9.05	8.23		8.73	9.02	8.76

Semi-Final 3

date 06-Aug-17 wind 0.3 m/s

Pollitt (2018) - biomechanical report for the IAAF World Champs - London 2017 - Men's 110m Hurdles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Baji, Balázs (HUN) (1989)		time	2.34	3.40	4.44	5.46	6.48	7.50	8.51	9.54	10.57	11.63		13.23	5 / 1			
reaction time 0.120		interval	7 steps	1.06	1.04	1.02	1.02	1.02	1.01	1.03	1.03	1.06	1.60			3.12	3.05	3.12
		velocity	5.86	8.62	8.79	8.96	8.96	8.96	9.05	8.87	8.87	8.62	8.76	8.31		8.79	8.99	8.79
Merritt, Aries (USA) (1985)		time	2.36	3.41	4.44	5.46	6.48	7.50	8.52	9.55	10.59	11.65		13.25	7 / 2			
reaction time 0.117		interval	7 steps	1.05	1.03	1.02	1.02	1.02	1.02	1.03	1.04	1.06	1.60			3.10	3.06	3.13
		velocity	5.81	8.70	8.87	8.96	8.96	8.96	8.96	8.87	8.79	8.62	8.76	8.30		8.85	8.96	8.76
Xie Wenjun (CHN) (1990)		time	2.50	3.60	4.63	5.65	6.67	7.70	8.71	9.74	10.78	11.85		13.36	4 / 3			
reaction time 0.171		interval		1.10	1.03	1.02	1.02	1.03	1.01	1.03	1.04	1.07	1.51			3.15	3.06	3.14
		velocity	5.49	8.31	8.87	8.96	8.96	8.87	9.05	8.87	8.79	8.54	9.28	8.23		8.70	8.96	8.73
Alkana, Antonio (RSA) (1990)		time	2.66	3.74	4.78	5.81	6.82	7.85	8.88	9.95	11.02	12.13		13.59	9 / 4			
reaction time 0.230		interval		1.08	1.04	1.03	1.01	1.03	1.03	1.07	1.07	1.11	1.46			3.15	3.07	3.25
		velocity	5.16	8.46	8.79	8.87	9.05	8.87	8.87	8.54	8.54	8.23	9.60	8.09		8.70	8.93	8.44
Lovett, Eddie (ISV) (1992)		time	2.49	3.56	4.62	5.67	6.71	7.77	8.81	9.90	10.99	12.10		13.67	6 / 5			
reaction time 0.180		interval	7 steps	1.07	1.06	1.05	1.04	1.06	1.04	1.09	1.09	1.11	1.57			3.18	3.14	3.29
		velocity	5.51	8.54	8.62	8.70	8.79	8.62	8.79	8.39	8.39	8.23	8.93	8.05		8.62	8.73	8.33
Souza, Éder Antonio (BRA) (1!		time	2.44	3.53	4.57	5.63	6.66	7.71	8.75	9.82	10.91	12.03		13.70	3 / 6			
reaction time 0.133		interval	7 steps	1.09	1.04	1.06	1.03	1.05	1.04	1.07	1.09	1.12	1.67			3.19	3.12	3.28
		velocity	5.62	8.39	8.79	8.62	8.87	8.70	8.79	8.54	8.39	8.16	8.40	8.03		8.60	8.79	8.36
Cabral, Johnathan (CAN) (199		time	2.51	3.59	4.63	5.67	6.70	7.76	8.86	10.03	11.33	12.77		14.98	8 / 7			
reaction time 0.174		interval	7 steps	1.08	1.04	1.04	1.03	1.06	1.10	1.17	1.30	1.44	2.21			3.16	3.19	3.91
		velocity	5.47	8.46	8.79	8.79	8.87	8.62	8.31	7.81	7.03	6.35	6.34	7.34		8.68	8.60	7.01
O'Farrill, Yordan (CUB) (1993)		time	2.51	3.58	4.62	5.65	6.68							dnf	2 / --			
reaction time 0.147		interval	7 steps	1.07	1.04	1.03	1.03									3.14		
		velocity	5.47	8.54	8.79	8.87	8.87									8.73		

Semi-Final 2

date 06-Aug-17 wind 0.6 m/s

Pollitt (2018) - biomechanical report for the IAAF World Champs - London 2017 - Men's 110m Hurdles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Brathwaite, Shane (BAR) (1990		time	2.40	3.44	4.46	5.49	6.52	7.53	8.56	9.61	10.65	11.72		13.26	5 / 1			
reaction time 0.179		interval	7 steps	1.04	1.02	1.03	1.03	1.01	1.03	1.05	1.04	1.07	1.54			3.09	3.07	3.16
		velocity	5.72	8.79	8.96	8.87	8.87	9.05	8.87	8.70	8.79	8.54	9.10	8.30		8.87	8.93	8.68
Parchment, Hansle (JAM) (199(		time	2.48	3.56	4.58	5.61	6.63	7.61	8.63	9.66	10.68	11.73		13.27	7 / 2			
reaction time 0.181		interval	7 steps	1.08	1.02	1.03	1.02	0.98	1.02	1.03	1.02	1.05	1.54			3.13	3.02	3.10
		velocity	5.53	8.46	8.96	8.87	8.96	9.33	8.96	8.87	8.96	8.70	9.10	8.29		8.76	9.08	8.85
Allen, Devon (USA) (1994)		time	2.29	3.35	4.37	5.40	6.42	7.47	8.50	9.54	10.58	11.65		13.27	4 / 3			
reaction time 0.126		interval		1.06	1.02	1.03	1.02	1.05	1.03	1.04	1.04	1.07	1.62			3.11	3.10	3.15
		velocity	5.99	8.62	8.96	8.87	8.96	8.70	8.87	8.79	8.79	8.54	8.65	8.29		8.82	8.85	8.70
Pozzi, Andy (GBR) (1992)		time	2.35	3.39	4.40	5.43	6.44	7.43	8.45	9.48	10.51	11.62		13.28	6 / 4			
reaction time 0.137		interval	7 steps	1.04	1.01	1.03	1.01	0.99	1.02	1.03	1.03	1.11	1.66			3.08	3.02	3.17
		velocity	5.84	8.79	9.05	8.87	9.05	9.23	8.96	8.87	8.87	8.23	8.45	8.28		8.90	9.08	8.65
Czykier, Damian (POL) (1992)		time	2.45	3.52	4.57	5.62	6.65	7.64	8.65	9.71	10.77	11.84		13.42	9 / 5			
reaction time 0.183		interval	7 steps	1.07	1.05	1.05	1.03	0.99	1.01	1.06	1.06	1.07	1.58			3.17	3.03	3.19
		velocity	5.60	8.54	8.70	8.70	8.87	9.23	9.05	8.62	8.62	8.54	8.87	8.20		8.65	9.05	8.60
Iribarne, Roger (CUB) (1996)		time	2.39	3.44	4.46	5.49	6.51	7.58	8.62	9.67	10.73	11.83		13.43	3 / 6			
reaction time 0.175		interval	7 steps	1.05	1.02	1.03	1.02	1.07	1.04	1.05	1.06	1.10	1.60			3.10	3.13	3.21
		velocity	5.74	8.70	8.96	8.87	8.96	8.54	8.79	8.70	8.62	8.31	8.76	8.19		8.85	8.76	8.54
Contreras, Yidiel (ESP) (1992)		time	2.40	3.46	4.52	5.57	6.65	7.67	8.73	9.80	10.88	12.00		13.65	8 / 7			
reaction time 0.157		interval	7 steps	1.06	1.06	1.05	1.08	1.02	1.06	1.07	1.08	1.12	1.65			3.17	3.16	3.27
		velocity	5.72	8.62	8.62	8.70	8.46	8.96	8.62	8.54	8.46	8.16	8.50	8.06		8.65	8.68	8.39
Bühler, Matthias (GER) (1986)		time	2.48	3.57	4.64	5.71	6.77	7.82	8.87	9.93	11.00	12.11		13.79	2 / 8			
reaction time 0.158		interval		1.09	1.07	1.07	1.06	1.05	1.05	1.06	1.07	1.11	1.68			3.23	3.16	3.24
		velocity	5.53	8.39	8.54	8.54	8.62	8.70	8.70	8.62	8.54	8.23	8.35	7.98		8.49	8.68	8.46

Semi-Final 1

date 06-Aug-17 wind 0.2 m/s

Pollitt (2018) - biomechanical report for the IAAF World Champs - London 2017 - Men's 110m Hurdles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time	2.37	3.43	4.45	5.46	6.48	7.47	8.47	9.49	10.53	11.57		13.10	7 / 1			
reaction time 0.135		interval		1.06	1.02	1.01	1.02	0.99	1.00	1.02	1.04	1.04	1.53			3.09	3.01	3.10
		velocity	5.79	8.62	8.96	9.05	8.96	9.23	9.14	8.96	8.79	8.79	9.16	8.40		8.87	9.11	8.85

Darien, Garfield (FRA) (1987)	time	2.34	3.39	4.41	5.43	6.45	7.45	8.45	9.48	10.52	11.57		13.17	6 / 2			
reaction time 0.125	interval	7 steps	1.05	1.02	1.02	1.02	1.00	1.00	1.03	1.04	1.05	1.60			3.09	3.02	3.12
	velocity	5.86	8.70	8.96	8.96	8.96	9.14	9.14	8.87	8.79	8.70	8.76	8.35		8.87	9.08	8.79
Shubenkov, Sergey (ANA) (199	time	2.46	3.52	4.54	5.54	6.55	7.55	8.56	9.58	10.62	11.70		13.22	9 / 3			
reaction time 0.160	interval	7 steps	1.06	1.02	1.00	1.01	1.00	1.01	1.02	1.04	1.08	1.52			3.08	3.02	3.14
	velocity	5.58	8.62	8.96	9.14	9.05	9.14	9.05	8.96	8.79	8.46	9.22	8.32		8.90	9.08	8.73
Ortega, Orlando (ESP) (1991)	time	2.45	3.51	4.54	5.56	6.60	7.61	8.60	9.62	10.66	11.71		13.23	4 / 4			
reaction time 0.148	interval		1.06	1.03	1.02	1.04	1.01	0.99	1.02	1.04	1.05	1.52			3.11	3.04	3.11
	velocity	5.60	8.62	8.87	8.96	8.79	9.05	9.23	8.96	8.79	8.70	9.22	8.31		8.82	9.02	8.82
Trajkovic, Milan (CYP) (1992)	time	2.42	3.45	4.50	5.53	6.58	7.61	8.61	9.64	10.68	11.75		13.32	5 / 5			
reaction time 0.146	interval	7 steps	1.03	1.05	1.03	1.05	1.03	1.00	1.03	1.04	1.07	1.57			3.11	3.08	3.14
	velocity	5.67	8.87	8.70	8.87	8.70	8.87	9.14	8.87	8.79	8.54	8.93	8.26		8.82	8.90	8.73
Harris, Aleec (USA) (1990)	time	2.41	3.49	4.53	5.56	6.60	7.62	8.66	9.70	10.75	11.82		13.40	8 / 6			
reaction time 0.140	interval		1.08	1.04	1.03	1.04	1.02	1.04	1.04	1.05	1.07	1.58			3.15	3.10	3.16
	velocity	5.69	8.46	8.79	8.87	8.79	8.96	8.79	8.79	8.70	8.54	8.87	8.21		8.70	8.85	8.68
Masuno, Genta (JPN) (1993)	time	2.46	3.51	4.57	5.63	6.71	7.78	8.87	9.94	11.05	12.17		13.79	2 / 7			
reaction time 0.160	interval		1.05	1.06	1.06	1.08	1.07	1.09	1.07	1.11	1.12	1.62			3.17	3.24	3.30
	velocity	5.58	8.70	8.62	8.62	8.46	8.54	8.39	8.54	8.23	8.16	8.65	7.98		8.65	8.46	8.31
Al-Youha, Yaqoub (KUW) (199	time	2.43	3.47	4.52									dnf	3 / --			
reaction time 0.152	interval		1.04	1.05													
	velocity	5.65	8.79	8.70													

2017 Japanese National High School Championships (Yamagata, JPN) (99cm)

FINAL date 02-Aug-17 wind -0.7 m/s

Kota (2017) - 70th high school championships: JAF scientific committee - biomechanics data collection

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Katsuta, Kizuku (JPN) (1999)	time	2.68	3.78	4.88	5.98	7.08	8.20	9.33	10.44	11.59	12.73		14.19	7 / 1			
reaction time 0.153	interval		1.10	1.10	1.10	1.10	1.12	1.13	1.11	1.15	1.14	1.46			3.30	3.35	3.40
	velocity	5.12	8.31	8.31	8.31	8.31	8.16	8.09	8.23	7.95	8.02	9.60	7.75		8.31	8.19	8.06
Morito, Nobuaki (JPN) (1999)	time	2.74	3.87	4.97	6.09	7.20	8.31	9.41	10.54	11.64	12.81		14.30	4 / 2			
reaction time 0.179	interval		1.13	1.10	1.12	1.11	1.11	1.10	1.13	1.10	1.17	1.49			3.35	3.32	3.40
	velocity	5.01	8.09	8.31	8.16	8.23	8.23	8.31	8.09	8.31	7.81	9.41	7.69		8.19	8.26	8.06
Higuchi, Rikoto (JPN) (1999)	time	2.70	3.82	4.95	6.08	7.22	8.35	9.48	10.61	11.76	12.92		14.34	6 / 3			
reaction time 0.169	interval		1.12	1.13	1.13	1.14	1.13	1.13	1.13	1.15	1.16	1.42			3.38	3.40	3.44
	velocity	5.08	8.16	8.09	8.09	8.02	8.09	8.09	8.09	7.95	7.88	9.87	7.67		8.11	8.06	7.97
Nakata, Hidetoshi (JPN) (1999)	time	2.69	3.81	4.94	6.05	7.17	8.27	9.41	10.56	11.73	12.91		14.44	5 / 4			
reaction time 0.130	interval		1.12	1.13	1.11	1.12	1.10	1.14	1.15	1.17	1.18	1.53			3.36	3.36	3.50
	velocity	5.10	8.16	8.09	8.23	8.16	8.31	8.02	7.95	7.81	7.75	9.16	7.62		8.16	8.16	7.83
Abe, Ryoto (JPN) (2000)	time	2.65	3.76	4.92	6.03	7.20	8.34	9.48	10.63	11.82	12.99		14.48	8 / 5			
reaction time 0.144	interval		1.11	1.16	1.11	1.17	1.14	1.14	1.15	1.19	1.17	1.49			3.38	3.45	3.51
	velocity	5.18	8.23	7.88	8.23	7.81	8.02	8.02	7.95	7.68	7.81	9.41	7.60		8.11	7.95	7.81
Togochi, Hiromasa (JPN)	time	2.77	3.90	5.05	6.18	7.32	8.43	9.56	10.71	11.84	13.03		14.52	9 / 6			
reaction time 0.149	interval		1.13	1.15	1.13	1.14	1.11	1.13	1.15	1.13	1.19	1.49			3.41	3.38	3.47
	velocity	4.95	8.09	7.95	8.09	8.02	8.23	8.09	7.95	8.09	7.68	9.41	7.58		8.04	8.11	7.90
Hiraga, Kentaro (JPN) (1999)	time	2.70	3.83	4.96	6.09	7.25	8.35	9.49	10.67	11.83	13.03		14.54	2 / 7			
reaction time 0.156	interval		1.13	1.13	1.13	1.16	1.10	1.14	1.18	1.16	1.20	1.51			3.39	3.40	3.54
	velocity	5.08	8.09	8.09	8.09	7.88	8.31	8.02	7.75	7.88	7.62	9.28	7.57		8.09	8.06	7.75
Yamada, Nash (JPN) (1999)	time	2.71	3.86	5.11	6.31	7.46	8.58	9.72	10.87	12.03	13.22		14.79	3 / 8			
reaction time 0.153	interval		1.15	1.25	1.20	1.15	1.12	1.14	1.15	1.16	1.19	1.57			3.60	3.41	3.50
	velocity	5.06	7.95	7.31	7.62	7.95	8.16	8.02	7.95	7.88	7.68	8.93	7.44		7.62	8.04	7.83

2017 Windsprint (Sundsvall, SWE)

FINAL 2 date 30-Jul-17 wind 1.0 m/s

(2017) - www.windsprint/Splittider/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levin, Anton (SWE) (1992)	time	2.68	3.78	4.87	5.95	7.03	8.14	9.23	10.34	11.47	12.61		14.09	/ 1			
reaction time	interval		1.10	1.09	1.08	1.08	1.11	1.09	1.11	1.13	1.14	1.48			3.27	3.28	3.38
	velocity	5.12	8.31	8.39	8.46	8.46	8.23	8.39	8.23	8.09	8.02	9.47	7.81		8.39	8.36	8.11
Holm, Jonatan (SWE) (1994)	time	2.69	3.79	4.89	5.98	7.07	8.19	9.28	10.38	11.64	12.91		14.49	/ 2			
reaction time	interval		1.10	1.10	1.09	1.09	1.12	1.09	1.10	1.26	1.27	1.58			3.29	3.30	3.63
	velocity	5.10	8.31	8.31	8.39	8.39	8.16	8.39	8.31	7.25	7.20	8.87	7.59		8.33	8.31	7.55
Gustafsson, Petter (SWE) (199	time	2.65	3.77	4.90	6.05	7.18	8.37	9.52	10.66	11.85	13.05		14.56	/ 3			

reaction time	interval		1.12	1.13	1.15	1.13	1.19	1.15	1.14	1.19	1.20	1.51			3.40	3.47	3.53
	velocity	5.18	8.16	8.09	7.95	8.09	7.68	7.95	8.02	7.68	7.62	9.28	7.55		8.06	7.90	7.77
Sjödin, Ludwig (SWE) (1995)	time	2.68	3.86	5.00	6.18	7.40	8.62	9.83	11.12	12.34	13.62		15.29	/ 4			
reaction time	interval		1.18	1.14	1.18	1.22	1.22	1.21	1.29	1.22	1.28	1.67			3.50	3.65	3.79
	velocity	5.12	7.75	8.02	7.75	7.49	7.49	7.55	7.09	7.49	7.14	8.40	7.19		7.83	7.51	7.23
Tay, Marwin (SWE) (1990)	time	2.69	3.82	4.92									dnf	/ --			
reaction time	interval		1.13	1.10													
	velocity	5.10	8.09	8.31													

FINAL date 30-Jul-17 wind 1.0 m/s *(2017) - www.windsprint/Splittider/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levin, Anton (SWE) (1992)	time	2.66	3.78	4.87	5.93	7.02	8.10	9.20	10.33	11.43	12.56		14.06	/ 1			
reaction time	interval		1.12	1.09	1.06	1.09	1.08	1.10	1.13	1.10	1.13	1.50			3.27	3.27	3.36
	velocity	5.16	8.16	8.39	8.62	8.39	8.46	8.31	8.09	8.31	8.09	9.35	7.82		8.39	8.39	8.16
Holm, Jonatan (SWE) (1994)	time	2.69	3.80	4.88	5.99	7.11	8.23	9.35	10.50	11.63	12.81		14.34	/ 2			
reaction time	interval		1.11	1.08	1.11	1.12	1.12	1.12	1.15	1.13	1.18	1.53			3.30	3.36	3.46
	velocity	5.10	8.23	8.46	8.23	8.16	8.16	8.16	7.95	8.09	7.75	9.16	7.67		8.31	8.16	7.92
Gustafsson, Petter (SWE) (199	time	2.68	3.81	4.94	6.07	7.22	8.36	9.51	10.69	11.86	13.00		14.54	/ 3			
reaction time	interval		1.13	1.13	1.13	1.15	1.14	1.15	1.18	1.17	1.14	1.54			3.39	3.44	3.49
	velocity	5.12	8.09	8.09	8.09	7.95	8.02	7.95	7.75	7.81	8.02	9.10	7.57		8.09	7.97	7.86
Tay, Marwin (SWE) (1990)	time	2.68	3.79	4.89	6.01	7.12	8.25	9.41	10.56	11.72	12.93		14.59	/ 4			
reaction time	interval		1.11	1.10	1.12	1.11	1.13	1.16	1.15	1.16	1.21	1.66			3.33	3.40	3.52
	velocity	5.12	8.23	8.31	8.16	8.23	8.09	7.88	7.95	7.88	7.55	8.45	7.54		8.23	8.06	7.79
Sjödin, Ludwig (SWE) (1995)	time	2.76	3.96	5.11	6.32	7.56	8.78						15.68	/ 5			
reaction time	interval		1.20	1.15	1.21	1.24	1.22					6.90			3.56		
	velocity	4.97	7.62	7.95	7.55	7.37	7.49					7.33	7.02		7.70		

2017 All Star Night (Hiratsuka, JPN)

FINAL date 22-Jul-17 wind 1.8 m/s *(2017) - tfdata-store.com/2017/07/26/post-1072/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.59	3.66	4.71	5.74	6.78	7.82	8.87	9.93	11.00	12.07		13.49	6 / 1			
reaction time 0.146	interval	7 steps	1.07	1.05	1.03	1.04	1.04	1.05	1.06	1.07	1.07	1.42			3.15	3.13	3.20
	velocity	5.30	8.54	8.70	8.87	8.79	8.79	8.70	8.62	8.54	8.54	9.87	8.15		8.70	8.76	8.57
Kanai, Taio (JPN) (1995)	time	2.55	3.62	4.67	5.73	6.79	7.83	8.90	9.97	11.04	12.12		13.53	7 / 2			
reaction time 0.127	interval	7 steps	1.07	1.05	1.06	1.06	1.04	1.07	1.07	1.07	1.08	1.41			3.18	3.17	3.22
	velocity	5.38	8.54	8.70	8.62	8.62	8.79	8.54	8.54	8.54	8.46	9.94	8.13		8.62	8.65	8.52
Kuriki, Anthony Tyrell (JPN) (1	time	2.62	3.72	4.77	5.82	6.87	7.92	8.98	10.06	11.12	12.19		13.60	3 / 3			
reaction time 0.128	interval	7 steps	1.10	1.05	1.05	1.05	1.05	1.06	1.08	1.06	1.07	1.41			3.20	3.16	3.21
	velocity	5.24	8.31	8.70	8.70	8.70	8.70	8.62	8.46	8.62	8.54	9.94	8.09		8.57	8.68	8.54

2017 Galà dei Castelli (Bellinzona, SUI)

FINAL date 18-Jul-17 wind -0.6 m/s *(2017.07.18) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.57	3.61	4.64	5.64	6.64	7.66	8.67	9.70	10.73	11.77		13.20	4 / 1			
reaction time	interval	7 steps	1.04	1.03	1.00	1.00	1.02	1.01	1.03	1.03	1.04	1.43			3.07	3.03	3.10
	velocity	5.34	8.79	8.87	9.14	9.14	8.96	9.05	8.87	8.87	8.79	9.80	8.33		8.93	9.05	8.85
Eaton, Jarret (USA) (1989)	time	2.53	3.58	4.59	5.59	6.62	7.67	8.71	9.78	10.87	12.01		13.52	3 / 2			
reaction time	interval	7 steps	1.05	1.01	1.00	1.03	1.05	1.04	1.07	1.09	1.14	1.51			3.06	3.12	3.30
	velocity	5.42	8.70	9.05	9.14	8.87	8.70	8.79	8.54	8.39	8.02	9.28	8.14		8.96	8.79	8.31

2017 Spitzen Leichtathletik (Luzern, SUI)

FINAL date 11-Jul-17 wind -0.1 m/s *(2017.07.11) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)	time	2.60	3.64	4.68	5.71	6.73	7.75	8.77	9.82	10.88	11.94		13.31	5 / 1			
reaction time	interval		1.04	1.04	1.03	1.02	1.02	1.02	1.05	1.06	1.06	1.37			3.11	3.06	3.17
	velocity	5.28	8.79	8.79	8.87	8.96	8.96	8.96	8.70	8.62	8.62	10.23	8.26		8.82	8.96	8.65

2017 Müller's Anniversary Games (London, GBR) (TV Analysis)

FINAL date 09-Jul-17 wind 0.0 m/s *Henson (2020) - Athlete First: 2017 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.52	3.56	4.58	5.56	6.58	7.58	8.58	9.58	10.62	11.62		13.09	4 / 1			
reaction time 0.134	interval	7 steps	1.04	1.02	0.98	1.02	1.00	1.00	1.00	1.04	1.00	1.47			3.04	3.02	3.04
	velocity	5.44	8.79	8.96	9.33	8.96	9.14	9.14	9.14	8.79	9.14	9.54	8.40		9.02	9.08	9.02
Trajkovic, Milan (CYP) (1992)	time	2.52	3.58	4.60	5.60	6.62	7.64	8.66	9.70	10.74	11.80		13.25	5 / 2			
reaction time 0.157	interval	7 steps	1.06	1.02	1.00	1.02	1.02	1.02	1.04	1.04	1.06	1.45	NR PB		3.08	3.06	3.14

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	5.44	8.62	8.96	9.14	8.96	8.96	8.96	8.79	8.79	8.62	9.67	8.30		8.90	8.96	8.73
Brathwaite, Shane (BAR) (1990		time	2.52	3.60	4.60	5.62	6.64	7.66	8.70	9.74	10.80	11.84		13.27	8 / 3			
reaction time	0.135	interval	7 steps	1.08	1.00	1.02	1.02	1.02	1.04	1.04	1.06	1.04	1.43			3.10	3.08	3.14
		velocity	5.44	8.46	9.14	8.96	8.96	8.96	8.79	8.79	8.62	8.79	9.80	8.29		8.85	8.90	8.73
Allen, Devon (USA) (1994)		time	2.52	3.56	4.56	5.64	6.70	7.70	8.74	9.80	10.82	11.88		13.30	6 / 4			
reaction time	0.104	interval		1.04	1.00	1.08	1.06	1.00	1.04	1.06	1.02	1.06	1.42			3.12	3.10	3.14
		velocity	5.44	8.79	9.14	8.46	8.62	9.14	8.79	8.62	8.96	8.62	9.87	8.27		8.79	8.85	8.73
Eaton, Jarret (USA) (1989)		time	2.44	3.48	4.48	5.48	6.48	7.52	8.56	9.62	10.72	11.80		13.34	9 / 5			
reaction time	0.125	interval	7 steps	1.04	1.00	1.00	1.00	1.04	1.04	1.06	1.10	1.08	1.54			3.04	3.08	3.24
		velocity	5.62	8.79	9.14	9.14	9.14	8.79	8.79	8.62	8.31	8.46	9.10	8.25		9.02	8.90	8.46
Mallett, Aaron (USA) (1994)		time	2.58	3.66	4.74	5.76	6.78	7.82	8.84	9.88	10.92	11.98		13.47	1 / 6			
reaction time	0.198	interval	7 steps	1.08	1.08	1.02	1.02	1.04	1.02	1.04	1.04	1.06	1.49			3.18	3.08	3.14
		velocity	5.32	8.46	8.46	8.96	8.96	8.79	8.96	8.79	8.79	8.62	9.41	8.17		8.62	8.90	8.73
Lovett, Eddie (ISV) (1992)		time	2.52	3.56	4.60	5.64	6.68	7.70	8.74	9.80	10.90	12.00		13.48	3 / 7			
reaction time	0.144	interval	7 steps	1.04	1.04	1.04	1.04	1.02	1.04	1.06	1.10	1.10	1.48			3.12	3.10	3.26
		velocity	5.44	8.79	8.79	8.79	8.79	8.96	8.79	8.62	8.31	8.31	9.47	8.16		8.79	8.85	8.41
Omoregie, David (GBR) (1995)		time	2.52	3.64	4.74	5.80	6.84	7.88	8.92	9.98	11.06	12.16		13.70	7 / 8			
reaction time	0.127	interval		1.12	1.10	1.06	1.04	1.04	1.04	1.06	1.08	1.10	1.54			3.28	3.12	3.24
		velocity	5.44	8.16	8.31	8.62	8.79	8.79	8.79	8.62	8.46	8.31	9.10	8.03		8.36	8.79	8.46
Xie Wenjun (CHN) (1990)		time	2.60	3.66	4.74	5.78	6.82	7.90	8.98	10.08	11.26	12.46		14.34	2 / 9			
reaction time	0.157	interval		1.06	1.08	1.04	1.04	1.08	1.08	1.10	1.18	1.20	1.88			3.18	3.20	3.48
		velocity	5.28	8.62	8.46	8.79	8.79	8.46	8.46	8.31	7.75	7.62	7.46	7.67		8.62	8.57	7.88

2017 Nambu Memorial (Sapporo, JPN)

FINAL date 09-Jul-17 wind 2.7 m/s *(2017) - tfdata-store.com/2017/07/12/post-1025/*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nomoto, Syuusei (JPN) (1995)		time	2.61	3.70	4.75	5.79	6.84	7.91	8.96	10.04	11.11	12.22		13.59	7 / 1			
reaction time		interval	7 steps	1.09	1.05	1.04	1.05	1.07	1.05	1.08	1.07	1.11	1.37			3.18	3.17	3.26
		velocity	5.26	8.39	8.70	8.79	8.70	8.54	8.70	8.46	8.54	8.23	10.23	8.09		8.62	8.65	8.41
Furuya, Takumu (JPN) (1997)		time	2.64	3.73	4.78	5.83	6.87	7.92	8.98	10.06	11.14	12.26		13.70	4 / 2			
reaction time		interval		1.09	1.05	1.05	1.04	1.05	1.06	1.08	1.08	1.12	1.44			3.19	3.15	3.28
		velocity	5.20	8.39	8.70	8.70	8.79	8.70	8.62	8.46	8.46	8.16	9.74	8.03		8.60	8.70	8.36
Iwafune, Yoichi (JPN) (1985)		time	2.68	3.78	4.85	5.93	7.00	8.06	9.15	10.26	11.37	12.52		14.01	5 / 3			
reaction time		interval		1.10	1.07	1.08	1.07	1.06	1.09	1.11	1.11	1.15	1.49			3.25	3.22	3.37
		velocity	5.12	8.31	8.54	8.46	8.54	8.62	8.39	8.23	8.23	7.95	9.41	7.85		8.44	8.52	8.14
Abe, Hirofumi (JPN) (1985)		time	2.68	3.79	4.86	5.95	7.04	8.13	9.20	10.34	11.47	12.62		14.07	6 / 4			
reaction time		interval		1.11	1.07	1.09	1.09	1.09	1.07	1.14	1.13	1.15	1.45			3.27	3.25	3.42
		velocity	5.12	8.23	8.54	8.39	8.39	8.39	8.54	8.02	8.09	7.95	9.67	7.82		8.39	8.44	8.02
Nishizawa, Masanori (JPN) (19		time	2.71	3.81	4.91	6.02	7.11	8.20	9.30	10.41	11.56	12.72		14.25	9 / 5			
reaction time		interval		1.10	1.10	1.11	1.09	1.09	1.10	1.11	1.15	1.16	1.53			3.31	3.28	3.42
		velocity	5.06	8.31	8.31	8.23	8.39	8.39	8.31	8.23	7.95	7.88	9.16	7.72		8.28	8.36	8.02
Kubota, Kohei (JPN) (1989)		time	2.65	3.77	4.90	6.01	7.14	8.26	9.38	10.51	11.65	12.82		14.34	8 / 6			
reaction time		interval		1.12	1.13	1.11	1.13	1.12	1.12	1.13	1.14	1.17	1.52			3.36	3.37	3.44
		velocity	5.18	8.16	8.09	8.23	8.09	8.16	8.16	8.09	8.02	7.81	9.22	7.67		8.16	8.14	7.97
Abe, Masaya (JPN) (1996)		time	2.69	3.83	4.95	6.08	7.23	8.35	9.47	10.61	11.76	12.93		14.45	2 / 7			
reaction time		interval		1.14	1.12	1.13	1.15	1.12	1.12	1.14	1.15	1.17	1.52			3.39	3.39	3.46
		velocity	5.10	8.02	8.16	8.09	7.95	8.16	8.16	8.02	7.95	7.81	9.22	7.61		8.09	8.09	7.92
Nakao, Kengo (JPN)		time	2.82	4.01	5.19	6.34	7.49	8.62	9.80	10.96	12.13	13.31		14.84	3 / 8			
reaction time		interval		1.19	1.18	1.15	1.15	1.13	1.18	1.16	1.17	1.18	1.53			3.52	3.46	3.51
		velocity	4.87	7.68	7.75	7.95	7.95	8.09	7.75	7.88	7.81	7.75	9.16	7.41		7.79	7.92	7.81
Degughi, Masaya (JPN)		time	2.76	3.87	5.04	6.18	7.37	8.53	9.71	10.90	12.09	13.33		14.85	1 / 9			
reaction time		interval		1.11	1.17	1.14	1.19	1.16	1.18	1.19	1.19	1.24	1.52			3.42	3.53	3.62
		velocity	4.97	8.23	7.81	8.02	7.68	7.88	7.75	7.68	7.68	7.37	9.22	7.41		8.02	7.77	7.57

2017 István Gyulai Memorial (Székesfehérvár, HUN) (TV Analysis)

FINAL date 04-Jul-17 wind 0.3 m/s *Henson (2020) - Athlete First: 2017 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time	2.48	3.50	4.50	5.50	6.50	7.50	8.48	9.52	10.54	11.56		12.96	4 / 1			
reaction time	0.138	interval		1.02	1.00	1.00	1.00	1.00	0.98	1.04	1.02	1.02	1.40			3.02	2.98	3.08
		velocity	5.53	8.96	9.14	9.14	9.14	9.14	9.33	8.79	8.96	8.96	10.01	8.49		9.08	9.20	8.90

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Shubenkov, Sergey (ANA) (199	time	2.56	3.58	4.60	5.56	6.54	7.54	8.54	9.56	10.58	11.60		13.01	6 / 2				
reaction time 0.177	interval	7 steps	1.02	1.02	0.96	0.98	1.00	1.00	1.02	1.02	1.02	1.41			3.00	2.98	3.06	
	velocity	5.36	8.96	8.96	9.52	9.33	9.14	9.14	8.96	8.96	8.96	9.94	8.46		9.14	9.20	8.96	
Merritt, Aries (USA) (1985)	time	2.48	3.52	4.52	5.52	6.52	7.52	8.54	9.58	10.60	11.66		13.11	3 / 3				
reaction time 0.126	interval	7 steps	1.04	1.00	1.00	1.00	1.00	1.02	1.04	1.02	1.06	1.45			3.04	3.02	3.12	
	velocity	5.53	8.79	9.14	9.14	9.14	9.14	8.96	8.79	8.96	8.62	9.67	8.39		9.02	9.08	8.79	
Baji, Balázs (HUN) (1989)	time	2.50	3.56	4.56	5.56	6.56	7.56	8.58	9.58	10.62	11.66		13.15	2 / 4				
reaction time 0.139	interval	7 steps	1.06	1.00	1.00	1.00	1.00	1.02	1.00	1.04	1.04	1.49	NR PB		3.06	3.02	3.08	
	velocity	5.49	8.62	9.14	9.14	9.14	9.14	8.96	9.14	8.79	8.79	9.41	8.37		8.96	9.08	8.90	
Alkana, Antonio (RSA) (1990)	time	2.54	3.58	4.62	5.64	6.64	7.68	8.72	9.76	10.80	11.86		13.31	5 / 5				
reaction time	interval		1.04	1.04	1.02	1.00	1.04	1.04	1.04	1.04	1.06	1.45			3.10	3.08	3.14	
	velocity	5.40	8.79	8.79	8.96	9.14	8.79	8.79	8.79	8.79	8.62	9.67	8.26		8.85	8.90	8.73	
Riley, Andrew (JAM))1988)	time	2.54	3.62	4.64	5.66	6.70	7.74	8.78	9.84	10.88	11.96		13.39	1 / 6				
reaction time 0.150	interval	7 steps	1.08	1.02	1.02	1.04	1.04	1.04	1.06	1.04	1.08	1.43			3.12	3.12	3.18	
	velocity	5.40	8.46	8.96	8.96	8.79	8.79	8.79	8.62	8.79	8.46	9.80	8.22		8.79	8.79	8.62	
Brathwaite, Shane (BAR) (1990	time	2.52	3.56	4.62	5.64	6.66	7.70	8.76	9.80	10.86	11.94		13.39	7 / 7				
reaction time 0.146	interval	7 steps	1.04	1.06	1.02	1.02	1.04	1.06	1.04	1.06	1.08	1.45			3.12	3.12	3.18	
	velocity	5.44	8.79	8.62	8.96	8.96	8.79	8.62	8.79	8.62	8.46	9.67	8.22		8.79	8.79	8.62	

2017 Meeting de Paris (Paris, FRA) (TV Analysis)

FINAL date 01-Jul-17 wind -0.1 m/s

Henson (2020) - Athlete First: 2017 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Levy, Ronald (JAM) (1992)	time	2.44	3.46	4.50	5.50	6.48	7.50	8.54	9.54	10.58	11.66		13.05	8 / 1			
reaction time 0.133	interval	7 steps	1.02	1.04	1.00	0.98	1.02	1.04	1.00	1.04	1.08	1.39	PB		3.06	3.04	3.12	
	velocity	5.62	8.96	8.79	9.14	9.33	8.96	8.79	9.14	8.79	8.46	10.09	8.43		8.96	9.02	8.79	
Pozzi, Andy (GBR) (1992)	time	2.48	3.50	4.50	5.48	6.48	7.48	8.50	9.54	10.58	11.66		13.14	3 / 2			
reaction time 0.107	interval	7 steps	1.02	1.00	0.98	1.00	1.00	1.02	1.04	1.04	1.08	1.48	PB		3.00	3.02	3.16	
	velocity	5.53	8.96	9.14	9.33	9.14	9.14	8.96	8.79	8.79	8.46	9.47	8.37		9.14	9.08	8.68	
Darien, Garfield (FRA) (1987)	time	2.50	3.54	4.56	5.56	6.54	7.58	8.58	9.60	10.62	11.68		13.15	7 / 3			
reaction time 0.121	interval	7 steps	1.04	1.02	1.00	0.98	1.04	1.00	1.02	1.02	1.06	1.47			3.06	3.02	3.10	
	velocity	5.49	8.79	8.96	9.14	9.33	8.79	9.14	8.96	8.96	8.62	9.54	8.37		8.96	9.08	8.85	
Shubenkov, Sergey (ANA) (199	time	2.56	3.60	4.58	5.58	6.56	7.58	8.58	9.60	10.66	11.76		13.18	4 / 4			
reaction time 0.125	interval	7 steps	1.04	0.98	1.00	0.98	1.02	1.00	1.02	1.06	1.10	1.42			3.02	3.00	3.18	
	velocity	5.36	8.79	9.33	9.14	9.33	8.96	9.14	8.96	8.62	8.31	9.87	8.35		9.08	9.14	8.62	
Alkana, Antonio (RSA) (1990)	time	2.52	3.56	4.56	5.58	6.58	7.60	8.62	9.66	10.70	11.78		13.24	1 / 5			
reaction time 0.139	interval		1.04	1.00	1.02	1.00	1.02	1.02	1.04	1.04	1.08	1.46			3.06	3.04	3.16	
	velocity	5.44	8.79	9.14	8.96	9.14	8.96	8.96	8.79	8.79	8.46	9.60	8.31		8.96	9.02	8.68	
Trajkovic, Milan (CYP) (1992)	time	2.50	3.56	4.58	5.60	6.62	7.66	8.70	9.74	10.80	11.86		13.30	2 / 6			
reaction time 0.142	interval	7 steps	1.06	1.02	1.02	1.02	1.04	1.04	1.04	1.06	1.06	1.44			3.10	3.10	3.16	
	velocity	5.49	8.62	8.96	8.96	8.96	8.79	8.79	8.79	8.62	8.62	9.74	8.27		8.85	8.85	8.68	
McLeod, Omar (JAM) (1994)	time	2.48	3.52	4.54	5.56	6.56	7.56	8.58	9.62	10.70	11.82		13.41	5 / 7			
reaction time 0.122	interval		1.04	1.02	1.02	1.00	1.00	1.02	1.04	1.08	1.12	1.59			3.08	3.02	3.24	
	velocity	5.53	8.79	8.96	8.96	9.14	9.14	8.96	8.79	8.46	8.16	8.82	8.20		8.90	9.08	8.46	

2017 Golden Spike (Ostrava, CZE) (TV Analysis)

FINAL date 28-Jun-17 wind 0.6 m/s

Henson (2020) - Athlete First: 2017 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Darien, Garfield (FRA) (1987)	time	2.48	3.50	4.52	5.52	6.52	7.54	8.54	9.56	10.58	11.62		13.09	5 / 1			
reaction time 0.151	interval	7 steps	1.02	1.02	1.00	1.00	1.02	1.00	1.02	1.02	1.04	1.47	PB		3.04	3.02	3.08	
	velocity	5.53	8.96	8.96	9.14	9.14	8.96	9.14	8.96	8.96	8.79	9.54	8.40		9.02	9.08	8.90	
Baji, Balázs (HUN) (1989)	time	2.52	3.56	4.58	5.60	6.60	7.60	8.62	9.64	10.68	11.74		13.23	6 / 2			
reaction time 0.152	interval	7 steps	1.04	1.02	1.02	1.00	1.00	1.02	1.02	1.04	1.06	1.49	NR PB		3.08	3.02	3.12	
	velocity	5.44	8.79	8.96	8.96	9.14	9.14	8.96	8.96	8.79	8.62	9.41	8.31		8.90	9.08	8.79	
Trajkovic, Milan (CYP) (1992)	time	2.48	3.52	4.56	5.58	6.62	7.66	8.66	9.70	10.78	11.82		13.34	8 / 3			
reaction time 0.164	interval	7 steps	1.04	1.04	1.02	1.04	1.04	1.00	1.04	1.08	1.04	1.52			3.10	3.08	3.16	
	velocity	5.53	8.79	8.79	8.96	8.79	8.79	9.14	8.79	8.46	8.79	9.22	8.25		8.85	8.90	8.68	
Alkana, Antonio (RSA) (1990)	time	2.52	3.56	4.58	5.60	6.64	7.68	8.74	9.80	10.86	11.92		13.37	4 / 4			
reaction time 0.155	interval		1.04	1.02	1.02	1.04	1.04	1.06	1.06	1.06	1.06	1.45			3.08	3.14	3.18	
	velocity	5.44	8.79	8.96	8.96	8.79	8.79	8.62	8.62	8.62	8.62	9.67	8.23		8.90	8.73	8.62	

Douvalídis, Konstadinos (GRE	time	2.56	3.62	4.66	5.70	6.72	7.76	8.80	9.88	10.96	12.04		13.51	2 / 5				
reaction time 0.154	interval		1.06	1.04	1.04	1.02	1.04	1.04	1.08	1.08	1.08	1.47			3.14	3.10	3.24	
	velocity	5.36	8.62	8.79	8.79	8.96	8.79	8.79	8.46	8.46	8.46	9.54	8.14		8.73	8.85	8.46	
Martinsen, Andreas (DEN) (199	time	2.54	3.62	4.66	5.70	6.74	7.78	8.82	9.90	10.96	12.06		13.55	3 / 6				
reaction time 0.149	interval	7 steps	1.08	1.04	1.04	1.04	1.04	1.04	1.08	1.06	1.10	1.49			3.16	3.12	3.24	
	velocity	5.40	8.46	8.79	8.79	8.79	8.79	8.79	8.46	8.62	8.31	9.41	8.12		8.68	8.79	8.46	
Czykier, Damian (POL) (1992)	time	2.56	3.62	4.68	5.70	6.72	7.78	8.82	9.88	10.96	12.06		13.56	7 / 7				
reaction time 0.177	interval	7 steps	1.06	1.06	1.02	1.02	1.06	1.04	1.06	1.08	1.10	1.50			3.14	3.12	3.24	
	velocity	5.36	8.62	8.62	8.96	8.96	8.62	8.79	8.62	8.46	8.31	9.35	8.11		8.73	8.79	8.46	
Noga, Artur (POL) (1988)	time	2.56	3.64	4.70	5.72	6.76	7.80	8.84	9.90	10.98	12.10		13.62	1 / 8				
reaction time 0.164	interval	7 steps	1.08	1.06	1.02	1.04	1.04	1.04	1.06	1.08	1.12	1.52			3.16	3.12	3.26	
	velocity	5.36	8.46	8.62	8.96	8.79	8.79	8.79	8.62	8.46	8.16	9.22	8.08		8.68	8.79	8.41	

2017 Japanese National Championships (Osaka, JPN)

FINAL

date 25-Jun-17 wind -0.2 m/s

(2017) - tfdata-store.com/2017/07/13/post-1040/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994	time	2.57	3.60	4.65	5.68	6.70	7.75	8.80	9.87	10.94	12.03		13.45	4 / 1			
reaction time 0.138	interval		1.03	1.05	1.03	1.02	1.05	1.05	1.07	1.07	1.09	1.42			3.11	3.12	3.23	
	velocity	5.34	8.87	8.70	8.87	8.96	8.70	8.70	8.54	8.54	8.39	9.87	8.18		8.82	8.79	8.49	
Yazawa, Wataru (JPN) (1991)	time	2.61	3.69	4.74	5.78	6.83	7.88	8.93	9.99	11.07	12.17		13.61	8 / 2			
reaction time 0.144	interval	7 steps	1.08	1.05	1.04	1.05	1.05	1.05	1.06	1.08	1.10	1.44			3.17	3.15	3.24	
	velocity	5.26	8.46	8.70	8.79	8.70	8.70	8.70	8.62	8.46	8.31	9.74	8.08		8.65	8.70	8.46	
Masuno, Genta (JPN) (1993)	time	2.61	3.67	4.71	5.74	6.81	7.85	8.92	9.99	11.05	12.15		13.61	5 / 3			
reaction time 0.156	interval		1.06	1.04	1.03	1.07	1.04	1.07	1.07	1.06	1.10	1.46			3.13	3.18	3.23	
	velocity	5.26	8.62	8.79	8.87	8.54	8.79	8.54	8.54	8.62	8.31	9.60	8.08		8.76	8.62	8.49	
Sato, Hiroyuki (JPN) (1990)	time	2.58	3.68	4.72	5.77	6.82	7.88	8.94	10.02	11.11	12.23		13.69	7 / 4			
reaction time 0.159	interval		1.10	1.04	1.05	1.05	1.06	1.06	1.08	1.09	1.12	1.46			3.19	3.17	3.29	
	velocity	5.32	8.31	8.79	8.70	8.70	8.62	8.62	8.46	8.39	8.16	9.60	8.04		8.60	8.65	8.33	
Kanai, Taio (JPN) (1995)	time	2.58	3.65	4.71	5.78	6.85	7.92	9.00	10.09	11.20	12.31		13.77	6 / 5			
reaction time 0.128	interval	7 steps	1.07	1.06	1.07	1.07	1.07	1.08	1.09	1.11	1.11	1.46			3.20	3.22	3.31	
	velocity	5.32	8.54	8.62	8.54	8.54	8.54	8.46	8.39	8.23	8.23	9.60	7.99		8.57	8.52	8.28	
Kuriki, Anthony Tyrell (JPN) (1	time	2.67	3.74	4.81	5.86	6.93	8.00	9.07	10.16	11.25	12.36		13.80	2 / 6			
reaction time 0.126	interval	7 steps	1.07	1.07	1.05	1.07	1.07	1.07	1.09	1.09	1.11	1.44			3.19	3.21	3.29	
	velocity	5.14	8.54	8.54	8.70	8.54	8.54	8.54	8.39	8.39	8.23	9.74	7.97		8.60	8.54	8.33	
Ishikawa, Shuhei (JPN) (1995)	time	2.59	3.66	4.72	5.78	6.85	7.93	9.01	10.10	11.19	12.32		13.80	3 / 7			
reaction time 0.136	interval	7 steps	1.07	1.06	1.06	1.07	1.08	1.08	1.09	1.09	1.13	1.48			3.19	3.23	3.31	
	velocity	5.30	8.54	8.62	8.62	8.54	8.46	8.46	8.39	8.39	8.09	9.47	7.97		8.60	8.49	8.28	
Tanaka, Shinya (JPN) (1993)	time	2.61	3.69	4.75	5.80	6.86	7.93	9.00	10.11	11.22	12.37		13.92	9 / 8			
reaction time 0.141	interval	7 steps	1.08	1.06	1.05	1.06	1.07	1.07	1.11	1.11	1.15	1.55			3.19	3.20	3.37	
	velocity	5.26	8.46	8.62	8.70	8.62	8.54	8.54	8.23	8.23	7.95	9.05	7.90		8.60	8.57	8.14	

Semi-Final 2

date 24-Jun-17 wind 0.3 m/s

(2017) - tfdata-store.com/2017/07/13/post-1040/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)	time	2.60	3.68	4.71	5.73	6.76	7.81	8.87	9.93	11.01	12.09		13.54	7 / 1			
reaction time 0.148	interval		1.08	1.03	1.02	1.03	1.05	1.06	1.06	1.08	1.08	1.45			3.13	3.14	3.22	
	velocity	5.28	8.46	8.87	8.96	8.87	8.70	8.62	8.62	8.46	8.46	9.67	8.12		8.76	8.73	8.52	
Kanai, Taio (JPN) (1995)	time	2.59	3.67	4.71	5.77	6.83	7.90	8.97	10.06	11.16	12.27		13.71	6 / 2			
reaction time 0.115	interval	7 steps	1.08	1.04	1.06	1.06	1.07	1.07	1.09	1.10	1.11	1.44			3.18	3.20	3.30	
	velocity	5.30	8.46	8.79	8.62	8.62	8.54	8.54	8.39	8.31	8.23	9.74	8.02		8.62	8.57	8.31	
Ishikawa, Shuhei (JPN) (1995)	time	2.58	3.67	4.74	5.81	6.87	7.94	9.02	10.11	11.22	12.32		13.78	5 / 4			
reaction time 0.124	interval	7 steps	1.09	1.07	1.07	1.06	1.07	1.08	1.09	1.11	1.10	1.46			3.23	3.21	3.30	
	velocity	5.32	8.39	8.54	8.54	8.62	8.54	8.46	8.39	8.23	8.31	9.60	7.98		8.49	8.54	8.31	
Kagimoto, Masahiro (JPN) (19	time	2.64	3.72	4.79	5.88	6.95	8.03	9.11	10.21	11.33	12.45		13.93	8 / 6			
reaction time 0.144	interval		1.08	1.07	1.09	1.07	1.08	1.08	1.10	1.12	1.12	1.48			3.24	3.23	3.34	
	velocity	5.20	8.46	8.54	8.39	8.54	8.46	8.46	8.31	8.16	8.16	9.47	7.90		8.46	8.49	8.21	
Furuya, Kyohei (JPN) (1996)	time	2.61	3.69	4.79	5.86	6.94	8.03	9.14	10.26	11.36	12.51		13.94	3 / 7			
reaction time 0.102	interval		1.08	1.10	1.07	1.08	1.09	1.11	1.12	1.10	1.15	1.43			3.25	3.28	3.37	
	velocity	5.26	8.46	8.31	8.54	8.46	8.39	8.23	8.16	8.31	7.95	9.80	7.89		8.44	8.36	8.14	
Fudaba, Hiroki (JPN) (1994)	time	2.68	3.77	4.85	5.91	6.98	8.05	9.15	10.27	11.40	12.54		14.06	9 / 8			
reaction time 0.171	interval	7 steps	1.09	1.08	1.06	1.07	1.07	1.10	1.12	1.13	1.14	1.52			3.23	3.24	3.39	
	velocity	5.12	8.39	8.46	8.62	8.54	8.54	8.31	8.16	8.09	8.02	9.22	7.82		8.49	8.46	8.09	

Semi-Final 1

date 24-Jun-17 wind 0.6 m/s (2017) - tfdata-store.com/2017/07/13/post-1040/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994)	time	2.58	3.62	4.65	5.68	6.71	7.75	8.80	9.85	10.89	12.00		13.44	4 / 1			
reaction time 0.150	interval		1.04	1.03	1.03	1.03	1.04	1.05	1.05	1.04	1.11	1.44	PB		3.10	3.12	3.20
	velocity	5.32	8.79	8.87	8.87	8.87	8.79	8.70	8.70	8.79	8.23	9.74	8.18		8.85	8.79	8.57
Sato, Hiroyuki (JPN) (1990)	time	2.59	3.63	4.67	5.73	6.77	7.83	8.89	9.98	11.08	12.18		13.59	5 / 2			
reaction time 0.169	interval		1.04	1.04	1.06	1.04	1.06	1.06	1.09	1.10	1.10	1.41	PB		3.14	3.16	3.29
	velocity	5.30	8.79	8.79	8.62	8.79	8.62	8.62	8.39	8.31	8.31	9.94	8.09		8.73	8.68	8.33
Yazawa, Wataru (JPN) (1991)	time	2.61	3.68	4.73	5.78	6.82	7.88	8.95	10.03	11.12	12.23		13.66	6 / 3			
reaction time 0.146	interval	7 steps	1.07	1.05	1.05	1.04	1.06	1.07	1.08	1.09	1.11	1.43			3.17	3.17	3.28
	velocity	5.26	8.54	8.70	8.70	8.79	8.62	8.54	8.46	8.39	8.23	9.80	8.05		8.65	8.65	8.36
Kuriki, Anthony Tyrell (JPN) (1	time	2.64	3.71	4.79	5.85	6.90	7.94	9.00	10.07	11.16	12.27		13.69	8 / 4			
reaction time 0.145	interval	7 steps	1.07	1.08	1.06	1.05	1.04	1.06	1.07	1.09	1.11	1.42			3.21	3.15	3.27
	velocity	5.20	8.54	8.46	8.62	8.70	8.79	8.62	8.54	8.39	8.23	9.87	8.04		8.54	8.70	8.39
Nomoto, Syuusei (JPN) (1995)	time	2.64	3.72	4.81	5.86	6.91	7.98	9.04	10.12	11.21	12.32		13.70	9 / 5			
reaction time 0.156	interval	7 steps	1.08	1.09	1.05	1.05	1.07	1.06	1.08	1.09	1.11	1.38			3.22	3.18	3.28
	velocity	5.20	8.46	8.39	8.70	8.70	8.54	8.62	8.46	8.39	8.23	10.16	8.03		8.52	8.62	8.36
Omoro, Hideki (JPN) (1990)	time	2.64	3.71	4.78	5.86	6.94	8.00	9.08	10.17	11.26	12.35		13.75	7 / 6			
reaction time 0.147	interval	7 steps	1.07	1.07	1.08	1.08	1.06	1.08	1.09	1.09	1.09	1.40			3.22	3.22	3.27
	velocity	5.20	8.54	8.54	8.46	8.46	8.62	8.46	8.39	8.39	8.39	10.01	8.00		8.52	8.52	8.39
Nishizawa, Masanori (JPN) (19	time	2.66	3.75	4.82	5.91	6.97	8.03	9.11	10.20	11.32	12.41		13.87	3 / 7			
reaction time 0.133	interval		1.09	1.07	1.09	1.06	1.06	1.08	1.09	1.12	1.09	1.46			3.25	3.20	3.30
	velocity	5.16	8.39	8.54	8.39	8.62	8.62	8.46	8.39	8.16	8.39	9.60	7.93		8.44	8.57	8.31

Heat 4

date 24-Jun-17 wind 0.0 m/s (2017) - tfdata-store.com/2017/07/13/post-1040/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tanaka, Shinya (JPN) (1993)	time	2.62	3.69	4.74	5.78	6.84	7.88	8.95	10.02	11.11	12.19		13.64	6 / 1			
reaction time 0.148	interval	7 steps	1.07	1.05	1.04	1.06	1.04	1.07	1.07	1.09	1.08	1.45	PB		3.16	3.17	3.24
	velocity	5.24	8.54	8.70	8.79	8.62	8.79	8.54	8.54	8.39	8.46	9.67	8.06		8.68	8.65	8.46
Sato, Hiroyuki (JPN) (1990)	time	2.58	3.66	4.71	5.76	6.80	7.86	8.92	10.02	11.11	12.22		13.65	2 / 2			
reaction time 0.165	interval		1.08	1.05	1.05	1.04	1.06	1.06	1.10	1.09	1.11	1.43			3.18	3.16	3.30
	velocity	5.32	8.46	8.70	8.70	8.79	8.62	8.62	8.31	8.39	8.23	9.80	8.06		8.62	8.68	8.31
Yazawa, Wataru (JPN) (1991)	time	2.61	3.69	4.76	5.80	6.85	7.90	8.96	10.03	11.12	12.23		13.65	8 / 3			
reaction time 0.143	interval	7 steps	1.08	1.07	1.04	1.05	1.05	1.06	1.07	1.09	1.11	1.42			3.19	3.16	3.27
	velocity	5.26	8.46	8.54	8.79	8.70	8.70	8.62	8.54	8.39	8.23	9.87	8.06		8.60	8.68	8.39
Fujii, Ryota (JPN) (1996)	time	2.64	3.73	4.80	5.88	6.95	8.01	9.13	10.24	11.34	12.47		13.92	1 / 4			
reaction time 0.138	interval		1.09	1.07	1.08	1.07	1.06	1.12	1.11	1.10	1.13	1.45	=PB		3.24	3.25	3.34
	velocity	5.20	8.39	8.54	8.46	8.54	8.62	8.16	8.23	8.31	8.09	9.67	7.90		8.46	8.44	8.21
Baba, Kazuki (JPN) (1992)	time	2.67	3.77	4.83	5.88	6.97	8.06	9.15	10.27	11.39	12.53		13.93	4 / 5			
reaction time 0.136	interval		1.10	1.06	1.05	1.09	1.09	1.09	1.12	1.12	1.14	1.40	PB		3.21	3.27	3.38
	velocity	5.14	8.31	8.62	8.70	8.39	8.39	8.39	8.16	8.16	8.02	10.01	7.90		8.54	8.39	8.11
Iwafune, Yoichi (JPN) (1985)	time	2.71	3.81	4.88	5.97	7.05	8.15	9.24	10.37	11.50	12.63		14.14	7 / 6			
reaction time 0.151	interval		1.10	1.07	1.09	1.08	1.10	1.09	1.13	1.13	1.13	1.51			3.26	3.27	3.39
	velocity	5.06	8.31	8.54	8.39	8.46	8.31	8.39	8.09	8.09	8.09	9.28	7.78		8.41	8.39	8.09
Furuta, Kazuaki (JPN) (1992)	time	2.69	3.79	4.86	5.95	7.04	8.13	9.26	10.37	11.50	12.65		14.17	3 / 7			
reaction time 0.130	interval	7 steps	1.10	1.07	1.09	1.09	1.09	1.13	1.11	1.13	1.15	1.52			3.26	3.31	3.39
	velocity	5.10	8.31	8.54	8.39	8.39	8.39	8.09	8.23	8.09	7.95	9.22	7.76		8.41	8.28	8.09

Heat 3

date 24-Jun-17 wind 0.5 m/s (2017) - tfdata-store.com/2017/07/13/post-1040/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994)	time	2.59	3.64	4.69	5.74	6.78	7.83	8.87	9.93	11.00	12.08		13.50	7 / 1			
reaction time 0.159	interval		1.05	1.05	1.05	1.04	1.05	1.04	1.06	1.07	1.08	1.42	PB		3.15	3.13	3.21
	velocity	5.30	8.70	8.70	8.70	8.79	8.70	8.79	8.62	8.54	8.46	9.87	8.15		8.70	8.76	8.54
Kagimoto, Masahiro (JPN) (19	time	2.62	3.72	4.78	5.86	6.92	8.00	9.09	10.18	11.30	12.44		13.88	2 / 2			
reaction time 0.140	interval		1.10	1.06	1.08	1.06	1.08	1.09	1.09	1.12	1.14	1.44			3.24	3.23	3.35
	velocity	5.24	8.31	8.62	8.46	8.62	8.46	8.39	8.39	8.16	8.02	9.74	7.93		8.46	8.49	8.19
Fudaba, Hiroki (JPN) (1994)	time	2.69	3.78	4.85	5.93	6.99	8.08	9.15	10.25	11.36	12.49		13.94	5 / 3			
reaction time 0.165	interval	7 steps	1.09	1.07	1.08	1.06	1.09	1.07	1.10	1.11	1.13	1.45			3.24	3.22	3.34
	velocity	5.10	8.39	8.54	8.46	8.62	8.39	8.54	8.31	8.23	8.09	9.67	7.89		8.46	8.52	8.21
Ogata, Akihiro (JPN) (1993)	time	2.68	3.77	4.83	5.90	6.95	8.04	9.15	10.27	11.39	12.51		14.03	6 / 4			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time 0.155	interval	7 steps	1.09	1.06	1.07	1.05	1.09	1.11	1.12	1.12	1.12	1.52			3.22	3.25	3.36
	velocity		5.12	8.39	8.62	8.54	8.70	8.39	8.23	8.16	8.16	8.16	9.22	7.84	8.52	8.44	8.16
Maeda, Hirotake (JPN) (1996)	time		2.60	3.73	4.82	5.92	7.01	8.16	9.30	10.41	11.51	12.64		14.05	8 / 5			
reaction time 0.137	interval			1.13	1.09	1.10	1.09	1.15	1.14	1.11	1.10	1.13	1.41			3.32	3.38	3.34
	velocity		5.28	8.09	8.39	8.31	8.39	7.95	8.02	8.23	8.31	8.09	9.94	7.83		8.26	8.11	8.21
Notoya, Yuta (JPN) (1989)	time		2.61	3.72	4.82	5.91	6.99	8.08	9.21	10.32	11.45	12.60		14.09	4 / 6			
reaction time 0.119	interval	7 steps	1.11	1.10	1.09	1.08	1.09	1.13	1.11	1.13	1.15	1.49				3.30	3.30	3.39
	velocity		5.26	8.23	8.31	8.39	8.46	8.39	8.09	8.23	8.09	7.95	9.41	7.81		8.31	8.31	8.09
Furumoto, Tsubasa (JPN) (199	time		2.65	3.77	4.88	5.98	7.07	8.18	9.28	10.40	11.52	12.65		14.11	3 / 7			
reaction time 0.120	interval			1.12	1.11	1.10	1.09	1.11	1.10	1.12	1.12	1.13	1.46			3.33	3.30	3.37
	velocity		5.18	8.16	8.23	8.31	8.39	8.23	8.31	8.16	8.16	8.09	9.60	7.80		8.23	8.31	8.14
Kobayashi, Fumihito (JPN) (19	time		2.76	3.88	5.05	6.26	7.45	8.65	9.90	11.14	12.38	13.63		15.27	9 / 8			
reaction time 0.146	interval			1.12	1.17	1.21	1.19	1.20	1.25	1.24	1.24	1.25	1.64			3.50	3.64	3.73
	velocity		4.97	8.16	7.81	7.55	7.68	7.62	7.31	7.37	7.37	7.31	8.55	7.20		7.83	7.53	7.35

Heat 2

date 24-Jun-17 wind 0.0 m/s *(2017) - tfdata-store.com/2017/07/13/post-1040/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)	time	2.60	3.65	4.68	5.70	6.72	7.75	8.80	9.85	10.92	11.99		13.40	8 / 1			
reaction time 0.156	interval		1.05	1.03	1.02	1.02	1.03	1.05	1.05	1.07	1.07	1.41	PB		3.10	3.10	3.19
	velocity	5.28	8.70	8.87	8.96	8.96	8.87	8.70	8.70	8.54	8.54	9.94	8.21		8.85	8.85	8.60
Kanai, Taio (JPN) (1995)	time	2.57	3.63	4.67	5.71	6.77	7.84	8.91	9.99	11.08	12.18		13.62	6 / 2			
reaction time 0.135	interval	7 steps	1.06	1.04	1.04	1.06	1.07	1.07	1.08	1.09	1.10	1.44	PB		3.14	3.20	3.27
	velocity	5.34	8.62	8.79	8.79	8.62	8.54	8.54	8.46	8.39	8.31	9.74	8.08		8.73	8.57	8.39
Nomoto, Syuusei (JPN) (1995)	time	2.59	3.71	4.77	5.85	6.93	8.02	9.10	10.18	11.30	12.40		13.81	2 / 3			
reaction time 0.154	interval	7 steps	1.12	1.06	1.08	1.08	1.09	1.08	1.08	1.12	1.10	1.41			3.26	3.25	3.30
	velocity	5.30	8.16	8.62	8.46	8.46	8.39	8.46	8.46	8.16	8.31	9.94	7.97		8.41	8.44	8.31
Nishizawa, Masanori (JPN) (19	time	2.63	3.71	4.79	5.86	6.93	8.01	9.08	10.18	11.28	12.39		13.83	4 / 4			
reaction time 0.138	interval		1.08	1.08	1.07	1.07	1.08	1.07	1.10	1.10	1.11	1.44			3.23	3.22	3.31
	velocity	5.22	8.46	8.46	8.54	8.54	8.46	8.54	8.31	8.31	8.23	9.74	7.95		8.49	8.52	8.28
Yamamoto, Kenta (JPN) (1995)	time	2.68	3.75	4.83	5.91	6.97	8.04	9.13	10.23	11.32	12.43		13.84	3 / 5			
reaction time 0.161	interval		1.07	1.08	1.08	1.06	1.07	1.09	1.10	1.09	1.11	1.41	PB		3.23	3.22	3.30
	velocity	5.12	8.54	8.46	8.46	8.62	8.54	8.39	8.31	8.39	8.23	9.94	7.95		8.49	8.52	8.31
Kishi, Kazuki (JPN) (1993)	time	2.65	3.75	4.85	5.95	7.06	8.14	9.27	10.39	11.53	12.67		14.15	9 / 6			
reaction time 0.158	interval		1.10	1.10	1.10	1.11	1.08	1.13	1.12	1.14	1.14	1.48			3.30	3.32	3.40
	velocity	5.18	8.31	8.31	8.31	8.23	8.46	8.09	8.16	8.02	8.02	9.47	7.77		8.31	8.26	8.06
Kiriyama, Norihiro (JPN) (1992)	time	2.69	3.78	4.86	5.93	7.04	8.16	9.26	10.38	11.53	12.68		14.20	5 / 7			
reaction time 0.176	interval		1.09	1.08	1.07	1.11	1.12	1.10	1.12	1.15	1.15	1.52			3.24	3.33	3.42
	velocity	5.10	8.39	8.46	8.54	8.23	8.16	8.31	8.16	7.95	7.95	9.22	7.75		8.46	8.23	8.02
Okazaki, Masaki (JPN) (1994)	time	2.65	3.79	4.90	6.00	7.11	8.23	9.35	10.48	11.62	12.76		14.21	7 / 8			
reaction time 0.142	interval	7 steps	1.14	1.11	1.10	1.11	1.12	1.12	1.13	1.14	1.14	1.45			3.35	3.35	3.41
	velocity	5.18	8.02	8.23	8.31	8.23	8.16	8.16	8.09	8.02	8.02	9.67	7.74		8.19	8.19	8.04

Heat 1

date 24-Jun-17 wind 1.3 m/s *(2017) - tfdata-store.com/2017/07/13/post-1040/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omoro, Hideki (JPN) (1990)	time	2.63	3.70	4.76	5.83	6.88	7.92	8.98	10.05	11.13	12.22		13.63	7 / 1			
reaction time 0.161	interval	7 steps	1.07	1.06	1.07	1.05	1.04	1.06	1.07	1.08	1.09	1.41			3.20	3.15	3.24
	velocity	5.22	8.54	8.62	8.54	8.70	8.79	8.62	8.54	8.46	8.39	9.94	8.07		8.57	8.70	8.46
Ishikawa, Shuhei (JPN) (1995)	time	2.57	3.65	4.73	5.80	6.86	7.91	8.96	10.03	11.10	12.20		13.67	4 / 2			
reaction time 0.156	interval	7 steps	1.08	1.08	1.07	1.06	1.05	1.05	1.07	1.07	1.10	1.47	PB		3.23	3.16	3.24
	velocity	5.34	8.46	8.46	8.54	8.62	8.70	8.70	8.54	8.54	8.31	9.54	8.05		8.49	8.68	8.46
Kuriki, Anthony Tyrell (JPN) (1	time	2.66	3.73	4.79	5.85	6.90	7.95	9.01	10.08	11.16	12.26		13.68	5 / 3			
reaction time 0.140	interval		1.07	1.06	1.06	1.05	1.05	1.06	1.07	1.08	1.10	1.42			3.19	3.16	3.25
	velocity	5.16	8.54	8.62	8.62	8.70	8.70	8.62	8.54	8.46	8.31	9.87	8.04		8.60	8.68	8.44
Furuya, Takumu (JPN) (1997)	time	2.66	3.75	4.80	5.87	6.90	7.95	9.02	10.10	11.18	12.30		13.74	6 / 4			
reaction time 0.146	interval		1.09	1.05	1.07	1.03	1.05	1.07	1.08	1.08	1.12	1.44			3.21	3.15	3.28
	velocity	5.16	8.39	8.70	8.54	8.87	8.70	8.54	8.46	8.46	8.16	9.74	8.01		8.54	8.70	8.36
Furuya, Kyohei (JPN) (1996)	time	2.63	3.69	4.76	5.83	6.88	7.95	9.06	10.16	11.28	12.43		13.89	9 / 5			
reaction time 0.124	interval		1.06	1.07	1.07	1.05	1.07	1.11	1.10	1.12	1.15	1.46			3.20	3.23	3.37
	velocity	5.22	8.62	8.54	8.54	8.70	8.54	8.23	8.31	8.16	7.95	9.60	7.92		8.57	8.49	8.14
Wado, Tatsuya (JPN) (1990)	time	2.63	3.74	4.80	5.88	6.95	8.01	9.09	10.18	11.28	12.40		13.91	8 / 6			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.158	interval		1.11	1.06	1.08	1.07	1.06	1.08	1.09	1.10	1.12	1.51			3.25	3.21	3.31
		velocity	5.22	8.23	8.62	8.46	8.54	8.62	8.46	8.39	8.31	8.16	9.28	7.91		8.44	8.54	8.28
Hiramatsu, Papdemba (JPN) (1		time	2.63	3.72	4.81	5.86	6.93	8.01	9.10	10.19	11.30	12.44		13.93	2 / 7			
reaction time	0.168	interval	7 steps	1.09	1.09	1.05	1.07	1.08	1.09	1.09	1.11	1.14	1.49			3.23	3.24	3.34
		velocity	5.22	8.39	8.39	8.70	8.54	8.46	8.39	8.39	8.23	8.02	9.41	7.90		8.49	8.46	8.21
Murakami, Masao (JPN)		time	2.64	3.74	4.83	5.92	7.00	8.09	9.19	10.32	11.46	12.64		14.14	3 / 8			
reaction time	0.167	interval		1.10	1.09	1.09	1.08	1.09	1.10	1.13	1.14	1.18	1.50			3.28	3.27	3.45
		velocity	5.20	8.31	8.39	8.39	8.46	8.39	8.31	8.09	8.02	7.75	9.35	7.78		8.36	8.39	7.95

2017 Jamaican National Championships (Kingston, JAM) (TV Analysis)

FINAL date 24-Jun-17 wind 0.7 m/s

Henson (2020) - Athlete First: 2017 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.43	3.46	4.46	5.46	6.43	7.43	8.43	9.43	10.43	11.45		12.90	4 / 1			
reaction time	interval		1.03	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.02	1.45	NR PB		3.03	2.97	3.02
	velocity	5.65	8.87	9.14	9.14	9.42	9.14	9.14	9.14	9.14	8.96	9.67	8.53		9.05	9.23	9.08
Levy, Ronald (JAM) (1992)	time	2.43	3.46	4.48	5.50	6.50	7.50	8.52	9.53	10.56	11.62		13.13	5 / 2			
reaction time	interval	7 steps	1.03	1.02	1.02	1.00	1.00	1.02	1.01	1.03	1.06	1.51			3.07	3.02	3.10
	velocity	5.65	8.87	8.96	8.96	9.14	9.14	8.96	9.05	8.87	8.62	9.28	8.38		8.93	9.08	8.85
Parchment, Hansle (JAM) (199(	time	2.50	3.55	4.57	5.57	6.57	7.57	8.57	9.57	10.60	11.63		13.19	8 / 3			
reaction time	interval	7 steps	1.05	1.02	1.00	1.00	1.00	1.00	1.00	1.03	1.03	1.56			3.07	3.00	3.06
	velocity	5.49	8.70	8.96	9.14	9.14	9.14	9.14	9.14	8.87	8.87	8.99	8.34		8.93	9.14	8.96
Russell, Dejour (JAM) (2000)	time	2.43	3.47	4.50	5.53	6.58	7.63	8.67	9.70	10.75	11.80		13.32	6 / 4			
reaction time	interval		1.04	1.03	1.03	1.05	1.05	1.04	1.03	1.05	1.05	1.52	AJR PB		3.10	3.14	3.13
	velocity	5.65	8.79	8.87	8.87	8.70	8.70	8.79	8.87	8.70	8.70	9.22	8.26		8.85	8.73	8.76

2017 Bauhaus Athletics (Stockholm, SWE) (TV Analysis)

FINAL date 18-Jun-17 wind 3.5 m/s

Henson (2020) - Athlete First: 2017 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.56	3.56	4.58	5.62	6.62	7.62	8.62	9.60	10.62	11.64		13.09	4 / 1			
reaction time	0.146	interval		1.00	1.02	1.04	1.00	1.00	1.00	0.98	1.02	1.02	1.45			3.06	3.00	3.02
		velocity	5.36	9.14	8.96	8.79	9.14	9.14	9.14	9.33	8.96	8.96	9.67	8.40		8.96	9.14	9.08
Shubenkov, Sergey (ANA) (199	time	2.52	3.58	4.56	5.58	6.58	7.56	8.56	9.54	10.60	11.66		13.10	5 / 2			
reaction time	0.141	interval	7 steps	1.06	0.98	1.02	1.00	0.98	1.00	0.98	1.06	1.06	1.44			3.06	2.98	3.10
		velocity	5.44	8.62	9.33	8.96	9.14	9.33	9.14	9.33	8.62	8.62	9.74	8.40		8.96	9.20	8.85
Brathwaite, Shane (BAR) (1990	time	2.48	3.56	4.56	5.58	6.60	7.64	8.66	9.68	10.72	11.78		13.25	1 / 3			
reaction time	0.134	interval	7 steps	1.08	1.00	1.02	1.02	1.04	1.02	1.02	1.04	1.06	1.47			3.10	3.08	3.12
		velocity	5.53	8.46	9.14	8.96	8.96	8.79	8.96	8.96	8.79	8.62	9.54	8.30		8.85	8.90	8.79
Manga, Aurel (FRA) (1992)	time	2.46	3.48	4.50	5.54	6.54	7.56	8.58	9.62	10.70	11.78		13.30	6 / 4			
reaction time	0.147	interval	7 steps	1.02	1.02	1.04	1.00	1.02	1.02	1.04	1.08	1.08	1.52			3.08	3.04	3.20
		velocity	5.58	8.96	8.96	8.79	9.14	8.96	8.96	8.79	8.46	8.46	9.22	8.27		8.90	9.02	8.57
Czykier, Damian (POL) (1992)	time	2.54	3.62	4.64	5.64	6.66	7.70	8.72	9.74	10.78	11.86		13.36	7 / 5			
reaction time	0.164	interval	7 steps	1.08	1.02	1.00	1.02	1.04	1.02	1.02	1.04	1.08	1.50			3.10	3.08	3.14
		velocity	5.40	8.46	8.96	9.14	8.96	8.79	8.96	8.96	8.79	8.46	9.35	8.23		8.85	8.90	8.73

2017 Golden Gala Pietro Mennea (Rome, ITA) (TV Analysis)

FINAL date 08-Jun-17 wind -0.3 m/s

Henson (2020) - Athlete First: 2017 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.44	3.48	4.48	5.48	6.50	7.50	8.54	9.56	10.60	11.66		13.13	7 / 1			
reaction time	0.132	interval	7 steps	1.04	1.00	1.00	1.02	1.00	1.04	1.02	1.04	1.06	1.47			3.04	3.06	3.12
		velocity	5.62	8.79	9.14	9.14	8.96	9.14	8.79	8.96	8.79	8.62	9.54	8.38		9.02	8.96	8.79
Ortega, Orlando (ESP) (1991)	time	2.58	3.62	4.64	5.66	6.68	7.66	8.68	9.70	10.72	11.76		13.17	6 / 2			
reaction time	0.152	interval	7 steps	1.04	1.02	1.02	1.02	0.98	1.02	1.02	1.02	1.04	1.41			3.08	3.02	3.08
		velocity	5.32	8.79	8.96	8.96	8.96	9.33	8.96	8.96	8.96	8.79	9.94	8.35		8.90	9.08	8.90
Shubenkov, Sergey (ANA) (199	time	2.60	3.66	4.68	5.68	6.68	7.68	8.70	9.70	10.72	11.78		13.21	4 / 3			
reaction time	0.154	interval	7 steps	1.06	1.02	1.00	1.00	1.00	1.02	1.00	1.02	1.06	1.43			3.08	3.02	3.08
		velocity	5.28	8.62	8.96	9.14	9.14	9.14	8.96	9.14	8.96	8.62	9.80	8.33		8.90	9.08	8.90
Pozzi, Andy (GBR) (1992)	time	2.48	3.52	4.52	5.52	6.52	7.50	8.52	9.58	10.62	11.74		13.24	5 / 4			
reaction time	0.119	interval	7 steps	1.04	1.00	1.00	1.00	0.98	1.02	1.06	1.04	1.12	1.50			3.04	3.00	3.22
		velocity	5.53	8.79	9.14	9.14	9.14	9.33	8.96	8.62	8.79	8.16	9.35	8.31		9.02	9.14	8.52
Trajkovic, Milan (CYP) (1992)	time	2.52	3.54	4.56	5.58	6.62	7.66	8.70	9.74	10.82	11.90		13.39	9 / 5			
reaction time	0.157	interval	7 steps	1.02	1.02	1.02	1.04	1.04	1.04	1.04	1.08	1.08	1.49			3.06	3.12	3.20
		velocity	5.44	8.96	8.96	8.96	8.79	8.79	8.79	8.79	8.46	8.46	9.41	8.22		8.96	8.79	8.57

Oliver, David (USA) (1982)		time	2.50	3.54	4.58	5.62	6.62	7.62	8.66	9.74	10.82	11.92		13.46	3 / 6			
reaction time	0.141	interval	7 steps	1.04	1.04	1.04	1.00	1.00	1.04	1.08	1.08	1.10	1.54			3.12	3.04	3.26
		velocity	5.49	8.79	8.79	8.79	9.14	9.14	8.79	8.46	8.46	8.31	9.10	8.17		8.79	9.02	8.41
Cabral, Jonathan (CAN) (1992)		time	2.52	3.58	4.64	5.66	6.70	7.74	8.78	9.86	10.94	12.08		13.60	2 / 7			
reaction time	0.130	interval	7 steps	1.06	1.06	1.02	1.04	1.04	1.04	1.08	1.08	1.14	1.52			3.14	3.12	3.30
		velocity	5.44	8.62	8.62	8.96	8.79	8.79	8.79	8.46	8.46	8.02	9.22	8.09		8.73	8.79	8.31
Perini, Lorenzo (ITA) (1994)		time	2.56	3.62	4.68	5.74	6.80	7.84	8.90	9.96	11.06	12.14		13.65	1 / 8			
reaction time	0.141	interval		1.06	1.06	1.06	1.06	1.04	1.06	1.06	1.10	1.08	1.51			3.18	3.16	3.24
		velocity	5.36	8.62	8.62	8.62	8.62	8.79	8.62	8.62	8.31	8.46	9.28	8.06		8.62	8.68	8.46
Darien, Garfield (FRA) (1987)		time	2.52	3.56	4.58	5.60	6.72							15.64	8 / 9			
reaction time	0.148	interval	7 steps	1.04	1.02	1.02	1.12									3.08		
		velocity	5.44	8.79	8.96	8.96	8.16							7.03		8.90		

2017 Fuse Sprint (Tottori, JPN)

FINAL

date 04-Jun-17 wind 3.2 m/s

(2017) - tfdata-store.com/2017/06/04/post-848/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)	time	2.59	3.65	4.70	5.74	6.77	7.80	8.84	9.89	10.96	12.04		13.43	6 / 1			
reaction time	interval		1.06	1.05	1.04	1.03	1.03	1.04	1.05	1.07	1.08	1.39			3.15	3.10	3.20
	velocity	5.30	8.62	8.70	8.79	8.87	8.87	8.79	8.70	8.54	8.46	10.09	8.19		8.70	8.85	8.57
Takayama, Shunya (JPN) (1994)	time	2.62	3.67	4.72	5.77	6.82	7.87	8.93	10.00	11.08	12.18		13.62	5 / 2			
reaction time	interval	7 steps	1.05	1.05	1.05	1.05	1.05	1.06	1.07	1.08	1.10	1.44			3.15	3.16	3.25
	velocity	5.24	8.70	8.70	8.70	8.70	8.70	8.62	8.54	8.46	8.31	9.74	8.08		8.70	8.68	8.44
Tanaka, Shinya (JPN) (1993)	time	2.61	3.68	4.73	5.79	6.85	7.92	8.99	10.07	11.16	12.25		13.68	9 / 3			
reaction time	interval		1.07	1.05	1.06	1.06	1.07	1.07	1.08	1.09	1.09	1.43			3.18	3.20	3.26
	velocity	5.26	8.54	8.70	8.62	8.62	8.54	8.54	8.46	8.39	8.39	9.80	8.04		8.62	8.57	8.41
Wado, Tatsuya (JPN) (1990)	time	2.58	3.66	4.70	5.75	6.81	7.87	8.92	9.99	11.08	12.18		13.68	8 / 4			
reaction time	interval		1.08	1.04	1.05	1.06	1.06	1.05	1.07	1.09	1.10	1.50			3.17	3.17	3.26
	velocity	5.32	8.46	8.79	8.70	8.62	8.62	8.70	8.54	8.39	8.31	9.35	8.04		8.65	8.65	8.41
Sato, Hiroyuki (JPN) (1990)	time	2.59	3.66	4.75	5.83	6.89	7.97	9.04	10.14	11.24	12.35		13.79	7 / 5			
reaction time	interval		1.07	1.09	1.08	1.06	1.08	1.07	1.10	1.10	1.11	1.44			3.24	3.21	3.31
	velocity	5.30	8.54	8.39	8.46	8.62	8.46	8.54	8.31	8.31	8.23	9.74	7.98		8.46	8.54	8.28
Katsuta, Kizuku (JPN) (1999)	time	2.69	3.78	4.90	5.99	7.09	8.20	9.32	10.45	11.57	12.74		14.20	3 / 6			
reaction time	interval		1.09	1.12	1.09	1.10	1.11	1.12	1.13	1.12	1.17	1.46			3.30	3.33	3.42
	velocity	5.10	8.39	8.16	8.39	8.31	8.23	8.16	8.09	8.16	7.81	9.60	7.75		8.31	8.23	8.02
Morita, Shunichi (JPN) (1989)	time	2.76	3.83	4.95	6.05	7.14	8.24	9.37	10.50	11.63	12.78		14.24	2 / 7			
reaction time	interval		1.07	1.12	1.10	1.09	1.10	1.13	1.13	1.13	1.15	1.46			3.29	3.32	3.41
	velocity	4.97	8.54	8.16	8.31	8.39	8.31	8.09	8.09	8.09	7.95	9.60	7.72		8.33	8.26	8.04

Heat 5

date 04-Jun-17 wind 1.5 m/s

(2017) - tfdata-store.com/2017/06/04/post-848/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omoro, Hideki (JPN) (1990)	time	2.58	3.65	4.69	5.74	6.79	7.84	8.88	9.94	11.03	12.12		13.54	4 / 1			
reaction time	interval		1.07	1.04	1.05	1.05	1.05	1.04	1.06	1.09	1.09	1.42			3.16	3.14	3.24
	velocity	5.32	8.54	8.79	8.70	8.70	8.70	8.79	8.62	8.39	8.39	9.87	8.12		8.68	8.73	8.46
Yazawa, Wataru (JPN) (1991)	time	2.60	3.68	4.74	5.78	6.82	7.87	8.93	9.99	11.07	12.16		13.60	6 / 2			
reaction time	interval	7 steps	1.08	1.06	1.04	1.04	1.05	1.06	1.06	1.08	1.09	1.44			3.18	3.15	3.23
	velocity	5.28	8.46	8.62	8.79	8.79	8.70	8.62	8.62	8.46	8.39	9.74	8.09		8.62	8.70	8.49
Takayama, Shunya (JPN) (1994)	time	2.57	3.61	4.68	5.73	6.77	7.82	8.89	9.96	11.04	12.16		13.63	5 / 3			
reaction time	interval		1.04	1.07	1.05	1.04	1.05	1.07	1.07	1.08	1.12	1.47			3.16	3.16	3.27
	velocity	5.34	8.79	8.54	8.70	8.79	8.70	8.54	8.54	8.46	8.16	9.54	8.07		8.68	8.68	8.39
Masuno, Genta (JPN) (1993)	time	2.63	3.69	4.78	5.83	6.89	7.94	9.02	10.09	11.18	12.27		13.69	2 / 4			
reaction time	interval		1.06	1.09	1.05	1.06	1.05	1.08	1.07	1.09	1.09	1.42			3.20	3.19	3.25
	velocity	5.22	8.62	8.39	8.70	8.62	8.70	8.46	8.54	8.39	8.39	9.87	8.04		8.57	8.60	8.44
Sato, Hiroyuki (JPN) (1990)	time	2.61	3.68	4.74	5.78	6.84	7.90	8.97	10.07	11.18	12.30		13.75	7 / 5			
reaction time	interval		1.07	1.06	1.04	1.06	1.06	1.07	1.10	1.11	1.12	1.45			3.17	3.19	3.33
	velocity	5.26	8.54	8.62	8.79	8.62	8.62	8.54	8.31	8.23	8.16	9.67	8.00		8.65	8.60	8.23
Wado, Tatsuya (JPN) (1990)	time	2.59	3.68	4.73	5.79	6.85	7.91	8.98	10.05	11.15	12.26		13.78	8 / 6			
reaction time	interval		1.09	1.05	1.06	1.06	1.06	1.07	1.07	1.10	1.11	1.52			3.20	3.19	3.28
	velocity	5.30	8.39	8.70	8.62	8.62	8.62	8.54	8.54	8.31	8.23	9.22	7.98		8.57	8.60	8.36
Tanaka, Shinya (JPN) (1993)	time	2.63	3.70	4.79	5.85	6.93	8.02	9.10	10.18	11.31	12.42		13.89	1 / 7			
reaction time	interval	7 steps	1.07	1.09	1.06	1.08	1.09	1.08	1.08	1.13	1.11	1.47			3.22	3.25	3.32

	velocity	5.22	8.54	8.39	8.62	8.46	8.39	8.46	8.46	8.09	8.23	9.54	7.92			8.52	8.44	8.26

2017 Korean National Championships (Kimchun, KOR)

FINAL date 02-Jun-17 wind 2.6 m/s

Hong (2018) - performance of men's 110m hurdles using rhythmic units

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kim Byung-Jun (KOR) (1991)	time	2.63	3.76	4.83	5.90	6.90	8.03	9.06	10.13	11.20	12.27		13.70	/ 1			
reaction time	interval		1.13	1.07	1.07	1.00	1.13	1.03	1.07	1.07	1.07	1.43			3.27	3.16	3.21
	velocity	5.22	8.09	8.54	8.54	9.14	8.09	8.87	8.54	8.54	8.54	9.80	8.03		8.39	8.68	8.54
Lee Jung-Joon (KOR) (1984)	time	2.62	3.72	4.82	5.92	6.95	8.05	9.12	10.19	11.29	12.39		13.86	/ 2			
reaction time	interval		1.10	1.10	1.10	1.03	1.10	1.07	1.07	1.10	1.10	1.47			3.30	3.20	3.27
	velocity	5.24	8.31	8.31	8.31	8.87	8.31	8.54	8.54	8.31	8.31	9.54	7.94		8.31	8.57	8.39
Kim Kyung-Tae (KOR) (1997)	time	2.65	3.78	4.88	6.01	7.14	8.21	9.31	10.41	11.54	12.67		14.20	/ 3			
reaction time	interval		1.13	1.10	1.13	1.13	1.07	1.10	1.10	1.13	1.13	1.53			3.36	3.30	3.36
	velocity	5.18	8.09	8.31	8.09	8.09	8.54	8.31	8.31	8.09	8.09	9.16	7.75		8.16	8.31	8.16

2017 Shimane High School Championships (Izumo, JPN)

FINAL date 28-May-17 wind 0.3 m/s

Shimizu (2018) - shimane high school championships 2018 - biomechanics data analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Katta, Kizuku (JPN) (1999)	time	2.73	3.87	5.00	6.10	7.27	8.37	9.67	10.93	12.17	13.40		14.91	4 / 1			
reaction time	interval		1.14	1.13	1.10	1.17	1.10	1.30	1.26	1.24	1.23	1.51			3.37	3.57	3.73
	velocity	5.03	8.02	8.09	8.31	7.81	8.31	7.03	7.25	7.37	7.43	9.28	7.38		8.14	7.68	7.35
Kyogoku, Fumiya (JPN)	time	2.87	4.07	5.23	6.40	7.57	8.73	9.90	11.13	12.37	13.60		15.20	8 / 2			
reaction time	interval		1.20	1.16	1.17	1.17	1.16	1.17	1.23	1.24	1.23	1.60			3.53	3.50	3.70
	velocity	4.78	7.62	7.88	7.81	7.81	7.88	7.81	7.43	7.37	7.43	8.76	7.24		7.77	7.83	7.41
Agawa, Kimiki (JPN)	time	2.80	4.00	5.20	6.37	7.57	8.77	9.97	11.20	12.47	13.70		15.29	7 / 3			
reaction time	interval		1.20	1.20	1.17	1.20	1.20	1.20	1.23	1.27	1.23	1.59			3.57	3.60	3.73
	velocity	4.90	7.62	7.62	7.81	7.62	7.62	7.62	7.43	7.20	7.43	8.82	7.19		7.68	7.62	7.35
Tosho, Yuho (JPN)	time	2.90	4.10	5.30	6.50	7.70	8.93	10.17	11.43	12.67	13.97		15.55	5 / 4			
reaction time	interval		1.20	1.20	1.20	1.20	1.23	1.24	1.26	1.24	1.30	1.58			3.60	3.67	3.80
	velocity	4.73	7.62	7.62	7.62	7.62	7.43	7.37	7.25	7.37	7.03	8.87	7.07		7.62	7.47	7.22

2017 Prefontaine Classic (Eugene, OR) (TV Analysis)

FINAL date 27-May-17 wind 0.9 m/s

Henson (2020) - Athlete First: 2017 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.48	3.52	4.52	5.52	6.52	7.54	8.52	9.52	10.54	11.58		13.01	4 / 1			
reaction time 0.150	interval		1.04	1.00	1.00	1.00	1.02	0.98	1.00	1.02	1.04	1.43			3.04	3.00	3.06
	velocity	5.53	8.79	9.14	9.14	9.14	8.96	9.33	9.14	8.96	8.79	9.80	8.46		9.02	9.14	8.96
Levy, Ronald (JAM) (1992)	time	2.44	3.48	4.50	5.52	6.52	7.54	8.54	9.58	10.60	11.64		13.10	1 / 2			
reaction time 0.151	interval	7 steps	1.04	1.02	1.02	1.00	1.02	1.00	1.04	1.02	1.04	1.46	PB		3.08	3.02	3.10
	velocity	5.62	8.79	8.96	8.96	9.14	8.96	9.14	8.79	8.96	8.79	9.60	8.40		8.90	9.08	8.85
Allen, Devon (USA) (1994)	time	2.48	3.52	4.54	5.54	6.56	7.56	8.58	9.60	10.60	11.64		13.11	5 / 3			
reaction time 0.131	interval		1.04	1.02	1.00	1.02	1.00	1.02	1.02	1.00	1.04	1.47			3.06	3.04	3.06
	velocity	5.53	8.79	8.96	9.14	8.96	9.14	8.96	8.96	9.14	8.79	9.54	8.39		8.96	9.02	8.96
Merritt, Aries (USA) (1985)	time	2.48	3.50	4.52	5.52	6.54	7.54	8.56	9.58	10.62	11.66		13.13	6 / 4			
reaction time 0.132	interval	7 steps	1.02	1.02	1.00	1.02	1.00	1.02	1.02	1.04	1.04	1.47			3.04	3.04	3.10
	velocity	5.53	8.96	8.96	9.14	8.96	9.14	8.96	8.96	8.79	8.79	9.54	8.38		9.02	9.02	8.85
Pozzi, Andy (GBR) (1992)	time	2.46	3.48	4.48	5.50	6.50	7.50	8.50	9.52	10.54	11.62		13.19	2 / 5			
reaction time 0.145	interval	7 steps	1.02	1.00	1.02	1.00	1.00	1.00	1.02	1.02	1.08	1.57	=PB		3.04	3.00	3.12
	velocity	5.58	8.96	9.14	8.96	9.14	9.14	9.14	8.96	8.96	8.46	8.93	8.34		9.02	9.14	8.79
Harris, Aleec (USA) (1990)	time	2.52	3.58	4.62	5.62	6.62	7.64	8.68	9.74	10.78	11.82		13.30	8 / 6			
reaction time 0.165	interval		1.06	1.04	1.00	1.00	1.02	1.04	1.06	1.04	1.04	1.48			3.10	3.06	3.14
	velocity	5.44	8.62	8.79	9.14	9.14	8.96	8.79	8.62	8.79	8.79	9.47	8.27		8.85	8.96	8.73
Oliver, David (USA) (1982)	time	2.48	3.56	4.58	5.60	6.62	7.64	8.68	9.72	10.78	11.86		13.40	7 / 7			
reaction time 0.172	interval	7 steps	1.08	1.02	1.02	1.02	1.02	1.04	1.04	1.06	1.08	1.54			3.12	3.08	3.18
	velocity	5.53	8.46	8.96	8.96	8.96	8.96	8.79	8.79	8.62	8.46	9.10	8.21		8.79	8.90	8.62
Bascou, Dimitri (FRA) (1987)	time	2.48	3.50	4.54	5.56	6.60	7.66	8.74	9.82	10.90	12.00		13.55	3 / 8			
reaction time 0.158	interval	7 steps	1.02	1.04	1.02	1.04	1.06	1.08	1.08	1.08	1.10	1.55			3.08	3.18	3.26
	velocity	5.53	8.96	8.79	8.96	8.79	8.62	8.46	8.46	8.46	8.31	9.05	8.12		8.90	8.62	8.41

2017 Kanto Collegiate Championships (Yokohama, JPN)

Division 1 FINAL date 26-May-17 wind 0.4 m/s

(2017) - tfdata-store.com/2017/06/08/914/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.58	3.63	4.68	5.74	6.80	7.87	8.93	10.01	11.09	12.21		13.63	5 / 1			

reaction time	0.149	interval	7 steps	1.05	1.05	1.06	1.06	1.07	1.06	1.08	1.08	1.12	1.42	PB		3.16	3.19	3.28
		velocity		5.32	8.70	8.70	8.62	8.62	8.54	8.62	8.46	8.46	8.16	9.87	8.07		8.68	8.60	8.36

2017 Seiko Golden Grand Prix (Kawasaki, JPN)

FINAL date 21-May-17 wind -1.8 m/s *(2017) - tfdata-store.com/2017/05/22/post-599/*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.61	3.66	4.71	5.75	6.79	7.82	8.86	9.92	10.98	12.06		13.51	3 / 1			
reaction time	0.153	interval		1.05	1.05	1.04	1.04	1.03	1.04	1.06	1.06	1.08	1.45			3.14	3.11	3.20
		velocity	5.26	8.70	8.70	8.79	8.79	8.87	8.79	8.62	8.62	8.46	9.67	8.14		8.73	8.82	8.57
Trajkovic, Milan (CYP) (1992)		time	2.56	3.61	4.64	5.70	6.75	7.76	8.81	9.87	10.96	12.05		13.52	5 / 2			
reaction time	0.155	interval	7 steps	1.05	1.03	1.06	1.05	1.01	1.05	1.06	1.09	1.09	1.47			3.14	3.11	3.24
		velocity		5.36	8.70	8.87	8.62	8.70	9.05	8.70	8.62	8.39	8.39	9.54	8.14		8.73	8.82	8.46
Omoro, Hideki (JPN) (1990)		time	2.59	3.65	4.69	5.74	6.81	7.87	8.92	9.99	11.06	12.14		13.59	7 / 3			
reaction time	0.141	interval		1.06	1.04	1.05	1.07	1.06	1.05	1.07	1.07	1.08	1.45			3.15	3.18	3.22
		velocity	5.30	8.62	8.79	8.70	8.54	8.62	8.70	8.54	8.54	8.46	9.67	8.09		8.70	8.62	8.52
Yazawa, Wataru (JPN) (1991)		time	2.64	3.72	4.78	5.84	6.89	7.95	9.02	10.07	11.15	12.24		13.69	6 / 4			
reaction time	0.151	interval	7 steps	1.08	1.06	1.06	1.05	1.06	1.07	1.05	1.08	1.09	1.45			3.20	3.18	3.22
		velocity		5.20	8.46	8.62	8.62	8.70	8.62	8.54	8.70	8.46	8.39	9.67	8.04		8.57	8.62	8.52
Swift, Greggmar (BAR) (1991)		time	2.55	3.61	4.68	5.73	6.77	7.84	8.92	10.00	11.10	12.22		13.72	1 / 5			
reaction time	0.141	interval		1.06	1.07	1.05	1.04	1.07	1.08	1.08	1.10	1.12	1.50			3.18	3.19	3.30
		velocity	5.38	8.62	8.54	8.70	8.79	8.54	8.46	8.46	8.31	8.16	9.35	8.02		8.62	8.60	8.31
Masuno, Genta (JPN) (1993)		time	2.59	3.66	4.73	5.77	6.83	7.89	8.94	10.03	11.11	12.25		13.72	2 / 6			
reaction time	0.150	interval		1.07	1.07	1.04	1.06	1.06	1.05	1.09	1.08	1.14	1.47			3.18	3.17	3.31
		velocity	5.30	8.54	8.54	8.79	8.62	8.62	8.70	8.39	8.46	8.02	9.54	8.02		8.62	8.65	8.28
Porter, Jeff (USA) (1985)		time	2.59	3.68	4.74	5.82	6.87	7.94	9.00	10.08	11.16	12.26		13.73	4 / 7			
reaction time	0.125	interval		1.09	1.06	1.08	1.05	1.07	1.06	1.08	1.08	1.10	1.47			3.23	3.18	3.26
		velocity	5.30	8.39	8.62	8.46	8.70	8.54	8.62	8.46	8.46	8.31	9.54	8.01		8.49	8.62	8.41
Yang Wei-Ting (TPE) (1994)		time	2.67	3.75	4.83	5.89	6.94	7.99	9.06	10.13	11.20	12.31		13.79	8 / 8			
reaction time	0.145	interval		1.08	1.08	1.06	1.05	1.05	1.07	1.07	1.07	1.11	1.48			3.22	3.17	3.25
		velocity	5.14	8.46	8.46	8.62	8.70	8.70	8.54	8.54	8.54	8.23	9.47	7.98		8.52	8.65	8.44

2017 East Japan Business Athletics Championships (Yuma, JPN)

FINAL date 20-May-17 wind 1.1 m/s *(2017) - tfdata-store.com/2017/05/20/post-579/*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994)		time	2.58	3.62	4.64	5.68	6.72	7.77	8.83	9.90	10.98	12.08		13.53	4 / 1			
reaction time		interval		1.04	1.02	1.04	1.04	1.05	1.06	1.07	1.08	1.10	1.45	PB		3.10	3.15	3.25
		velocity	5.32	8.79	8.96	8.79	8.79	8.70	8.62	8.54	8.46	8.31	9.67	8.13		8.85	8.70	8.44
Sato, Hiroyuki (JPN) (1990)		time	2.57	3.63	4.69	5.74	6.79	7.87	8.95	10.04	11.16	12.28		13.75	7 / 2			
reaction time		interval		1.06	1.06	1.05	1.05	1.08	1.08	1.09	1.12	1.12	1.47			3.17	3.21	3.33
		velocity	5.34	8.62	8.62	8.70	8.70	8.46	8.46	8.39	8.16	8.16	9.54	8.00		8.65	8.54	8.23
Tanaka, Shinya (JPN) (1993)		time	2.58	3.65	4.70	5.78	6.84	7.93	9.02	10.10	11.20	12.32		13.76	6 / 3			
reaction time		interval	7 steps	1.07	1.05	1.08	1.06	1.09	1.09	1.08	1.10	1.12	1.44	PB		3.20	3.24	3.30
		velocity		5.32	8.54	8.70	8.46	8.62	8.39	8.39	8.46	8.31	8.16	9.74	7.99		8.57	8.46	8.31
Ogata, Akihiro (JPN) (1993)		time	2.59	3.66	4.73	5.83	6.88	7.96	9.05	10.16	11.30	12.43		13.95	5 / 4			
reaction time		interval	7 steps	1.07	1.07	1.10	1.05	1.08	1.09	1.11	1.14	1.13	1.52			3.24	3.22	3.38
		velocity		5.30	8.54	8.54	8.31	8.70	8.46	8.39	8.23	8.02	8.09	9.22	7.89		8.46	8.52	8.11
Fudaba, Hiroki (JPN) (1994)		time	2.71	3.81	4.86	5.94	7.01	8.10	9.18	10.28	11.37	12.50		14.00	2 / 5			
reaction time		interval	7 steps	1.10	1.05	1.08	1.07	1.09	1.08	1.10	1.09	1.13	1.50			3.23	3.24	3.32
		velocity		5.06	8.31	8.70	8.46	8.54	8.39	8.46	8.31	8.39	8.09	9.35	7.86		8.49	8.46	8.26
Abe, Hirofumi (JPN) (1985)		time	2.61	3.71	4.80	5.88	6.95	8.06	9.14	10.26	11.40	12.53		14.02	3 / 6			
reaction time		interval		1.10	1.09	1.08	1.07	1.11	1.08	1.12	1.14	1.13	1.49	PB		3.27	3.26	3.39
		velocity	5.26	8.31	8.39	8.46	8.54	8.23	8.46	8.16	8.02	8.09	9.41	7.85		8.39	8.41	8.09
Okazaki, Masaki (JPN) (1994)		time	2.64	3.74	4.83	5.94	7.02	8.16	9.28	10.40	11.55	12.70		14.20	8 / 7			
reaction time		interval		1.10	1.09	1.11	1.08	1.14	1.12	1.12	1.15	1.15	1.50			3.30	3.34	3.42
		velocity	5.20	8.31	8.39	8.23	8.46	8.02	8.16	8.16	7.95	7.95	9.35	7.75		8.31	8.21	8.02
Morita, Shunichi (JPN) (1989)		time	2.77	3.90	5.01	6.11	7.23	8.35	9.48	10.63	11.80	12.98		14.62	9 / 8			
reaction time		interval		1.13	1.11	1.10	1.12	1.12	1.13	1.15	1.17	1.18	1.64			3.34	3.37	3.50
		velocity	4.95	8.09	8.23	8.31	8.16	8.16	8.09	7.95	7.81	7.75	8.55	7.52		8.21	8.14	7.83

2017 Shanghai Diamond League (Shanghai, CHN) (TV Analysis)

FINAL date 13-May-17 wind 0.5 m/s *Henson (2020) - Athlete First: 2017 year end hurdle report*

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.48	3.50	4.54	5.58	6.56	7.58	8.58	9.62	10.64	11.70		13.09	5 / 1			
reaction time 0.141	interval		1.02	1.04	1.04	0.98	1.02	1.00	1.04	1.02	1.06	1.39			3.10	3.00	3.12
	velocity	5.53	8.96	8.79	8.79	9.33	8.96	9.14	8.79	8.96	8.62	10.09	8.40		8.85	9.14	8.79
Ortega, Orlando (ESP) (1991)	time	2.50	3.56	4.58	5.58	6.58	7.58	8.60	9.60	10.64	11.70		13.15	6 / 2			
reaction time 0.136	interval	7 steps	1.06	1.02	1.00	1.00	1.00	1.02	1.00	1.04	1.06	1.45			3.08	3.02	3.10
	velocity	5.49	8.62	8.96	9.14	9.14	9.14	8.96	9.14	8.79	8.62	9.67	8.37		8.90	9.08	8.85
Xie Wenjun (CHN) (1990)	time	2.56	3.62	4.66	5.66	6.68	7.70	8.72	9.74	10.78	11.86		13.31	2 / 3			
reaction time 0.156	interval		1.06	1.04	1.00	1.02	1.02	1.02	1.02	1.04	1.08	1.45			3.10	3.06	3.14
	velocity	5.36	8.62	8.79	9.14	8.96	8.96	8.96	8.96	8.79	8.46	9.67	8.26		8.85	8.96	8.73
Parchment, Hansle (JAM) (199	time	2.54	3.58	4.58	5.60	6.62	7.62	8.66	9.70	10.76	11.82		13.35	3 / 4			
reaction time 0.143	interval	7 steps	1.04	1.00	1.02	1.02	1.00	1.04	1.04	1.06	1.06	1.53			3.06	3.06	3.16
	velocity	5.40	8.79	9.14	8.96	8.96	9.14	8.79	8.79	8.62	8.62	9.16	8.24		8.96	8.96	8.68
Shubenkov, Sergey (ANA) (199	time	2.56	3.64	4.66	5.70	6.70	7.70	8.76	9.80	10.86	11.92		13.35	4 / 5			
reaction time 0.153	interval	7 steps	1.08	1.02	1.04	1.00	1.00	1.06	1.04	1.06	1.06	1.43			3.14	3.06	3.16
	velocity	5.36	8.46	8.96	8.79	9.14	9.14	8.62	8.79	8.62	8.62	9.80	8.24		8.73	8.96	8.68
Merritt, Aries (USA) (1985)	time	2.54	3.58	4.58	5.58	6.62	7.66	8.66	9.74	10.78	11.86		13.36	7 / 6			
reaction time 0.136	interval	7 steps	1.04	1.00	1.00	1.04	1.04	1.00	1.08	1.04	1.08	1.50			3.04	3.08	3.20
	velocity	5.40	8.79	9.14	9.14	8.79	8.79	9.14	8.46	8.79	8.46	9.35	8.23		9.02	8.90	8.57
Traber, Gregor (GRE) (1992)	time	2.56	3.60	4.62	5.62	6.66	7.68	8.70	9.76	10.82	11.94		13.41	9 / 7			
reaction time 0.150	interval	7 steps	1.04	1.02	1.00	1.04	1.02	1.02	1.06	1.06	1.12	1.47			3.06	3.08	3.24
	velocity	5.36	8.79	8.96	9.14	8.79	8.96	8.96	8.62	8.62	8.16	9.54	8.20		8.96	8.90	8.46
Oliver, David (USA) (1982)	time	2.54	3.62	4.64	5.68	6.72	7.76	8.84	9.90	10.98	12.06		13.62	8 / 8			
reaction time 0.156	interval	7 steps	1.08	1.02	1.04	1.04	1.04	1.08	1.06	1.08	1.08	1.56			3.14	3.16	3.22
	velocity	5.40	8.46	8.96	8.79	8.79	8.79	8.46	8.62	8.46	8.46	8.99	8.08		8.73	8.68	8.52
Porter, Jeff (USA) (1985)	time	2.58	3.66	4.70	5.72	6.76	7.82	8.88	9.96	11.04	12.16		13.70	1 / 9			
reaction time 0.141	interval		1.08	1.04	1.02	1.04	1.06	1.06	1.08	1.08	1.12	1.54			3.14	3.16	3.28
	velocity	5.32	8.46	8.79	8.96	8.79	8.62	8.62	8.46	8.46	8.16	9.10	8.03		8.73	8.68	8.36

2017 Kansai Regional University Championships (Osaka, JPN)

FINAL date 11-May-17 wind 1.6 m/s *(2017) - tfdata-store.com/2017/05/13/post-441/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kagimoto, Masahiro (JPN) (19	time	2.64	3.72	4.81	5.89	6.98	8.06	9.15	10.25	11.35	12.48		13.93	7 / 1			
reaction time	interval		1.08	1.09	1.08	1.09	1.08	1.09	1.10	1.10	1.13	1.45			3.25	3.26	3.33
	velocity	5.20	8.46	8.39	8.46	8.39	8.46	8.39	8.31	8.31	8.09	9.67	7.90		8.44	8.41	8.23
Hatanaka, Yushi (JPN) (1994)	time	2.64	3.77	4.85	5.93	7.03	8.12	9.22	10.31	11.43	12.58		14.03	4 / 2			
reaction time	interval		1.13	1.08	1.08	1.10	1.09	1.10	1.09	1.12	1.15	1.45	**=PB**		3.29	3.29	3.36
	velocity	5.20	8.09	8.46	8.46	8.31	8.39	8.31	8.39	8.16	7.95	9.67	7.84		8.33	8.33	8.16
Maeda, Hirotake (JPN) (1996)	time	2.65	3.74	4.85	5.94	7.03	8.12	9.22	10.35	11.46	12.59		14.03	5 / 3			
reaction time	interval		1.09	1.11	1.09	1.09	1.09	1.10	1.13	1.11	1.13	1.44	**PB**		3.29	3.28	3.37
	velocity	5.18	8.39	8.23	8.39	8.39	8.39	8.31	8.09	8.23	8.09	9.74	7.84		8.33	8.36	8.14
Kamimura, Ryuji (JPN) (1996)	time	2.68	3.78	4.91	6.01	7.10	8.20	9.32	10.42	11.54	12.69		14.16	9 / 4			
reaction time	interval		1.10	1.13	1.10	1.09	1.10	1.12	1.10	1.12	1.15	1.47	**PB**		3.33	3.31	3.37
	velocity	5.12	8.31	8.09	8.31	8.39	8.31	8.16	8.31	8.16	7.95	9.54	7.77		8.23	8.28	8.14
Kameyama, Yuji (JPN) (1997)	time	2.74	3.86	4.98	6.10	7.21	8.30	9.40	10.52	11.64	12.81		14.33	6 / 5			
reaction time	interval		1.12	1.12	1.12	1.11	1.09	1.10	1.12	1.12	1.17	1.52			3.36	3.30	3.41
	velocity	5.01	8.16	8.16	8.16	8.23	8.39	8.31	8.16	8.16	7.81	9.22	7.68		8.16	8.31	8.04
Aiso, Ibuki (JPN) (1996)	time	2.69	3.82	4.95	6.06	7.15	8.27	9.42	10.54	11.68	12.85		14.34	3 / 6			
reaction time	interval		1.13	1.13	1.11	1.09	1.12	1.15	1.12	1.14	1.17	1.49			3.37	3.36	3.43
	velocity	5.10	8.09	8.09	8.23	8.39	8.16	7.95	8.16	8.02	7.81	9.41	7.67		8.14	8.16	7.99
Watase, Yuto (JPN) (1997)	time	2.65	3.75	4.87	5.97	7.08	8.21	9.33	10.48	11.63	12.81		14.38	2 / 7			
reaction time	interval		1.10	1.12	1.10	1.11	1.13	1.12	1.15	1.15	1.18	1.57			3.32	3.36	3.48
	velocity	5.18	8.31	8.16	8.31	8.23	8.09	8.16	7.95	7.95	7.75	8.93	7.65		8.26	8.16	7.88
Miura, Yoshiaki (JPN) (1995)	time	2.68	3.80	4.91	6.01	7.15	8.26	9.38	10.52	11.70	12.88		14.42	8 / 8			
reaction time	interval		1.12	1.11	1.10	1.14	1.11	1.12	1.14	1.18	1.18	1.54			3.33	3.37	3.50
	velocity	5.12	8.16	8.23	8.31	8.02	8.23	8.16	8.02	7.75	7.75	9.10	7.63		8.23	8.14	7.83

2017 Michitaka Memorial (Osaka, JPN)

Open FINAL date 07-May-17 wind -1.5 m/s *(2017) - tfdata-store.com/2017/05/08/post-413/*

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Kim Byung-Jun (KOR) (1991)	time	2.67	3.74	4.79	5.82	6.87	7.91	8.96	10.03	11.12	12.21		13.68	2 / 1			
reaction time	interval	7 steps	1.07	1.05	1.03	1.05	1.04	1.05	1.07	1.09	1.09	1.47			3.15	3.14	3.25
	velocity	5.14	8.54	8.70	8.87	8.70	8.79	8.70	8.54	8.39	8.39	9.54	8.04		8.70	8.73	8.44
Masuno, Genta (JPN) (1993)	time	2.63	3.70	4.77	5.81	6.90	7.96	9.04	10.12	11.21	12.30		13.74	8 / 2			
reaction time	interval		1.07	1.07	1.04	1.09	1.06	1.08	1.08	1.09	1.09	1.44			3.18	3.23	3.26
	velocity	5.22	8.54	8.54	8.79	8.39	8.62	8.46	8.46	8.39	8.39	9.74	8.01		8.62	8.49	8.41
Yazawa, Wataru (JPN) (1991)	time	2.62	3.70	4.77	5.83	6.89	7.97	9.04	10.11	11.21	12.33		13.77	6 / 3			
reaction time	interval	7 steps	1.08	1.07	1.06	1.06	1.08	1.07	1.07	1.10	1.12	1.44			3.21	3.21	3.29
	velocity	5.24	8.46	8.54	8.62	8.62	8.46	8.54	8.54	8.31	8.16	9.74	7.99		8.54	8.54	8.33
Sato, Hiroyuki (JPN) (1990)	time	2.64	3.72	4.78	5.86	6.93	8.00	9.08	10.18	11.28	12.39		13.85	7 / 4			
reaction time	interval		1.08	1.06	1.08	1.07	1.07	1.08	1.10	1.10	1.11	1.46			3.22	3.22	3.31
	velocity	5.20	8.46	8.62	8.46	8.54	8.54	8.46	8.31	8.31	8.23	9.60	7.94		8.52	8.52	8.28
Wado, Tatsuya (JPN) (1990)	time	2.61	3.69	4.75	5.82	6.91	7.98	9.07	10.19	11.32	12.45		13.93	3 / 5			
reaction time	interval		1.08	1.06	1.07	1.09	1.07	1.09	1.12	1.13	1.13	1.48			3.21	3.25	3.38
	velocity	5.26	8.46	8.62	8.54	8.39	8.54	8.39	8.16	8.09	8.09	9.47	7.90		8.54	8.44	8.11
Fudaba, Hiroki (JPN) (1994)	time	2.77	3.85	4.96	6.06	7.16	8.24	9.37	10.51	11.61	12.75		14.27	5 / 6			
reaction time	interval	7 steps	1.08	1.11	1.10	1.10	1.08	1.13	1.14	1.10	1.14	1.52			3.29	3.31	3.38
	velocity	4.95	8.46	8.23	8.31	8.31	8.46	8.09	8.02	8.31	8.02	9.22	7.71		8.33	8.28	8.11

FINAL date 07-May-17 wind -0.8 m/s *(2017) - tfdata-store.com/2017/05/08/post-413/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omoro, Hideki (JPN) (1990)	time	2.63	3.69	4.75	5.80	6.86	7.90	8.96	10.01	11.08	12.17		13.57	7 / 1			
reaction time	interval		1.06	1.06	1.05	1.06	1.04	1.06	1.05	1.07	1.09	1.40			3.17	3.16	3.21
	velocity	5.22	8.62	8.62	8.70	8.62	8.79	8.62	8.70	8.54	8.39	10.01	8.11		8.65	8.68	8.54
Kim Byung-Jun (KOR) (1991)	time	2.60	3.68	4.74	5.81	6.88	7.93	8.99	10.04	11.11	12.20		13.68	8 / 2			
reaction time	interval	7 steps	1.08	1.06	1.07	1.07	1.05	1.06	1.05	1.07	1.09	1.48			3.21	3.18	3.21
	velocity	5.28	8.46	8.62	8.54	8.54	8.70	8.62	8.70	8.54	8.39	9.47	8.04		8.54	8.62	8.54
Masuno, Genta (JPN) (1993)	time	2.63	3.70	4.76	5.83	6.88	7.93	8.99	10.07	11.15	12.24		13.69	4 / 3			
reaction time	interval		1.07	1.06	1.07	1.05	1.05	1.06	1.08	1.08	1.09	1.45			3.20	3.16	3.25
	velocity	5.22	8.54	8.62	8.54	8.70	8.70	8.62	8.46	8.46	8.39	9.67	8.04		8.57	8.68	8.44
Yazawa, Wataru (JPN) (1991)	time	2.64	3.72	4.79	5.85	6.91	7.98	9.04	10.11	11.20	12.30		13.71	5 / 4			
reaction time	interval	7 steps	1.08	1.07	1.06	1.06	1.07	1.06	1.07	1.09	1.10	1.41			3.21	3.19	3.26
	velocity	5.20	8.46	8.54	8.62	8.62	8.54	8.62	8.54	8.39	8.31	9.94	8.02		8.54	8.60	8.41
Sato, Hiroyuki (JPN) (1990)	time	2.68	3.75	4.81	5.88	6.95	8.01	9.10	10.19	11.29	12.41		13.87	3 / 5			
reaction time	interval		1.07	1.06	1.07	1.07	1.06	1.09	1.09	1.10	1.12	1.46			3.20	3.22	3.31
	velocity	5.12	8.54	8.62	8.54	8.54	8.62	8.39	8.39	8.31	8.16	9.60	7.93		8.57	8.52	8.28
Fudaba, Hiroki (JPN) (1994)	time	2.72	3.81	4.92	6.00	7.10	8.19	9.29	10.39	11.52	12.63		14.14	1 / 6			
reaction time	interval	7 steps	1.09	1.11	1.08	1.10	1.09	1.10	1.10	1.13	1.11	1.51			3.28	3.29	3.34
	velocity	5.04	8.39	8.23	8.46	8.31	8.39	8.31	8.31	8.09	8.23	9.28	7.78		8.36	8.33	8.21

2017 Mito Invitational (Mito, JPN)

FINAL date 05-May-17 wind -2.3 m/s *(2017) - tfdata-store.com/2017/05/06/post-423/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)	time	2.62	3.69	4.77	5.84	6.94	8.00	9.09	10.17	11.27	12.41		13.88	5 / 1			
reaction time	interval		1.07	1.08	1.07	1.10	1.06	1.09	1.08	1.10	1.14	1.47			3.22	3.25	3.32
	velocity	5.24	8.54	8.46	8.54	8.31	8.62	8.39	8.46	8.31	8.02	9.54	7.93		8.52	8.44	8.26
Tanaka, Shinya (JPN) (1993)	time	2.66	3.74	4.83	5.91	7.00	8.09	9.18	10.28	11.35	12.50		13.94	7 / 2			
reaction time	interval	7 steps	1.08	1.09	1.08	1.09	1.09	1.09	1.10	1.07	1.15	1.44			3.25	3.27	3.32
	velocity	5.16	8.46	8.39	8.46	8.39	8.39	8.39	8.31	8.54	7.95	9.74	7.89		8.44	8.39	8.26
Furuya, Kyohei (JPN) (1996)	time	2.63	3.72	4.82	5.93	7.05	8.15	9.23	10.37	11.48	12.59		14.02	4 / 3			
reaction time	interval		1.09	1.10	1.11	1.12	1.10	1.08	1.14	1.11	1.11	1.43			3.30	3.30	3.36
	velocity	5.22	8.39	8.31	8.23	8.16	8.31	8.46	8.02	8.23	8.23	9.80	7.85		8.31	8.31	8.16
Furukawa, Yutaro (JPN) (1985)	time	2.64	3.72	4.81	5.90	6.97	8.06	9.16	10.27	11.39	12.53		14.05	2 / 4			
reaction time	interval		1.08	1.09	1.09	1.07	1.09	1.10	1.11	1.12	1.14	1.52			3.26	3.26	3.37
	velocity	5.20	8.46	8.39	8.39	8.54	8.39	8.31	8.23	8.16	8.02	9.22	7.83		8.41	8.41	8.14
Hiramatsu, Papdemba (JPN) (1	time	2.63	3.76	4.87	5.96	7.07	8.19	9.30	10.41	11.55	12.69		14.21	9 / 5			
reaction time	interval	7 steps	1.13	1.11	1.09	1.11	1.12	1.11	1.11	1.14	1.14	1.52			3.33	3.34	3.39
	velocity	5.22	8.09	8.23	8.39	8.23	8.16	8.23	8.23	8.02	8.02	9.22	7.74		8.23	8.21	8.09
Kato, Yoshihiko (JPN) (1994)	time	2.72	3.88	5.04	6.17	7.28	8.39	9.49	10.60	11.70	12.83		14.31	8 / 6			
reaction time	interval		1.16	1.16	1.13	1.11	1.11	1.10	1.11	1.10	1.13	1.48			3.45	3.32	3.34
	velocity	5.04	7.88	7.88	8.09	8.23	8.23	8.31	8.23	8.31	8.09	9.47	7.69		7.95	8.26	8.21

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Kagimoto, Masahiro (JPN) (19	time	2.68	3.76	4.90	6.01	7.12	8.24	9.37	10.49	11.64	12.81		14.33	3 / 7			
reaction time	interval		1.08	1.14	1.11	1.11	1.12	1.13	1.12	1.15	1.17	1.52			3.33	3.36	3.44
	velocity	5.12	8.46	8.02	8.23	8.23	8.16	8.09	8.16	7.95	7.81	9.22	7.68		8.23	8.16	7.97

Heat 3

date 05-May-17 wind -2.5 m/s *(2017) - tfdata-store.com/2017/05/06/post-423/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)	time	2.60	3.68	4.76	5.80	6.88	7.95	9.04	10.13	11.24	12.38		13.86	5 / 1			
reaction time	interval		1.08	1.08	1.04	1.08	1.07	1.09	1.09	1.11	1.14	1.48			3.20	3.24	3.34
	velocity	5.28	8.46	8.46	8.79	8.46	8.54	8.39	8.39	8.23	8.02	9.47	7.94		8.57	8.46	8.21
Tanaka, Shinya (JPN) (1993)	time	2.63	3.70	4.79	5.87	6.95	8.02	9.10	10.19	11.27	12.41		13.88	6 / 2			
reaction time	interval	7 steps	1.07	1.09	1.08	1.08	1.07	1.08	1.09	1.08	1.14	1.47	PB		3.24	3.23	3.31
	velocity	5.22	8.54	8.39	8.46	8.46	8.54	8.46	8.39	8.46	8.02	9.54	7.93		8.46	8.49	8.28
Furukawa, Yutaro (JPN) (1985)	time	2.65	3.73	4.81	5.90	6.99	8.09	9.21	10.35	11.49	12.66		14.25	4 / 3			
reaction time	interval		1.08	1.08	1.09	1.09	1.10	1.12	1.14	1.14	1.17	1.59			3.25	3.31	3.45
	velocity	5.18	8.46	8.46	8.39	8.39	8.31	8.16	8.02	8.02	7.81	8.82	7.72		8.44	8.28	7.95
Kumada, Ryo (JPN) (1994)	time	2.77	3.93	5.05	6.16	7.30	8.42	9.55	10.67	11.83	12.99		14.42	9 / 4			
reaction time	interval	7 steps	1.16	1.12	1.11	1.14	1.12	1.13	1.12	1.16	1.16	1.43			3.39	3.39	3.44
	velocity	4.95	7.88	8.16	8.23	8.02	8.16	8.09	8.16	7.88	7.88	9.80	7.63		8.09	8.09	7.97
Kanai, Tadashi (JPN)	time	2.70	3.82	4.93	6.05	7.15	8.28	9.41	10.56	11.71	12.89		14.43	2 / 5			
reaction time	interval		1.12	1.11	1.12	1.10	1.13	1.13	1.15	1.15	1.18	1.54			3.35	3.36	3.48
	velocity	5.08	8.16	8.23	8.16	8.31	8.09	8.09	7.95	7.95	7.75	9.10	7.62		8.19	8.16	7.88
Takahasai, Yusuke (JPN) (1996)	time	2.65	3.83	4.96	6.10	7.25	8.37	9.49	10.63	11.80	12.97		14.43	8 / 6			
reaction time	interval		1.18	1.13	1.14	1.15	1.12	1.12	1.14	1.17	1.17	1.46			3.45	3.39	3.48
	velocity	5.18	7.75	8.09	8.02	7.95	8.16	8.16	8.02	7.81	7.81	9.60	7.62		7.95	8.09	7.88
Tsuchiya, Toru (JPN) (1995)	time	2.74	3.90	5.05	6.19	7.36	8.53	9.68	10.83	12.07	13.30		14.83	3 / 7			
reaction time	interval	7 steps	1.16	1.15	1.14	1.17	1.17	1.15	1.15	1.24	1.23	1.53			3.45	3.49	3.62
	velocity	5.01	7.88	7.95	8.02	7.81	7.81	7.95	7.95	7.37	7.43	9.16	7.42		7.95	7.86	7.57

Heat 2

date 05-May-17 wind 0.6 m/s *(2017) - tfdata-store.com/2017/05/06/post-423/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furumoto, Tsubasa (JPN) (199	time	2.64	3.73	4.84	5.91	6.99	8.08	9.17	10.27	11.41	12.54		14.01	5 / 1			
reaction time	interval		1.09	1.11	1.07	1.08	1.09	1.09	1.10	1.14	1.13	1.47			3.27	3.26	3.37
	velocity	5.20	8.39	8.23	8.54	8.46	8.39	8.39	8.31	8.02	8.09	9.54	7.85		8.39	8.41	8.14
Hiramatsu, Papdemba (JPN) (1	time	2.59	3.70	4.80	5.88	6.98	8.06	9.16	10.29	11.41	12.56		14.05	2 / 2			
reaction time	interval	7 steps	1.11	1.10	1.08	1.10	1.08	1.10	1.13	1.12	1.15	1.49			3.29	3.28	3.40
	velocity	5.30	8.23	8.31	8.46	8.31	8.46	8.31	8.09	8.16	7.95	9.41	7.83		8.33	8.36	8.06
Kagimoto, Masahiro (JPN) (19	time	2.67	3.77	4.83	5.93	7.03	8.12	9.21	10.34	11.48	12.64		14.11	6 / 3			
reaction time	interval		1.10	1.06	1.10	1.10	1.09	1.09	1.13	1.14	1.16	1.47			3.26	3.28	3.43
	velocity	5.14	8.31	8.62	8.31	8.31	8.39	8.39	8.09	8.02	7.88	9.54	7.80		8.41	8.36	7.99
Aiso, Ibuki (JPN) (1996)	time	2.70	3.84	4.98	6.11	7.23	8.35	9.47	10.59	11.73	12.91		14.40	9 / 4			
reaction time	interval		1.14	1.14	1.13	1.12	1.12	1.12	1.12	1.14	1.18	1.49			3.41	3.36	3.44
	velocity	5.08	8.02	8.02	8.09	8.16	8.16	8.16	8.16	8.02	7.75	9.41	7.64		8.04	8.16	7.97
Morita, Shunichi (JPN) (1989)	time	2.75	3.89	5.02	6.15	7.28	8.40	9.53	10.69	11.86	13.04		14.58	3 / 5			
reaction time	interval		1.14	1.13	1.13	1.13	1.12	1.13	1.16	1.17	1.18	1.54			3.40	3.38	3.51
	velocity	4.99	8.02	8.09	8.09	8.09	8.16	8.09	7.88	7.81	7.75	9.10	7.54		8.06	8.11	7.81
Kawamura, Naoya (JPN) (1996)	time	2.76	3.91	5.06	6.20	7.34	8.46	9.58	10.74	11.89	13.07		14.62	8 / 6			
reaction time	interval		1.15	1.15	1.14	1.14	1.12	1.12	1.16	1.15	1.18	1.55			3.44	3.38	3.49
	velocity	4.97	7.95	7.95	8.02	8.02	8.16	8.16	7.88	7.95	7.75	9.05	7.52		7.97	8.11	7.86

Heat 1

date 05-May-17 wind 0.3 m/s *(2017) - tfdata-store.com/2017/05/06/post-423/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furuya, Kyohei (JPN) (1996)	time	2.64	3.74	4.82	5.90	7.00	8.09	9.18	10.30	11.42	12.55		14.00	5 / 1			
reaction time	interval		1.10	1.08	1.08	1.10	1.09	1.09	1.12	1.12	1.13	1.45			3.26	3.28	3.37
	velocity	5.20	8.31	8.46	8.46	8.31	8.39	8.39	8.16	8.16	8.09	9.67	7.86		8.41	8.36	8.14
Kato, Yoshihiko (JPN) (1994)	time	2.72	3.82	4.93	6.03	7.12	8.23	9.35	10.46	11.60	12.74		14.22	9 / 2			
reaction time	interval		1.10	1.11	1.10	1.09	1.11	1.12	1.11	1.14	1.14	1.48			3.31	3.32	3.39
	velocity	5.04	8.31	8.23	8.31	8.39	8.23	8.16	8.23	8.02	8.02	9.47	7.74		8.28	8.26	8.09
Kato, Takuma (JPN) (1998)	time	2.71	3.83	4.96	6.06	7.19	8.31	9.43	10.56	11.70	12.89		14.44	6 / 3			
reaction time	interval		1.12	1.13	1.10	1.13	1.12	1.12	1.13	1.14	1.19	1.55			3.35	3.37	3.46
	velocity	5.06	8.16	8.09	8.31	8.09	8.16	8.16	8.09	8.02	7.68	9.05	7.62		8.19	8.14	7.92
Sakimoto, Kazuma (JPN) (1996	time	2.71	3.84	4.99	6.14	7.27	8.41	9.56	10.72	11.88	13.07		14.62	2 / 4			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval		1.13	1.15	1.15	1.13	1.14	1.15	1.16	1.16	1.19	1.55			3.43	3.42	3.51
	velocity	5.06	8.09	7.95	7.95	8.09	8.02	7.95	7.88	7.88	7.68	9.05	7.52		7.99	8.02	7.81
Tetsuguchi, Ren (JPN) (1994)	time	2.79	3.94	5.08	6.21	7.36	8.51	9.65	10.82	12.01	13.21		14.73	8 / 5			
reaction time	interval	7 steps	1.15	1.14	1.13	1.15	1.15	1.14	1.17	1.19	1.20	1.52			3.42	3.44	3.56
	velocity	4.92	7.95	8.02	8.09	7.95	7.95	8.02	7.81	7.68	7.62	9.22	7.47		8.02	7.97	7.70
Igarashi, Rai (JPN) (1997)	time	2.76	3.91	5.06	6.23	7.38	8.54	9.70	10.86	12.05	13.24		14.84	3 / 6			
reaction time	interval		1.15	1.15	1.17	1.15	1.16	1.16	1.16	1.19	1.19	1.60			3.47	3.47	3.54
	velocity	4.97	7.95	7.95	7.81	7.95	7.88	7.88	7.88	7.68	7.68	8.76	7.41		7.90	7.90	7.75

2017 Drake Relays (Des Moines, IA) (TV Analysis)

FINAL date 29-Apr-17 wind 1.8 m/s

Henson (2020) - Athlete First: 2017 year end hurdle report

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.47	3.53	4.53	5.53	6.53	7.53	8.55	9.57	10.57	11.61		13.04	4 / 1			
reaction time	interval		1.06	1.00	1.00	1.00	1.00	1.02	1.02	1.00	1.04	1.43			3.06	3.02	3.06
	velocity	5.55	8.62	9.14	9.14	9.14	9.14	8.96	8.96	9.14	8.79	9.80	8.44		8.96	9.08	8.96
Pozzi, Andy (GBR) (1992)	time	2.50	3.53	4.53	5.53	6.50	7.53	8.53	9.55	10.60	11.66		13.24	3 / 2			
reaction time	interval	7 steps	1.03	1.00	1.00	0.97	1.03	1.00	1.02	1.05	1.06	1.58			3.03	3.00	3.13
	velocity	5.49	8.87	9.14	9.14	9.42	8.87	9.14	8.96	8.70	8.62	8.87	8.31		9.05	9.14	8.76
Harris, Aleec (USA) (1990)	time	2.56	3.60	4.64	5.68	6.70	7.73	8.76	9.80	10.86	11.90		13.37	1 / 3			
reaction time	interval		1.04	1.04	1.04	1.02	1.03	1.03	1.04	1.06	1.04	1.47			3.12	3.08	3.14
	velocity	5.36	8.79	8.79	8.79	8.96	8.87	8.87	8.79	8.62	8.79	9.54	8.23		8.79	8.90	8.73
Merritt, Aries (USA) (1985)	time	2.53	3.60	4.63	5.63	6.63	7.66	8.70	9.76	10.83	11.93		13.44	5 / 4			
reaction time	interval	7 steps	1.07	1.03	1.00	1.00	1.03	1.04	1.06	1.07	1.10	1.51			3.10	3.07	3.23
	velocity	5.42	8.54	8.87	9.14	9.14	8.87	8.79	8.62	8.54	8.31	9.28	8.18		8.85	8.93	8.49
Riley, Andrew (JAM) (1988)	time	2.60	3.70	4.76	5.76	6.80	7.83	8.88	9.93	11.00	12.06		13.53	7 / 5			
reaction time	interval	7 steps	1.10	1.06	1.00	1.04	1.03	1.05	1.05	1.07	1.06	1.47			3.16	3.12	3.18
	velocity	5.28	8.31	8.62	9.14	8.79	8.87	8.70	8.70	8.54	8.62	9.54	8.13		8.68	8.79	8.62
Adams, Spencer (USA) (1989)	time	2.50	3.56	4.60	5.63	6.66	7.70	8.73	9.80	10.90	12.00		13.56	8 / 6			
reaction time	interval	7 steps	1.06	1.04	1.03	1.03	1.04	1.03	1.07	1.10	1.10	1.56			3.13	3.10	3.27
	velocity	5.49	8.62	8.79	8.87	8.87	8.79	8.87	8.54	8.31	8.31	8.99	8.11		8.76	8.85	8.39
Cabral, Jonathan (CAN) (1992)	time	2.63	3.70	4.73	5.76	6.80	7.80	8.83	9.90	10.98	12.10		13.64	6 / 7			
reaction time	interval	7 steps	1.07	1.03	1.03	1.04	1.00	1.03	1.07	1.08	1.12	1.54			3.13	3.07	3.27
	velocity	5.22	8.54	8.87	8.87	8.79	9.14	8.87	8.54	8.46	8.16	9.10	8.06		8.76	8.93	8.39
Eaton, Jarret (USA) (1989)	time	2.50	3.56	4.60	5.60	6.64	7.68	8.76	9.86	10.96	12.10		13.68	2 / 8			
reaction time	interval	7 steps	1.06	1.04	1.00	1.04	1.04	1.08	1.10	1.10	1.14	1.58			3.10	3.16	3.34
	velocity	5.49	8.62	8.79	9.14	8.79	8.79	8.46	8.31	8.31	8.02	8.87	8.04		8.85	8.68	8.21

2017 Mikio Oda Memorial (Hiroshima, JPN)

FINAL date 29-Apr-17 wind 1.5 m/s

(2017) - tfdata-store.com/2017/05/01/458/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omoro, Hideki (JPN) (1990)	time	2.61	3.67	4.73	5.77	6.82	7.87	8.92	9.98	11.07	12.13		13.52	5 / 1			
reaction time	interval		1.06	1.06	1.04	1.05	1.05	1.05	1.06	1.09	1.06	1.39			3.16	3.15	3.21
	velocity	5.26	8.62	8.62	8.79	8.70	8.70	8.70	8.62	8.39	8.62	10.09	8.14		8.68	8.70	8.54
Kim Byung-Jun (KOR) (1991)	time	2.63	3.69	4.75	5.80	6.85	7.90	8.96	10.01	11.08	12.15		13.64	4 / 2			
reaction time	interval	7 steps	1.06	1.06	1.05	1.05	1.05	1.06	1.05	1.07	1.07	1.49			3.17	3.16	3.19
	velocity	5.22	8.62	8.62	8.70	8.70	8.70	8.62	8.70	8.54	8.54	9.41	8.06		8.65	8.68	8.60
Takayama, Shunya (JPN) (1994)	time	2.62	3.68	4.74	5.80	6.85	7.92	8.97	10.05	11.13	12.21		13.67	6 / 3			
reaction time	interval		1.06	1.06	1.06	1.05	1.07	1.05	1.08	1.08	1.08	1.46			3.18	3.17	3.24
	velocity	5.24	8.62	8.62	8.62	8.70	8.54	8.70	8.46	8.46	8.46	9.60	8.05		8.62	8.65	8.46
Kanai, Taio (JPN) (1995)	time	2.60	3.68	4.77	5.84	6.90	7.96	9.03	10.11	11.18	12.28		13.73	7 / 4			
reaction time	interval	7 steps	1.08	1.09	1.07	1.06	1.06	1.07	1.08	1.07	1.10	1.45			3.24	3.19	3.25
	velocity	5.28	8.46	8.39	8.54	8.62	8.62	8.54	8.46	8.54	8.31	9.67	8.01		8.46	8.60	8.44
Yazawa, Wataru (JPN) (1991)	time	2.66	3.75	4.82	5.88	6.93	8.01	9.07	10.13	11.21	12.30		13.74	3 / 5			
reaction time	interval	7 steps	1.09	1.07	1.06	1.05	1.08	1.06	1.06	1.08	1.09	1.44			3.22	3.19	3.23
	velocity	5.16	8.39	8.54	8.62	8.70	8.46	8.62	8.62	8.46	8.39	9.74	8.01		8.52	8.60	8.49
Wado, Tatsuya (JPN) (1990)	time	2.57	3.67	4.72	5.78	6.85	7.91	9.01	10.07	11.21	12.32		13.82	2 / 6			
reaction time	interval		1.10	1.05	1.06	1.07	1.06	1.10	1.06	1.14	1.11	1.50			3.21	3.23	3.31
	velocity	5.34	8.31	8.70	8.62	8.54	8.62	8.31	8.62	8.02	8.23	9.35	7.96		8.54	8.49	8.28
Kuriki, Anthony Tyrell (JPN) (1	time	2.66	3.75	4.83	5.90	6.98	8.06	9.16	10.25	11.36	12.48		13.95	8 / 7			
reaction time	interval	7 steps	1.09	1.08	1.07	1.08	1.08	1.10	1.09	1.11	1.12	1.47			3.24	3.26	3.32

	velocity	5.16	8.39	8.46	8.54	8.46	8.46	8.31	8.39	8.23	8.16	9.54	7.89		8.46	8.41	8.26
Nomoto, Syuusei (JPN) (1995)	time	2.61	3.67	4.75	5.80	6.85	7.93	8.99	10.07	11.13	12.20		22.95	1 / 8			
reaction time	interval	7 steps	1.06	1.08	1.05	1.05	1.08	1.06	1.08	1.06	1.07	10.75			3.19	3.19	3.21
	velocity	5.26	8.62	8.46	8.70	8.70	8.46	8.62	8.46	8.62	8.54	1.30	4.79		8.60	8.60	8.54

B Final

date 29-Apr-17 wind -1.5 m/s

(2017) - tfdata-store.com/2017/05/01/458/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ogata, Akihiro (JPN) (1993)	time	2.64	3.74	4.83	5.90	6.98	8.07	9.16	10.25	11.39	12.52		14.04	8 / 1			
reaction time	interval	7 steps	1.10	1.09	1.07	1.08	1.09	1.09	1.09	1.14	1.13	1.52			3.26	3.26	3.36
	velocity	5.20	8.31	8.39	8.54	8.46	8.39	8.39	8.39	8.02	8.09	9.22	7.83		8.41	8.41	8.16
Furuya, Kyohei (JPN) (1996)	time	2.60	3.71	4.81	5.89	6.98	8.06	9.18	10.28	11.44	12.58		14.07	4 / 2			
reaction time	interval		1.11	1.10	1.08	1.09	1.08	1.12	1.10	1.16	1.14	1.49			3.29	3.29	3.40
	velocity	5.28	8.23	8.31	8.46	8.39	8.46	8.16	8.31	7.88	8.02	9.41	7.82		8.33	8.33	8.06
Sato, Hiroyuki (JPN) (1990)	time	2.60	3.67	4.74	5.83	6.93	8.03	9.12	10.25	11.37	12.54		14.08	3 / 3			
reaction time	interval		1.07	1.07	1.09	1.10	1.10	1.09	1.13	1.12	1.17	1.54			3.23	3.29	3.42
	velocity	5.28	8.54	8.54	8.39	8.31	8.31	8.39	8.09	8.16	7.81	9.10	7.81		8.49	8.33	8.02
Tanaka, Shinya (JPN) (1993)	time	2.62	3.74	4.82	5.89	6.98	8.09	9.21	10.34	11.49	12.64		14.13	7 / 4			
reaction time	interval	7 steps	1.12	1.08	1.07	1.09	1.11	1.12	1.13	1.15	1.15	1.49			3.27	3.32	3.43
	velocity	5.24	8.16	8.46	8.54	8.39	8.23	8.16	8.09	7.95	7.95	9.41	7.78		8.39	8.26	7.99
Fudaba, Hiroki (JPN) (1994)	time	2.72	3.83	4.92	6.00	7.09	8.18	9.29	10.40	11.54	12.68		14.20	1 / 5			
reaction time	interval	7 steps	1.11	1.09	1.08	1.09	1.09	1.11	1.11	1.14	1.14	1.52			3.28	3.29	3.39
	velocity	5.04	8.23	8.39	8.46	8.39	8.39	8.23	8.23	8.02	8.02	9.22	7.75		8.36	8.33	8.09
Kagimoto, Masahiro (JPN) (19	time	2.67	3.75	4.86	5.97	7.06	8.18	9.31	10.47	11.60	12.76		14.28	6 / 6			
reaction time	interval		1.08	1.11	1.11	1.09	1.12	1.13	1.16	1.13	1.16	1.52			3.30	3.34	3.45
	velocity	5.14	8.46	8.23	8.23	8.39	8.16	8.09	7.88	8.09	7.88	9.22	7.70		8.31	8.21	7.95
Fujii, Ryota (JPN) (1996)	time	2.61	3.73	4.84	5.97	7.09	8.19	9.34	10.49	11.65	12.81		14.36	2 / 7			
reaction time	interval		1.12	1.11	1.13	1.12	1.10	1.15	1.15	1.16	1.16	1.55			3.36	3.37	3.47
	velocity	5.26	8.16	8.23	8.09	8.16	8.31	7.95	7.95	7.88	7.88	9.05	7.66		8.16	8.14	7.90
Furukawa, Yutaro (JPN) (1985)	time	2.67	3.77	4.88	5.98	7.08	8.20	9.35	10.50	11.68	12.87		14.61	5 / 8			
reaction time	interval		1.10	1.11	1.10	1.10	1.12	1.15	1.15	1.18	1.19	1.74			3.31	3.37	3.52
	velocity	5.14	8.31	8.23	8.31	8.31	8.16	7.95	7.95	7.75	7.68	8.06	7.53		8.28	8.14	7.79

2017 Kyoto University Meeting (Kyoto, JPN)

FINAL

date 09-Apr-17 wind 1.5 m/s

(2017) - tfdata-store.com/2017/04/12/post-362/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kagimoto, Masahiro (JPN) (19	time	2.68	3.77	4.85	5.95	7.02	8.11	9.21	10.31	11.41	12.51		13.97	6 / 1			
reaction time	interval		1.09	1.08	1.10	1.07	1.09	1.10	1.10	1.10	1.10	1.46			3.27	3.26	3.30
	velocity	5.12	8.39	8.46	8.31	8.54	8.39	8.31	8.31	8.31	8.31	9.60	7.87		8.39	8.41	8.31
Maeda, Hirotake (JPN) (1996)	time	2.65	3.78	4.89	5.99	7.09	8.19	9.30	10.41	11.51	12.64		14.09	5 / 2			
reaction time	interval		1.13	1.11	1.10	1.10	1.10	1.11	1.11	1.10	1.13	1.45	PB		3.34	3.31	3.34
	velocity	5.18	8.09	8.23	8.31	8.31	8.31	8.23	8.23	8.31	8.09	9.67	7.81		8.21	8.28	8.21
Aiso, Ibuki (JPN) (1996)	time	2.70	3.84	4.95	6.04	7.17	8.28	9.38	10.50	11.64	12.82		14.33	4 / 3			
reaction time	interval		1.14	1.11	1.09	1.13	1.11	1.10	1.12	1.14	1.18	1.51			3.34	3.34	3.44
	velocity	5.08	8.02	8.23	8.39	8.09	8.23	8.31	8.16	8.02	7.75	9.28	7.68		8.21	8.21	7.97

2017 Tokyo Six School Meeting (Tokyo, JPN)

FINAL

date 08-Apr-17 wind 0.5 m/s

(2017) - tfdata-store.com/2017/04/10/post-342/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.60	3.67	4.75	5.80	6.86	7.93	8.99	10.09	11.16	12.27		13.71	6 / 1			
reaction time	interval	7 steps	1.07	1.08	1.05	1.06	1.07	1.06	1.10	1.07	1.11	1.44	PB		3.20	3.19	3.28
	velocity	5.28	8.54	8.46	8.70	8.62	8.54	8.62	8.31	8.54	8.23	9.74	8.02		8.57	8.60	8.36
Furuya, Takumu (JPN) (1997)	time	2.62	3.72	4.79	5.85	6.94	7.99	9.06	10.15	11.22	12.31		13.75	5 / 2			
reaction time	interval	7 steps	1.10	1.07	1.06	1.09	1.05	1.07	1.09	1.07	1.09	1.44			3.23	3.21	3.25
	velocity	5.24	8.31	8.54	8.62	8.39	8.70	8.54	8.39	8.54	8.39	9.74	8.00		8.49	8.54	8.44
Nomoto, Syuusei (JPN) (1995)	time	2.60	3.70	4.76	5.86	6.94	8.02	9.10	10.18	11.28	12.39		13.80	4 / 3			
reaction time	interval	7 steps	1.10	1.06	1.10	1.08	1.08	1.08	1.08	1.10	1.11	1.41	PB		3.26	3.24	3.29
	velocity	5.28	8.31	8.62	8.31	8.46	8.46	8.46	8.46	8.31	8.23	9.94	7.97		8.41	8.46	8.33

Heat 2

date 08-Apr-17 wind 0.8 m/s

(2017) - tfdata-store.com/2017/04/10/post-342/

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Taio (JPN) (1995)	time	2.60	3.68	4.74	5.81	6.88	7.97	9.07	10.17	11.29	12.40		13.86	4 / 1			
reaction time	interval	7 steps	1.08	1.06	1.07	1.07	1.09	1.10	1.10	1.12	1.11	1.46			3.21	3.26	3.33
	velocity	5.28	8.46	8.62	8.54	8.54	8.39	8.31	8.31	8.16	8.23	9.60	7.94		8.54	8.41	8.23

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Nomoto, Syuusei (JPN) (1995)	time	2.63	3.72	4.80	5.89	6.97	8.05	9.14	10.22	11.35	12.47		13.91	5 / 2			
reaction time	interval	7 steps	1.09	1.08	1.09	1.08	1.08	1.09	1.08	1.13	1.12	1.44	PB		3.26	3.25	3.33
	velocity	5.22	8.39	8.46	8.39	8.46	8.46	8.39	8.46	8.09	8.16	9.74	7.91		8.41	8.44	8.23

Heat 1

date 08-Apr-17 wind 1.3 m/s *(2017) - tfdata-store.com/2017/04/10/post-342/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furuya, Takumu (JPN) (1997)	time	2.64	3.72	4.82	5.86	6.92	7.98	9.06	10.14	11.23	12.34		13.84	5 / 1			
reaction time	interval	7 steps	1.08	1.10	1.04	1.06	1.06	1.08	1.08	1.09	1.11	1.50			3.22	3.20	3.28
	velocity	5.20	8.46	8.31	8.79	8.62	8.62	8.46	8.46	8.39	8.23	9.35	7.95		8.52	8.57	8.36

2017 Tokushima Athletics Carnival (Naruto, JPN)

FINAL

date 08-Apr-17 wind 0.7 m/s *(2017) - tfdata-store.com/2017/04/09/post-285/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omoro, Hideki (JPN) (1990)	time	2.65	3.74	4.79	5.86	6.91	7.96	9.03	10.10	11.16	12.23		13.63	6 / 1			
reaction time	interval		1.09	1.05	1.07	1.05	1.05	1.07	1.07	1.06	1.07	1.40			3.21	3.17	3.20
	velocity	5.18	8.39	8.70	8.54	8.70	8.70	8.54	8.54	8.62	8.54	10.01	8.07		8.54	8.65	8.57

2017 Osaka University Athletics Championships (Osaka, JPN)

FINAL

date 06-Apr-17 wind -1.8 m/s *(2017) - tfdata-store.com/2017/04/07/post-249/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hatanaka, Yushi (JPN) (1994)	time	2.71	3.84	4.95	6.04	7.15	8.28	9.42	10.58	11.75	12.91		14.46	6 / 1			
reaction time	interval	7 steps	1.13	1.11	1.09	1.11	1.13	1.14	1.16	1.17	1.16	1.55			3.33	3.38	3.49
	velocity	5.06	8.09	8.23	8.39	8.23	8.09	8.02	7.88	7.81	7.88	9.05	7.61		8.23	8.11	7.86
Watase, Yuto (JPN)	time	2.67	3.82	4.95	6.08	7.22	8.38	9.56	10.75	11.92	13.15		14.67	8 / 2			
reaction time	interval		1.15	1.13	1.13	1.14	1.16	1.18	1.19	1.17	1.23	1.52			3.41	3.48	3.59
	velocity	5.14	7.95	8.09	8.09	8.02	7.88	7.75	7.68	7.81	7.43	9.22	7.50		8.04	7.88	7.64
Shohei, Miyamoto (JPN)	time	2.75	3.91	5.08	6.24	7.39	8.53	9.70	10.89	12.05	13.23		14.79	4 / 3			
reaction time	interval	7 steps	1.16	1.17	1.16	1.15	1.14	1.17	1.19	1.16	1.18	1.56			3.49	3.46	3.53
	velocity	4.99	7.88	7.81	7.88	7.95	8.02	7.81	7.68	7.88	7.75	8.99	7.44		7.86	7.92	7.77
Maeda, Takanori (JPN) (1997)	time	2.74	3.88	5.05	6.21	7.36	8.52	9.71	10.91	12.10	13.30		14.87	5 / 4			
reaction time	interval		1.14	1.17	1.16	1.15	1.16	1.19	1.20	1.19	1.20	1.57			3.47	3.50	3.59
	velocity	5.01	8.02	7.81	7.88	7.95	7.88	7.68	7.62	7.68	7.62	8.93	7.40		7.90	7.83	7.64
Takaya, Yasuda (JPN)	time	2.73	3.90	5.07	6.23				10.98	12.19	13.42		14.97	9 / 5			
reaction time	interval		1.17	1.17	1.16				4.75	1.21	1.23	1.55			3.50		
	velocity	5.03	7.81	7.81	7.88				7.70	7.55	7.43	9.05	7.35		7.83		
Takahashi, Masahiro (JPN)	time	2.76	3.92				8.58	9.79	10.98	12.18	13.41		14.98	2 / 6			
reaction time	interval		1.16				4.66	1.21	1.19	1.20	1.23	1.57					3.62
	velocity	4.97	7.88				7.85	7.55	7.68	7.62	7.43	8.93	7.34				7.57
Kumagai, Gen (JPN)	time	2.71	3.89	5.06	6.27	7.46	8.69	9.91	11.08	12.33	13.58		15.11	3 / 7			
reaction time	interval		1.18	1.17	1.21	1.19	1.23	1.22	1.17	1.25	1.25	1.53			3.56	3.64	3.67
	velocity	5.06	7.75	7.81	7.55	7.68	7.43	7.49	7.81	7.31	7.31	9.16	7.28		7.70	7.53	7.47
Ariga, Takashi (JPN)	time	2.71	3.87	5.07	6.32	7.68							19.33	7 / 8			
reaction time	interval		1.16	1.20	1.25	1.36									3.61		
	velocity	5.06	7.88	7.62	7.31	6.72							5.69		7.60		

2017 European Indoor Championships (Beograd, SRB)

FINAL

date 03-Mar-17 *(2017.03.05) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pozzi, Andy (GBR) (1992)	time	2.62	3.63	4.63	5.61	6.62		7.51	5 / 1			
reaction time	interval	7 steps	1.01	1.00	0.98	1.01	0.89			2.99		
	velocity	5.24	9.05	9.14	9.33	9.05	10.92	7.99		9.17		
Martinot-Lagarde, Pascal (FRA	time	2.59	3.63	4.64	5.65	6.65		7.52	4 / 2			
reaction time	interval	7 steps	1.04	1.01	1.01	1.00	0.87			3.06		
	velocity	5.30	8.79	9.05	9.05	9.14	11.17	7.98		8.96		
Ortega, Orlando (ESP) (1991)	time	2.63	3.67	4.71	5.69	6.75		7.64	7 / 7			
reaction time	interval	7 steps	1.04	1.04	0.98	1.06	0.89			3.06		
	velocity	5.22	8.79	8.79	9.33	8.62	10.92	7.85		8.96		

2017 German National Indoor Junior Championships (Sindelfingen, GER) (99cm)

FINAL

date 25-Feb-17 *Poser (2017) - mit merhrkampftraining zum hürdentitel*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Petzke, Jonathan (GER) (1998)	time	2.66	3.72	4.80	5.86	6.93		7.81	/ 1			
reaction time	interval		1.06	1.08	1.06	1.07	0.88	PB		3.20		
	velocity	5.16	8.62	8.46	8.62	8.54	11.05	7.68		8.57		

Semi-Final 1

date 25-Feb-17

Poser (2017) - mit merhrkampftraining zum hürdentitel

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Petzke, Jonathan (GER) (1998)	time	2.70	3.77	4.88	5.95	7.04		7.97	/ 1			
reaction time	interval		1.07	1.11	1.07	1.09	0.93			3.25		
	velocity	5.08	8.54	8.23	8.54	8.39	10.45	7.53		8.44		

2017 Japanese National Indoor Junior Championships (Osaka, JPN) (99cm)

FINAL

date 04-Feb-17

(2017.02.04) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Higuchi, Rikuto (JPN) (1999)	time	2.70	3.80	4.89	5.99	7.09		7.98	3 / 1			
reaction time	interval		1.10	1.09	1.10	1.10	0.89	PB		3.29		
	velocity	5.08	8.31	8.39	8.31	8.31	10.92	7.52		8.33		

2016 West Japan Carnival (Kita-Kyushu, JPN)

FINAL

date 03-Nov-16 wind 1.1 m/s

(2016.11.07) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.62	3.69	4.74	5.79	6.84	7.91	8.98	10.05	11.13	12.24		13.68	5 / 1			
reaction time	interval		1.07	1.05	1.05	1.05	1.07	1.07	1.07	1.08	1.11	1.44			3.17	3.19	3.26
	velocity	5.24	8.54	8.70	8.70	8.70	8.54	8.54	8.54	8.46	8.23	9.74	8.04		8.65	8.60	8.41
Ishikawa, Shuhei (JPN) (1995)	time	2.58	3.67	4.74	5.84	6.93	8.01	9.09	10.19	11.28	12.41		13.88	/ 2			
reaction time	interval		1.09	1.07	1.10	1.09	1.08	1.08	1.10	1.09	1.13	1.47			3.26	3.25	3.32
	velocity	5.32	8.39	8.54	8.31	8.39	8.46	8.46	8.31	8.39	8.09	9.54	7.93		8.41	8.44	8.26

Heat 5

date 03-Nov-16 wind 1.5 m/s

(2016.11.07) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.63	3.69	4.75	5.81	6.86	7.91	8.98	10.06	11.16	12.25		13.70	3 / 1			
reaction time	interval		1.06	1.06	1.06	1.05	1.05	1.07	1.08	1.10	1.09	1.45			3.18	3.17	3.27
	velocity	5.22	8.62	8.62	8.62	8.70	8.70	8.54	8.46	8.31	8.39	9.67	8.03		8.62	8.65	8.39

2016 Japanese Junior Olympics (Yokohama, JPN) (A - 99cm) (B - 91cm)

FINAL - A

date 30-Oct-16 wind 0.1 m/s

(2016.10.30) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kubota, Kosuke (JPN) (2001)	time	2.72	3.84	4.96	6.10	7.24	8.37	9.52	10.67	11.82	12.99		14.60	7 / 1			
reaction time	interval		1.12	1.12	1.14	1.14	1.13	1.15	1.15	1.15	1.17	1.61			3.38	3.42	3.47
	velocity	5.04	8.16	8.16	8.02	8.02	8.09	7.95	7.95	7.95	7.81	8.71	7.53		8.11	8.02	7.90

FINAL - B

date 28-Oct-16 wind -0.8 m/s

(2016.10.28) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Issei, Osaka (JPN) (2002)	time	2.76	3.91	5.06	6.21	7.33	8.49	9.63	10.82	12.00	13.21		14.87	4 / 1			
reaction time	interval		1.15	1.15	1.15	1.12	1.16	1.14	1.19	1.18	1.21	1.66			3.45	3.42	3.58
	velocity	4.97	7.95	7.95	7.95	8.16	7.88	8.02	7.68	7.75	7.55	8.45	7.40		7.95	8.02	7.66
Shizuki, Kondo (JPN)	time	2.72	3.88	4.99	6.12	7.24	8.38	9.54	10.73	11.97	13.20		14.89	5 / 2			
reaction time	interval		1.16	1.11	1.13	1.12	1.14	1.16	1.19	1.24	1.23	1.69			3.40	3.42	3.66
	velocity	5.04	7.88	8.23	8.09	8.16	8.02	7.88	7.68	7.37	7.43	8.30	7.39		8.06	8.02	7.49

Semi-Final 3 - B

date 28-Oct-16 wind -0.8 m/s

(2016.10.27) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shizuki, Kondo (JPN)	time	2.75	3.91	5.03	6.16	7.33	8.49	9.66	10.87	12.10	13.38		15.14	7 / 1			
reaction time	interval		1.16	1.12	1.13	1.17	1.16	1.17	1.21	1.23	1.28	1.76			3.41	3.50	3.72
	velocity	4.99	7.88	8.16	8.09	7.81	7.88	7.81	7.55	7.43	7.14	7.97	7.27		8.04	7.83	7.37

Heat 1 - B

date 28-Oct-16 wind -0.6 m/s

(2016.10.27) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shizuki, Kondo (JPN)	time	2.74	3.89	5.02	6.17	7.31	8.46	9.60	10.79	12.00	13.24		14.89	8 / 1			
reaction time	interval		1.15	1.13	1.15	1.14	1.15	1.14	1.19	1.21	1.24	1.65			3.43	3.43	3.64
	velocity	5.01	7.95	8.09	7.95	8.02	7.95	8.02	7.68	7.55	7.37	8.50	7.39		7.99	7.99	7.53

2016 Tashima Memorial (Yamaguchi, JPN)

FINAL

date 23-Oct-16 wind 0.2 m/s

(2016.10.26) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.62	3.68	4.73	5.78	6.83	7.89	8.96	10.05	11.16	12.26		13.69	4 / 1			
reaction time	interval		1.06	1.05	1.05	1.05	1.06	1.07	1.09	1.11	1.10	1.43			3.16	3.18	3.30
	velocity	5.24	8.62	8.70	8.70	8.70	8.62	8.54	8.39	8.23	8.31	9.80	8.04		8.68	8.62	8.31

2016 Japanese National Junior Championships (Mizuho, JPN) (99cm)

FINAL

date 21-Oct-16 wind -0.2 m/s

(2016.10.21) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kato, Takuma (JPN) (1998)	time	2.62	3.70	4.75	5.80	6.84	7.91	8.98	10.05	11.18	12.28		13.69	6 / 1			
reaction time	interval		1.08	1.05	1.05	1.04	1.07	1.07	1.07	1.13	1.10	1.41			3.18	3.18	3.30
	velocity	5.24	8.46	8.70	8.70	8.79	8.54	8.54	8.54	8.09	8.31	9.94	8.04		8.62	8.62	8.31

2016 Japanese National Youth Championships (Mizuho, JPN) (91cm)

FINAL

date 21-Oct-16 wind -0.1 m/s *(2016.10.21) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Higuchi, Rikuto (JPN) (1999)	time	2.63	3.70	4.75	5.81	6.87	7.92	8.98	10.06	11.12	12.23		13.64	3 / 1			
reaction time	interval		1.07	1.05	1.06	1.06	1.05	1.06	1.08	1.06	1.11	1.41	NYR		3.18	3.17	3.25
	velocity	5.22	8.54	8.70	8.62	8.62	8.70	8.62	8.46	8.62	8.23	9.94	8.06		8.62	8.65	8.44

Semi-Final 3

date 21-Oct-16 wind -0.2 m/s *(2016.11.11) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Higuchi, Rikuto (JPN) (1999)	time	2.60	3.66	4.71	5.76	6.81	7.87	8.94	10.02	11.10	12.22		13.70	4 / 1			
reaction time	interval		1.06	1.05	1.05	1.05	1.06	1.07	1.08	1.08	1.12	1.48			3.16	3.18	3.28
	velocity	5.28	8.62	8.70	8.70	8.70	8.62	8.54	8.46	8.46	8.16	9.47	8.03		8.68	8.62	8.36
Kawakami, Asuma (JPN) (1999)	time	2.67	3.76	4.87	5.96	7.04	8.14	9.24	10.35	11.49	12.63		14.09	5 / 2			
reaction time	interval		1.09	1.11	1.09	1.08	1.10	1.10	1.11	1.14	1.14	1.46			3.29	3.28	3.39
	velocity	5.14	8.39	8.23	8.39	8.46	8.31	8.31	8.23	8.02	8.02	9.60	7.81		8.33	8.36	8.09
Tokuoka, Rika (JPN)	time	2.64	3.76	4.85	5.93	7.01	8.11	9.22	10.35	11.51	12.67		14.22	8 / 3			
reaction time	interval		1.12	1.09	1.08	1.08	1.10	1.11	1.13	1.16	1.16	1.55			3.29	3.29	3.45
	velocity	5.20	8.16	8.39	8.46	8.46	8.31	8.23	8.09	7.88	7.88	9.05	7.74		8.33	8.33	7.95

Semi-Final 2

date 21-Oct-16 wind 1.6 m/s *(2016.11.08) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Fukumoto, Riku (JPN)	time	2.64	3.73	4.83	5.90	6.98	8.06	9.15	10.26	11.38	12.51		13.95	3 / 1			
reaction time	interval		1.09	1.10	1.07	1.08	1.08	1.09	1.11	1.12	1.13	1.44			3.26	3.25	3.36
	velocity	5.20	8.39	8.31	8.54	8.46	8.46	8.39	8.23	8.16	8.09	9.74	7.89		8.41	8.44	8.16
Nagamatsu, Hiroya (JPN) (1999	time	2.65	3.76	4.89	5.99	7.07	8.20	9.31	10.42	11.53	12.65		14.06	4 / 2			
reaction time	interval		1.11	1.13	1.10	1.08	1.13	1.11	1.11	1.11	1.12	1.41			3.34	3.32	3.34
	velocity	5.18	8.23	8.09	8.31	8.46	8.09	8.23	8.23	8.23	8.16	9.94	7.82		8.21	8.26	8.21
Kubota, Taichi (JPN) (2000)	time	2.78	3.91	5.01	6.12	7.21	8.31	9.41	10.49	11.61	12.72		14.19	5 / 3			
reaction time	interval		1.13	1.10	1.11	1.09	1.10	1.10	1.08	1.12	1.11	1.47			3.34	3.29	3.31
	velocity	4.94	8.09	8.31	8.23	8.39	8.31	8.31	8.46	8.16	8.23	9.54	7.75		8.21	8.33	8.28

Semi-Final 1

date 21-Oct-16 wind 1.0 m/s *(2016.11.08) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Katsuta, Chiku (JPN)	time	2.63	3.70	4.79	5.84	6.91	7.99	9.07	10.17	11.28	12.41		13.85	4 / 1			
reaction time	interval		1.07	1.09	1.05	1.07	1.08	1.08	1.10	1.11	1.13	1.44			3.21	3.23	3.34
	velocity	5.22	8.54	8.39	8.70	8.54	8.46	8.46	8.31	8.23	8.09	9.74	7.94		8.54	8.49	8.21
Niwa, Hayato (JPN) (1999)	time	2.71	3.81	4.89	5.97	7.04	8.11	9.17	10.24	11.33	12.50		14.01	3 / 2			
reaction time	interval		1.10	1.08	1.08	1.07	1.07	1.06	1.07	1.09	1.17	1.51			3.26	3.20	3.33
	velocity	5.06	8.31	8.46	8.46	8.54	8.54	8.62	8.54	8.39	7.81	9.28	7.85		8.41	8.57	8.23
Takaoka, Yudai (JPN) (1999)	time	2.66	3.76	4.84	5.93	7.03	8.11	9.21	10.35	11.47	12.58		14.06	6 / 3			
reaction time	interval		1.10	1.08	1.09	1.10	1.08	1.10	1.14	1.12	1.11	1.48			3.27	3.28	3.37
	velocity	5.16	8.31	8.46	8.39	8.31	8.46	8.31	8.02	8.16	8.23	9.47	7.82		8.39	8.36	8.14

Heat 6

date 21-Oct-16 wind 1.2 m/s *(2016.11.08) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Higuchi, Rikuto (JPN) (1999)	time	2.63	3.69	4.75	5.79	6.86	7.92	9.00	10.10	11.21	12.36		13.98	4 / 1			
reaction time	interval		1.06	1.06	1.04	1.07	1.06	1.08	1.10	1.11	1.15	1.62			3.16	3.21	3.36
	velocity	5.22	8.62	8.62	8.79	8.54	8.62	8.46	8.31	8.23	7.95	8.65	7.87		8.68	8.54	8.16
Shibaya, Takumi (JPN) (2000)	time	2.75	3.85	4.97	6.08	7.21	8.32	9.44	10.59	11.75	12.90		14.43	1 / 2			
reaction time	interval		1.10	1.12	1.11	1.13	1.11	1.12	1.15	1.16	1.15	1.53			3.33	3.36	3.46
	velocity	4.99	8.31	8.16	8.23	8.09	8.23	8.16	7.95	7.88	7.95	9.16	7.62		8.23	8.16	7.92
Kudo, Masayoshi (JPN)	time	2.70	3.80	4.89	6.00	7.09	8.28	9.41	10.57	11.70	12.91		14.44	2 / 3			
reaction time	interval		1.10	1.09	1.11	1.09	1.19	1.13	1.16	1.13	1.21	1.53			3.30	3.41	3.50
	velocity	5.08	8.31	8.39	8.23	8.39	7.68	8.09	7.88	8.09	7.55	9.16	7.62		8.31	8.04	7.83

Heat 5

date 21-Oct-16 wind 1.3 m/s *(2016.11.08) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kubota, Taichi (JPN) (2000)	time	2.74	3.85	4.97	6.08	7.20	8.31	9.45	10.59	11.73	12.86		14.38	3 / 1			
reaction time	interval		1.11	1.12	1.11	1.12	1.11	1.14	1.14	1.14	1.13	1.52			3.34	3.37	3.41
	velocity	5.01	8.23	8.16	8.23	8.16	8.23	8.02	8.02	8.02	8.09	9.22	7.65		8.21	8.14	8.04
Namba, Niroshi (JPN) (1999)	time	2.77	3.92	5.05	6.18	7.30	8.41	9.53	10.68	11.81	12.95		14.42	4 / 2			
reaction time	interval		1.15	1.13	1.13	1.12	1.11	1.12	1.15	1.13	1.14	1.47			3.41	3.35	3.42
	velocity	4.95	7.95	8.09	8.09	8.16	8.23	8.16	7.95	8.09	8.02	9.54	7.63		8.04	8.19	8.02
Imai, Rikkoshi (JPN)	time	2.66	3.79	4.91	6.02	7.16	8.28	9.42	10.56	11.76	12.93		14.43	7 / 3			
reaction time	interval		1.13	1.12	1.11	1.14	1.12	1.14	1.14	1.20	1.17	1.50			3.36	3.40	3.51

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
	velocity	5.16	8.09	8.16	8.23	8.02	8.16	8.02	8.02	7.62	7.81	9.35	7.62		8.16	8.06	7.81

Heat 4

date 21-Oct-16 wind 1.5 m/s *(2016.11.08) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Katsuta, Chiku (JPN)	time	2.67	3.75	4.83	5.90	6.97	8.04	9.14	10.23	11.33	12.51		14.05	1 / 1			
reaction time	interval		1.08	1.08	1.07	1.07	1.07	1.10	1.09	1.10	1.18	1.54			3.23	3.24	3.37
	velocity	5.14	8.46	8.46	8.54	8.54	8.54	8.31	8.39	8.31	7.75	9.10	7.83		8.49	8.46	8.14
Takaoka, Yudai (JPN) (1999)	time	2.72	3.82	4.93	6.02	7.11	8.19	9.31	10.43	11.62	12.77		14.28	8 / 2			
reaction time	interval		1.10	1.11	1.09	1.09	1.08	1.12	1.12	1.19	1.15	1.51			3.30	3.29	3.46
	velocity	5.04	8.31	8.23	8.39	8.39	8.46	8.16	8.16	7.68	7.95	9.28	7.70		8.31	8.33	7.92
Abe, Ryoto (JPN) (2000)	time	2.66	3.76	4.85	5.96	7.06	8.18	9.32	10.45	11.63	12.83		14.30	2 / 3			
reaction time	interval		1.10	1.09	1.11	1.10	1.12	1.14	1.13	1.18	1.20	1.47			3.30	3.36	3.51
	velocity	5.16	8.31	8.39	8.23	8.31	8.16	8.02	8.09	7.75	7.62	9.54	7.69		8.31	8.16	7.81

Heat 3

date 21-Oct-16 wind 1.4 m/s *(2016.11.07) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Fukumoto, Riku (JPN)	time	2.62	3.71	4.78	5.83	6.89	7.97	9.05	10.17	11.27	12.41		13.86	2 / 1			
reaction time	interval		1.09	1.07	1.05	1.06	1.08	1.08	1.12	1.10	1.14	1.45			3.21	3.22	3.36
	velocity	5.24	8.39	8.54	8.70	8.62	8.46	8.46	8.16	8.31	8.02	9.67	7.94		8.54	8.52	8.16
Morita, Kanon (JPN) (2000)	time	2.66	3.80	4.92	6.04	7.15	8.28	9.42	10.54	11.70	12.86		14.39	7 / 2			
reaction time	interval		1.14	1.12	1.12	1.11	1.13	1.14	1.12	1.16	1.16	1.53			3.38	3.38	3.44
	velocity	5.16	8.02	8.16	8.16	8.23	8.09	8.02	8.16	7.88	7.88	9.16	7.64		8.11	8.11	7.97
Suzuki, Yusei (JPN) (2000)	time	2.64	3.76	4.89	6.01	7.13	8.27	9.42	10.55	11.72	12.91		14.46	4 / 3			
reaction time	interval		1.12	1.13	1.12	1.12	1.14	1.15	1.13	1.17	1.19	1.55			3.37	3.41	3.49
	velocity	5.20	8.16	8.09	8.16	8.16	8.02	7.95	8.09	7.81	7.68	9.05	7.61		8.14	8.04	7.86

Heat 2

date 21-Oct-16 wind 2.3 m/s *(2016.11.07) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Niwa, Hayato (JPN) (1999)	time	2.69	3.81	4.91	5.98	7.04	8.10	9.18	10.28	11.38	12.50		14.00	5 / 1			
reaction time	interval		1.12	1.10	1.07	1.06	1.06	1.08	1.10	1.10	1.12	1.50			3.29	3.20	3.32
	velocity	5.10	8.16	8.31	8.54	8.62	8.62	8.46	8.31	8.31	8.16	9.35	7.86		8.33	8.57	8.26
Nagamatsu, Hiroya (JPN) (1999	time	2.67	3.77	4.86	6.00	7.10	8.22	9.33	10.45	11.59	12.72		14.19	8 / 2			
reaction time	interval		1.10	1.09	1.14	1.10	1.12	1.11	1.12	1.14	1.13	1.47			3.33	3.33	3.39
	velocity	5.14	8.31	8.39	8.02	8.31	8.16	8.23	8.16	8.02	8.09	9.54	7.75		8.23	8.23	8.09
Tokuoka, Rika (JPN)	time	2.68	3.79	4.91	6.02	7.12	8.22	9.34	10.49	11.61	12.77		14.30	7 / 3			
reaction time	interval		1.11	1.12	1.11	1.10	1.10	1.12	1.15	1.12	1.16	1.53			3.34	3.32	3.43
	velocity	5.12	8.23	8.16	8.23	8.31	8.31	8.16	7.95	8.16	7.88	9.16	7.69		8.21	8.26	7.99

Heat 1

date 21-Oct-16 wind 1.7 m/s *(2016.11.07) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kawakami, Asuma (JPN) (1999)	time	2.67	3.78	4.88	5.97	7.08	8.20	9.31	10.43	11.56	12.71		14.21	7 / 1			
reaction time	interval		1.11	1.10	1.09	1.11	1.12	1.11	1.12	1.13	1.15	1.50			3.30	3.34	3.40
	velocity	5.14	8.23	8.31	8.39	8.23	8.16	8.23	8.16	8.09	7.95	9.35	7.74		8.31	8.21	8.06
Hiraga, Kentaro (JPN) (1999)	time	2.68	3.82	4.92	6.04	7.14	8.24	9.36	10.49	11.63	12.79		14.28	6 / 2			
reaction time	interval		1.14	1.10	1.12	1.10	1.10	1.12	1.13	1.14	1.16	1.49			3.36	3.32	3.43
	velocity	5.12	8.02	8.31	8.16	8.31	8.31	8.16	8.09	8.02	7.88	9.41	7.70		8.16	8.26	7.99
Sekiguchi, Takane (JPN)	time	2.69	3.82	4.93	6.03	7.15	8.28	9.42	10.54	11.68	12.87		14.44	4 / 3			
reaction time	interval		1.13	1.11	1.10	1.12	1.13	1.14	1.12	1.14	1.19	1.57			3.34	3.39	3.45
	velocity	5.10	8.09	8.23	8.31	8.16	8.09	8.02	8.16	8.02	7.68	8.93	7.62		8.21	8.09	7.95

2016 Kansai Student Athletics Championships (Osaka, JPN)

FINAL

date 19-Oct-16 wind -1.0 m/s *(2016.10.20) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hatanaka, Yushi (JPN) (1994)	time	2.71	3.83	4.92	6.04	7.13	8.23	9.34	10.46	11.60	12.73		14.19	5 / 1			
reaction time	interval	7 steps	1.12	1.09	1.12	1.09	1.10	1.11	1.12	1.14	1.13	1.46			3.33	3.30	3.39
	velocity	5.06	8.16	8.39	8.16	8.39	8.31	8.23	8.16	8.02	8.09	9.60	7.75		8.23	8.31	8.09

2016 China Perfecture High School Championships (Izumo, JPN)

FINAL

date 15-Oct-16 wind 0.9 m/s *(2016.10.16) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Fukumoto, Riku (JPN)	time	2.75	3.90	5.04	6.16	7.33	8.46	9.65	10.82	12.02	13.23		14.71	4 / 1			
reaction time	interval		1.15	1.14	1.12	1.17	1.13	1.19	1.17	1.20	1.21	1.48			3.41	3.49	3.58
	velocity	4.99	7.95	8.02	8.16	7.81	8.09	7.68	7.81	7.62	7.55	9.47	7.48		8.04	7.86	7.66

2016 National Sports Festival (Kitakami, JPN)

FINAL

date 10-Oct-16 wind 0.3 m/s *(2016.10.11) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)		time	2.64	3.72	4.78	5.82	6.87	7.92	8.97	10.03	11.10	12.18		13.62	4 / 1			
reaction time	0.146	interval	7 steps	1.08	1.06	1.04	1.05	1.05	1.05	1.06	1.07	1.08	1.44			3.18	3.15	3.21
		velocity	5.20	8.46	8.62	8.79	8.70	8.70	8.70	8.62	8.54	8.46	9.74	8.08		8.62	8.70	8.54

2016 Tokai Student Autumn Championships (Gifu, JPN)

FINAL date 09-Oct-16 wind 1.3 m/s *(2016.10.10) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yamamoto, Kenta (JPN) (1995)		time	2.72	3.82	4.91	6.01	7.11	8.21	9.30	10.39	11.54	12.68		14.11	5 / 1			
reaction time		interval		1.10	1.09	1.10	1.10	1.10	1.09	1.09	1.15	1.14	1.43			3.29	3.29	3.38
		velocity	5.04	8.31	8.39	8.31	8.31	8.31	8.39	8.39	7.95	8.02	9.80	7.80		8.33	8.33	8.11

2016 Japanese National Corporate Championships (Osaka, JPN)

FINAL date 25-Sep-16 wind 0.7 m/s *(2016.09.28) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)		time	2.63	3.71	4.78	5.84	6.88	7.93	8.99	10.04	11.12	12.20		13.65	4 / 1			
reaction time	0.153	interval	7 steps	1.08	1.07	1.06	1.04	1.05	1.06	1.05	1.08	1.08	1.45			3.21	3.15	3.21
		velocity	5.22	8.46	8.54	8.62	8.79	8.70	8.62	8.70	8.46	8.46	9.67	8.06		8.54	8.70	8.54

2016 Gunma Perfecture High School Championships (Gunma, JPN)

FINAL date 24-Sep-16 wind 0.3 m/s *(2016.10.25) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sekiguchi, Sekigori (JPN)		time	2.79	4.04	5.22	6.41	7.61	8.80	10.00	11.19	12.39	13.62		15.22	4 / 1			
reaction time		interval		1.25	1.18	1.19	1.20	1.19	1.20	1.19	1.20	1.23	1.60			3.62	3.59	3.62
		velocity	4.92	7.31	7.75	7.68	7.62	7.68	7.62	7.68	7.62	7.43	8.76	7.23		7.57	7.64	7.57

2016 Chiba Perfecture High School Championships (Chiba, JPN)

FINAL date 22-Sep-16 wind 1.8 m/s *(2016.10.25) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shinyo, Morito (JPN)		time	2.82	3.97	5.10	6.22	7.35	8.46	9.61	10.75	11.88	13.06		14.52	5 / 1			
reaction time		interval		1.15	1.13	1.12	1.13	1.11	1.15	1.14	1.13	1.18	1.46			3.40	3.39	3.45
		velocity	4.87	7.95	8.09	8.16	8.09	8.23	7.95	8.02	8.09	7.75	9.60	7.58		8.06	8.09	7.95

2016 Kanto Student Championships (Sagamihara, JPN)

FINAL date 17-Sep-16 wind 3.2 m/s *(2016.09.17) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kuriki, Anthony Tyrell (JPN) (1		time	2.67	3.76	4.84	5.91	6.98	8.06	9.12	10.19	11.30	12.39		13.82	4 / 1			
reaction time		interval	7 steps	1.09	1.08	1.07	1.07	1.08	1.06	1.07	1.11	1.09	1.43			3.24	3.21	3.27
		velocity	5.14	8.39	8.46	8.54	8.54	8.46	8.62	8.54	8.23	8.39	9.80	7.96		8.46	8.54	8.39
Hiramatsu, Papdemba (JPN) (1		time	2.64	3.74	4.84	5.90	6.95	8.04	9.13	10.20	11.30	12.42		13.90	6 / 2			
reaction time		interval	7 steps	1.10	1.10	1.06	1.05	1.09	1.09	1.07	1.10	1.12	1.48			3.26	3.23	3.29
		velocity	5.20	8.31	8.31	8.62	8.70	8.39	8.39	8.54	8.31	8.16	9.47	7.91		8.41	8.49	8.33
Taue, Shun (JPN) (1997)		time	2.71	3.81	4.90	5.97	7.04	8.12	9.22	10.31	11.41	12.54		13.95	7 / 3			
reaction time		interval		1.10	1.09	1.07	1.07	1.08	1.10	1.09	1.10	1.13	1.41			3.26	3.25	3.32
		velocity	5.06	8.31	8.39	8.54	8.54	8.46	8.31	8.39	8.31	8.09	9.94	7.89		8.41	8.44	8.26

2016 Miyazaki Perfecture High School Championships (Miyazaki, JPN)

FINAL date 16-Sep-16 wind 0.4 m/s *(2016.10.26) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yuuto, Yuiguchi (JPN)		time	2.81	3.97	5.16	6.35	7.54	8.72	10.00	11.23	12.46	13.70		15.25	4 / 1			
reaction time		interval		1.16	1.19	1.19	1.19	1.18	1.28	1.23	1.23	1.24	1.55			3.54	3.65	3.70
		velocity	4.88	7.88	7.68	7.68	7.68	7.75	7.14	7.43	7.43	7.37	9.05	7.21		7.75	7.51	7.41

2016 Memorial van Damme (Brussels, BEL) (TV Analysis)

FINAL date 09-Sep-16 wind 0.2 m/s *Henson (2020) - Athlete First: 2016 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)		time	2.50	3.54	4.57	5.57	6.57	7.57	8.57	9.59	10.61	11.64		13.08	5 / 1			
reaction time	0.145	interval	7 steps	1.04	1.03	1.00	1.00	1.00	1.00	1.02	1.02	1.03	1.44			3.07	3.00	3.07
		velocity	5.49	8.79	8.87	9.14	9.14	9.14	9.14	8.96	8.96	8.87	9.74	8.41		8.93	9.14	8.93
Martinot-Lagarde, Pascal (FRA		time	2.48	3.50	4.50	5.50	6.50	7.50	8.50	9.54	10.57	11.64		13.12	6 / 2			
reaction time	0.160	interval	7 steps	1.02	1.00	1.00	1.00	1.00	1.00	1.04	1.03	1.07	1.48			3.02	3.00	3.14
		velocity	5.53	8.96	9.14	9.14	9.14	9.14	9.14	8.79	8.87	8.54	9.47	8.38		9.08	9.14	8.73
Belocian, Wilhem (FRA) (1995)		time	2.50	3.53	4.57	5.57	6.57	7.60	8.62	9.64	10.71	11.81		13.32	8 / 3			
reaction time	0.153	interval		1.03	1.04	1.00	1.00	1.03	1.02	1.02	1.07	1.10	1.51			3.07	3.05	3.19
		velocity	5.49	8.87	8.79	9.14	9.14	8.87	8.96	8.96	8.54	8.31	9.28	8.26		8.93	8.99	8.60
Bascou, Dimitri (FRA) (1987)		time	2.50	3.57	4.57	5.57	6.57	7.60	8.64	9.67	10.75	11.86		13.37	4 / 4			
reaction time	0.160	interval	7 steps	1.07	1.00	1.00	1.00	1.03	1.04	1.03	1.08	1.11	1.51			3.07	3.07	3.22
		velocity	5.49	8.54	9.14	9.14	9.14	8.87	8.79	8.87	8.46	8.23	9.28	8.23		8.93	8.93	8.52

Omoregie, David (GBR) (1995)	time	2.53	3.57	4.60	5.62	6.64	7.67	8.72	9.77	10.84	11.94		13.43	3 / 5				
reaction time 0.153	interval		1.04	1.03	1.02	1.02	1.03	1.05	1.05	1.07	1.10	1.49			3.09	3.10	3.22	
	velocity	5.42	8.79	8.87	8.96	8.96	8.87	8.70	8.70	8.54	8.31	9.41	8.19		8.87	8.85	8.52	
Trajkovic, Milan (CYP) (1992)	time	2.50	3.53	4.57	5.57	6.59	7.61	8.66	9.74	10.81	11.90		13.44	7 / 6				
reaction time 0.143	interval	7 steps	1.03	1.04	1.00	1.02	1.02	1.05	1.08	1.07	1.09	1.54			3.07	3.09	3.24	
	velocity	5.49	8.87	8.79	9.14	8.96	8.96	8.70	8.46	8.54	8.39	9.10	8.18		8.93	8.87	8.46	
Baji, Balázs (HUN) (1989)	time	2.53	3.60	4.64	5.67	6.70	7.70	8.74	9.81	10.88	11.99		13.50	2 / 7				
reaction time 0.183	interval	7 steps	1.07	1.04	1.03	1.03	1.00	1.04	1.07	1.07	1.11	1.51			3.14	3.07	3.25	
	velocity	5.42	8.54	8.79	8.87	8.87	9.14	8.79	8.54	8.54	8.23	9.28	8.15		8.73	8.93	8.44	
Eaton, Jarret (USA) (1989)	time	2.50	3.57	4.60	5.60	6.62	7.66	8.72	9.77	10.83	11.94		13.54	9 / 8				
reaction time 0.181	interval	7 steps	1.07	1.03	1.00	1.02	1.04	1.06	1.05	1.06	1.11	1.60			3.10	3.12	3.22	
	velocity	5.49	8.54	8.87	9.14	8.96	8.79	8.62	8.70	8.62	8.23	8.76	8.12		8.85	8.79	8.52	
Manga, Aurel (FRA) (1992)	time	2.50	3.57	4.60	5.62	6.64	7.69	8.75	9.81	10.91	12.06		13.64	1 / 9				
reaction time 0.173	interval	7 steps	1.07	1.03	1.02	1.02	1.05	1.06	1.06	1.10	1.15	1.58			3.12	3.13	3.31	
	velocity	5.49	8.54	8.87	8.96	8.96	8.70	8.62	8.62	8.31	7.95	8.87	8.06		8.79	8.76	8.28	

2016 Japanese University Championships (Kumagaya, JPN)

FINAL

date 04-Sep-16 wind -1.9 m/s *(2016.09.06) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994)	time	2.67	3.74	4.84	5.92	7.01	8.09	9.19	10.31	11.43	12.56		14.02	7 / 1			
reaction time 0.159	interval		1.07	1.10	1.08	1.09	1.08	1.10	1.12	1.12	1.13	1.46			3.25	3.27	3.37	
	velocity	5.14	8.54	8.31	8.46	8.39	8.46	8.31	8.16	8.16	8.09	9.60	7.85		8.44	8.39	8.14	
Furuya, Takumu (JPN) (1997)	time	2.66	3.76	4.85	5.94	7.02	8.12	9.23	10.34	11.48	12.64		14.09	3 / 2			
reaction time 0.149	interval		1.10	1.09	1.09	1.08	1.10	1.11	1.11	1.14	1.16	1.45			3.28	3.29	3.41	
	velocity	5.16	8.31	8.39	8.39	8.46	8.31	8.23	8.23	8.02	7.88	9.67	7.81		8.36	8.33	8.04	
Kuriki, Anthony Tyrell (JPN) (1	time	2.69	3.80	4.89	5.98	7.08	8.17	9.27	10.39	11.52	12.68		14.11	4 / 3			
reaction time 0.142	interval	7 steps	1.11	1.09	1.09	1.10	1.09	1.10	1.12	1.13	1.16	1.43			3.29	3.29	3.41	
	velocity	5.10	8.23	8.39	8.39	8.31	8.39	8.31	8.16	8.09	7.88	9.80	7.80		8.33	8.33	8.04	
Kanai, Taio (JPN) (1995)	time	2.64	3.75	4.85	5.94	7.03	8.17	9.30	10.44	11.57	12.73		14.25	6 / 4			
reaction time 0.146	interval	7 steps	1.11	1.10	1.09	1.09	1.14	1.13	1.14	1.13	1.16	1.52			3.30	3.36	3.43	
	velocity	5.20	8.23	8.31	8.39	8.39	8.02	8.09	8.02	8.09	7.88	9.22	7.72		8.31	8.16	7.99	
Kagimoto, Masahiro (JPN) (19	time	2.71	3.83	4.94	6.06	7.17	8.27	9.39	10.51	11.64	12.80		14.32	9 / 5			
reaction time 0.169	interval		1.12	1.11	1.12	1.11	1.10	1.12	1.12	1.13	1.16	1.52			3.35	3.33	3.41	
	velocity	5.06	8.16	8.23	8.16	8.23	8.31	8.16	8.16	8.09	7.88	9.22	7.68		8.19	8.23	8.04	

Semi-Final 3

date 04-Sep-16 wind -0.1 m/s *(2016.09.05) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994)	time	2.66	3.73	4.78	5.83	6.88	7.95	9.03	10.12	11.23	12.35		13.83	4 / 1			
reaction time 0.151	interval		1.07	1.05	1.05	1.05	1.07	1.08	1.09	1.11	1.12	1.48			3.17	3.20	3.32	
	velocity	5.16	8.54	8.70	8.70	8.70	8.54	8.46	8.39	8.23	8.16	9.47	7.95		8.65	8.57	8.26	
Takeyoshi, Daiki (JPN) (1994)	time	2.66	3.74	4.82	5.90	7.00	8.09	9.22	10.35	11.49	12.65		14.15	6 / 2			
reaction time 0.134	interval		1.08	1.08	1.08	1.10	1.09	1.13	1.13	1.14	1.16	1.50			3.24	3.32	3.43	
	velocity	5.16	8.46	8.46	8.46	8.31	8.39	8.09	8.09	8.02	7.88	9.35	7.77		8.46	8.26	7.99	
Tanaka, Shinya (JPN) (1993)	time	2.68	3.77	4.86	5.96	7.07	8.17	9.29	10.44	11.58	12.75		14.22	7 / 3			
reaction time 0.141	interval	7 steps	1.09	1.09	1.10	1.11	1.10	1.12	1.15	1.14	1.17	1.47			3.28	3.33	3.46	
	velocity	5.12	8.39	8.39	8.31	8.23	8.31	8.16	7.95	8.02	7.81	9.54	7.74		8.36	8.23	7.92	

Semi-Final 2

date 04-Sep-16 wind 0.7 m/s *(2016.09.05) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kuriki, Anthony Tyrell (JPN) (1	time	2.65	3.75	4.83	5.91	6.99	8.09	9.19	10.27	11.37	12.48		13.91	5 / 1			
reaction time 0.135	interval	7 steps	1.10	1.08	1.08	1.08	1.10	1.10	1.08	1.10	1.11	1.43			3.26	3.28	3.29	
	velocity	5.18	8.31	8.46	8.46	8.46	8.31	8.31	8.46	8.31	8.23	9.80	7.91		8.41	8.36	8.33	
Kanai, Taio (JPN) (1995)	time	2.62	3.70	4.78	5.85	6.94	8.03	9.14	10.26	11.36	12.49		13.93	4 / 2			
reaction time 0.135	interval	7 steps	1.08	1.08	1.07	1.09	1.09	1.11	1.12	1.10	1.13	1.44			3.23	3.29	3.35	
	velocity	5.24	8.46	8.46	8.54	8.39	8.39	8.23	8.16	8.31	8.09	9.74	7.90		8.49	8.33	8.19	
Furuya, Takumu (JPN) (1997)	time	2.65	3.75	4.83	5.92	7.00	8.09	9.17	10.27	11.37	12.48		13.93	6 / 3			
reaction time 0.143	interval		1.10	1.08	1.09	1.08	1.09	1.08	1.10	1.10	1.11	1.45			3.27	3.25	3.31	
	velocity	5.18	8.31	8.46	8.39	8.46	8.39	8.46	8.31	8.31	8.23	9.67	7.90		8.39	8.44	8.28	
Ishikawa, Shuhei (JPN) (1995)	time	2.61	3.74	4.81	5.93	7.01	8.12	9.22	10.34	11.44	12.56		14.07	7 / 4			
reaction time 0.157	interval	7 steps	1.13	1.07	1.12	1.08	1.11	1.10	1.12	1.10	1.12	1.51			3.32	3.29	3.34	
	velocity	5.26	8.09	8.54	8.16	8.46	8.23	8.31	8.16	8.31	8.16	9.28	7.82		8.26	8.33	8.21	

Okazaki, Masaki (JPN) (1994)	time	2.65	3.77	4.85	5.94	7.05	8.14	9.23	10.35	11.49	12.63		14.10	2 / 5				
reaction time 1.530	interval		1.12	1.08	1.09	1.11	1.09	1.09	1.12	1.14	1.14	1.47			3.29	3.29	3.40	
	velocity	5.18	8.16	8.46	8.39	8.23	8.39	8.39	8.16	8.02	8.02	9.54	7.80		8.33	8.33	8.06	
Furuya, Kyohei (JPN) (1996)	time	2.68	3.77	4.89	5.97	7.09	8.18	9.34	10.48	11.61	12.78		14.21	3 / 7				
reaction time 0.133	interval		1.09	1.12	1.08	1.12	1.09	1.16	1.14	1.13	1.17	1.43			3.29	3.37	3.44	
	velocity	5.12	8.39	8.16	8.46	8.16	8.39	7.88	8.02	8.09	7.81	9.80	7.74		8.33	8.14	7.97	
Furumoto, Tsubasa (JPN) (199	time	2.70	3.80	4.93	6.04	7.14	8.24	9.34	10.47	11.66	12.85		14.36	8 / 8				
reaction time 0.133	interval		1.10	1.13	1.11	1.10	1.10	1.10	1.13	1.19	1.19	1.51			3.34	3.30	3.51	
	velocity	5.08	8.31	8.09	8.23	8.31	8.31	8.31	8.09	7.68	7.68	9.28	7.66		8.21	8.31	7.81	

Semi-Final 1

date 04-Sep-16 wind 0.6 m/s *(2016.09.05) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yada, Gen (JPN) (1994)	time	2.70	3.85	4.95	6.03	7.12	8.21	9.31	10.40	11.50	12.63		14.01	5 / 1			
reaction time 0.135	interval		1.15	1.10	1.08	1.09	1.09	1.10	1.09	1.10	1.13	1.38			3.33	3.28	3.32
	velocity	5.08	7.95	8.31	8.46	8.39	8.39	8.31	8.39	8.31	8.09	10.16	7.85		8.23	8.36	8.26
Kagimoto, Masahiro (JPN) (19	time	2.71	3.80	4.88	5.98	7.08	8.18	9.29	10.37	11.47	12.59		14.01	7 / 2			
reaction time 0.159	interval		1.09	1.08	1.10	1.10	1.10	1.11	1.08	1.10	1.12	1.42			3.27	3.31	3.30
	velocity	5.06	8.39	8.46	8.31	8.31	8.31	8.23	8.46	8.31	8.16	9.87	7.85		8.39	8.28	8.31
Taue, Shun (JPN) (1997)	time	2.73	3.85	4.94	6.02	7.12	8.22	9.32	10.41	11.54	12.69		14.16	2 / 4			
reaction time 0.144	interval		1.12	1.09	1.08	1.10	1.10	1.10	1.09	1.13	1.15	1.47			3.29	3.30	3.37
	velocity	5.03	8.16	8.39	8.46	8.31	8.31	8.31	8.39	8.09	7.95	9.54	7.77		8.33	8.31	8.14
Tsuneyoshi, Keisuke (JPN) (19	time	2.76	3.88	4.97	6.07	7.17	8.27	9.36	10.52	11.63	12.78		14.21	4 / 5			
reaction time 0.173	interval		1.12	1.09	1.10	1.10	1.10	1.09	1.16	1.11	1.15	1.43			3.31	3.29	3.42
	velocity	4.97	8.16	8.39	8.31	8.31	8.31	8.39	7.88	8.23	7.95	9.80	7.74		8.28	8.33	8.02
Kawamura, Naoya (JPN) (1996)	time	2.78	3.89	4.98	6.07	7.17	8.28	9.38	10.50	11.62	12.77		14.23	3 / 6			
reaction time 0.160	interval		1.11	1.09	1.09	1.10	1.11	1.10	1.12	1.12	1.15	1.46			3.29	3.31	3.39
	velocity	4.94	8.23	8.39	8.39	8.31	8.23	8.31	8.16	8.16	7.95	9.60	7.73		8.33	8.28	8.09
Ueno, Yuta (JPN) (1995)	time	2.71	3.83	4.95	6.05	7.15	8.28	9.40	10.54	11.68	12.84		14.31	8 / 7			
reaction time 0.136	interval		1.12	1.12	1.10	1.10	1.13	1.12	1.14	1.14	1.16	1.47			3.34	3.35	3.44
	velocity	5.06	8.16	8.16	8.31	8.31	8.09	8.16	8.02	8.02	7.88	9.54	7.69		8.21	8.19	7.97
Hatanaka, Yushi (JPN) (1994)	time	2.69	3.81	4.91	6.03	7.12	8.27	9.40	10.56	11.69	12.86		14.34	6 / 8			
reaction time 0.151	interval		1.12	1.10	1.12	1.09	1.15	1.13	1.16	1.13	1.17	1.48			3.34	3.37	3.46
	velocity	5.10	8.16	8.31	8.16	8.39	7.95	8.09	7.88	8.09	7.81	9.47	7.67		8.21	8.14	7.92

2016 Kyushu Championships (Kita-Kyushu, JPN)

FINAL

date 27-Aug-16 wind -2.1 m/s *(2016.08.30) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nishi, Kyohei (JPN) (1995)	time	2.70	3.81	4.95	6.05	7.15	8.28	9.39	10.51	11.65	12.81		14.32	4 / 1			
reaction time	interval		1.11	1.14	1.10	1.10	1.13	1.11	1.12	1.14	1.16	1.51			3.35	3.34	3.42
	velocity	5.08	8.23	8.02	8.31	8.31	8.09	8.23	8.16	8.02	7.88	9.28	7.68		8.19	8.21	8.02

2016 Athletissima (Lausanne, SUI) (TV Analysis)

FINAL

date 25-Aug-16 wind 0.5 m/s *Henson (2020) - Athlete First: 2016 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.52	3.56	4.58	5.60	6.60	7.60	8.62	9.64	10.64	11.68		13.11	5 / 1			
reaction time 0.133	interval	7 steps	1.04	1.02	1.02	1.00	1.00	1.02	1.02	1.00	1.04	1.43			3.08	3.02	3.06
	velocity	5.44	8.79	8.96	8.96	9.14	9.14	8.96	8.96	9.14	8.79	9.80	8.39		8.90	9.08	8.96
McLeod, Omar (JAM) (1994)	time	2.48	3.54	4.56	5.58	6.58	7.58	8.62	9.64	10.64	11.70		13.12	4 / 2			
reaction time 0.144	interval		1.06	1.02	1.02	1.00	1.00	1.04	1.02	1.00	1.06	1.42			3.10	3.04	3.08
	velocity	5.53	8.62	8.96	8.96	9.14	9.14	8.79	8.96	9.14	8.62	9.87	8.38		8.85	9.02	8.90
Bascou, Dimitri (FRA) (1987)	time	2.48	3.52	4.54	5.56	6.56	7.56	8.58	9.62	10.68	11.76		13.25	6 / 3			
reaction time 0.139	interval	7 steps	1.04	1.02	1.02	1.00	1.00	1.02	1.04	1.06	1.08	1.49			3.08	3.02	3.18
	velocity	5.53	8.79	8.96	8.96	9.14	9.14	8.96	8.79	8.62	8.46	9.41	8.30		8.90	9.08	8.62
Belocian, Wilhem (FRA) (1995)	time	2.48	3.50	4.50	5.52	6.52	7.54	8.56	9.60	10.66	11.74		13.25	7 / 4			
reaction time 0.126	interval		1.02	1.00	1.02	1.00	1.02	1.02	1.04	1.06	1.08	1.51	PB		3.04	3.04	3.18
	velocity	5.53	8.96	9.14	8.96	9.14	8.96	8.96	8.79	8.62	8.46	9.28	8.30		9.02	9.02	8.62
Baji, Balázs (HUN) (1989)	time	2.52	3.56	4.60	5.60	6.60	7.62	8.64	9.66	10.72	11.78		13.34	1 / 5			
reaction time 0.141	interval	7 steps	1.04	1.04	1.00	1.00	1.02	1.02	1.02	1.06	1.06	1.56			3.08	3.04	3.14
	velocity	5.44	8.79	8.79	9.14	9.14	8.96	8.96	8.96	8.62	8.62	8.99	8.25		8.90	9.02	8.73
Martinot-Lagarde, Pascal (FRA	time	2.52	3.56	4.58	5.60	6.62	7.64	8.68	9.72	10.76	11.84		13.37	2 / 6			
reaction time 0.146	interval	7 steps	1.04	1.02	1.02	1.02	1.02	1.04	1.04	1.04	1.08	1.53			3.08	3.08	3.16
	velocity	5.44	8.79	8.96	8.96	8.96	8.96	8.79	8.79	8.79	8.46	9.16	8.23		8.90	8.90	8.68

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Oliver, David (USA) (1982)		time	2.52	3.56	4.58	5.60	6.60	7.64	8.68	9.72	10.78	11.84		13.40	3 / 7			
reaction time	0.146	interval	7 steps	1.04	1.02	1.02	1.00	1.04	1.04	1.04	1.06	1.06	1.56			3.08	3.08	3.16
		velocity	5.44	8.79	8.96	8.96	9.14	8.79	8.79	8.79	8.62	8.62	8.99	8.21		8.90	8.90	8.68
Douvalídis, Konstadínos (GRE		time	2.58	3.66	4.70	5.74	6.76	7.80	8.86	9.92	11.00	12.10		13.69	8 / 8			
reaction time	0.136	interval		1.08	1.04	1.04	1.02	1.04	1.06	1.06	1.08	1.10	1.59			3.16	3.12	3.24
		velocity	5.32	8.46	8.79	8.79	8.96	8.79	8.62	8.62	8.46	8.31	8.82	8.04		8.68	8.79	8.46

2016 Olympic Games (Rio de Janeiro, BRA) (TV Analysis)

FINAL date 16-Aug-16 wind 0.2 m/s

Henson (2020) - Athlete First: 2016 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time	2.44	3.50	4.52	5.54	6.54	7.54	8.56	9.60	10.60	11.62		13.05	5 / 1			
reaction time	0.142	interval		1.06	1.02	1.02	1.00	1.00	1.02	1.04	1.00	1.02	1.43			3.10	3.02	3.06
		velocity	5.62	8.62	8.96	8.96	9.14	9.14	8.96	8.79	9.14	8.96	9.80	8.43		8.85	9.08	8.96
Ortega, Orlando (ESP) (1991)		time	2.56	3.62	4.64	5.64	6.64	7.64	8.64	9.68	10.70	11.74		13.17	7 / 2			
reaction time	0.127	interval	7 steps	1.06	1.02	1.00	1.00	1.00	1.00	1.04	1.02	1.04	1.43			3.08	3.00	3.10
		velocity	5.36	8.62	8.96	9.14	9.14	9.14	9.14	8.79	8.96	8.79	9.80	8.35		8.90	9.14	8.85
Bascou, Dimitri (FRA) (1987)		time	2.50	3.52	4.54	5.56	6.56	7.62	8.66	9.72	10.76	11.80		13.24	6 / 3			
reaction time	0.131	interval	7 steps	1.02	1.02	1.02	1.00	1.06	1.04	1.06	1.04	1.04	1.44			3.06	3.10	3.14
		velocity	5.49	8.96	8.96	8.96	9.14	8.62	8.79	8.62	8.79	8.79	9.74	8.31		8.96	8.85	8.73
Martinot-Lagarde, Pascal (FRA		time	2.46	3.50	4.52	5.54	6.56	7.56	8.60	9.66	10.72	11.80		13.29	4 / 4			
reaction time	0.142	interval	7 steps	1.04	1.02	1.02	1.02	1.00	1.04	1.06	1.06	1.08	1.49			3.08	3.06	3.20
		velocity	5.58	8.79	8.96	8.96	8.96	9.14	8.79	8.62	8.62	8.46	9.41	8.28		8.90	8.96	8.57
Allen, Devon (USA) (1994)		time	2.50	3.58	4.60	5.60	6.62	7.66	8.70	9.74	10.76	11.82		13.31	3 / 5			
reaction time	0.135	interval		1.08	1.02	1.00	1.02	1.04	1.04	1.04	1.02	1.06	1.49			3.10	3.10	3.12
		velocity	5.49	8.46	8.96	9.14	8.96	8.79	8.79	8.79	8.96	8.62	9.41	8.26		8.85	8.85	8.79
Cabral, Jonathan (CAN) (1992)		time	2.58	3.64	4.68	5.72	6.74	7.76	8.80	9.84	10.88	11.96		13.40	2 / 6			
reaction time	0.146	interval	7 steps	1.06	1.04	1.04	1.02	1.02	1.04	1.04	1.04	1.08	1.44			3.14	3.08	3.16
		velocity	5.32	8.62	8.79	8.79	8.96	8.96	8.79	8.79	8.79	8.46	9.74	8.21		8.73	8.90	8.68
Trajkovic, Milan (CYP) (1992)		time	2.50	3.56	4.62	5.64	6.66	7.72	8.76	9.82	10.88	11.94		13.41	8 / 7			
reaction time	0.136	interval	7 steps	1.06	1.06	1.02	1.02	1.06	1.04	1.06	1.06	1.06	1.47			3.14	3.12	3.18
		velocity	5.49	8.62	8.62	8.96	8.96	8.62	8.79	8.62	8.62	8.62	9.54	8.20		8.73	8.79	8.62
Ash, Ronnie (USA) (1988)		time	2.52	3.58	4.60	5.60	6.60	7.60	8.62	9.64	10.70	11.72			9 / --			
reaction time	0.160	interval	7 steps	1.06	1.02	1.00	1.00	1.00	1.02	1.02	1.06	1.02		DQ		3.08	3.02	3.10
		velocity	5.44	8.62	8.96	9.14	9.14	9.14	8.96	8.96	8.62	8.96				8.90	9.08	8.85

2016 Japanese National High School Championships (Okayama, JPN) (99cm)

FINAL date 02-Aug-16 wind 1.2 m/s

Kota (2016) - 69th high school championships: JAF scientific committee - biomechanics data collection

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kato, Takuma (JPN) (1998)		time	2.63	3.73	4.83	5.92	7.01	8.11	9.20	10.32	11.41	12.55		13.98	6 / 1			
reaction time	0.127	interval		1.10	1.10	1.09	1.09	1.10	1.09	1.12	1.09	1.14	1.43	PB		3.29	3.28	3.35
		velocity	5.22	8.31	8.31	8.39	8.39	8.31	8.39	8.16	8.39	8.02	9.80	7.87		8.33	8.36	8.19
Katsuta, Kizuku (JPN) (1999)		time	2.65	3.74	4.88	5.99	7.11	8.24	9.36	10.46	11.59	12.74		14.18	4 / 2			
reaction time	0.147	interval		1.09	1.14	1.11	1.12	1.13	1.12	1.10	1.13	1.15	1.44	PB		3.34	3.37	3.38
		velocity	5.18	8.39	8.02	8.23	8.16	8.09	8.16	8.31	8.09	7.95	9.74	7.76		8.21	8.14	8.11
Kichima, Kaito (JPN) (1998)		time	2.68	3.78	4.87	5.95	7.05	8.15	9.27	10.38	11.53	12.70		14.20	7 / 3			
reaction time	0.161	interval		1.10	1.09	1.08	1.10	1.10	1.12	1.11	1.15	1.17	1.50	PB		3.27	3.32	3.43
		velocity	5.12	8.31	8.39	8.46	8.31	8.31	8.16	8.23	7.95	7.81	9.35	7.75		8.39	8.26	7.99
Tomioka, Tatsuto (JPN) (1998)		time	2.71	3.82	4.94	6.02	7.12	8.21	9.30	10.41	11.54	12.67		14.20	5 / 4			
reaction time	0.138	interval		1.11	1.12	1.08	1.10	1.09	1.09	1.11	1.13	1.13	1.53	PB		3.31	3.28	3.37
		velocity	5.06	8.23	8.16	8.46	8.31	8.39	8.39	8.23	8.09	8.09	9.16	7.75		8.28	8.36	8.14
Higuchi, Rikuto (JPN) (1999)		time	2.68	3.78	4.86	5.96	7.07	8.21	9.35	10.47	11.60	12.77		14.25	2 / 5			
reaction time	0.168	interval		1.10	1.08	1.10	1.11	1.14	1.14	1.12	1.13	1.17	1.48	PB		3.28	3.39	3.42
		velocity	5.12	8.31	8.46	8.31	8.23	8.02	8.02	8.16	8.09	7.81	9.47	7.72		8.36	8.09	8.02
Kawashima, Ryota (JPN) (1999		time	2.69	3.82	4.94	6.05	7.16	8.29	9.41	10.52	11.67	12.83		14.33	9 / 6			
reaction time	0.169	interval		1.13	1.12	1.11	1.11	1.13	1.12	1.11	1.15	1.16	1.50	PB		3.36	3.36	3.42
		velocity	5.10	8.09	8.16	8.23	8.23	8.09	8.16	8.23	7.95	7.88	9.35	7.68		8.16	8.16	8.02
Iwakiri, Yuki (JPN) (1998)		time	2.77	3.88	5.00	6.13	7.24	8.39	9.53	10.70	11.87	13.06		14.67	8 / 7			
reaction time	0.160	interval		1.11	1.12	1.13	1.11	1.15	1.14	1.17	1.17	1.19	1.61			3.36	3.40	3.53
		velocity	4.95	8.23	8.16	8.09	8.23	7.95	8.02	7.81	7.81	7.68	8.71	7.50		8.16	8.06	7.77

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

2016 Spanish National Championships (Gijón, ESP) (TV Analysis)

FINAL date 24-Jul-16 wind 1.0 m/s *Henson (2021) - Athlete First: 2016 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)		time	2.50	3.56	4.57	5.56	6.54	7.56	8.56	9.56	10.56	11.60		13.09	4 / 1			
reaction time	0.161	interval	7 steps	1.06	1.01	0.99	0.98	1.02	1.00	1.00	1.00	1.04	1.49			3.06	3.00	3.04
		velocity	5.49	8.62	9.05	9.23	9.33	8.96	9.14	9.14	9.14	8.79	9.41	8.40		8.96	9.14	9.02
Contreras, Yidiel (ESP) (1992)		time	2.44	3.56	4.57	5.58	6.60	7.62	8.66	9.71	10.80	11.90		13.45	5 / 2			
reaction time		interval	7 steps	1.12	1.01	1.01	1.02	1.02	1.04	1.05	1.09	1.10	1.55			3.14	3.08	3.24
		velocity	5.62	8.16	9.05	9.05	8.96	8.96	8.79	8.70	8.39	8.31	9.05	8.18		8.73	8.90	8.46

2016 London Anniversary Games (London, GBR) (TV Analysis)

FINAL date 23-Jul-16 wind -1.0 m/s *Henson (2021) - Athlete First: 2016 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Bascou, Dimitri (FRA) (1987)		time	2.50	3.53	4.56	5.56	6.58	7.60	8.62	9.64	10.68	11.74		13.20	5 / 1			
reaction time	0.103	interval	7 steps	1.03	1.03	1.00	1.02	1.02	1.02	1.02	1.04	1.06	1.46			3.06	3.06	3.12
		velocity	5.49	8.87	8.87	9.14	8.96	8.96	8.96	8.96	8.79	8.62	9.60	8.33		8.96	8.96	8.79
Traber, Gregor (GER) (1992)		time	2.53	3.58	4.60	5.63	6.65	7.68	8.72	9.80	10.86	11.95		13.45	3 / 2			
reaction time	0.150	interval	7 steps	1.05	1.02	1.03	1.02	1.03	1.04	1.08	1.06	1.09	1.50			3.10	3.09	3.23
		velocity	5.42	8.70	8.96	8.87	8.96	8.87	8.79	8.46	8.62	8.39	9.35	8.18		8.85	8.87	8.49
Douvalídis, Konstadínos (GRE		time	2.60	3.63	4.66	5.73	6.76	7.80	8.85	9.90	10.98	12.06		13.54	7 / 3			
reaction time	0.146	interval		1.03	1.03	1.07	1.03	1.04	1.05	1.05	1.08	1.08	1.48			3.13	3.12	3.21
		velocity	5.28	8.87	8.87	8.54	8.87	8.79	8.70	8.70	8.46	8.46	9.47	8.12		8.76	8.79	8.54
Manga, Aurel (FRA) (1992)		time	2.46	3.52	4.58	5.62	6.63	7.74	8.82	9.88	11.02	12.08		13.59	9 / 4			
reaction time	0.155	interval	7 steps	1.06	1.06	1.04	1.01	1.11	1.08	1.06	1.14	1.06	1.51			3.16	3.20	3.26
		velocity	5.58	8.62	8.62	8.79	9.05	8.23	8.46	8.62	8.02	8.62	9.28	8.09		8.68	8.57	8.41
Omoregie, David (GBR) (1995)		time	2.50	3.60	4.63	5.70	6.78	7.83	8.90	10.02	11.08	12.16		13.64	4 / 5			
reaction time	0.153	interval		1.10	1.03	1.07	1.08	1.05	1.07	1.12	1.06	1.08	1.48			3.20	3.20	3.26
		velocity	5.49	8.31	8.87	8.54	8.46	8.70	8.54	8.16	8.62	8.46	9.47	8.06		8.57	8.57	8.41

2016 All-Star Night Athletics (Hiratsuka, JPN)

FINAL date 23-Jul-16 wind 0.5 m/s *(2016.07.23) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)		time	2.58	3.65	4.70	5.73	6.78	7.84	8.88	9.95	11.02	12.10		13.52	5 / 3			
reaction time	0.144	interval		1.07	1.05	1.03	1.05	1.06	1.04	1.07	1.07	1.08	1.42	PB		3.15	3.15	3.22
		velocity	5.32	8.54	8.70	8.87	8.70	8.62	8.79	8.54	8.54	8.46	9.87	8.14		8.70	8.70	8.52
Tagaku, Takashi (JPN)		time	2.69	3.78	4.85	5.90	6.96	8.01	9.10	10.16	11.25	12.35		13.81	3 / 2			
reaction time	0.160	interval	7 steps	1.09	1.07	1.05	1.06	1.05	1.09	1.06	1.09	1.10	1.46			3.21	3.20	3.25
		velocity	5.10	8.39	8.54	8.70	8.62	8.70	8.39	8.62	8.39	8.31	9.60	7.97		8.54	8.57	8.44

2016 IAAF World Junior Championships (Bydgoszcz, POL) (0.99cm)

FINAL date 21-Jul-16 wind 0.2 m/s *(2016.07.24) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Krah, Marcus (USA) (1997)	0.145	no information available											PB	13.25	6 / 1			
Lattin, Amere (USA) (1997)	0.154	no information available											PB	13.30	4 / 2			
Furuya, Takumu (JPN) (1997)		time	2.62	3.66	4.68	5.69	6.70	7.72	8.74	9.76	10.81	11.86		13.31	7 / 3			
reaction time	0.152	interval		1.04	1.02	1.01	1.01	1.02	1.02	1.02	1.05	1.05	1.45	NJR		3.07	3.05	3.12
		velocity	5.24	8.79	8.96	9.05	9.05	8.96	8.96	8.96	8.70	8.70	9.67	8.26		8.93	8.99	8.79
Russell, De'Jour (JAM) (2000)	0.172	no information available												13.39	5 / 4			
Žebrowski, Dawid (POL) (1997)	0.138	no information available											PB	13.45	3 / 5			
Nicholls, Machael (BAH) (1997)	0.145	no information available												13.45	2 / 6			
Weaver, James (GBR) (1997)	0.155	no information available												13.51	9 / 7			
Treston, Matthew (GBR) (1998)	0.132	no information available												13.55	8 / 8			

2016 Six College Meeting (Sagamihara, JPN)

FINAL date 17-Jul-16 wind 0.3 m/s *(2016.07.18) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Okazaki, Masaki (JPN) (1994)		time	2.64	3.72	4.81	5.91	6.98	8.06	9.16	10.26	11.37	12.48		13.90	6 / 1			
reaction time		interval		1.08	1.09	1.10	1.07	1.08	1.10	1.10	1.11	1.11	1.42	PB		3.27	3.25	3.32
		velocity	5.20	8.46	8.39	8.31	8.54	8.46	8.31	8.31	8.23	8.23	9.87	7.91		8.39	8.44	8.26
Fujii, Ryota (1996)		time	2.63	3.73	4.82	5.90	6.98	8.07	9.18	10.28	11.38	12.51		13.95	5 / 2			
reaction time		interval		1.10	1.09	1.08	1.08	1.09	1.11	1.10	1.10	1.13	1.44	PB		3.27	3.28	3.33
		velocity	5.22	8.31	8.39	8.46	8.46	8.39	8.23	8.31	8.31	8.09	9.74	7.89		8.39	8.36	8.23

2016 Herculis Meeting International d'Athlétisme (Monaco, MON) (TV Analysis)

FINAL date 15-Jul-16 wind 0.0 m/s *Henson (2021) - Athlete First: 2016 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)		time	2.48	3.52	4.54	5.54	6.54	7.54	8.56	9.56	10.56	11.60		13.04	3 / 1			
reaction time	0.136	interval	7 steps	1.04	1.02	1.00	1.00	1.00	1.02	1.00	1.00	1.04	1.44	NR		3.06	3.02	3.04
		velocity	5.53	8.79	8.96	9.14	9.14	9.14	8.96	9.14	9.14	8.79	9.74	8.44		8.96	9.08	9.02
Bascou, Dimitri (FRA) (1987)		time	2.44	3.48	4.48	5.46	6.44	7.46	8.48	9.52	10.56	11.64		13.12	6 / 2			
reaction time	0.136	interval	7 steps	1.04	1.00	0.98	0.98	1.02	1.02	1.04	1.04	1.08	1.48	PB		3.02	3.02	3.16
		velocity	5.62	8.79	9.14	9.33	9.33	8.96	8.96	8.79	8.79	8.46	9.47	8.38		9.08	9.08	8.68
Martinot-Lagarde, Pascal (FRA		time	2.44	3.50	4.52	5.54	6.56	7.56	8.56	9.58	10.60	11.68		13.17	4 / 3			
reaction time	0.132	interval	7 steps	1.06	1.02	1.02	1.02	1.00	1.00	1.02	1.02	1.08	1.49			3.10	3.02	3.12
		velocity	5.62	8.62	8.96	8.96	8.96	9.14	9.14	8.96	8.96	8.46	9.41	8.35		8.85	9.08	8.79
Belocian, Wilhem (FRA) (1995)		time	2.48	3.52	4.54	5.56	6.56	7.60	8.66	9.72	10.78	11.88		13.42	2 / 4			
reaction time	0.129	interval		1.04	1.02	1.02	1.00	1.04	1.06	1.06	1.06	1.10	1.54			3.08	3.10	3.22
		velocity	5.53	8.79	8.96	8.96	9.14	8.79	8.62	8.62	8.62	8.31	9.10	8.20		8.90	8.85	8.52
Baji, Balázs (HUN) (1989)		time	2.48	3.54	4.56	5.58	6.60	7.60	8.64	9.68	10.72	11.86		13.45	8 / 5			
reaction time	0.131	interval	7 steps	1.06	1.02	1.02	1.02	1.00	1.04	1.04	1.04	1.14	1.59			3.10	3.06	3.22
		velocity	5.53	8.62	8.96	8.96	8.96	9.14	8.79	8.79	8.79	8.02	8.82	8.18		8.85	8.96	8.52
Czykier, Damian (POL) (1992)		time	2.56	3.58	4.62	5.66	6.70	7.72	8.80	9.88	10.96	12.08		13.64	1 / 6			
reaction time	0.157	interval	7 steps	1.02	1.04	1.04	1.04	1.02	1.08	1.08	1.08	1.12	1.56			3.10	3.14	3.28
		velocity	5.36	8.96	8.79	8.79	8.79	8.96	8.46	8.46	8.46	8.16	8.99	8.06		8.85	8.73	8.36
Alkana, Antonio (RSA) (1990)		time	2.48	3.54	4.60	5.64	6.68	7.76	8.80	9.88	11.04	12.12		13.66	7 / 7			
reaction time	0.130	interval		1.06	1.06	1.04	1.04	1.08	1.04	1.08	1.16	1.08	1.54			3.16	3.16	3.32
		velocity	5.53	8.62	8.62	8.79	8.79	8.46	8.79	8.46	7.88	8.46	9.10	8.05		8.68	8.68	8.26
McLeod, Omar (JAM) (1994)		time	2.42	3.48	4.48	5.48	6.48	7.50	8.52	9.60	10.68	11.72		13.82	5 / 8			
reaction time	0.128	interval		1.06	1.00	1.00	1.00	1.02	1.02	1.08	1.08	1.04	2.10			3.06	3.04	3.20
		velocity	5.67	8.62	9.14	9.14	9.14	8.96	8.96	8.46	8.46	8.79	6.68	7.96		8.96	9.02	8.57

2016 USA Olympic Trials (Eugene, OR) (TV Analysis)

FINAL date 09-Jul-16 wind 1.0 m/s

Henson (2020) - Athlete First: 2016 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Allen, Devon (USA) (1994)		time	2.53	3.55	4.57	5.55	6.54	7.54	8.52	9.54	10.56	11.57		13.03	3 / 1			
reaction time	0.157	interval		1.02	1.02	0.98	0.99	1.00	0.98	1.02	1.02	1.01	1.46	PB		3.02	2.97	3.05
		velocity	5.42	8.96	8.96	9.33	9.23	9.14	9.33	8.96	8.96	9.05	9.60	8.44		9.08	9.23	8.99
Ash, Ronnie (USA) (1988)		time	2.53	3.57	4.57	5.60	6.57	7.60	8.60	9.62	10.65	11.71		13.21	4 / 2			
reaction time	0.203	interval	7 steps	1.04	1.00	1.03	0.97	1.03	1.00	1.02	1.03	1.06	1.50			3.07	3.00	3.11
		velocity	5.42	8.79	9.14	8.87	9.42	8.87	9.14	8.96	8.87	8.62	9.35	8.33		8.93	9.14	8.82
Porter, Jeff (USA) (1985)		time	2.50	3.53	4.53	5.55	6.57	7.60	8.62	9.67	10.69	11.73		13.21	6 / 3			
reaction time	0.163	interval		1.03	1.00	1.02	1.02	1.03	1.02	1.05	1.02	1.04	1.48			3.05	3.07	3.11
		velocity	5.49	8.87	9.14	8.96	8.96	8.87	8.96	8.70	8.96	8.79	9.47	8.33		8.99	8.93	8.82
Merritt, Aries (USA) (1985)		time	2.47	3.49	4.49	5.49	6.47	7.47	8.49	9.54	10.60	11.66		13.22	1 / 4			
reaction time	0.155	interval	7 steps	1.02	1.00	1.00	0.98	1.00	1.02	1.05	1.06	1.06	1.56			3.02	3.00	3.17
		velocity	5.55	8.96	9.14	9.14	9.33	9.14	8.96	8.70	8.62	8.62	8.99	8.32		9.08	9.14	8.65
Richardson, Jason (USA) (198		time	2.56	3.60	4.60	5.60	6.60	7.64	8.64	9.67	10.71	11.76		13.28	7 / 5			
reaction time	0.212	interval	7 steps	1.04	1.00	1.00	1.00	1.04	1.00	1.03	1.04	1.05	1.52			3.04	3.04	3.12
		velocity	5.36	8.79	9.14	9.14	9.14	8.79	9.14	8.87	8.79	8.70	9.22	8.28		9.02	9.02	8.79
Eaton, Jarret (USA) (1989)		time	2.47	3.47	4.47	5.47	6.45	7.47	8.49	9.51	10.61	11.71		13.30	2 / 6			
reaction time	0.196	interval	7 steps	1.00	1.00	1.00	0.98	1.02	1.02	1.02	1.10	1.10	1.59			3.00	3.02	3.22
		velocity	5.55	9.14	9.14	9.14	9.33	8.96	8.96	8.96	8.31	8.31	8.82	8.27		9.14	9.08	8.52
Harris, Aleec (USA) (1990)		time	2.53	3.60	4.64	5.67	6.70	7.74	8.81	9.84	10.91	12.00		13.56	8 / 7			
reaction time	0.186	interval		1.07	1.04	1.03	1.03	1.04	1.07	1.03	1.07	1.09	1.56			3.14	3.14	3.19
		velocity	5.42	8.54	8.79	8.87	8.87	8.79	8.54	8.87	8.54	8.39	8.99	8.11		8.73	8.73	8.60

2016 European Championships (Amsterdam, NED)

FINAL date 09-Jul-16 wind 0.0 m/s

(2016.07.09) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Bascou, Dimitri (FRA) (1987)		time	2.53	3.56	4.58	5.59	6.60	7.62	8.65	9.71	10.78	11.86		13.25	7 / 1			
reaction time	0.141	interval	7 steps	1.03	1.02	1.01	1.01	1.02	1.03	1.06	1.07	1.08	1.39			3.06	3.06	3.21
		velocity	5.42	8.87	8.96	9.05	9.05	8.96	8.87	8.62	8.54	8.46	10.09	8.30		8.96	8.96	8.54

2016 Jamiacan National Championships (Kingston, JAM) (TV Analysis)

FINAL date 02-Jul-16 wind 0.4 m/s

Henson (2020) - Athlete First: 2016 year end hurdle report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time	2.43	3.50	4.51	5.51	6.49	7.47	8.49	9.51	10.51	11.53		13.01	4 / 1			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval		1.07	1.01	1.00	0.98	0.98	1.02	1.02	1.00	1.02	1.48			3.08	2.98	3.04
	velocity	5.65	8.54	9.05	9.14	9.33	9.33	8.96	8.96	9.14	8.96	9.47	8.46		8.90	9.20	9.02
Carter, Deuce (JAM) (1990)	time	2.46	3.53	4.51	5.49	6.49	7.47	8.49	9.54	10.58	11.64		13.21	5 / 2			
reaction time	interval	7 steps	1.07	0.98	0.98	1.00	0.98	1.02	1.05	1.04	1.06	1.57			3.03	3.00	3.15
	velocity	5.58	8.54	9.33	9.33	9.14	9.33	8.96	8.70	8.79	8.62	8.93	8.33		9.05	9.14	8.70

2016 West Japan University Championships (Kyoto, JPN)

FINAL date 01-Jul-16 wind -2.1 m/s *(2016.07.02) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masashi, Kimoto (JPN)	time	2.66	3.74	4.84	5.93	7.01	8.10	9.20	10.31	11.44	12.58		14.01	4 / 1			
reaction time	interval		1.08	1.10	1.09	1.08	1.09	1.10	1.11	1.13	1.14	1.43			3.27	3.27	3.38
	velocity	5.16	8.46	8.31	8.39	8.46	8.39	8.31	8.23	8.09	8.02	9.80	7.85		8.39	8.39	8.11
Yamamoto, Kenta (JPN) (1995)	time	2.66	3.78	4.86	5.97	7.07	8.17	9.26	10.38	11.50	12.63		14.08	6 / 2			
reaction time	interval		1.12	1.08	1.11	1.10	1.10	1.09	1.12	1.12	1.13	1.45			3.31	3.29	3.37
	velocity	5.16	8.16	8.46	8.23	8.31	8.31	8.39	8.16	8.16	8.09	9.67	7.81		8.28	8.33	8.14

2016 Japanese National Championships (Nagoya, JPN)

FINAL date 26-Jun-16 wind 2.4 m/s *Kota (2016) - race analysis of japanese top-ranked men 110m and women 100m hurdlers*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.62	3.69	4.73	5.77	6.81	7.85	8.88	9.93	10.98	12.06		13.48	7 / 1			
reaction time 0.138	interval		1.07	1.04	1.04	1.04	1.04	1.03	1.05	1.05	1.08	1.42			3.15	3.11	3.18
	velocity	5.24	8.54	8.79	8.79	8.79	8.79	8.87	8.70	8.70	8.46	9.87	8.16		8.70	8.82	8.62
Masuno, Genta (JPN) (1993)	time	2.64	3.70	4.75	5.79	6.82	7.86	8.92	9.96	11.03	12.09		13.51	5 / 2			
reaction time 0.161	interval		1.06	1.05	1.04	1.03	1.04	1.06	1.04	1.07	1.06	1.42			3.15	3.13	3.17
	velocity	5.20	8.62	8.70	8.79	8.87	8.79	8.62	8.79	8.54	8.62	9.87	8.14		8.70	8.76	8.65
Kanai, Taio (JPN) (1995)	time	2.58	3.66	4.73	5.78	6.84	7.90	8.96	10.03	11.10	12.19		13.61	3 / 3			
reaction time 0.136	interval		1.08	1.07	1.05	1.06	1.06	1.06	1.07	1.07	1.09	1.42			3.20	3.18	3.23
	velocity	5.32	8.46	8.54	8.70	8.62	8.62	8.62	8.54	8.54	8.39	9.87	8.08		8.57	8.62	8.49
Omoro, Hideki (JPN) (1990)	time	2.60	3.68	4.74	5.80	6.86	7.92	8.98	10.06	11.14	12.23		13.66	6 / 4			
reaction time 0.144	interval		1.08	1.06	1.06	1.06	1.06	1.06	1.08	1.08	1.09	1.43			3.20	3.18	3.25
	velocity	5.28	8.46	8.62	8.62	8.62	8.62	8.62	8.46	8.46	8.39	9.80	8.05		8.57	8.62	8.44
Fudaba, Hiroki (JPN) (1994)	time	2.64	3.74	4.80	5.87	6.93	7.98	9.05	10.11	11.19	12.27		13.71	4 / 5			
reaction time 0.140	interval		1.10	1.06	1.07	1.06	1.05	1.07	1.06	1.08	1.08	1.44			3.23	3.18	3.22
	velocity	5.20	8.31	8.62	8.54	8.62	8.70	8.54	8.62	8.46	8.46	9.74	8.02		8.49	8.62	8.52
Kagimoto, Masahiro (JPN) (19	time	2.64	3.74	4.81	5.89	6.97	8.02	9.11	10.18	11.25	12.36		13.78	1 / 6			
reaction time 0.146	interval		1.10	1.07	1.08	1.08	1.05	1.09	1.07	1.07	1.11	1.42			3.25	3.22	3.25
	velocity	5.20	8.31	8.54	8.46	8.46	8.70	8.39	8.54	8.54	8.23	9.87	7.98		8.44	8.52	8.44

2016 Hokusei Shinetsu High School Meeting (Okayama, JPN) (99cm)

FINAL date 18-Jun-16 wind -2.5 m/s *(2016.06.18) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kato, Takuma (JPN) (1998)	time	2.68	3.76	4.88	5.98	7.10	8.24	9.40	10.56	11.73	12.89		14.39	7 / 1			
reaction time	interval		1.08	1.12	1.10	1.12	1.14	1.16	1.16	1.17	1.16	1.50			3.30	3.42	3.49
	velocity	5.12	8.46	8.16	8.31	8.16	8.02	7.88	7.88	7.81	7.88	9.35	7.64		8.31	8.02	7.86

2016 Racers Grand Prix (Kingston, JAM) (TV Analysis)

FINAL date 11-Jun-16 wind 0.2 m/s *Henson (2020) - Athlete First: 2016 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Oliver, David (USA) (1982)	time	2.43	3.46	4.46	5.46	6.46	7.43	8.46	9.50	10.50	11.56		13.09	4 / 1			
reaction time	interval	7 steps	1.03	1.00	1.00	1.00	0.97	1.03	1.04	1.00	1.06	1.53			3.03	3.00	3.10
	velocity	5.65	8.87	9.14	9.14	9.14	9.42	8.87	8.79	9.14	8.62	9.16	8.40		9.05	9.14	8.85
Carter, Deuce (JAM) (1990)	time	2.46	3.50	4.50	5.50	6.48	7.48	8.50	9.56	10.58	11.66		13.20	2 / 2			
reaction time	interval	7 steps	1.04	1.00	1.00	0.98	1.00	1.02	1.06	1.02	1.08	1.54	**PB**		3.04	3.00	3.16
	velocity	5.58	8.79	9.14	9.14	9.33	9.14	8.96	8.62	8.96	8.46	9.10	8.33		9.02	9.14	8.68
Eaton, Jarret (USA) (1989)	time	2.43	3.46	4.46	5.48	6.50	7.50	8.53	9.56	10.63	11.70		13.28	5 / 3			
reaction time	interval	7 steps	1.03	1.00	1.02	1.02	1.00	1.03	1.03	1.07	1.07	1.58			3.05	3.05	3.17
	velocity	5.65	8.87	9.14	8.96	8.96	9.14	8.87	8.87	8.54	8.54	8.87	8.28		8.99	8.99	8.65

2016 Fuse Sprint (Tottori, JPN)

FINAL date 05-Jun-16 wind 1.4 m/s *Kota (2016) - race analysis of japanese top-ranked men 110m and women 100m hurdlers*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.61	3.67	4.72	5.76	6.79	7.84	8.88	9.93	11.00	12.07		13.47	5 / 1			
reaction time	interval	7 steps	1.06	1.05	1.04	1.03	1.05	1.04	1.05	1.07	1.07	1.40	**PB**		3.15	3.12	3.19
	velocity	5.26	8.62	8.70	8.79	8.87	8.70	8.79	8.70	8.54	8.54	10.01	8.17		8.70	8.79	8.60

Masuno, Genta (JPN) (1993)	time	2.62	3.68	4.73	5.78	6.82	7.89	8.95	10.01	11.10	12.17		13.59	6 / 2			
reaction time	interval		1.06	1.05	1.05	1.04	1.07	1.06	1.06	1.09	1.07	1.42			3.16	3.17	3.22
	velocity	5.24	8.62	8.70	8.70	8.79	8.54	8.62	8.62	8.39	8.54	9.87	8.09		8.68	8.65	8.52
Omoro, Hideki (JPN) (1990)	time	2.62	3.68	4.72	5.77	6.81	7.86	8.95	10.03	11.13	12.21		13.65	7 / 3			
reaction time	interval		1.06	1.04	1.05	1.04	1.05	1.09	1.08	1.10	1.08	1.44			3.15	3.18	3.26
	velocity	5.24	8.62	8.79	8.70	8.79	8.70	8.39	8.46	8.31	8.46	9.74	8.06		8.70	8.62	8.41
Iwafane, Yoichi (JPN) (1985)	time	2.64	3.72	4.77	5.84	6.91	7.99	9.07	10.16	11.29	12.41		13.87	3 / 5			
reaction time	interval		1.08	1.05	1.07	1.07	1.08	1.08	1.09	1.13	1.12	1.46			3.20	3.23	3.34
	velocity	5.20	8.46	8.70	8.54	8.54	8.46	8.46	8.39	8.09	8.16	9.60	7.93		8.57	8.49	8.21
Fudaba, Hiroki (JPN) (1994)	time	2.67	3.75	4.83	5.89	6.96	8.05	9.14	10.23	11.33	12.46		13.96	8 / 8			
reaction time	interval		1.08	1.08	1.06	1.07	1.09	1.09	1.09	1.10	1.13	1.50			3.22	3.25	3.32
	velocity	5.14	8.46	8.46	8.62	8.54	8.39	8.39	8.39	8.31	8.09	9.35	7.88		8.52	8.44	8.26

Heat 3

date 05-Jun-16 wind 1.6 m/s *(2016.06.05) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.64	3.71	4.75	5.80	6.85	7.89	8.94	10.00	11.06	12.14		13.54	6 / 1			
reaction time	interval	7 steps	1.07	1.04	1.05	1.05	1.04	1.05	1.06	1.06	1.08	1.40	PB		3.16	3.14	3.20
	velocity	5.20	8.54	8.79	8.70	8.70	8.79	8.70	8.62	8.62	8.46	10.01	8.12		8.68	8.73	8.57

2016 Golden Gala Pietro Mennea (Roma, ITA) (TV Analysis)

FINAL

date 02-Jun-16 wind 0.6 m/s *Henson (2020) - Athlete First: 2016 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ortega, Orlando (ESP) (1991)	time	2.56	3.60	4.64	5.66	6.66	7.66	8.66	9.68	10.70	11.74		13.22	7 / 1			
reaction time 0.136	interval	7 steps	1.04	1.04	1.02	1.00	1.00	1.00	1.02	1.02	1.04	1.48			3.10	3.00	3.08
	velocity	5.36	8.79	8.79	8.96	9.14	9.14	9.14	8.96	8.96	8.79	9.47	8.32		8.85	9.14	8.90
Martinot-Lagarde, Pascal (FRA time		2.50	3.54	4.56	5.58	6.58	7.58	8.62	9.68	10.70	11.78		13.29	5 / 2			
reaction time 0.155	interval	7 steps	1.04	1.02	1.02	1.00	1.00	1.04	1.06	1.02	1.08	1.51			3.08	3.04	3.16
	velocity	5.49	8.79	8.96	8.96	9.14	9.14	8.79	8.62	8.96	8.46	9.28	8.28		8.90	9.02	8.68
Pozzi, Andy (GBR) (1992)	time	2.50	3.54	4.54	5.58	6.58	7.60	8.66	9.70	10.74	11.86		13.37	2 / 3			
reaction time 0.139	interval	7 steps	1.04	1.00	1.04	1.00	1.02	1.06	1.04	1.04	1.12	1.51			3.08	3.08	3.20
	velocity	5.49	8.79	9.14	8.79	9.14	8.96	8.62	8.79	8.79	8.16	9.28	8.23		8.90	8.90	8.57
Brathwaite, Shane (BAR) (1990 time		2.52	3.58	4.62	5.66	6.70	7.74	8.80	9.86	10.96	12.10		13.64	3 / 4			
reaction time 0.133	interval	7 steps	1.06	1.04	1.04	1.04	1.04	1.06	1.06	1.10	1.14	1.54			3.14	3.14	3.30
	velocity	5.44	8.62	8.79	8.79	8.79	8.79	8.62	8.62	8.31	8.02	9.10	8.06		8.73	8.73	8.31
Belocian, Wilhem (FRA) (1995) time		2.52	3.56	4.60	5.64	6.70	7.76	8.82	9.94	11.02	12.14		13.73	8 / 5			
reaction time 0.132	interval		1.04	1.04	1.04	1.06	1.06	1.06	1.12	1.08	1.12	1.59			3.12	3.18	3.32
	velocity	5.44	8.79	8.79	8.79	8.62	8.62	8.62	8.16	8.46	8.16	8.82	8.01		8.79	8.62	8.26
Abate, Emanuele (ITA) (1985)	time	2.60	3.72	4.78	5.82	6.86	7.94	8.98	10.08	11.16	12.26		13.83	9 / 6			
reaction time 0.149	interval	7 steps	1.12	1.06	1.04	1.04	1.08	1.04	1.10	1.08	1.10	1.57			3.22	3.16	3.28
	velocity	5.28	8.16	8.62	8.79	8.79	8.46	8.79	8.31	8.46	8.31	8.93	7.95		8.52	8.68	8.36
Perini, Lorenzo (ITA) (1994)	time	2.62	3.70	4.76	5.80	6.88	7.98	9.02	10.18	11.28	12.40		13.90	1 / 7			
reaction time 0.151	interval		1.08	1.06	1.04	1.08	1.10	1.04	1.16	1.10	1.12	1.50			3.18	3.22	3.38
	velocity	5.24	8.46	8.62	8.79	8.46	8.31	8.79	7.88	8.31	8.16	9.35	7.91		8.62	8.52	8.11
Bascou, Dimitri (FRA) (1987)	time	2.48	3.58	4.66	5.70	6.72	7.74	8.80					dnf	4 / --			
reaction time 0.149	interval	*7 steps*	1.10	1.08	1.04	1.02	1.02	1.06							3.22	3.10	
	velocity	5.53	8.31	8.46	8.79	8.96	8.96	8.62							8.52	8.85	
O'Farril, Yordan (CUB) (1993)	time	2.54	3.58	4.64	5.66	6.70	7.74	8.76					dnf	6 / --			
reaction time 0.135	interval	*7 steps*	1.04	1.06	1.02	1.04	1.04	1.02							3.12	3.10	
	velocity	5.40	8.79	8.62	8.96	8.79	8.79	8.96							8.79	8.85	

2016 Miyazaki Perfecture High School Meeting (Miyazaki, JPN)

FINAL

date 31-May-16 wind -1.0 m/s *(2016.06.01) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Makoto, Ino (JPN)	time	2.74	3.89	5.06	6.24	7.41	8.58	9.75	10.91	12.09	13.29		14.80	5 / 1			
reaction time	interval		1.15	1.17	1.18	1.17	1.17	1.17	1.16	1.18	1.20	1.51			3.50	3.51	3.54
	velocity	5.01	7.95	7.81	7.75	7.81	7.81	7.81	7.88	7.75	7.62	9.28	7.43		7.83	7.81	7.75

2016 Hiroshima Perfecture High School Meeting (Hiroshima, JPN)

FINAL

date 29-May-16 wind 0.1 m/s *(2016.05.30) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Toyama, Hiroki (JPN) (1999)	time	2.69	3.83	4.95	6.11	7.25	8.38	9.51	10.65	11.80	12.97		14.42	6 / 1			
reaction time	interval	7 steps	1.14	1.12	1.16	1.14	1.13	1.13	1.14	1.15	1.17	1.45			3.42	3.40	3.46
	velocity	5.10	8.02	8.16	7.88	8.02	8.09	8.09	8.02	7.95	7.81	9.67	7.63		8.02	8.06	7.92

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

2016 Niigata Perfecture High School Meeting (Niigata, JPN)

FINAL date 29-May-16 wind -0.6 m/s *(2016.05.30) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kato, Takuma (JPN) (1998)	time	2.68	3.78	4.88	5.97	7.08	8.20	9.31	10.43	11.56	12.70		14.16	/ 1			
reaction time	interval		1.10	1.10	1.09	1.11	1.12	1.11	1.12	1.13	1.14	1.46			3.29	3.34	3.39
	velocity	5.12	8.31	8.31	8.39	8.23	8.16	8.23	8.16	8.09	8.02	9.60	7.77		8.33	8.21	8.09
Imai, Junpei (JPN) (1998)	time	2.69	3.82	4.94	6.07	7.19	8.32	9.46	10.60	11.76	12.90		14.43	/ 2			
reaction time	interval		1.13	1.12	1.13	1.12	1.13	1.14	1.14	1.16	1.14	1.53			3.38	3.39	3.44
	velocity	5.10	8.09	8.16	8.09	8.16	8.09	8.02	8.02	7.88	8.02	9.16	7.62		8.11	8.09	7.97

2016 Prefontaine Classic (Eugene, OR) (TV Analysis)

FINAL date 28-May-16 wind 0.7 m/s *Henson (2021) - Athlete First: 2016 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.44	3.50	4.52	5.54	6.56	7.56	8.56	9.58	10.60	11.62		13.06	4 / 1			
reaction time	interval		1.06	1.02	1.02	1.02	1.00	1.00	1.02	1.02	1.02	1.44			3.10	3.02	3.06
	velocity	5.62	8.62	8.96	8.96	8.96	9.14	9.14	8.96	8.96	8.96	9.74	8.42		8.85	9.08	8.96
Oliver, David (USA) (1982)	time	2.44	3.52	4.56	5.58	6.60	7.62	8.64	9.70	10.78	11.82		13.38	6 / 2			
reaction time	interval	7 steps	1.08	1.04	1.02	1.02	1.02	1.02	1.06	1.08	1.04	1.56			3.14	3.06	3.18
	velocity	5.62	8.46	8.79	8.96	8.96	8.96	8.96	8.62	8.46	8.79	8.99	8.22		8.73	8.96	8.62
Porter, Jeff (USA) (1985)	time	2.52	3.58	4.62	5.64	6.68	7.74	8.78	9.82	10.88	11.96		13.48	1 / 3			
reaction time	interval		1.06	1.04	1.02	1.04	1.06	1.04	1.04	1.06	1.08	1.52			3.12	3.14	3.18
	velocity	5.44	8.62	8.79	8.96	8.79	8.62	8.79	8.79	8.62	8.46	9.22	8.16		8.79	8.73	8.62
Merritt, Aries (USA) (1985)	time	2.46	3.52	4.54	5.56	6.60	7.62	8.64	9.68	10.74	11.86		13.51	3 / 4			
reaction time	interval	7 steps	1.06	1.02	1.02	1.04	1.02	1.02	1.04	1.06	1.12	1.65			3.10	3.08	3.22
	velocity	5.58	8.62	8.96	8.96	8.79	8.96	8.96	8.79	8.62	8.16	8.50	8.14		8.85	8.90	8.52
Eaton, Jarret (USA) (1989)	time	2.44	3.48	4.52	5.54	6.56	7.60	8.66	9.72	10.82	11.94		13.52	7 / 5			
reaction time	interval	7 steps	1.04	1.04	1.02	1.02	1.04	1.06	1.06	1.10	1.12	1.58			3.10	3.12	3.28
	velocity	5.62	8.79	8.79	8.96	8.96	8.79	8.62	8.62	8.31	8.16	8.87	8.14		8.85	8.79	8.36
Martinot-Lagarde, Pascal (FRA	time	2.52	3.56	4.58	5.62	6.66	7.70	8.74	9.78	10.86	11.96		13.55	5 / 6			
reaction time	interval	7 steps	1.04	1.02	1.04	1.04	1.04	1.04	1.04	1.08	1.10	1.59			3.10	3.12	3.22
	velocity	5.44	8.79	8.96	8.79	8.79	8.79	8.79	8.79	8.46	8.31	8.82	8.12		8.85	8.79	8.52
Cabral, Jonathan (CAN) (1992)	time	2.56	3.68	4.70	5.74	6.78	7.82	8.86	9.90	10.98	12.06		13.57	8 / 7			
reaction time	interval	7 steps	1.12	1.02	1.04	1.04	1.04	1.04	1.04	1.08	1.08	1.51			3.18	3.12	3.20
	velocity	5.36	8.16	8.96	8.79	8.79	8.79	8.79	8.79	8.46	8.46	9.28	8.11		8.62	8.79	8.57
Parchment, Hansle (JAM) (199(	time	2.52	3.58	4.60	5.60	6.60	7.60	8.60	9.64	10.72	11.88		13.58	2 / 8			
reaction time	interval	7 steps	1.06	1.02	1.00	1.00	1.00	1.00	1.04	1.08	1.16	1.70			3.08	3.00	3.28
	velocity	5.44	8.62	8.96	9.14	9.14	9.14	9.14	8.79	8.46	7.88	8.25	8.10		8.90	9.14	8.36

2016 Kagoshima Perfecture High School Meeting (Kagoshima, JPN)

FINAL date 28-May-16 wind 0.0 m/s *(2016.06.02) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Iwakiri, Yuki (JPN) (1998)	time	2.78	3.94	5.07	6.19	7.32	8.45	9.59	10.75	11.91	13.10		14.60	3 / 1			
reaction time	interval		1.16	1.13	1.12	1.13	1.13	1.14	1.16	1.16	1.19	1.50			3.41	3.40	3.51
	velocity	4.94	7.88	8.09	8.16	8.09	8.09	8.02	7.88	7.88	7.68	9.35	7.53		8.04	8.06	7.81

2016 Meeting International Mohammed VI D'Athletisme (Rabat, MAR) (TV Analysis)

FINAL date 22-May-16 wind 1.4 m/s *Henson (2020) - Athlete First: 2016 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Oliver, David (USA) (1982)	time	2.46	3.48	4.48	5.50	6.50	7.52	8.54	9.54	10.58	11.62		13.12	7 / 1			
reaction time 0.152	interval	7 steps	1.02	1.00	1.02	1.00	1.02	1.02	1.00	1.04	1.04	1.50			3.04	3.04	3.08
	velocity	5.58	8.96	9.14	8.96	9.14	8.96	8.96	9.14	8.79	8.79	9.35	8.38		9.02	9.02	8.90
Ortega, Orlando (ESP) (1991)	time	2.50	3.54	4.54	5.52	6.52	7.54	8.56	9.60	10.62	11.66		13.13	6 / 2			
reaction time 0.150	interval	7 steps	1.04	1.00	0.98	1.00	1.02	1.02	1.04	1.02	1.04	1.47			3.02	3.04	3.10
	velocity	5.49	8.79	9.14	9.33	9.14	8.96	8.96	8.79	8.96	8.79	9.54	8.38		9.08	9.02	8.85
Alkana, Antonio (RSA) (1990)	time	2.48	3.52	4.52	5.52	6.52	7.56	8.58	9.62	10.68	11.78		13.28	9 / 3			
reaction time 0.129	interval		1.04	1.00	1.00	1.00	1.04	1.02	1.04	1.06	1.10	1.50	PB		3.04	3.06	3.20
	velocity	5.53	8.79	9.14	9.14	9.14	8.79	8.96	8.79	8.62	8.31	9.35	8.28		9.02	8.96	8.57
Douvalídis, Konstadínos (GRE	time	2.52	3.56	4.58	5.60	6.60	7.62	8.66	9.70	10.78	11.86		13.38	3 / 4			
reaction time 0.113	interval		1.04	1.02	1.02	1.00	1.02	1.04	1.04	1.08	1.08	1.52			3.08	3.06	3.20
	velocity	5.44	8.79	8.96	8.96	9.14	8.96	8.79	8.79	8.46	8.46	9.22	8.22		8.90	8.96	8.57
Cabral, Jonathan (CAN) (1992)	time	2.54	3.60	4.64	5.66	6.68	7.70	8.74	9.80	10.86	11.94		13.42	5 / 5			
reaction time 0.155	interval	7 steps	1.06	1.04	1.02	1.02	1.02	1.04	1.06	1.06	1.08	1.48			3.12	3.08	3.20
	velocity	5.40	8.62	8.79	8.96	8.96	8.96	8.79	8.62	8.62	8.46	9.47	8.20		8.79	8.90	8.57

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Richardson, Jason (USA) (198	time	2.58	3.64	4.66	5.68	6.70	7.74	8.80	9.86	10.92	12.02		13.54	4 / 6				
reaction time 0.159	interval	7 steps	1.06	1.02	1.02	1.02	1.04	1.06	1.06	1.06	1.10	1.52			3.10	3.12	3.22	
	velocity	5.32	8.62	8.96	8.96	8.96	8.79	8.62	8.62	8.62	8.31	9.22	8.12		8.85	8.79	8.52	
de Oliveira, João Vitor (BRA) (	time	2.54	3.62	4.68	5.72	6.78	7.82	8.94	10.00	11.10	12.24		13.90	2 / 7				
reaction time 0.101	interval		1.08	1.06	1.04	1.06	1.04	1.12	1.06	1.10	1.14	1.66			3.18	3.22	3.30	
	velocity	5.40	8.46	8.62	8.79	8.62	8.79	8.16	8.62	8.31	8.02	8.45	7.91		8.62	8.52	8.31	
Contreras, Yidiel (ESP) (1992)	time	2.54	3.66	4.76	5.80								dnf	8 / --				
reaction time 0.147	interval	7 steps	1.12	1.10	1.04										3.26			
	velocity	5.40	8.16	8.31	8.79										8.41			

2016 Kansai Corporate Championships (Nagai, JPN)

FINAL date 22-May-16 wind 0.3 m/s *(2016.05.22) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.62	3.66	4.71	5.75	6.79	7.84	8.89	9.97	11.05	12.13		13.54	3 / 1			
reaction time	interval		1.04	1.05	1.04	1.04	1.05	1.05	1.08	1.08	1.08	1.41	=PB		3.13	3.14	3.24
	velocity	5.24	8.79	8.70	8.79	8.79	8.70	8.70	8.46	8.46	8.46	9.94	8.12		8.76	8.73	8.46

2016 East Japan Corporate Championships (Kumagaya, JPN)

FINAL date 21-May-16 wind -0.7 m/s *(2016.05.21) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.66	3.74	4.79	5.85	6.90	7.96	9.03	10.09	11.16	12.24		13.64	5 / 1			
reaction time	interval	7 steps	1.08	1.05	1.06	1.05	1.06	1.07	1.06	1.07	1.08	1.40			3.19	3.18	3.21
	velocity	5.16	8.46	8.70	8.62	8.70	8.62	8.54	8.62	8.54	8.46	10.01	8.06		8.60	8.62	8.54

2016 Kyoto Perfecture High School Meeting (Kyoto, JPN)

FINAL date 21-May-16 wind 2.1 m/s *(2016.05.30) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takata, Kota (JPN)	time	2.73	3.82	4.96	6.03	7.14	8.24	9.34	10.46	11.59	12.73		14.19	7 / 1			
reaction time	interval		1.09	1.14	1.07	1.11	1.10	1.10	1.12	1.13	1.14	1.46			3.30	3.31	3.39
	velocity	5.03	8.39	8.02	8.54	8.23	8.31	8.31	8.16	8.09	8.02	9.60	7.75		8.31	8.28	8.09

2016 Aichi Perfecture High School Meeting (Nagoya, JPN)

FINAL date 20-May-16 wind -0.7 m/s *(2016.05.29) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yashiro, Koki (JPN) (1998)	time	2.73	3.89	5.04	6.20	7.34	8.47	9.60	10.76	11.91	13.11		14.58	6 / 1			
reaction time	interval		1.16	1.15	1.16	1.14	1.13	1.13	1.16	1.15	1.20	1.47			3.47	3.40	3.51
	velocity	5.03	7.88	7.95	7.88	8.02	8.09	8.09	7.88	7.95	7.62	9.54	7.54		7.90	8.06	7.81

2016 Kanto Collegiate Championships (Yokohama, JPN)

Division 1 FINAL date 20-May-16 wind 0.3 m/s *(2016.05.20) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994	time	2.62	3.72	4.78	5.83	6.90	7.97	9.03	10.12	11.20	12.30		13.75	6 / 1			
reaction time 0.160	interval		1.10	1.06	1.05	1.07	1.07	1.06	1.09	1.08	1.10	1.45	PB		3.21	3.20	3.27
	velocity	5.24	8.31	8.62	8.70	8.54	8.54	8.62	8.39	8.46	8.31	9.67	8.00		8.54	8.57	8.39

2016 Shanghai Golden Grand Prix (Shanghai, CHN) (TV Analysis)

FINAL date 14-May-16 wind 1.2 m/s *Henson (2021) - Athlete First: 2016 year end hurdle report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)	time	2.42	3.48	4.48	5.48	6.50	7.52	8.54	9.56	10.56	11.58		12.98	5 / 1			
reaction time 0.133	interval		1.06	1.00	1.00	1.02	1.02	1.02	1.02	1.00	1.02	1.40			3.06	3.06	3.04
	velocity	5.67	8.62	9.14	9.14	8.96	8.96	8.96	8.96	9.14	8.96	10.01	8.47		8.96	8.96	9.02
Parchment, Hansle (JAM) (199	time	2.50	3.54	4.58	5.58	6.58	7.56	8.56	9.56	10.58	11.62		13.12	4 / 2			
reaction time 0.136	interval	7 steps	1.04	1.04	1.00	1.00	0.98	1.00	1.00	1.02	1.04	1.50			3.08	2.98	3.06
	velocity	5.49	8.79	8.79	9.14	9.14	9.33	9.14	9.14	8.96	8.79	9.35	8.38		8.90	9.20	8.96
Xie Wenjun (CHN) (1990)	time	2.52	3.58	4.62	5.64	6.66	7.68	8.70	9.74	10.78	11.84		13.34	8 / 3			
reaction time 0.155	interval		1.06	1.04	1.02	1.02	1.02	1.02	1.04	1.04	1.06	1.50			3.12	3.06	3.14
	velocity	5.44	8.62	8.79	8.96	8.96	8.96	8.96	8.79	8.79	8.62	9.35	8.25		8.79	8.96	8.73
Bascou, Dimitri (FRA) (1987)	time	2.48	3.52	4.56	5.58	6.62	7.64	8.68	9.72	10.76	11.86		13.34	2 / 4			
reaction time 0.141	interval	7 steps	1.04	1.04	1.02	1.04	1.02	1.04	1.04	1.04	1.10	1.48			3.10	3.10	3.18
	velocity	5.53	8.79	8.79	8.96	8.79	8.96	8.79	8.79	8.79	8.31	9.47	8.25		8.85	8.85	8.62
Oliver, David (USA) (1982)	time	2.48	3.54	4.56	5.60	6.64	7.66	8.70	9.76	10.84	11.90		13.38	7 / 5			
reaction time 0.141	interval	7 steps	1.06	1.02	1.04	1.04	1.02	1.04	1.06	1.08	1.06	1.48			3.12	3.10	3.20
	velocity	5.53	8.62	8.96	8.79	8.79	8.96	8.79	8.62	8.46	8.62	9.47	8.22		8.79	8.85	8.57
Richardson, Jason (USA) (198	time	2.54	3.60	4.62	5.64	6.66	7.70	8.74	9.78	10.84	11.92		13.44	9 / 6			
reaction time 0.151	interval	7 steps	1.06	1.02	1.02	1.02	1.04	1.04	1.04	1.06	1.08	1.52			3.10	3.10	3.18
	velocity	5.40	8.62	8.96	8.96	8.96	8.79	8.79	8.79	8.62	8.46	9.22	8.18		8.85	8.85	8.62

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Zhang Honglin (CHN) (1994)		time	2.54	3.60	4.64	5.68	6.74	7.82	8.90	10.02	11.10	12.22		13.79	1 / 7			
reaction time	0.142	interval		1.06	1.04	1.04	1.06	1.08	1.08	1.12	1.08	1.12	1.57			3.14	3.22	3.32
		velocity	5.40	8.62	8.79	8.79	8.62	8.46	8.46	8.16	8.46	8.16	8.93	7.98		8.73	8.52	8.26

2016 Kansai University Meeting (Osaka, JPN)

FINAL date 13-May-16 wind 0.5 m/s *(2016.05.30) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kagimoto, Masahiro (JPN) (19		time	2.64	3.72	4.80	5.85	6.92	7.98	9.04	10.11	11.20	12.30		13.72	5 / 1			
reaction time		interval		1.08	1.08	1.05	1.07	1.06	1.06	1.07	1.09	1.10	1.42			3.21	3.19	3.26
		velocity	5.20	8.46	8.46	8.70	8.54	8.62	8.62	8.54	8.39	8.31	9.87	8.02		8.54	8.60	8.41

2016 Seiko Golden Grand Prix (Kawasaki, JPN)

FINAL date 08-May-16 wind -0.6 m/s *Kota (2016) - race analysis of japanese top-ranked men 110m and women 100m hurdlers*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.58	3.63	4.66	5.68	6.70	7.72	8.76	9.79	10.85	11.93		13.36	5 / 1			
reaction time	0.160	interval		1.05	1.03	1.02	1.02	1.02	1.04	1.03	1.06	1.08	1.43			3.10	3.08	3.17
		velocity	5.32	8.70	8.87	8.96	8.96	8.96	8.79	8.87	8.62	8.46	9.80	8.23		8.85	8.90	8.65
Zhang Honglin (CHN) (1994)		time	2.69	3.72	4.76	5.78	6.82	7.84	8.90	9.94	11.02	12.12		13.59	8 / 2			
reaction time	0.162	interval		1.03	1.04	1.02	1.04	1.02	1.06	1.04	1.08	1.10	1.47			3.09	3.12	3.22
		velocity	5.10	8.87	8.79	8.96	8.79	8.96	8.62	8.79	8.46	8.31	9.54	8.09		8.87	8.79	8.52
Omoro, Hideki (JPN) (1990)		time	2.58	3.64	4.67	5.72	6.78	7.84	8.92	10.00	11.09	12.19		13.61	4 / 3			
reaction time	0.123	interval		1.06	1.03	1.05	1.06	1.06	1.08	1.08	1.09	1.10	1.42			3.14	3.20	3.27
		velocity	5.32	8.62	8.87	8.70	8.62	8.62	8.46	8.46	8.39	8.31	9.87	8.08		8.73	8.57	8.39
Masuno, Genta (JPN) (1993)		time	2.63	3.71	4.76	5.80	6.87	7.91	8.97	10.05	11.13	12.22		13.67	3 / 4			
reaction time	0.148	interval		1.08	1.05	1.04	1.07	1.04	1.06	1.08	1.08	1.09	1.45			3.17	3.17	3.25
		velocity	5.22	8.46	8.70	8.79	8.54	8.79	8.62	8.46	8.46	8.39	9.67	8.05		8.65	8.65	8.44
de Oliveira, João Vitor (BRA) (		time	2.64	3.72	4.78	5.81	6.87	7.92	8.99	10.07	11.17	12.30		13.81	7 / 5			
reaction time	0.128	interval		1.08	1.06	1.03	1.06	1.05	1.07	1.08	1.10	1.13	1.51			3.17	3.18	3.31
		velocity	5.20	8.46	8.62	8.87	8.62	8.70	8.54	8.46	8.31	8.09	9.28	7.97		8.65	8.62	8.28
Furuya, Takumu (JPN) (1997)		time	2.64	3.75	4.82	5.89	6.94	8.02	9.10	10.21	11.29	12.40		13.85	2 / 6			
reaction time	0.149	interval		1.11	1.07	1.07	1.05	1.08	1.08	1.11	1.08	1.11	1.45			3.25	3.21	3.30
		velocity	5.20	8.23	8.54	8.54	8.70	8.46	8.46	8.23	8.46	8.23	9.67	7.94		8.44	8.54	8.31
Swift, Greggmar (BAR) (1991)		time	2.67	3.82	4.95	6.11	7.24	8.41	9.56	10.75	11.94	13.14		14.79	6 / 7			
reaction time	0.153	interval		1.15	1.13	1.16	1.13	1.17	1.15	1.19	1.19	1.20	1.65			3.44	3.45	3.58
		velocity	5.14	7.95	8.09	7.88	8.09	7.81	7.95	7.68	7.68	7.62	8.50	7.44		7.97	7.95	7.66

2016 Kinan Memorial (Osaka, JPN)

FINAL date 08-May-16 wind -0.2 m/s *(2016.05.17) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)		time	2.66	3.74	4.80	5.85	6.91	7.97	9.02	10.08	11.14	12.22		13.62	6 / 1			
reaction time		interval	7 steps	1.08	1.06	1.05	1.06	1.06	1.05	1.06	1.06	1.08	1.40			3.19	3.17	3.20
		velocity	5.16	8.46	8.62	8.70	8.62	8.62	8.70	8.62	8.62	8.46	10.01	8.08		8.60	8.65	8.57

2016 Doha Diamond League (Doha, QAT) (TV Analysis)

FINAL date 06-May-16 wind 1.4 m/s *Henson (2020) - Athlete First: 2016 year end hurdle report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McLeod, Omar (JAM) (1994)		time	2.50	3.54	4.54	5.54	6.52	7.50	8.50	9.54	10.56	11.62		13.05	4 / 1			
reaction time	0.131	interval		1.04	1.00	1.00	0.98	0.98	1.00	1.04	1.02	1.06	1.43			3.04	2.96	3.12
		velocity	5.49	8.79	9.14	9.14	9.33	9.33	9.14	8.79	8.96	8.62	9.80	8.43		9.02	9.26	8.79
Parchment, Hansle (JAM) (199		time	2.56	3.62	4.64	5.64	6.64	7.64	8.64	9.64	10.66	11.70		13.10	7 / 2			
reaction time	0.127	interval	7 steps	1.06	1.02	1.00	1.00	1.00	1.00	1.00	1.02	1.04	1.40			3.08	3.00	3.06
		velocity	5.36	8.62	8.96	9.14	9.14	9.14	9.14	9.14	8.96	8.79	10.01	8.40		8.90	9.14	8.96
Ortega, Orlando (ESP) (1991)		time	2.56	3.58	4.60	5.60	6.60	7.60	8.60	9.64	10.68	11.72		13.12	6 / 3			
reaction time	0.118	interval	7 steps	1.02	1.02	1.00	1.00	1.00	1.00	1.04	1.04	1.04	1.40	NR		3.04	3.00	3.12
		velocity	5.36	8.96	8.96	9.14	9.14	9.14	9.14	8.79	8.79	8.79	10.01	8.38		9.02	9.14	8.79
Oliver, David (USA) (1982)		time	2.52	3.56	4.56	5.56	6.58	7.60	8.62	9.64	10.68	11.76		13.16	3 / 4			
reaction time	0.140	interval	7 steps	1.04	1.00	1.00	1.02	1.02	1.02	1.02	1.04	1.08	1.40			3.04	3.06	3.14
		velocity	5.44	8.79	9.14	9.14	8.96	8.96	8.96	8.96	8.79	8.46	10.01	8.36		9.02	8.96	8.73
Bascou, Dimitri (FRA) (1987)		time	2.56	3.60	4.64	5.64	6.64	7.68	8.72	9.76	10.82	11.90		13.33	2 / 5			
reaction time	0.153	interval	7 steps	1.04	1.04	1.00	1.00	1.04	1.04	1.04	1.06	1.08	1.43			3.08	3.08	3.18
		velocity	5.36	8.79	8.79	9.14	9.14	8.79	8.79	8.79	8.62	8.46	9.80	8.25		8.90	8.90	8.62
Merritt, Aries (USA) (1985)		time	2.52	3.60	4.64	5.68	6.70	7.72	8.76	9.80	10.84	11.92		13.37	5 / 6			
reaction time	0.125	interval	7 steps	1.08	1.04	1.04	1.02	1.02	1.04	1.04	1.04	1.08	1.45			3.16	3.08	3.16

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
		velocity	5.44	8.46	8.79	8.79	8.96	8.96	8.79	8.79	8.79	8.46	9.67	8.23		8.68	8.90	8.68
Adams, Spencer (USA) (1989)		time	2.52	3.56	4.60	5.64	6.68	7.72	8.76	9.80	10.88	11.96		13.44	8 / 7			
reaction time	0.124	interval	7 steps	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.08	1.08	1.48			3.12	3.12	3.20
		velocity	5.44	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.46	8.46	9.47	8.18		8.79	8.79	8.57
Alkana, Antonio (RSA) (1990)		time	2.56	3.60	4.66	5.72	6.74	7.78	8.82	9.88	10.94	12.04		13.50	1 / 8			
reaction time	0.139	interval		1.04	1.06	1.06	1.02	1.04	1.04	1.06	1.06	1.10	1.46			3.16	3.10	3.22
		velocity	5.36	8.79	8.62	8.62	8.96	8.79	8.79	8.62	8.62	8.31	9.60	8.15		8.68	8.85	8.52

2016 Mito Invitational (Mito, JPN)

FINAL date 05-May-16 wind 0.7 m/s *(2016.05.27) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)		time	2.58	3.67	4.73	5.79	6.87	7.94	9.02	10.12	11.23	12.35		13.78	5 / 1			
reaction time		interval		1.09	1.06	1.06	1.08	1.07	1.08	1.10	1.11	1.12	1.43			3.21	3.23	3.33
		velocity	5.32	8.39	8.62	8.62	8.46	8.54	8.46	8.31	8.23	8.16	9.80	7.98		8.54	8.49	8.23
Kagimoto, Masahiro (JPN) (19		time	2.66	3.74	4.81	5.89	6.96	8.04	9.12	10.22	11.32	12.45		13.86	4 / 2			
reaction time		interval		1.08	1.07	1.08	1.07	1.08	1.08	1.10	1.10	1.13	1.41			3.23	3.23	3.33
		velocity	5.16	8.46	8.54	8.46	8.54	8.46	8.46	8.31	8.31	8.09	9.94	7.94		8.49	8.49	8.23

2016 Mikio Oda Memorial (Hiroshima, JPN)

FINAL date 29-Apr-16 wind -0.5 m/s *Kota (2016) - race analysis of japanese top-ranked men 110m and women 100m hurdlers*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)		time	2.69	3.78	4.84	5.89	6.94	8.00	9.06	10.13	11.22	12.33		13.78	5 / 1			
reaction time		interval		1.09	1.06	1.05	1.05	1.06	1.06	1.07	1.09	1.11	1.45			3.20	3.17	3.27
		velocity	5.10	8.39	8.62	8.70	8.70	8.62	8.62	8.54	8.39	8.23	9.67	7.98		8.57	8.65	8.39
Masuno, Genta (JPN) (1993)		time	2.66	3.72	4.78	5.83	6.90	7.99	9.06	10.16	11.27	12.39		13.86	3 / 2			
reaction time		interval		1.06	1.06	1.05	1.07	1.09	1.07	1.10	1.11	1.12	1.47			3.17	3.23	3.33
		velocity	5.16	8.62	8.62	8.70	8.54	8.39	8.54	8.31	8.23	8.16	9.54	7.94		8.65	8.49	8.23
Takayama, Shunya (JPN) (1994		time	2.61	3.68	4.76	5.82	6.91	7.98	9.06	10.16	11.26	12.39		13.89	2 / 3			
reaction time		interval		1.07	1.08	1.06	1.09	1.07	1.08	1.10	1.10	1.13	1.50			3.21	3.24	3.33
		velocity	5.26	8.54	8.46	8.62	8.39	8.54	8.46	8.31	8.31	8.09	9.35	7.92		8.54	8.46	8.23
Furuya, Takumu (JPN) (1997)		time	2.67	3.75	4.84	5.90	6.96	8.03	9.12	10.21	11.32	12.44		13.92	7 / 4			
reaction time		interval		1.08	1.09	1.06	1.06	1.07	1.09	1.09	1.11	1.12	1.48			3.23	3.22	3.32
		velocity	5.14	8.46	8.39	8.62	8.62	8.54	8.39	8.39	8.23	8.16	9.47	7.90		8.49	8.52	8.26
Omoro, Hideki (JPN) (1990)		time	2.63	3.69	4.73	5.80	6.85	7.95	9.02	10.11	11.25	12.39		13.98	4 / 6			
reaction time		interval		1.06	1.04	1.07	1.05	1.10	1.07	1.09	1.14	1.14	1.59			3.17	3.22	3.37
		velocity	5.22	8.62	8.79	8.54	8.70	8.31	8.54	8.39	8.02	8.02	8.82	7.87		8.65	8.52	8.14

2015 Japanese National Junior Championships (Nagoya, JPN) (99cm)

FINAL date 16-Oct-15 wind 0.1 m/s *Takashima (2015) - race analysis of 110m & 100m hurdles in Japan- results of main 2015 competitions*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furuya, Takumu (JPN) (1997)		time	2.67	3.76	4.83	5.90	6.97	8.05	9.13	10.21	11.31	12.40		13.86	3 / 1			
reaction time		interval		1.09	1.07	1.07	1.07	1.08	1.08	1.08	1.10	1.09	1.46			3.23	3.23	3.27
		velocity	5.14	8.39	8.54	8.54	8.54	8.46	8.46	8.46	8.31	8.39	9.60	7.94		8.49	8.49	8.39
Kanai, Nao (JPN) (1997)		time	2.65	3.74	4.81	5.89	6.97	8.04	9.12	10.22	11.32	12.45		13.91	5 / 2			
reaction time		interval		1.09	1.07	1.08	1.08	1.07	1.08	1.10	1.10	1.13	1.46			3.24	3.23	3.33
		velocity	5.18	8.39	8.54	8.46	8.46	8.54	8.46	8.31	8.31	8.09	9.60	7.91		8.46	8.49	8.23
Kuriki, Anthony Tyrell (JPN) (1		time	2.67	3.79	4.89	5.98	7.05	8.14	9.25	10.35	11.46	12.58		14.07	4 / 3			
reaction time		interval		1.12	1.10	1.09	1.07	1.09	1.11	1.10	1.11	1.12	1.49	PB		3.31	3.27	3.33
		velocity	5.14	8.16	8.31	8.39	8.54	8.39	8.23	8.31	8.23	8.16	9.41	7.82		8.28	8.39	8.23

2015 IAAF World Championships (Beijing, CHN) (TV Analysis)

FINAL date 28-Aug-15 wind 0.2 m/s *Henson (2021) - Athlete First: major championships report*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (RUS) (199		time	2.52	3.54	4.56	5.54	6.52	7.52	8.52	9.52	10.54	11.58		12.98	7 / 1			
reaction time	0.139	interval	7 steps	1.02	1.02	0.98	0.98	1.00	1.00	1.00	1.02	1.04	1.40	NR		3.02	2.98	3.06
		velocity	5.44	8.96	8.96	9.33	9.33	9.14	9.14	9.14	8.96	8.79	10.01	8.47		9.08	9.20	8.96
Parchment, Hansle (JAM) (199		time	2.54	3.58	4.60	5.58	6.58	7.56	8.56	9.56	10.56	11.62		13.03	8 / 2			
reaction time	0.143	interval	7 steps	1.04	1.02	0.98	1.00	0.98	1.00	1.00	1.00	1.06	1.41			3.04	2.98	3.06
		velocity	5.40	8.79	8.96	9.33	9.14	9.33	9.14	9.14	9.14	8.62	9.94	8.44		9.02	9.20	8.96
Merritt, Aries (USA) (1985)		time	2.48	3.52	4.52	5.52	6.52	7.52	8.52	9.54	10.58	11.62		13.04	4 / 3			
reaction time	0.141	interval	7 steps	1.04	1.00	1.00	1.00	1.00	1.00	1.02	1.04	1.04	1.42			3.04	3.00	3.10
		velocity	5.53	8.79	9.14	9.14	9.14	9.14	9.14	8.96	8.79	8.79	9.87	8.44		9.02	9.14	8.85
Martinot-Lagarde, Pascal (FRA		time	2.48	3.52	4.56	5.56	6.56	7.56	8.56	9.60	10.64	11.72		13.17	2 / 4			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.150	interval	7 steps	1.04	1.04	1.00	1.00	1.00	1.00	1.04	1.04	1.08	1.45			3.08	3.00	3.16
		velocity		5.53	8.79	8.79	9.14	9.14	9.14	9.14	8.79	8.79	8.46	9.67	8.35	8.90	9.14	8.68
Bascou, Dimitri (FRA) (1987)		time		2.48	3.50	4.52	5.56	6.56	7.58	8.60	9.64	10.68	11.72		13.17	5 / 5		
reaction time	0.137	interval	7 steps	1.02	1.02	1.04	1.00	1.02	1.02	1.04	1.04	1.04	1.45			3.08	3.04	3.12
		velocity		5.53	8.96	8.96	8.79	9.14	8.96	8.96	8.79	8.79	8.79	9.67	8.35	8.90	9.02	8.79
McLeod, Omar (JAM) (1994)		time		2.44	3.46	4.48	5.52	6.54	7.58	8.62	9.66	10.72	11.78		13.18	6 / 6		
reaction time	0.135	interval			1.02	1.02	1.04	1.02	1.04	1.04	1.04	1.06	1.06	1.40		3.08	3.10	3.16
		velocity		5.62	8.96	8.96	8.79	8.96	8.79	8.79	8.79	8.62	8.62	10.01	8.35	8.90	8.85	8.68
Oliver, David (USA) (1982)		time		2.44	3.54	4.58	5.62	6.64	7.66	8.70	9.74	10.78	11.86		13.33	9 / 7		
reaction time	0.157	interval	7 steps	1.10	1.04	1.04	1.02	1.02	1.04	1.04	1.04	1.08	1.47			3.18	3.08	3.16
		velocity		5.62	8.31	8.79	8.79	8.96	8.96	8.79	8.79	8.79	8.46	9.54	8.25	8.62	8.90	8.68
Darien, Garfield (FRA) (1987)		time		2.52	3.58	4.64	5.66	6.68	7.68	8.72	9.76	10.80	11.86		13.34	3 / 8		
reaction time	0.178	interval	7 steps	1.06	1.06	1.02	1.02	1.00	1.04	1.04	1.04	1.06	1.48			3.14	3.06	3.14
		velocity		5.44	8.62	8.62	8.96	8.96	9.14	8.79	8.79	8.79	8.62	9.47	8.25	8.73	8.96	8.73

Semi-Final 2

date 27-Aug-15 wind -0.2 m/s

Xu (2015) - the 15th world track and field special report: Men's and women's hurdle project

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time			4.70				8.83			11.99		13.39	7 / 6			
reaction time	0.163	interval							4.13			3.16	1.40				8.83	3.16
		velocity			6.81				8.85			8.68	10.01	8.22			3.11	8.68

2015 Japanese National High School Championships (Wakayama, JPN) (99cm)

FINAL

date 02-Aug-15 wind 1.4 m/s

Enomoto (2015) - 68th high school championships: JAF scientific committee - biomechanics data collection

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kanai, Nao (JPN) (1997)	time	2.65	3.72	4.80	5.86	6.91	7.99	9.05	10.14	11.22	12.37		13.85	4 / 1			
reaction time	interval		1.07	1.08	1.06	1.05	1.08	1.06	1.09	1.08	1.15	1.48	PB		3.21	3.19	3.32
	velocity	5.18	8.54	8.46	8.62	8.70	8.46	8.62	8.39	8.46	7.95	9.47	7.94		8.54	8.60	8.26
Taue, Shun (JPN) (1997)	time	2.72	3.83	4.94	6.01	7.11	8.21	9.30	10.40	11.52	12.65		14.10	6 / 2			
reaction time	interval		1.11	1.11	1.07	1.10	1.10	1.09	1.10	1.12	1.13	1.45	=PB		3.29	3.29	3.35
	velocity	5.04	8.23	8.23	8.54	8.31	8.31	8.39	8.31	8.16	8.09	9.67	7.80		8.33	8.33	8.19
Hiramatsu, Papdemba (JPN) (1	time	2.64	3.73	4.82	5.91	6.99	8.09	9.22	10.36	11.49	12.64		14.19	5 / 3			
reaction time	interval		1.09	1.09	1.09	1.08	1.10	1.13	1.14	1.13	1.15	1.55	PB		3.27	3.31	3.42
	velocity	5.20	8.39	8.39	8.39	8.46	8.31	8.09	8.02	8.09	7.95	9.05	7.75		8.39	8.28	8.02
Igarashi, Rai (JPN) (1997)	time	2.67	3.81	4.91	6.04	7.15	8.29	9.41	10.56	11.71	12.87		14.36	2 / 4			
reaction time	interval		1.14	1.10	1.13	1.11	1.14	1.12	1.15	1.15	1.16	1.49	PB		3.37	3.37	3.46
	velocity	5.14	8.02	8.31	8.09	8.23	8.02	8.16	7.95	7.95	7.88	9.41	7.66		8.14	8.14	7.92
Toyoda, Masaki (JPN) (1998)	time	2.72	3.87	5.01	6.13	7.24	8.35	9.49	10.64	11.78	12.93		14.38	8 / 5			
reaction time	interval		1.15	1.14	1.12	1.11	1.11	1.14	1.15	1.14	1.15	1.45			3.41	3.36	3.44
	velocity	5.04	7.95	8.02	8.16	8.23	8.23	8.02	7.95	8.02	7.95	9.67	7.65		8.04	8.16	7.97
Kato, Takuma (JPN) (1998)	time	2.69	3.83	4.96	6.08	7.22	8.35	9.48	10.64	11.80	12.97		14.50	3 / 6			
reaction time	interval		1.14	1.13	1.12	1.14	1.13	1.13	1.16	1.16	1.17	1.53			3.39	3.40	3.49
	velocity	5.10	8.02	8.09	8.16	8.02	8.09	8.09	7.88	7.88	7.81	9.16	7.59		8.09	8.06	7.86
Takahashi, Rui (JPN) (1997)	time	2.73	3.86	5.00	6.13	7.28	8.46	9.57	10.75	11.93	13.04		14.57	7 / 7			
reaction time	interval		1.13	1.14	1.13	1.15	1.18	1.11	1.18	1.18	1.11	1.53			3.40	3.44	3.47
	velocity	5.03	8.09	8.02	8.09	7.95	7.75	8.23	7.75	7.75	8.23	9.16	7.55		8.06	7.97	7.90
Tomiyama, Hiroki (JPN) (1998)	time	2.75	3.88	5.01	6.15	7.29	8.42	9.60	10.76	11.94	13.13		14.69	9 / 8			
reaction time	interval		1.13	1.13	1.14	1.14	1.13	1.18	1.16	1.18	1.19	1.56			3.40	3.45	3.53
	velocity	4.99	8.09	8.09	8.02	8.02	8.09	7.75	7.88	7.75	7.68	8.99	7.49		8.06	7.95	7.77

2015 Italian National Championships (Torino, ITA)

FINAL

date 25-Jul-15 wind 1.8 m/s

Incalza (FIDAL - Centro Studi & Ricerche) (2015) - https://www.youtube.com/watch?v=Ytpg1XHNpfg

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Fofana, Hassane (ITA) (1992)	time	2.66	3.74	4.79	5.82	6.85	7.91	8.96	9.99	11.09	12.17		13.59	6 / 1			
reaction time	interval		1.08	1.05	1.03	1.03	1.06	1.05	1.03	1.10	1.08	1.42			3.16	3.14	3.21
	velocity	5.16	8.46	8.70	8.87	8.87	8.62	8.70	8.87	8.31	8.46	9.87	8.09		8.68	8.73	8.54
Perini, Lorenzo (ITA) (1994)	time	2.69	3.75	4.81	5.88	6.94	7.98	9.05	10.13	11.23	12.35		13.77	4 / 2			
reaction time	interval		1.06	1.06	1.07	1.06	1.04	1.07	1.08	1.10	1.12	1.42			3.19	3.17	3.30
	velocity	5.10	8.62	8.62	8.54	8.62	8.79	8.54	8.46	8.31	8.16	9.87	7.99		8.60	8.65	8.31

2015 Pan American Games (Toronto, CAN)

FINAL

date 24-Jul-15 wind 0.8 m/s

(2016.01.29) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Thomas, Mikel (TTO) (1987)	time	2.57	3.62	4.63	5.64	6.65	7.66	8.69	9.71	10.75	11.83		13.17	8 / 2			

reaction time	0.160	interval	7 steps	1.05	1.01	1.01	1.01	1.01	1.03	1.02	1.04	1.08	1.34	NR		3.07	3.05	3.14
		velocity		5.34	8.70	9.05	9.05	9.05	9.05	8.87	8.96	8.79	8.46	10.46	8.35		8.93	8.99	8.73

2015 Japanese National Championships (Niigata, JPN)

FINAL date 28-Jun-15 wind -1.4 m/s

Takashima (2015) - race analysis of 110m & 100m hurdles in Japan- results of main 2015 competitions

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Takayama, Shunya (JPN) (1994)		time	2.58	3.64	4.69	5.76	6.84	7.91	8.98	10.08	11.18	12.30		13.81	4 / 1			
reaction time	0.135	interval		1.06	1.05	1.07	1.08	1.07	1.07	1.10	1.10	1.12	1.51			3.18	3.22	3.32
		velocity	5.32	8.62	8.70	8.54	8.46	8.54	8.54	8.31	8.31	8.16	9.28	7.97		8.62	8.52	8.26
Furuya, Takumu (JPN) (1997)		time	2.62	3.72	4.79	5.86	6.92	7.98	9.07	10.17	11.27	12.36		13.81	5 / 2			
reaction time	0.132	interval		1.10	1.07	1.07	1.06	1.06	1.09	1.10	1.10	1.09	1.45			3.24	3.21	3.29
		velocity	5.24	8.31	8.54	8.54	8.62	8.62	8.39	8.31	8.31	8.39	9.67	7.97		8.46	8.54	8.33
Masuno, Genta (JPN) (1993)		time	2.63	3.70	4.77	5.82	6.88	7.97	9.05	10.13	11.22	12.35		13.85	7 / 3			
reaction time	0.142	interval		1.07	1.07	1.05	1.06	1.09	1.08	1.08	1.09	1.13	1.50			3.19	3.23	3.30
		velocity	5.22	8.54	8.54	8.70	8.62	8.39	8.46	8.46	8.39	8.09	9.35	7.94		8.60	8.49	8.31
Notoya, Yuta (JPN) (1989)		time	2.67	3.73	4.79	5.85	6.92	7.99	9.08	10.16	11.27	12.37		13.87	6 / 4			
reaction time	0.136	interval	7 steps	1.06	1.06	1.06	1.07	1.07	1.09	1.08	1.11	1.10	1.50			3.18	3.23	3.29
		velocity	5.14	8.62	8.62	8.62	8.54	8.54	8.39	8.46	8.23	8.31	9.35	7.93		8.62	8.49	8.33
Wado, Tatsuya (JPN) (1990)		time	2.57	3.65	4.71	5.78	6.85	7.93	9.03	10.11	11.23	12.37		13.90	3 / 5			
reaction time	0.121	interval		1.08	1.06	1.07	1.07	1.08	1.10	1.08	1.12	1.14	1.53			3.21	3.25	3.34
		velocity	5.34	8.46	8.62	8.54	8.54	8.46	8.31	8.46	8.16	8.02	9.16	7.91		8.54	8.44	8.21
Omuro, Hideki (JPN) (1990)		time	2.62	3.70	4.77	5.84	6.94	8.01	9.10	10.21	11.31	12.42		13.90	8 / 6			
reaction time	0.133	interval		1.08	1.07	1.07	1.10	1.07	1.09	1.11	1.10	1.11	1.48			3.22	3.26	3.32
		velocity	5.24	8.46	8.54	8.54	8.31	8.54	8.39	8.23	8.31	8.23	9.47	7.91		8.52	8.41	8.26
Nishizawa, Masanori (JPN) (19		time	2.66	3.76	4.85	5.94	7.02	8.10	9.19	10.29	11.40	12.51		13.93	2 / 7			
reaction time	0.121	interval		1.10	1.09	1.09	1.08	1.08	1.09	1.10	1.11	1.11	1.42			3.28	3.25	3.32
		velocity	5.16	8.31	8.39	8.39	8.46	8.46	8.39	8.31	8.23	8.23	9.87	7.90		8.36	8.44	8.26
Furukawa, Yutaro (JPN) (1985)		time	2.63	3.70	4.77	5.83	6.89	7.97	9.09	10.20	11.34	12.48		14.00	9 / 8			
reaction time	0.150	interval		1.07	1.07	1.06	1.06	1.08	1.12	1.11	1.14	1.14	1.52			3.20	3.26	3.39
		velocity	5.22	8.54	8.54	8.62	8.62	8.46	8.16	8.23	8.02	8.02	9.22	7.86		8.57	8.41	8.09

2015 Golden Grand Prix (Shanghai, CHN)

FINAL date 17-May-15 wind 0.4 m/s

Wang (2016) - analysis of technical characteristes and performace prediction of rising star Xie Wenjun in 110m Hurdles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.55	3.58	4.61	5.64	6.65	7.67	8.69	9.74	10.82	11.92		13.36	/ 6			
reaction time	0.165	interval		1.03	1.03	1.03	1.01	1.02	1.02	1.05	1.08	1.10	1.44			3.09	3.05	3.23
		velocity	5.38	8.87	8.87	8.87	9.05	8.96	8.96	8.70	8.46	8.31	9.74	8.23		8.87	8.99	8.49

2015 Shizuoka International Athletics Meeting (Fukuroi, JPN)

FINAL date 03-May-15 wind -0.8 m/s

Takashima (2015) - race analysis of 110m & 100m hurdles in Japan- results of main 2015 competitions

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)		time	2.63	3.71	4.78	5.87	6.93	8.04	9.12	10.21	11.30	12.39		13.80	/ 1			
reaction time		interval		1.08	1.07	1.09	1.06	1.11	1.08	1.09	1.09	1.09	1.41			3.24	3.25	3.27
		velocity	5.22	8.46	8.54	8.39	8.62	8.23	8.46	8.39	8.39	8.39	9.94	7.97		8.46	8.44	8.39
Furuya, Takumu (JPN) (1997)		time	2.63	3.74	4.82	5.91	6.99	8.07	9.16	10.26	11.36	12.48		13.93	/ 2			
reaction time		interval		1.11	1.08	1.09	1.08	1.08	1.09	1.10	1.10	1.12	1.45			3.28	3.25	3.32
		velocity	5.22	8.23	8.46	8.39	8.46	8.46	8.39	8.31	8.31	8.16	9.67	7.90		8.36	8.44	8.26
Sato, Hiroyuki (JPN) (1990)		time	2.62	3.77	4.85	5.94	7.00	8.09	9.16	10.28	11.38	12.52		13.97	/ 3			
reaction time		interval		1.15	1.08	1.09	1.06	1.09	1.07	1.12	1.10	1.14	1.45			3.32	3.22	3.36
		velocity	5.24	7.95	8.46	8.39	8.62	8.39	8.54	8.16	8.31	8.02	9.67	7.87		8.26	8.52	8.16
Fudaba, Hiroki (JPN) (1994)		time	2.74	3.86	4.93	6.01	7.08	8.14	9.22	10.30	11.40	12.51		13.99	/ 4			
reaction time		interval		1.12	1.07	1.08	1.07	1.06	1.08	1.08	1.10	1.11	1.48			3.27	3.21	3.29
		velocity	5.01	8.16	8.54	8.46	8.54	8.62	8.46	8.46	8.31	8.23	9.47	7.86		8.39	8.54	8.33
Omuro, Hideki (JPN) (1990)		time	2.66	3.76	4.85	5.95	7.03	8.12	9.23	10.33	11.46	12.61		14.09	/ 6			
reaction time		interval		1.10	1.09	1.10	1.08	1.09	1.11	1.10	1.13	1.15	1.48			3.29	3.28	3.38
		velocity	5.16	8.31	8.39	8.31	8.46	8.39	8.23	8.31	8.09	7.95	9.47	7.81		8.33	8.36	8.11

2015 Czech Republic National U20 Indoor Championships (Praha, CZE) (99cm)

FINAL date 14-Feb-15

Feher (2015) - Final report from the U18 & U20 Czech Republic indoor national championships

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pulíček, Tomáš (CZE) (1997)		time	2.60	3.72	4.82	5.90	7.03		7.98	3 / 1			
reaction time	0.132	interval		1.12	1.10	1.08	1.13	0.95	PB		3.30		
		velocity	5.28	8.16	8.31	8.46	8.09	10.23	7.52		8.31		

Sklenár, David (CZE) (1997)		time	2.71	3.81	4.89	5.95	7.05					8.01	6 / 2		
reaction time	0.184	interval		1.10	1.08	1.06	1.10			0.96		PB		3.24	
		velocity	5.06	8.31	8.46	8.62	8.31			10.13		7.49		8.46	
Monzar, Daniel (CZE) (1997)		time	2.77	3.91	5.03	6.15	7.28					8.23	7 / 3		
reaction time	0.182	interval		1.14	1.12	1.12	1.13			0.95		PB		3.38	
		velocity	4.95	8.02	8.16	8.16	8.09			10.23		7.29		8.11	
Pirochta, Tomáš (CZE) (1997)		time	2.75	3.91	5.06	6.24	7.42					8.42	2 / 4		
reaction time	0.284	interval		1.16	1.15	1.18	1.18			1.00				3.49	
		velocity	4.99	7.88	7.95	7.75	7.75			9.72		7.13		7.86	
Odvárka, Jirí (CZE) (1996)		time	2.74	4.04	5.24	6.41	7.59					8.57	4 / 5		
reaction time	0.148	interval		1.30	1.20	1.17	1.18			0.98				3.67	
		velocity	5.01	7.03	7.62	7.81	7.75			9.92		7.00		7.47	
Sekyra, Daniel (CZE) (1996)		time	2.84	4.00	5.19	6.37	7.57					8.61	1 / 6		
reaction time	0.191	interval		1.16	1.19	1.18	1.20			1.04				3.53	
		velocity	4.83	7.88	7.68	7.75	7.62			9.35		6.97		7.77	
Špičák, Daniel (CZE) (1997)		time	2.78	3.95	5.12	6.33	7.65					8.79	5 / 7		
reaction time	0.138	interval		1.17	1.17	1.21	1.32			1.14				3.55	
		velocity	4.94	7.81	7.81	7.55	6.92			8.53		6.83		7.72	
Sykora, Miroslav (CZE) (1997)		time	2.90	4.08	5.64	7.06	8.66					10.20	8 / 8		
reaction time	0.162	interval		1.18	1.56	1.42	1.60			1.54				4.16	
		velocity	4.73	7.75	5.86	6.44	5.71			6.31		5.88		6.59	

2015 Czech Republic National U18 Indoor Championships (Praha, CZE) (91cm)

FINAL

date 14-Feb-15

Feher (2015) - Final report from the U18 & U20 Czech Republic indoor national championships

			H1	H2	H3	H4	H5					Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kijanica, Michael (CZE) (1998)		time	2.68	3.81	4.90	6.00	7.09						8.08	5 / 1			
reaction time	0.175	interval		1.13	1.09	1.10	1.09					0.99			3.32		
		velocity	5.12	8.09	8.39	8.31	8.39					9.82	7.43		8.26		
Desensky, Lukáš (CZE) (1998)		time	2.71	3.83	4.96	6.06	7.17						8.11	2 / 2			
reaction time	0.195	interval		1.12	1.13	1.10	1.11					0.94			3.35		
		velocity	5.06	8.16	8.09	8.31	8.23					10.34	7.40		8.19		
Mališka, Rostislav (CZE) (1998)		time	2.73	3.85	4.95	6.04	7.15						8.11	4 / 3			
reaction time	0.185	interval		1.12	1.10	1.09	1.11					0.96			3.31		
		velocity	5.03	8.16	8.31	8.39	8.23					10.13	7.40		8.28		
Krivák, Dominik (CZE) (1999)		time	2.65	3.77	4.90	6.03	7.16						8.14	8 / 4			
reaction time	0.109	interval		1.12	1.13	1.13	1.13					0.98			3.38		
		velocity	5.18	8.16	8.09	8.09	8.09					9.92	7.37		8.11		
Bárta, Dan (CZE) (1998)		time	2.70	3.86	5.00	6.09	7.23						8.20	6 / 5			
reaction time	0.158	interval		1.16	1.14	1.09	1.14					0.97			3.39		
		velocity	5.08	7.88	8.02	8.39	8.02					10.02	7.32		8.09		
Smolka, Adam (CZE) (1998)		time	2.74	3.89	5.00	6.14	7.28						8.29	3 / 6			
reaction time	0.153	interval		1.15	1.11	1.14	1.14					1.01			3.40		
		velocity	5.01	7.95	8.23	8.02	8.02					9.62	7.24		8.06		
Svoboda, Lukáš (CZE) (1998)		time	2.73	3.87	5.02	6.13	7.26						8.30	7 / 7			
reaction time	0.158	interval		1.14	1.15	1.11	1.13					1.04			3.40		
		velocity	5.03	8.02	7.95	8.23	8.09					9.35	7.23		8.06		
Jelínek, Erik (CZE) (1998)		time	2.78	3.94	5.06	6.19	7.31						8.33	1 / 8			
reaction time	0.153	interval		1.16	1.12	1.13	1.12					1.02			3.41		
		velocity	4.94	7.88	8.16	8.09	8.16					9.53	7.20		8.04		

2014 Japanese National Junior Championships (Nagoya, JPN) (99cm)

Semi-Final 1

date 03-Oct-14 wind 0.7 m/s

Kota (2017) - 70th high school championships: JAF scientific committee - biomechanics data collection

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furuya, Takumu (JPN) (1997)		time	2.62	3.71	4.81	5.87	6.93	8.01	9.10	10.18	11.28	12.37		13.83	/ 1			
reaction time		interval		1.09	1.10	1.06	1.06	1.08	1.09	1.08	1.10	1.09	1.46	PB		3.25	3.23	3.27
		velocity	5.24	8.39	8.31	8.62	8.62	8.46	8.39	8.46	8.31	8.39	9.60	7.95		8.44	8.49	8.39

2014 Asian Games (Incheon, KOR)

Decathlon - Heat 2

date 01-Oct-14 wind 1.9 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990		time	2.74	3.86	4.97	6.09	7.21	8.33	9.47	10.59	11.73	12.89		14.33	/ 1			
reaction time	0.166	interval		1.12	1.11	1.12	1.12	1.12	1.14	1.12	1.14	1.16	1.44			3.35	3.38	3.42

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
	velocity	5.01	8.16	8.23	8.16	8.16	8.16	8.02	8.16	8.02	7.88	9.74	7.68		8.19	8.11	8.02

Decathlon - Heat 1

date 01-Oct-14 wind 1.7 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.78	3.97	5.15	6.31	7.47	8.65	9.85	11.07	12.30	13.54		15.16	/ 4			
reaction time 0.196	interval		1.19	1.18	1.16	1.16	1.18	1.20	1.22	1.23	1.24	1.62			3.53	3.54	3.69
	velocity	4.94	7.68	7.75	7.88	7.88	7.75	7.62	7.49	7.43	7.37	8.65	7.26		7.77	7.75	7.43

FINAL

date 30-Sep-14 wind 0.4 m/s

Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.60	3.66	4.70	5.74	6.76	7.80	8.82	9.85	10.90	11.96		13.36	/ 1			
reaction time 0.176	interval		1.06	1.04	1.04	1.02	1.04	1.02	1.03	1.05	1.06	1.40			3.14	3.08	3.14
	velocity	5.28	8.62	8.79	8.79	8.96	8.79	8.96	8.87	8.70	8.62	10.01	8.23		8.73	8.90	8.73

2014 Kanto Championships (Sagamihara, JPN)

Semi-Final 1

date 31-Aug-14 wind -0.2 m/s

(2017.03.01) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furuya, Takumu (JPN) (1997)	time	2.62	3.72	4.80	5.85	6.93	8.00	9.08	10.17	11.28	12.40		13.89	6 / 1			
reaction time	interval		1.10	1.08	1.05	1.08	1.07	1.08	1.09	1.11	1.12	1.49	PB		3.23	3.23	3.32
	velocity	5.24	8.31	8.46	8.70	8.46	8.54	8.46	8.39	8.23	8.16	9.41	7.92		8.49	8.49	8.26

2014 European Championships (Zurich, SUI)

Heat 4

date 13-Aug-14 wind 0.7 m/s

Incalza (2014) - https://www.youtube.com/watch?v=wFOM-j9iZHE&list=UU7691fXeyNFIMROfkJ-WWUg

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shubenkov, Sergey (RUS) (199	time	2.63	3.68	4.71	5.74	6.75	7.77	8.81	9.85	10.90	11.94		13.29	8 / 1			
reaction time 0.145	interval		1.05	1.03	1.03	1.01	1.02	1.04	1.04	1.05	1.04	1.35			3.11	3.07	3.13
	velocity	5.22	8.70	8.87	8.87	9.05	8.96	8.79	8.79	8.70	8.79	10.39	8.28		8.82	8.93	8.76
Fofana, Hassane (ITA) (1992)	time	2.64	3.71	4.74	5.79	6.83	7.86	8.89	9.93	10.99	12.08		13.55	2 / 5			
reaction time 0.130	interval		1.07	1.03	1.05	1.04	1.03	1.03	1.04	1.06	1.09	1.47	PB		3.15	3.10	3.19
	velocity	5.20	8.54	8.87	8.70	8.79	8.87	8.87	8.79	8.62	8.39	9.54	8.12		8.70	8.85	8.60

Heat 2

date 13-Aug-14 wind 0.4 m/s

Incalza (2014) - https://www.youtube.com/watch?v=nliXgBWbl_k&list=UU7691fXeyNFIMROfkJ-WWUg

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Bascou, Dimitri (FRA) (1987)	time	2.58	3.61	4.64	5.68	6.70	7.73	8.77	9.81	10.86	11.92		13.35	8 / 1			
reaction time 0.148	interval		1.03	1.03	1.04	1.02	1.03	1.04	1.04	1.05	1.06	1.43			3.10	3.09	3.15
	velocity	5.32	8.87	8.87	8.79	8.96	8.87	8.79	8.79	8.70	8.62	9.80	8.24		8.85	8.87	8.70
Dal Molin, Paolo (ITA) (1987)	time	2.55	3.64	4.67	5.73	6.77	7.80	8.90	9.97	11.05	12.14		13.54	6 / 4			
reaction time 0.138	interval		1.09	1.03	1.06	1.04	1.03	1.10	1.07	1.08	1.09	1.40			3.18	3.17	3.24
	velocity	5.38	8.39	8.87	8.62	8.79	8.87	8.31	8.54	8.46	8.39	10.01	8.12		8.62	8.65	8.46

Heat 1

date 13-Aug-14 wind -0.7 m/s

Incalza (2014) - https://www.youtube.com/watch?v=4CScuS4aCYI&list=UU7691fXeyNFIMROfkJ-WWUg

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Martinot-Largarde, Pascal (FR/	time	2.56	3.59	4.60	5.56	6.54	7.58	8.60	9.64	10.68	11.76		13.29	3 / 1			
reaction time 0.152	interval		1.03	1.01	0.96	0.98	1.04	1.02	1.04	1.04	1.08	1.53			3.00	3.04	3.16
	velocity	5.36	8.87	9.05	9.52	9.33	8.79	8.96	8.79	8.79	8.46	9.16	8.28		9.14	9.02	8.68
Perini, Lorenzo (ITA) (1994)	time	2.64	3.72	4.78	5.81	6.84	7.90	8.97	10.06	11.16	12.28		13.77	4 / 6			
reaction time 0.141	interval		1.08	1.06	1.03	1.03	1.06	1.07	1.09	1.10	1.12	1.49			3.17	3.16	3.31
	velocity	5.20	8.46	8.62	8.87	8.87	8.62	8.54	8.39	8.31	8.16	9.41	7.99		8.65	8.68	8.28

2014 Japanese National High School Championships (Kofu, JPN) (99cm)

FINAL

date 03-Aug-14 wind -2.4 m/s

Yanagiya (2014) - research on athlete performance and technique- 2014 data book

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furuya, Takumu (JPN) (1997)	time	2.64	3.74	4.82	5.89	6.97	8.05	9.16	10.27	11.39	12.55		14.05	4 / 1			
reaction time	interval		1.10	1.08	1.07	1.08	1.08	1.11	1.11	1.12	1.16	1.50			3.25	3.27	3.39
	velocity	5.20	8.31	8.46	8.54	8.46	8.46	8.23	8.23	8.16	7.88	9.35	7.83		8.44	8.39	8.09
Umemura, Taichi (JPN) (1996)	time	2.74	3.89	4.98	6.12	7.22	8.36	9.51	10.67	11.85	13.04		14.52	5 / 2			
reaction time	interval		1.15	1.09	1.14	1.10	1.14	1.15	1.16	1.18	1.19	1.48			3.38	3.39	3.53
	velocity	5.01	7.95	8.39	8.02	8.31	8.02	7.95	7.88	7.75	7.68	9.47	7.58		8.11	8.09	7.77
Kanai, Nao (JPN) (1997)	time	2.74	3.88	4.99	6.11	7.23	8.36	9.50	10.65	11.81	13.00		14.55	6 / 3			
reaction time	interval		1.14	1.11	1.12	1.12	1.13	1.14	1.15	1.16	1.19	1.55			3.37	3.39	3.50
	velocity	5.01	8.02	8.23	8.16	8.16	8.09	8.02	7.95	7.88	7.68	9.05	7.56		8.14	8.09	7.83

2014 Czech Republic National Championships (Ostrava, CZE)

FINAL

date 02-Aug-14 wind -1.2 m/s

Feher (2014) - Final report from the Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Svoboda, Petr (CZE) (1984)	time	2.57	3.63	4.67	5.68	6.71	7.76	8.80	9.85	10.91	12.01		13.50	4 / 1			
reaction time 0.140	interval		1.06	1.04	1.01	1.03	1.05	1.04	1.05	1.06	1.10	1.49			3.11	3.12	3.21
	velocity	5.34	8.62	8.79	9.05	8.87	8.70	8.79	8.70	8.62	8.31	9.41	8.15		8.82	8.79	8.54

Polách, Josef (CZE) (1990)	time	2.70	3.82	4.93	6.05	7.15	8.26	9.37	10.52	11.63	12.83		14.39	3 / 2			
reaction time 0.154	interval		1.12	1.11	1.12	1.10	1.11	1.11	1.15	1.11	1.20	1.56			3.35	3.32	3.46
	velocity	5.08	8.16	8.23	8.16	8.31	8.23	8.23	7.95	8.23	7.62	8.99	7.64		8.19	8.26	7.92
Říha, Michal (CZE) (1994)	time	2.66	3.85	5.02	6.15	7.28	8.45	9.61	10.75	11.91	13.09		14.66	6 / 3			
reaction time 0.159	interval		1.19	1.17	1.13	1.13	1.17	1.16	1.14	1.16	1.18	1.57			3.49	3.46	3.48
	velocity	5.16	7.68	7.81	8.09	8.09	7.81	7.88	8.02	7.88	7.75	8.93	7.50		7.86	7.92	7.88
Penáz, Petr (CZE) (1991)	time	2.77	3.90	5.02	6.10	7.20	8.38	9.55	10.70	11.87	13.05		14.87	5 / 4			
reaction time 0.172	interval		1.13	1.12	1.08	1.10	1.18	1.17	1.15	1.17	1.18	1.82			3.33	3.45	3.50
	velocity	4.95	8.09	8.16	8.46	8.31	7.75	7.81	7.95	7.81	7.75	7.70	7.40		8.23	7.95	7.83
Pokorny, Martin (CZE) (1988)	time	2.75	3.90	5.05	6.17	7.31	8.47	9.64	10.80	11.99	13.22		14.89	8 / 5			
reaction time 0.135	interval		1.15	1.15	1.12	1.14	1.16	1.17	1.16	1.19	1.23	1.67			3.42	3.47	3.58
	velocity	4.99	7.95	7.95	8.16	8.02	7.88	7.81	7.88	7.68	7.43	8.40	7.39		8.02	7.90	7.66
Kavka, Tomáš (CZE) (1989)	time	2.77	3.93	5.03	6.21	7.35	8.53	9.69	10.85	12.08	13.27		14.95	7 / 6			
reaction time 0.122	interval		1.16	1.10	1.18	1.14	1.18	1.16	1.16	1.23	1.19	1.68			3.44	3.48	3.58
	velocity	4.95	7.88	8.31	7.75	8.02	7.75	7.88	7.88	7.43	7.68	8.35	7.36		7.97	7.88	7.66
Sajdok, Stanislav (CZE) (1983)	time	2.68	3.85	4.99	6.15	7.34	8.50	9.70	10.93	12.15	13.43		15.24	2 / 7			
reaction time 0.124	interval		1.17	1.14	1.16	1.19	1.16	1.20	1.23	1.22	1.28	1.81			3.47	3.55	3.73
	velocity	5.12	7.81	8.02	7.88	7.68	7.88	7.62	7.43	7.49	7.14	7.75	7.22		7.90	7.72	7.35
Krejčí, Michal (CZE) (1981)	time	2.74	3.93	5.11	6.29	7.48	8.72	9.94	11.17	12.42	13.72		15.45	1 / 8			
reaction time 0.147	interval		1.19	1.18	1.18	1.19	1.24	1.22	1.23	1.25	1.30	1.73			3.55	3.65	3.78
	velocity	5.01	7.68	7.75	7.75	7.68	7.37	7.49	7.43	7.31	7.03	8.10	7.12		7.72	7.51	7.25

Heat 2

date 02-Aug-14 wind 0.8 m/s

Feher (2014) - Final report from the Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Penáz, Petr (CZE) (1991)	time	2.82	3.93	5.03	6.13	7.21	8.31	9.40	10.49	11.60	12.72		14.21	5 / 1			
reaction time 0.190	interval		1.11	1.10	1.10	1.08	1.10	1.09	1.09	1.11	1.12	1.49			3.31	3.27	3.32
	velocity	4.87	8.23	8.31	8.31	8.46	8.31	8.39	8.39	8.23	8.16	9.41	7.74		8.28	8.39	8.26
Polách, Josef (CZE) (1990)	time	2.73	3.85	4.94	6.05	7.15	8.26	9.35	10.46	11.61	12.76		14.26	4 / 2			
reaction time 0.143	interval		1.12	1.09	1.11	1.10	1.11	1.09	1.11	1.15	1.15	1.50			3.32	3.30	3.41
	velocity	5.03	8.16	8.39	8.23	8.31	8.23	8.39	8.23	7.95	7.95	9.35	7.71		8.26	8.31	8.04
Kavka, Tomáš (CZE) (1989)	time	2.84	4.00	5.15	6.25	7.40	8.55	9.70	10.85	12.05	13.28		14.83	6 / 3			
reaction time 0.150	interval		1.16	1.15	1.10	1.15	1.15	1.15	1.15	1.20	1.23	1.55			3.41	3.45	3.58
	velocity	4.83	7.88	7.95	8.31	7.95	7.95	7.95	7.95	7.62	7.43	9.05	7.42		8.04	7.95	7.66
Sajdok, Stanislav (CZE) (1983)	time	2.70	3.87	4.98	6.14	7.28	8.45	9.63	10.81	12.03	13.29		14.96	3 / 4			
reaction time 0.159	interval		1.17	1.11	1.16	1.14	1.17	1.18	1.18	1.22	1.26	1.67			3.44	3.49	3.66
	velocity	5.08	7.81	8.23	7.88	8.02	7.81	7.75	7.75	7.49	7.25	8.40	7.35		7.97	7.86	7.49
Vašátko, Stanislav (CZE) (1992)	time	2.87	4.08	5.27	6.48	7.70	8.94	10.18	11.44	12.70	13.98		15.64	1 / 5			
reaction time 0.169	interval		1.21	1.19	1.21	1.22	1.24	1.24	1.26	1.26	1.28	1.66			3.61	3.70	3.80
	velocity	4.78	7.55	7.68	7.55	7.49	7.37	7.37	7.25	7.25	7.14	8.45	7.03		7.60	7.41	7.22

Heat 1

date 02-Aug-14 wind -1.6 m/s

Feher (2014) - Final report from the Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Svoboda, Petr (CZE) (1984)	time	2.57	3.65	4.70	5.75	6.81	7.87	8.92	9.98	11.05	12.15		13.64	4 / 1			
reaction time 0.133	interval		1.08	1.05	1.05	1.06	1.06	1.05	1.06	1.07	1.10	1.49			3.18	3.17	3.23
	velocity	5.34	8.46	8.70	8.70	8.62	8.62	8.70	8.62	8.54	8.31	9.41	8.06		8.62	8.65	8.49
Říha, Michal (CZE) (1994)	time	2.70	3.86	5.02	6.15	7.31	8.47	9.65	10.82	12.00	13.20		14.74	3 / 2			
reaction time 0.171	interval		1.16	1.16	1.13	1.16	1.16	1.18	1.17	1.18	1.20	1.54			3.45	3.50	3.55
	velocity	5.08	7.88	7.88	8.09	7.88	7.88	7.75	7.81	7.75	7.62	9.10	7.46		7.95	7.83	7.72
Pokorny, Martin (CZE) (1988)	time	2.75	3.93	5.11	6.26	7.41	8.56	9.75	10.91	12.12	13.34		15.02	6 / 3			
reaction time 0.156	interval		1.18	1.18	1.15	1.15	1.15	1.19	1.16	1.21	1.22	1.68			3.51	3.49	3.59
	velocity	4.99	7.75	7.75	7.95	7.95	7.95	7.68	7.88	7.55	7.49	8.35	7.32		7.81	7.86	7.64
Krejčí, Michal (CZE) (1981)	time	2.75	3.97	5.16	6.35	7.54	8.72	9.90	11.14	12.38	13.64		15.27	2 / 4			
reaction time 0.106	interval		1.22	1.19	1.19	1.19	1.18	1.18	1.24	1.24	1.26	1.63			3.60	3.55	3.74
	velocity	4.99	7.49	7.68	7.68	7.68	7.75	7.75	7.37	7.37	7.25	8.60	7.20		7.62	7.72	7.33
Frolík, Petr (CZE) (1991)	time	2.88	4.07	5.26	6.46	7.63	8.85	10.07	11.29	12.48	13.74		15.36	7 / 5			
reaction time 0.186	interval		1.19	1.19	1.20	1.17	1.22	1.22	1.22	1.19	1.26	1.62			3.58	3.61	3.67
	velocity	4.76	7.68	7.68	7.62	7.81	7.49	7.49	7.49	7.68	7.25	8.65	7.16		7.66	7.60	7.47
Dinga, Libor (CZE) (1984)	time	2.83	4.08	5.30	6.51	7.72	8.95	10.19	11.47	12.73	13.99		15.66	1 / 6			
reaction time 0.152	interval		1.25	1.22	1.21	1.21	1.23	1.24	1.28	1.26	1.26	1.67			3.68	3.68	3.80
	velocity	4.85	7.31	7.49	7.55	7.55	7.43	7.37	7.14	7.25	7.25	8.40	7.02		7.45	7.45	7.22

Sedlák, Václav (CZE) (1993)	time	2.73	3.88	5.00	6.13	7.24	8.35						5 / --				
reaction time 0.151	interval		1.15	1.12	1.13	1.11	1.11					DQ		3.40			
	velocity	5.03	7.95	8.16	8.09	8.23	8.23							8.06			

2014 Czech Republic National U20 Championships (Trinec, CZE) (99cm)

FINAL

date 28-Jun-14 wind -2.2 m/s

Feher (2014) - Final report from the U18 & U20 Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Homola, Tomáš (CZE) (1995)	time	2.68	3.80	4.90	5.99	7.10	8.20	9.30	10.43	11.56	12.73		14.28	4 / 1			
reaction time 0.147	interval		1.12	1.10	1.09	1.11	1.10	1.10	1.13	1.13	1.17	1.55			3.31	3.31	3.43
	velocity	5.12	8.16	8.31	8.39	8.23	8.31	8.31	8.09	8.09	7.81	9.05	7.70		8.28	8.28	7.99
Tuček, Martin (CZE) (1995)	time	2.68	3.82	4.94	6.07	7.20	8.31	9.42	10.56	11.70	12.91		14.51	6 / 2			
reaction time 0.148	interval		1.14	1.12	1.13	1.13	1.11	1.11	1.14	1.14	1.21	1.60			3.39	3.35	3.49
	velocity	5.12	8.02	8.16	8.09	8.09	8.23	8.23	8.02	8.02	7.55	8.76	7.58		8.09	8.19	7.86
Doležal, Jan (CZE) (1996)	time	2.74	3.89	4.99	6.09	7.20	8.34	9.45	10.58	11.75	12.96		14.52	3 / 3			
reaction time 0.157	interval		1.15	1.10	1.10	1.11	1.14	1.11	1.13	1.17	1.21	1.56			3.35	3.36	3.51
	velocity	5.01	7.95	8.31	8.31	8.23	8.02	8.23	8.09	7.81	7.55	8.99	7.58		8.19	8.16	7.81
Večera, Jindrich (CZE) (1995)	time	2.70	3.83	4.94	6.06	7.17	8.28	9.43	10.56	11.73	12.92		14.55	5 / 4			
reaction time 0.171	interval		1.13	1.11	1.12	1.11	1.11	1.15	1.13	1.17	1.19	1.63			3.36	3.37	3.49
	velocity	5.08	8.09	8.23	8.16	8.23	8.23	7.95	8.09	7.81	7.68	8.60	7.56		8.16	8.14	7.86
Rykl, Radoš (CZE) (1995)	time	2.77	3.93	5.06	6.19	7.32	8.50	9.65	10.80	11.97	13.13		14.75	7 / 5			
reaction time 0.177	interval		1.16	1.13	1.13	1.13	1.18	1.15	1.15	1.17	1.16	1.62			3.42	3.46	3.48
	velocity	4.95	7.88	8.09	8.09	8.09	7.75	7.95	7.95	7.81	7.88	8.65	7.46		8.02	7.92	7.88
Schmöger, Martin (CZE) (1995)	time	2.83	4.00	5.15	6.29	7.46	8.59	9.78	10.97	12.16	13.35		15.00	2 / 6			
reaction time 0.174	interval		1.17	1.15	1.14	1.17	1.13	1.19	1.19	1.19	1.19	1.65			3.46	3.49	3.57
	velocity	4.85	7.81	7.95	8.02	7.81	8.09	7.68	7.68	7.68	7.68	8.50	7.33		7.92	7.86	7.68
Kubeš, Jirí (CZE) (1995)	time	2.79	3.93	5.10	6.25	7.40	8.56	9.75	10.93	12.14	13.40		15.29	1 / 7			
reaction time 0.186	interval		1.14	1.17	1.15	1.15	1.16	1.19	1.18	1.21	1.26	1.89			3.46	3.50	3.65
	velocity	4.92	8.02	7.81	7.95	7.95	7.88	7.68	7.75	7.55	7.25	7.42	7.19		7.92	7.83	7.51
Decker, Jan (CZE) (1995)	time	2.86	4.07	5.28	6.46	7.66	8.87	10.07	11.26	12.50	13.73		15.40	8 / 8			
reaction time 0.235	interval		1.21	1.21	1.18	1.20	1.21	1.20	1.19	1.24	1.23	1.67			3.60	3.61	3.66
	velocity	4.80	7.55	7.55	7.75	7.62	7.55	7.62	7.68	7.37	7.43	8.40	7.14		7.62	7.60	7.49

Heat 3

date 28-Jun-14 wind -2.5 m/s

Feher (2014) - Final report from the U18 & U20 Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Doležal, Jan (CZE) (1996)	time	2.75	3.87	4.97	6.07	7.19	8.33	9.45	10.60	11.77	12.92		14.52	3 / 1			
reaction time 0.524	interval		1.12	1.10	1.10	1.12	1.14	1.12	1.15	1.17	1.15	1.60			3.32	3.38	3.47
	velocity	4.99	8.16	8.31	8.31	8.16	8.02	8.16	7.95	7.81	7.95	8.76	7.58		8.26	8.11	7.90
Rykl, Radoš (CZE) (1995)	time	2.85	4.00	5.17	6.34	7.48	8.68	9.83	11.00	12.22	13.39		15.04	6 / 2			
reaction time 0.253	interval		1.15	1.17	1.17	1.14	1.20	1.15	1.17	1.22	1.17	1.65			3.49	3.49	3.56
	velocity	4.81	7.95	7.81	7.81	8.02	7.62	7.95	7.81	7.49	7.81	8.50	7.31		7.86	7.86	7.70
Kubeš, Jirí (CZE) (1995)	time	2.80	3.95	5.11	6.25	7.43	8.62	9.80	11.00	12.20	13.43		15.06	5 / 3			
reaction time 0.203	interval		1.15	1.16	1.14	1.18	1.19	1.18	1.20	1.20	1.23	1.63			3.45	3.55	3.63
	velocity	4.90	7.95	7.88	8.02	7.75	7.68	7.75	7.62	7.62	7.43	8.60	7.30		7.95	7.72	7.55
Perutka, Martin (CZE) (1995)	time	2.77	3.96	5.17	6.38	7.60	8.84	10.10	11.36	12.66	14.15		15.80	2 / 4			
reaction time 0.139	interval		1.19	1.21	1.21	1.22	1.24	1.26	1.26	1.30	1.49	1.65			3.61	3.72	4.05
	velocity	4.95	7.68	7.55	7.55	7.49	7.37	7.25	7.25	7.03	6.13	8.50	6.96		7.60	7.37	6.77
Konečeny, Michael (CZE) (1995	time	2.82	4.02	5.20	6.43	7.64	8.88	10.23	11.59	12.90	14.22		15.97	8 / 5			
reaction time 0.144	interval		1.20	1.18	1.23	1.21	1.24	1.35	1.36	1.31	1.32	1.75			3.61	3.80	3.99
	velocity	4.87	7.62	7.75	7.43	7.55	7.37	6.77	6.72	6.98	6.92	8.01	6.89		7.60	7.22	6.87
Sekyra, Daniel (CZE) (1996)	time	2.95	4.16	5.40	6.62	7.87	9.10	10.37	11.62	12.91	14.24		16.00	4 / 6			
reaction time 0.247	interval		1.21	1.24	1.22	1.25	1.23	1.27	1.25	1.29	1.33	1.76			3.67	3.75	3.87
	velocity	4.65	7.55	7.37	7.49	7.31	7.43	7.20	7.31	7.09	6.87	7.97	6.88		7.47	7.31	7.09
Rezníček, Tomáš (CZE) (1995)	time	2.98	4.38	5.75	7.19	8.60	10.11	11.63	13.15	14.62	16.10		18.00	7 / 7			
reaction time 0.163	interval		1.40	1.37	1.44	1.41	1.51	1.52	1.52	1.47	1.48	1.90			4.21	4.44	4.47
	velocity	4.60	6.53	6.67	6.35	6.48	6.05	6.01	6.01	6.22	6.18	7.38	6.11		6.51	6.18	6.13

Heat 2

date 28-Jun-14 wind -2.9 m/s

Feher (2014) - Final report from the U18 & U20 Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Večera, Jindrich (CZE) (1995)	time	2.75	3.85	4.99	6.09	7.19	8.30	9.45	10.59	11.74	12.92		14.55	3 / 1			
reaction time 0.184	interval		1.10	1.14	1.10	1.10	1.11	1.15	1.14	1.15	1.18	1.63			3.34	3.36	3.47
	velocity	4.99	8.31	8.02	8.31	8.31	8.23	7.95	8.02	7.95	7.75	8.60	7.56		8.21	8.16	7.90

Tuček, Martin (CZE) (1995)	time	2.73	3.86	4.99	6.13	7.29	8.43	9.60	10.77	11.99	13.20		15.00	4 / 2			
reaction time 0.154	interval		1.13	1.13	1.14	1.16	1.14	1.17	1.17	1.22	1.21	1.80			3.40	3.47	3.60
	velocity	5.03	8.09	8.09	8.02	7.88	8.02	7.81	7.81	7.49	7.55	7.79	7.33		8.06	7.90	7.62
Sirota, Martin (CZE) (1995)	time	2.88	4.07	5.27	6.44	7.66	8.86	10.07	11.31	12.53	13.81		15.48	8 / 3			
reaction time 0.249	interval		1.19	1.20	1.17	1.22	1.20	1.21	1.24	1.22	1.28	1.67			3.56	3.63	3.74
	velocity	4.76	7.68	7.62	7.81	7.49	7.62	7.55	7.37	7.49	7.14	8.40	7.11		7.70	7.55	7.33
Pilar, Lukáš (CZE) (1995)	time	2.88	4.05	5.23	6.44	7.64	8.86	10.05	11.29	12.53	13.78		15.52	7 / 4			
reaction time 0.212	interval		1.17	1.18	1.21	1.20	1.22	1.19	1.24	1.24	1.25	1.74			3.56	3.61	3.73
	velocity	4.76	7.81	7.75	7.55	7.62	7.49	7.68	7.37	7.37	7.31	8.06	7.09		7.70	7.60	7.35
Šilhavy, Václav (CZE) (1995)	time	2.96	4.14	5.38	6.59	7.78	9.00	10.22	11.42	12.69	13.95		15.61	2 / 5			
reaction time 0.217	interval		1.18	1.24	1.21	1.19	1.22	1.22	1.20	1.27	1.26	1.66			3.63	3.63	3.73
	velocity	4.64	7.75	7.37	7.55	7.68	7.49	7.49	7.62	7.20	7.25	8.45	7.05		7.55	7.55	7.35
Dostrašil, Tomáš (CZE) (1996)	time	2.85	4.09	5.30	6.52	7.75	9.00	10.22	11.52	12.78	14.11		15.87	6 / 6			
reaction time 0.184	interval		1.24	1.21	1.22	1.23	1.25	1.22	1.30	1.26	1.33	1.76			3.67	3.70	3.89
	velocity	4.81	7.37	7.55	7.49	7.43	7.31	7.49	7.03	7.25	6.87	7.97	6.93		7.47	7.41	7.05

Heat 1

date 28-Jun-14 wind -1.6 m/s

Feher (2014) - Final report from the U18 & U20 Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Homola, Tomáš (CZE) (1995)	time	2.65	3.78	4.89	5.99	7.11	8.23	9.34	10.50	11.67	12.84		14.43	4 / 1			
reaction time 0.176	interval		1.13	1.11	1.10	1.12	1.12	1.11	1.16	1.17	1.17	1.59			3.34	3.35	3.50
	velocity	5.18	8.09	8.23	8.31	8.16	8.16	8.23	7.88	7.83	7.79	8.82	7.62		8.21	8.19	7.83
Schmöger, Martin (CZE) (1995)	time	2.81	3.94	5.13	6.27	7.43	8.58	9.68	10.94	12.16	13.38		15.02	5 / 2			
reaction time 0.215	interval		1.13	1.19	1.14	1.16	1.15	1.10	1.26	1.22	1.22	1.64			3.46	3.41	3.70
	velocity	4.88	8.09	7.68	8.02	7.88	7.95	8.31	7.25	7.49	7.49	8.55	7.32		7.92	8.04	7.41
Decker, Jan (CZE) (1995)	time	2.78	3.95	5.12	6.30	7.48	8.69	9.90	11.10	12.34	13.60		15.34	6 / 3			
reaction time 0.206	interval		1.17	1.17	1.18	1.18	1.21	1.21	1.20	1.24	1.26	1.74			3.52	3.60	3.70
	velocity	4.94	7.81	7.81	7.75	7.75	7.55	7.55	7.62	7.37	7.25	8.06	7.17		7.79	7.62	7.41
Odvárka, Jirí (CZE) (1996)	time	2.80	4.03	5.23	6.43	7.64	8.88	10.11	11.38	12.68	14.02		15.83	7 / 4			
reaction time 0.162	interval		1.23	1.20	1.20	1.21	1.24	1.23	1.27	1.30	1.34	1.81			3.63	3.68	3.91
	velocity	4.90	7.43	7.62	7.62	7.55	7.37	7.43	7.20	7.03	6.82	7.75	6.95		7.55	7.45	7.01
Holek, Jakub (CZE) (1995)	time	2.99	4.26	5.52	6.77	7.98	9.20	10.44	11.66	12.91	14.18		15.89	3 / 5			
reaction time 0.287	interval		1.27	1.26	1.25	1.21	1.22	1.24	1.22	1.25	1.27	1.71			3.78	3.67	3.74
	velocity	4.59	7.20	7.25	7.31	7.55	7.49	7.37	7.49	7.31	7.20	8.20	6.92		7.25	7.47	7.33
Ružička, Martin (CZE) (1995)	time	2.95	4.18	5.41	6.62	7.85	9.15	10.39	11.70	12.97	14.26		15.99	2 / 6			
reaction time 0.244	interval		1.23	1.23	1.21	1.23	1.30	1.24	1.31	1.27	1.29	1.73			3.67	3.77	3.87
	velocity	4.65	7.43	7.43	7.55	7.43	7.03	7.37	6.98	7.20	7.09	8.10	6.88		7.47	7.27	7.09
Král, Aleš (CZE) (1996)	time	2.81	4.10	5.40	6.66	7.95	9.27	10.58	11.95	13.23	14.60		16.34	8 / 7			
reaction time 0.165	interval		1.29	1.30	1.26	1.29	1.32	1.31	1.37	1.28	1.37	1.74			3.85	3.92	4.02
	velocity	4.88	7.09	7.03	7.25	7.09	6.92	6.98	6.67	7.14	6.67	8.06	6.73		7.12	6.99	6.82

2014 Czech Republic National U18 Championships (Trinec, CZE) (91cm)

FINAL

date 28-Jun-14 wind -3.7 m/s

Feher (2014) - Final report from the U18 & U20 Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pulíček, Tomáš (CZE) (1997)	time	2.66	3.74	4.80	5.87	6.92	7.99	9.06	10.13	11.22	12.35		13.89	4 / 1			
reaction time 0.177	interval		1.08	1.06	1.07	1.05	1.07	1.07	1.07	1.09	1.13	1.54			3.21	3.19	3.29
	velocity	5.16	8.46	8.62	8.54	8.70	8.54	8.54	8.54	8.39	8.09	9.10	7.92		8.54	8.60	8.33
Sklenár, David (CZE) (1997)	time	2.67	3.77	4.86	5.94	7.02	8.11	9.22	10.35	11.49	12.66		14.25	5 / 2			
reaction time 0.159	interval		1.10	1.09	1.08	1.08	1.09	1.11	1.13	1.14	1.17	1.59			3.27	3.28	3.44
	velocity	5.14	8.31	8.39	8.46	8.46	8.39	8.23	8.09	8.02	7.81	8.82	7.72		8.39	8.36	7.97
Kisiala, Jan (CZE) (1998)	time	2.88	4.04	5.18	6.32	7.45	8.57	9.77	10.96	12.17	13.39		14.93	2 / 3			
reaction time 0.177	interval		1.16	1.14	1.14	1.13	1.12	1.20	1.19	1.21	1.22	1.54			3.44	3.45	3.62
	velocity	4.76	7.88	8.02	8.02	8.09	8.16	7.62	7.68	7.55	7.49	9.10	7.37		7.97	7.95	7.57
Nardelli, Alexander (CZE) (1997	time	2.86	4.02	5.18	6.35	7.52	8.71	9.90	11.08	12.27	13.45		15.07	6 / 4			
reaction time 0.229	interval		1.16	1.16	1.17	1.17	1.19	1.19	1.18	1.19	1.18	1.62			3.49	3.55	3.55
	velocity	4.80	7.88	7.88	7.81	7.81	7.68	7.68	7.75	7.68	7.75	8.65	7.30		7.86	7.72	7.72
Špičák, Daniel (CZE) (1997)	time	2.96	4.11	5.29	6.48	7.65	8.80	9.95	11.15	12.34	13.55		15.09	8 / 5			
reaction time 0.288	interval		1.15	1.18	1.19	1.17	1.15	1.15	1.20	1.19	1.21	1.54			3.52	3.47	3.60
	velocity	4.64	7.95	7.75	7.68	7.81	7.95	7.95	7.62	7.68	7.55	9.10	7.29		7.79	7.90	7.62
Mališka, Rostislav (CZE) (1998)	time	2.91	4.07	5.25	6.43	7.59	8.78	9.95	11.15	12.36	13.58		15.24	1 / 6			
reaction time 0.193	interval		1.16	1.18	1.18	1.16	1.19	1.17	1.20	1.21	1.22	1.66			3.52	3.52	3.63
	velocity	4.71	7.88	7.75	7.75	7.88	7.68	7.81	7.62	7.55	7.49	8.45	7.22		7.79	7.79	7.55

Nemec, Jan (CZE) (1997)		time	2.91	4.09	5.26	6.46	7.70	8.91	10.11	11.33	12.52	13.75		15.43	7 / 7			
reaction time	0.231	interval		1.18	1.17	1.20	1.24	1.21	1.20	1.22	1.19	1.23	1.68			3.55	3.65	3.64
		velocity	4.71	7.75	7.81	7.62	7.37	7.55	7.62	7.49	7.68	7.43	8.35	7.13		7.72	7.51	7.53
Bárta, Dan (CZE) (1998)		time	2.80	3.97	5.13	6.28	7.44	8.59	9.83					dnf	3 / --			
reaction time	0.169	interval		1.17	1.16	1.15	1.16	1.15	1.24							3.48	3.55	
		velocity	4.90	7.81	7.88	7.95	7.88	7.95	7.37							7.88	7.72	

Heat 3

date 28-Jun-14 wind -1.6 m/s

Feher (2014) - Final report from the U18 & U20 Czech Republic national championships

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Bárta, Dan (CZE) (1998)		time	2.79	3.94	5.08	6.22	7.33	8.50	9.67	10.86	12.08	13.28		14.90	4 / 1			
reaction time	0.166	interval		1.15	1.14	1.14	1.11	1.17	1.17	1.19	1.22	1.20	1.62			3.43	3.45	3.61
		velocity	4.92	7.95	8.02	8.02	8.23	7.81	7.81	7.68	7.49	7.62	8.65	7.38		7.99	7.95	7.60
Kisiala, Jan (CZE) (1998)		time	2.88	4.05	5.20	6.35	7.50	8.65	9.81	10.98	12.18	13.39		14.99	5 / 2			
reaction time	0.168	interval		1.17	1.15	1.15	1.15	1.15	1.16	1.17	1.20	1.21	1.60			3.47	3.46	3.58
		velocity	4.76	7.81	7.95	7.95	7.95	7.95	7.88	7.81	7.62	7.55	8.76	7.34		7.90	7.92	7.66
Špičák, Daniel (CZE) (1997)		time	2.83	4.04	5.21	6.39	7.56	8.74	9.92	11.16	12.37	13.61		15.18	1 / 3			
reaction time	0.170	interval		1.21	1.17	1.18	1.17	1.18	1.18	1.24	1.21	1.24	1.57			3.56	3.53	3.69
		velocity	4.85	7.55	7.81	7.75	7.81	7.75	7.75	7.37	7.55	7.37	8.93	7.25		7.70	7.77	7.43
Desensky, Lukáš (CZE) (1998)		time	2.77	3.95	5.12	6.32	7.49	8.70	9.88	11.08	12.28	13.53		15.20	2 / 4			
reaction time	0.201	interval		1.18	1.17	1.20	1.17	1.21	1.18	1.20	1.20	1.25	1.67			3.55	3.56	3.65
		velocity	4.95	7.75	7.81	7.62	7.81	7.55	7.75	7.62	7.62	7.31	8.40	7.24		7.72	7.70	7.51
Slavíček, Lukáš (CZE) (1997)		time	2.82	3.99	5.20	6.36	7.57	8.80	10.01	11.20	12.42	13.60		15.44	8 / 5			
reaction time	0.180	interval		1.17	1.21	1.16	1.21	1.23	1.21	1.19	1.22	1.18	1.84			3.54	3.65	3.59
		velocity	4.87	7.81	7.55	7.88	7.55	7.43	7.55	7.68	7.49	7.75	7.62	7.12		7.75	7.51	7.64
Guzik, Vojtech (CZE) (1997)		time	2.83	4.04	5.23	6.41	7.60	8.80	10.01	11.21	12.50	13.79		15.54	6 / 6			
reaction time	0.170	interval		1.21	1.19	1.18	1.19	1.20	1.21	1.20	1.29	1.29	1.75			3.58	3.60	3.78
		velocity	4.85	7.55	7.68	7.75	7.68	7.62	7.55	7.62	7.09	7.09	8.01	7.08		7.66	7.62	7.25
Hromek, Vít (CZE) (1997)		time	3.01	4.25	5.55	6.84	8.09	9.37	10.65	11.90	13.15	14.48		16.31	3 / 7			
reaction time	0.356	interval		1.24	1.30	1.29	1.25	1.28	1.28	1.25	1.25	1.33	1.83			3.83	3.81	3.83
		velocity	4.56	7.37	7.03	7.09	7.31	7.14	7.14	7.31	7.31	6.87	7.66	6.74		7.16	7.20	7.16

Heat 2

date 28-Jun-14 wind -4.1 m/s

Feher (2014) - Final report from the U18 & U20 Czech Republic national championships

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sklenár, David (CZE) (1997)		time	2.73	3.83	4.93	6.04	7.12	8.21	9.33	10.44	11.50	12.65		14.30	3 / 1			
reaction time	0.197	interval		1.10	1.10	1.11	1.08	1.09	1.12	1.11	1.06	1.15	1.65			3.31	3.29	3.32
		velocity	5.03	8.31	8.31	8.23	8.46	8.39	8.16	8.23	8.62	7.95	8.50	7.69		8.28	8.33	8.26
Mališka, Rostislav (CZE) (1998)		time	2.86	4.05	5.19	6.38	7.53	8.70	9.87	11.03	12.25	13.50		15.15	4 / 2			
reaction time	0.228	interval		1.19	1.14	1.19	1.15	1.17	1.17	1.16	1.22	1.25	1.65			3.52	3.49	3.63
		velocity	4.80	7.68	8.02	7.68	7.95	7.81	7.81	7.88	7.49	7.31	8.50	7.26		7.79	7.86	7.55
Kijanica, Michael (CZE) (1998)		time	2.87	4.03	5.20	6.38	7.55	8.74	9.93	11.15	12.35	13.62		15.36	7 / 3			
reaction time	0.249	interval		1.16	1.17	1.18	1.17	1.19	1.19	1.22	1.20	1.27	1.74			3.51	3.55	3.69
		velocity	4.78	7.88	7.81	7.75	7.81	7.68	7.68	7.49	7.62	7.20	8.06	7.16		7.81	7.72	7.43
Pirochta, Tomáš (CZE) (1997)		time	2.85	4.05	5.24	6.46	7.67	8.87	10.10	11.28	12.53	13.79		15.54	6 / 4			
reaction time	0.190	interval		1.20	1.19	1.22	1.21	1.20	1.23	1.18	1.25	1.26	1.75			3.61	3.64	3.69
		velocity	4.81	7.62	7.68	7.49	7.55	7.62	7.43	7.75	7.31	7.25	8.01	7.08		7.60	7.53	7.43
Capouch, Tomáš (CZE) (1997)		time	2.86	4.06	5.27	6.49	7.75	8.98	10.21	11.46	12.67	13.91		15.62	2 / 5			
reaction time	0.193	interval		1.20	1.21	1.22	1.26	1.23	1.23	1.25	1.21	1.24	1.71			3.63	3.72	3.70
		velocity	4.80	7.62	7.55	7.49	7.25	7.43	7.43	7.31	7.55	7.37	8.20	7.04		7.55	7.37	7.41
Sykora, Miroslav (CZE) (1997)		time	2.95	4.08	5.23	6.38	7.55	8.72	9.94	11.25	12.53	13.87		15.72	5 / 6			
reaction time	0.213	interval		1.13	1.15	1.15	1.17	1.17	1.22	1.31	1.28	1.34	1.85			3.43	3.56	3.93
		velocity	4.65	8.09	7.95	7.95	7.81	7.81	7.49	6.98	7.14	6.82	7.58	7.00		7.99	7.70	6.98
Hoffmann, Marek (CZE) (1998)		time	2.93	4.11	5.29	6.49	7.70	8.95	10.21	11.58	12.93	14.45		16.54	8 / 7			
reaction time	0.215	interval		1.18	1.18	1.20	1.21	1.25	1.26	1.37	1.35	1.52	2.09			3.56	3.72	4.24
		velocity	4.68	7.75	7.75	7.62	7.55	7.31	7.25	6.67	6.77	6.01	6.71	6.65		7.70	7.37	6.47

Heat 1

date 28-Jun-14 wind -0.3 m/s

Feher (2014) - Final report from the U18 & U20 Czech Republic national championships

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pulíček, Tomáš (CZE) (1997)		time	2.74	3.82	4.93	6.00	7.05	8.10	9.17	10.24	11.33	12.44		14.05	3 / 1			
reaction time	0.247	interval		1.08	1.11	1.07	1.05	1.05	1.07	1.07	1.09	1.11	1.61			3.26	3.17	3.27
		velocity	5.01	8.46	8.23	8.54	8.70	8.70	8.54	8.54	8.39	8.23	8.71	7.83		8.41	8.65	8.39
Nardelli, Alexander (CZE) (1997		time	2.87	4.04	5.21	6.37	7.50	8.65	9.79	10.96	12.12	13.34		14.93	8 / 2			

reaction time 0.372	interval		1.17	1.17	1.16	1.13	1.15	1.14	1.17	1.16	1.22	1.59			3.50	3.42	3.55
	velocity	4.78	7.81	7.81	7.88	8.09	7.95	8.02	7.81	7.88	7.49	8.82	7.37		7.83	8.02	7.72
Nemec, Jan (CZE) (1997)	time	2.89	4.09	5.30	6.44	7.60	8.76	9.94	11.11	12.28	13.47		15.05	4 / 3			
reaction time 0.236	interval		1.20	1.21	1.14	1.16	1.16	1.18	1.17	1.17	1.19	1.58			3.55	3.50	3.53
	velocity	4.75	7.62	7.55	8.02	7.88	7.88	7.75	7.81	7.81	7.68	8.87	7.31		7.72	7.83	7.77
Kraus, Patrik (CZE) (1998)	time	2.84	4.08	5.30	6.53	7.70	8.90	10.08	11.31	12.57	13.81		15.52	2 / 4			
reaction time 0.179	interval		1.24	1.22	1.23	1.17	1.20	1.18	1.23	1.26	1.24	1.71			3.69	3.55	3.73
	velocity	4.83	7.37	7.49	7.43	7.81	7.62	7.75	7.43	7.25	7.37	8.20	7.09		7.43	7.72	7.35
Babiš, Ivo (CZE) (1997)	time	2.99	4.16	5.33	6.49	7.72	8.95	10.15	11.38	12.60	13.96		15.74	6 / 5			
reaction time 0.258	interval		1.17	1.17	1.16	1.23	1.23	1.20	1.23	1.22	1.36	1.78			3.50	3.66	3.81
	velocity	4.59	7.81	7.81	7.88	7.43	7.43	7.62	7.43	7.49	6.72	7.88	6.99		7.83	7.49	7.20
Záhora, Vojtech (CZE) (1998)	time	2.92	4.15	5.36	6.62	7.82	9.04	10.30	11.53	12.79	14.10		15.84	5 / 6			
reaction time 0.180	interval		1.23	1.21	1.26	1.20	1.22	1.26	1.23	1.26	1.31	1.74			3.70	3.68	3.80
	velocity	4.70	7.43	7.55	7.25	7.62	7.49	7.25	7.43	7.25	6.98	8.06	6.94		7.41	7.45	7.22
Večera, Vincent (CZE) (1998)	time	2.88	4.15	5.37	6.69	8.00	9.28	10.57	11.87	13.16	14.48		16.25	7 / 7			
reaction time 0.219	interval		1.27	1.22	1.32	1.31	1.28	1.29	1.30	1.29	1.32	1.77			3.81	3.88	3.91
	velocity	4.76	7.20	7.49	6.92	6.98	7.14	7.09	7.03	7.09	6.92	7.92	6.77		7.20	7.07	7.01

2014 Japanese National Championships (Fukushima, JPN)

FINAL

date 08-Jun-14 wind 0.4 m/s *(2017.02.22) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)	time	2.64	3.71	4.78	5.82	6.87	7.92	8.98	10.04	11.10	12.18		13.58	5 / 1			
reaction time 0.144	interval		1.07	1.07	1.04	1.05	1.05	1.06	1.06	1.06	1.08	1.40	PB		3.18	3.16	3.20
	velocity	5.20	8.54	8.54	8.79	8.70	8.70	8.62	8.62	8.62	8.46	10.01	8.10		8.62	8.68	8.57
Yazawa, Wataru (JPN) (1991)	time	2.60	3.69	4.74	5.78	6.81	7.87	8.93	10.00	11.07	12.15		13.59	4 / 2			
reaction time 0.137	interval	7 steps	1.09	1.05	1.04	1.03	1.06	1.06	1.07	1.07	1.08	1.44	=PB		3.18	3.15	3.22
	velocity	5.28	8.39	8.70	8.79	8.87	8.62	8.62	8.54	8.54	8.46	9.74	8.09		8.62	8.70	8.52

Semi-Final 2

date 08-Jun-14 wind -0.5 m/s *(2017.02.26) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.63	3.71	4.75	5.79	6.84	7.89	8.94	10.01	11.08	12.17		13.60	6 / 1			
reaction time 0.147	interval	7 steps	1.08	1.04	1.04	1.05	1.05	1.05	1.07	1.07	1.09	1.43			3.16	3.15	3.23
	velocity	5.22	8.46	8.79	8.79	8.70	8.70	8.70	8.54	8.54	8.39	9.80	8.09		8.68	8.70	8.49

Semi-Final 1

date 08-Jun-14 wind 0.2 m/s *(2017.02.27) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Masuno, Genta (JPN) (1993)	time	2.65	3.71	4.75	5.80	6.85	7.90	8.95	10.02	11.09	12.19		13.61	5 / 1			
reaction time 0.148	interval		1.06	1.04	1.05	1.05	1.05	1.05	1.07	1.07	1.10	1.42	=PB		3.15	3.15	3.24
	velocity	5.18	8.62	8.79	8.70	8.70	8.70	8.70	8.54	8.54	8.31	9.87	8.08		8.70	8.70	8.46

2014 Japanese National Multi-Event Championships (Nagano, JPN)

Decathlon - Heat 1

date 01-Jun-14 wind 0.1 m/s *Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.68	3.79	4.93	6.04	7.14	8.27	9.40	10.52	11.64	12.77		14.21	5 / 2			
reaction time	interval		1.11	1.14	1.11	1.10	1.13	1.13	1.12	1.12	1.13	1.44			3.36	3.36	3.37
	velocity	5.12	8.23	8.02	8.23	8.31	8.09	8.09	8.16	8.16	8.09	9.74	7.74		8.16	8.16	8.14
Ushiro, Keisuke (JPN) (1986)	time	2.76	3.92	5.06	6.21	7.38	8.54	9.71	10.91	12.08	13.30		14.90	1 / 6			
reaction time	interval		1.16	1.14	1.15	1.17	1.16	1.17	1.20	1.17	1.22	1.60			3.45	3.50	3.59
	velocity	4.97	7.88	8.02	7.95	7.81	7.88	7.81	7.62	7.81	7.49	8.76	7.38		7.95	7.83	7.64

2014 Golden Grand Prix (Shanghai, CHN)

FINAL

date 18-May-14 wind -0.5 m/s *Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.54	3.60	4.62	5.62	6.62	7.64	8.66	9.70	10.74	11.82		13.23	/ 1			
reaction time 0.136	interval		1.06	1.02	1.00	1.00	1.02	1.02	1.04	1.04	1.08	1.41	PB		3.08	3.04	3.16
	velocity	5.40	8.62	8.96	9.14	9.14	8.96	8.96	8.79	8.79	8.46	9.94	8.31		8.90	9.02	8.68

2014 Nittai University Distance Meeting (Wakayama, JPN)

Decathlon - Heat 2

date 27-Apr-14 wind 0.0 m/s *Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.79	3.92	5.07	6.24	7.41	8.58	9.78	10.97	12.16	13.38		14.95	5 / 1			
reaction time	interval		1.13	1.15	1.17	1.17	1.17	1.20	1.19	1.19	1.22	1.57			3.45	3.54	3.60
	velocity	4.92	8.09	7.95	7.81	7.81	7.81	7.62	7.68	7.68	7.49	8.93	7.36		7.95	7.75	7.62

Matsuo (2014) - research on athlete performance and technique- 2014 data book

Decathlon - Heat 1

date 27-Apr-14 wind 1.0 m/s *Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.71	3.84	4.97	6.09	7.21	8.32	9.43	10.54	11.67	12.80		14.23	4 / 1			*Takeo (2014)*

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval		1.13	1.13	1.12	1.12	1.11	1.11	1.11	1.13	1.13	1.43			3.38	3.34	3.37
	velocity	5.06	8.09	8.09	8.16	8.16	8.23	8.23	8.23	8.09	8.09	9.80	7.73		8.11	8.21	8.14
Otobe, Takumi (JPN) (1989)	time	2.70	3.90	5.06	6.21	7.36	8.52	9.66	10.84	12.00	13.19		14.74	6 / 3		*Matsuo (2014)*	
reaction time	interval		1.20	1.16	1.15	1.15	1.16	1.14	1.18	1.16	1.19	1.55	PB		3.51	3.45	3.53
	velocity	5.08	7.62	7.88	7.95	7.95	7.88	8.02	7.75	7.88	7.68	9.05	7.46		7.81	7.95	7.77

2014 Italian National Indoor Championships (Ancona, ITA)

FINAL date 22-Feb-14 — *FIDAL - Centro Studi & Ricerche (2014) - www.youtube.com/watch?v=bF4QEqg7shU*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Dal Molin, Paolo (ITA) (1987)	time	2.56	3.63	4.68	5.69	6.72		7.60	3 / 1	
reaction time	interval		1.07	1.05	1.01	1.03	0.88			3.13
	velocity	5.36	8.54	8.70	9.05	8.87	11.05	7.89		8.76

2013 Japanese Corporate Championships (Hiratsuka, JPN)

FINAL date 19-Oct-13 wind 6.7 m/s — *(2016.11.18) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.72	3.80	4.85	5.89	6.93	7.95	9.00	10.06	11.12	12.21		13.60	4 / 1			
reaction time	interval		1.08	1.05	1.04	1.04	1.02	1.05	1.06	1.06	1.09	1.39			3.17	3.11	3.21
	velocity	5.04	8.46	8.70	8.79	8.79	8.96	8.70	8.62	8.62	8.39	10.09	8.09		8.65	8.82	8.54

2013 IAAF World Championships (Moscow, RUS) (TV Analysis)

FINAL date 12-Aug-13 wind 0.3 m/s — *Henson (2021) - Athlete First: major championships report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Oliver, David (USA) (1982)	time	2.44	3.48	4.48	5.46	6.46	7.44	8.44	9.46	10.48	11.52		13.00	4 / 1			
reaction time 0.147	interval	7 steps	1.04	1.00	0.98	1.00	0.98	1.00	1.02	1.02	1.04	1.48			3.02	2.98	3.08
	velocity	5.62	8.79	9.14	9.33	9.14	9.33	9.14	8.96	8.96	8.79	9.47	8.46		9.08	9.20	8.90
Wilson, Ryan (USA) (1980)	time	2.52	3.56	4.56	5.54	6.52	7.50	8.50	9.52	10.54	11.62		13.13	9 / 2			
reaction time 0.167	interval	7 steps	1.04	1.00	0.98	0.98	0.98	1.00	1.02	1.02	1.08	1.51			3.02	2.96	3.12
	velocity	5.44	8.79	9.14	9.33	9.33	9.33	9.14	8.96	8.96	8.46	9.28	8.38		9.08	9.26	8.79
Shubenkov, Sergey (RUS) (199	time	2.56	3.58	4.58	5.56	6.58	7.62	8.66	9.68	10.72	11.80		13.24	5 / 3			
reaction time 0.154	interval		1.02	1.00	0.98	1.02	1.04	1.04	1.02	1.04	1.08	1.44			3.00	3.10	3.14
	velocity	5.36	8.96	9.14	9.33	8.96	8.79	8.79	8.96	8.79	8.46	9.74	8.31		9.14	8.85	8.73
Richardson, Jason (USA) (198	time	2.56	3.56	4.56	5.58	6.58	7.58	8.60	9.62	10.64	11.68		13.27	7 / 4			
reaction time 0.158	interval	7 steps	1.00	1.00	1.02	1.00	1.00	1.02	1.02	1.02	1.04	1.59			3.02	3.02	3.08
	velocity	5.36	9.14	9.14	8.96	9.14	9.14	8.96	8.96	8.96	8.79	8.82	8.29		9.08	9.08	8.90
Sharman, William (GBR) (1984)	time	2.54	3.56	4.60	5.60	6.62	7.64	8.68	9.72	10.76	11.84		13.30	2 / 5			
reaction time 0.151	interval	7 steps	1.02	1.04	1.00	1.02	1.02	1.04	1.04	1.04	1.08	1.46			3.06	3.08	3.16
	velocity	5.40	8.96	8.79	9.14	8.96	8.96	8.79	8.79	8.79	8.46	9.60	8.27		8.96	8.90	8.68
Merritt, Aries (USA) (1985)	time	2.50	3.54	4.54	5.54	6.54	7.54	8.58	9.62	10.68	11.78		13.31	8 / 6			
reaction time 0.147	interval	7 steps	1.04	1.00	1.00	1.00	1.00	1.04	1.04	1.06	1.10	1.53			3.04	3.04	3.20
	velocity	5.49	8.79	9.14	9.14	9.14	9.14	8.79	8.79	8.62	8.31	9.16	8.26		9.02	9.02	8.57
Martinot-Lagarde, Thomas (FR	time	2.52	3.56	4.56	5.60	6.64	7.66	8.68	9.72	10.80	11.90		13.42	6 / 7			
reaction time 0.162	interval	7 steps	1.04	1.00	1.04	1.04	1.02	1.02	1.04	1.08	1.10	1.52			3.08	3.08	3.22
	velocity	5.44	8.79	9.14	8.79	8.79	8.96	8.96	8.79	8.46	8.31	9.22	8.20		8.90	8.90	8.52
Riley, Andrew (JAM) (1988)	time	2.48	3.52	4.54	5.54	6.56	7.56	8.58	9.56	10.74	11.92		13.51	3 / 8			
reaction time 0.135	interval	7 steps	1.04	1.02	1.00	1.02	1.00	1.02	0.98	1.18	1.18	1.59			3.06	3.04	3.34
	velocity	5.53	8.79	8.96	9.14	8.96	9.14	8.96	9.33	7.75	7.75	8.82	8.14		8.96	9.02	8.21

2013 Windsprint (Sundsvall, SWE)

FINAL date 28-Jul-13 wind 1.7 m/s — *(2013) - www.ssg.se/windsprint/Splittider/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nossmy, Philip (SWE) (1982)	time	2.62	3.68	4.73	5.78	6.81	7.86	8.91	9.96	11.02	12.08		13.49	3 / 1			
reaction time	interval		1.06	1.05	1.05	1.03	1.05	1.05	1.05	1.06	1.06	1.41			3.16	3.13	3.17
	velocity	5.24	8.62	8.70	8.70	8.87	8.70	8.70	8.70	8.62	8.62	9.94	8.15		8.68	8.76	8.65
Townsend, Fred (USA) (1982)	time	2.62	3.69	4.73	5.78	6.81	7.86	8.93	9.99	11.04	12.13		13.53	5 / 2			
reaction time	interval	7 steps	1.07	1.04	1.05	1.03	1.05	1.07	1.06	1.05	1.09	1.40			3.16	3.15	3.20
	velocity	5.24	8.54	8.79	8.70	8.87	8.70	8.54	8.62	8.70	8.39	10.01	8.13		8.68	8.70	8.57
Buhler, Mattias (GER) (1986)	time	2.72	3.78	4.84	5.87	6.92	7.95	8.99	10.03	11.07	12.14		13.64	7 / 3			
reaction time	interval		1.06	1.06	1.03	1.05	1.03	1.04	1.04	1.04	1.07	1.50			3.15	3.12	3.15
	velocity	5.04	8.62	8.62	8.87	8.70	8.87	8.79	8.79	8.79	8.54	9.35	8.06		8.70	8.79	8.70
de Vries, Ruan (RSA) (1986)	time	2.68	3.77	4.83	5.89	6.95	8.00	9.04	10.10	11.16	12.24		13.70	6 / 4			
reaction time	interval		1.09	1.06	1.06	1.06	1.05	1.04	1.06	1.06	1.08	1.46			3.21	3.15	3.20
	velocity	5.12	8.39	8.62	8.62	8.62	8.70	8.79	8.62	8.62	8.46	9.60	8.03		8.54	8.70	8.57

Vukicevic, Vladimir (NOR) (199	time	2.62	3.68	4.73	5.80	6.85	7.92	8.99	10.06	11.13	12.23		13.70	4 / 5			
reaction time	interval		1.06	1.05	1.07	1.05	1.07	1.07	1.07	1.07	1.10	1.47			3.18	3.19	3.24
	velocity	5.24	8.62	8.70	8.54	8.70	8.54	8.54	8.54	8.54	8.31	9.54	8.03		8.62	8.60	8.46
Shaker, Amir (SWE) (1989)	time	2.70	3.79	4.84	5.91	6.97	8.05	9.14	10.21	11.29	12.40		13.87	2 / 6			
reaction time	interval		1.09	1.05	1.07	1.06	1.08	1.09	1.07	1.08	1.11	1.47			3.21	3.23	3.26
	velocity	5.08	8.39	8.70	8.54	8.62	8.46	8.39	8.54	8.46	8.23	9.54	7.93		8.54	8.49	8.41
Widlund, Hampus (SWE) (1993	time	2.76	3.89	5.00	6.11	7.23	8.38	9.53	10.65	11.78	12.93		14.46	1 / 7			
reaction time	interval	7 steps	1.13	1.11	1.11	1.12	1.15	1.15	1.12	1.13	1.15	1.53			3.35	3.42	3.40
	velocity	4.97	8.09	8.23	8.23	8.16	7.95	7.95	8.16	8.09	7.95	9.16	7.61		8.19	8.02	8.06
Andersson, Andreas (SWE) (19	time	2.78	3.96	5.08	6.20	7.35	8.56	9.75	10.94	12.14	13.35		14.97	8 / 8			
reaction time	interval		1.18	1.12	1.12	1.15	1.21	1.19	1.19	1.20	1.21	1.62	PB		3.42	3.55	3.60
	velocity	4.94	7.75	8.16	8.16	7.95	7.55	7.68	7.68	7.62	7.55	8.65	7.35		8.02	7.72	7.62

2013 Italian National Junior Championships (Rieti, ITA) (99cm)

FINAL

date 15-Jun-13 wind 1.6 m/s

FIDAL - Centro Studi & Ricerche (2013) - www.youtube.com/watch?v=IGr3fQGXe1c

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Perini, Lorenzo (ITA) (1994)	time	2.70	3.76	4.80	5.82	6.83	7.84	8.86	9.89	10.92	11.95		13.39	6 / 1			
reaction time	interval		1.06	1.04	1.02	1.01	1.01	1.02	1.03	1.03	1.03	1.44	NR		3.12	3.04	3.09
	velocity	5.08	8.62	8.79	8.96	9.05	9.05	8.96	8.87	8.87	8.87	9.74	8.22		8.79	9.02	8.87

2013 Czech Republic National Championships (Tábor, CZE)

FINAL

date 15-Jun-13 wind 0.4 m/s

Feher (2013) - Final report from the men's & women's Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mazáč, Martin (CZE) (1990)	time	2.66	3.72	4.76	5.78	6.79	7.81	8.88	9.95	11.00	12.04		13.48	4 / 1			
reaction time 0.151	interval		1.06	1.04	1.02	1.01	1.02	1.07	1.07	1.05	1.04	1.44	PB		3.12	3.10	3.16
	velocity	5.16	8.62	8.79	8.96	9.05	8.96	8.54	8.54	8.70	8.79	9.74	8.16		8.79	8.85	8.68
Penáz, Petr (CZE) (1991)	time	2.78	3.85	4.93	5.96	7.00	8.04	9.10	10.18	11.25	12.29		13.77	5 / 2			
reaction time 0.202	interval		1.07	1.08	1.03	1.04	1.04	1.06	1.08	1.07	1.04	1.48	PB		3.18	3.14	3.19
	velocity	4.94	8.54	8.46	8.87	8.79	8.79	8.62	8.46	8.54	8.79	9.47	7.99		8.62	8.73	8.60
Carda, Jan (CZE) (1989)	time	2.66	3.76	4.84	5.91	6.99	8.09	9.23	10.37	11.51	12.69		14.22	2 / 3			
reaction time 0.135	interval		1.10	1.08	1.07	1.08	1.10	1.14	1.14	1.14	1.18	1.53	PB		3.25	3.32	3.46
	velocity	5.16	8.31	8.46	8.54	8.46	8.31	8.02	8.02	8.02	7.75	9.16	7.74		8.44	8.26	7.92
Sedlák, Václav (CZE) (1993)	time	2.73	3.85	4.96	6.05	7.13	8.25	9.40	10.53	11.68	12.87		14.36	3 / 4			
reaction time 0.147	interval		1.12	1.11	1.09	1.08	1.12	1.15	1.13	1.15	1.19	1.49			3.32	3.35	3.47
	velocity	5.03	8.16	8.23	8.39	8.46	8.16	7.95	8.09	7.95	7.68	9.41	7.66		8.26	8.19	7.90
Kavka, Tomáš (CZE) (1989)	time	2.80	3.92	5.05	6.13	7.24	8.38	9.50	10.65	11.79	12.95		14.54	6 / 5			
reaction time 0.161	interval		1.12	1.13	1.08	1.11	1.14	1.12	1.15	1.14	1.16	1.59			3.33	3.37	3.45
	velocity	4.90	8.16	8.09	8.46	8.23	8.02	8.16	7.95	8.02	7.88	8.82	7.57		8.23	8.14	7.95
Lukáš, Marek (CZE) (1991)	time	2.75	3.87	5.00	6.10	7.24	8.38	9.53	10.68	11.85	13.05		14.58	1 / 6			
reaction time 0.177	interval		1.12	1.13	1.10	1.14	1.14	1.15	1.15	1.17	1.20	1.53	PB		3.35	3.43	3.52
	velocity	4.99	8.16	8.09	8.31	8.02	8.02	7.95	7.95	7.81	7.62	9.16	7.54		8.19	7.99	7.79
Krejčí, Michal (CZE) (1981)	time	2.75	3.88	5.00	6.13	7.24	8.38	9.50	10.65	11.84	13.03		14.62	8 / 7			
reaction time 0.149	interval		1.13	1.12	1.13	1.11	1.14	1.12	1.15	1.19	1.19	1.59			3.38	3.37	3.53
	velocity	4.99	8.09	8.16	8.09	8.23	8.02	8.16	7.95	7.68	7.68	8.82	7.52		8.11	8.14	7.77
Nejedly, Adam (CZE) (1988)	time	2.78	3.95	5.07	6.18	7.32	8.45	9.62	10.78	11.95	13.14		14.68	7 / 8			
reaction time 0.145	interval		1.17	1.12	1.11	1.14	1.13	1.17	1.16	1.17	1.19	1.54			3.40	3.44	3.52
	velocity	4.94	7.81	8.16	8.23	8.02	8.09	7.81	7.88	7.81	7.68	9.10	7.49		8.06	7.97	7.79

Heat 3

date 15-Jun-13 wind -0.3 m/s

Feher (2013) - Final report from the men's & women's Czech Republic national championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sedlák, Václav (CZE) (1993)	time	2.75	3.91	5.03	6.13	7.26	8.38	9.52	10.67	11.84	13.00		14.56	4 / 1			
reaction time 0.131	interval		1.16	1.12	1.10	1.13	1.12	1.14	1.15	1.17	1.16	1.56			3.38	3.39	3.48
	velocity	4.99	7.88	8.16	8.31	8.09	8.16	8.02	7.95	7.81	7.88	8.99	7.55		8.11	8.09	7.88
Kavka, Tomáš (CZE) (1989)	time	2.81	3.98	5.08	6.19	7.32	8.45	9.58	10.70	11.87	13.03		14.59	5 / 2			
reaction time 0.161	interval		1.17	1.10	1.11	1.13	1.13	1.13	1.12	1.17	1.16	1.56			3.38	3.39	3.45
	velocity	4.88	7.81	8.31	8.23	8.09	8.09	8.09	8.16	7.81	7.88	8.99	7.54		8.11	8.09	7.95
Lukáš, Marek (CZE) (1991)	time	2.78	3.91	5.03	6.17	7.32	8.46	9.62	10.79	12.00	13.16		14.75	3 / 3			
reaction time 0.176	interval		1.13	1.12	1.14	1.15	1.14	1.16	1.17	1.21	1.16	1.59			3.39	3.45	3.54
	velocity	4.94	8.09	8.16	8.02	7.95	8.02	7.88	7.81	7.55	7.88	8.82	7.46		8.09	7.95	7.75
Uher, Jakub (CZE) (1983)	time	2.78	3.94	5.07	6.23	7.39	8.53	9.73	10.90	12.11	13.29		14.92	6 / 4			
reaction time 0.170	interval		1.16	1.13	1.16	1.16	1.14	1.20	1.17	1.21	1.18	1.63			3.45	3.50	3.56
	velocity	4.94	7.88	8.09	7.88	7.88	8.02	7.62	7.81	7.55	7.75	8.60	7.37		7.95	7.83	7.70

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Frolík, Petr (CZE) (1991)		time	2.92	4.13	5.31	6.51	7.75	8.98	10.26	11.51	12.81	14.09		15.78	2 / 5			
reaction time	0.204	interval		1.21	1.18	1.20	1.24	1.23	1.28	1.25	1.30	1.28	1.69			3.59	3.75	3.83
		velocity	4.70	7.55	7.75	7.62	7.37	7.43	7.14	7.31	7.03	7.14	8.30	6.97		7.64	7.31	7.16
Pavelka, Lukáš (CZE) (1990)		time	2.92	4.12	5.33	6.55	7.78	9.05	10.31	11.55	12.89	14.20		15.95	7 / 6			
reaction time	0.207	interval		1.20	1.21	1.22	1.23	1.27	1.26	1.24	1.34	1.31	1.75			3.63	3.76	3.89
		velocity	4.70	7.62	7.55	7.49	7.43	7.20	7.25	7.37	6.82	6.98	8.01	6.90		7.55	7.29	7.05

Heat 2

date 15-Jun-13 wind -0.6 m/s

Feher (2013) - Final report from the men's & women's Czech Republic national championships

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Penáz, Petr (CZE) (1991)		time	2.79	3.90	5.00	6.07	7.13	8.19	9.26	10.35	11.45	12.58		14.08	4 / 1			
reaction time	0.185	interval		1.11	1.10	1.07	1.06	1.06	1.07	1.09	1.10	1.13	1.50			3.28	3.19	3.32
		velocity	4.92	8.23	8.31	8.54	8.62	8.62	8.54	8.39	8.31	8.09	9.35	7.81		8.36	8.60	8.26
Nejedly, Adam (CZE) (1988)		time	2.81	3.95	5.06	6.18	7.31	8.44	9.59	10.75	11.91	13.08		14.63	3 / 2			
reaction time	0.142	interval		1.14	1.11	1.12	1.13	1.13	1.15	1.16	1.16	1.17	1.55			3.37	3.41	3.49
		velocity	4.88	8.02	8.23	8.16	8.09	8.09	7.95	7.88	7.88	7.81	9.05	7.52		8.14	8.04	7.86
Carda, Jan (CZE) (1989)		time	2.70	3.83	4.96	6.05	7.17	8.30	9.48	10.68	11.85	13.08		14.64	5 / 3			
reaction time	0.141	interval		1.13	1.13	1.09	1.12	1.13	1.18	1.20	1.17	1.23	1.56			3.35	3.43	3.60
		velocity	5.08	8.09	8.09	8.39	8.16	8.09	7.75	7.62	7.81	7.43	8.99	7.51		8.19	7.99	7.62
Pokorny, Martin (CZE) (1988)		time	2.77	3.94	5.10	6.26	7.43	8.58	9.75	10.98	12.20	13.46		15.21	6 / 4			
reaction time	0.155	interval		1.17	1.16	1.16	1.17	1.15	1.17	1.23	1.22	1.26	1.75			3.49	3.49	3.71
		velocity	4.95	7.81	7.88	7.88	7.81	7.95	7.81	7.43	7.49	7.25	8.01	7.23		7.86	7.86	7.39
Dinga, Libor (CZE) (1984)		time	2.95	4.18	5.37	6.48	7.80	9.00	10.25	11.46	12.73	14.02		15.61	2 / 5			
reaction time	0.166	interval		1.23	1.19	1.11	1.32	1.20	1.25	1.21	1.27	1.29	1.59			3.53	3.77	3.77
		velocity	4.65	7.43	7.68	8.23	6.92	7.62	7.31	7.55	7.20	7.09	8.82	7.05		7.77	7.27	7.27
Lindhart, David (CZE) (1989)		time	2.97	4.20	5.42	6.65	7.84	9.07	10.30	11.55	12.81			15.79	7 / 6			
reaction time	0.262	interval		1.23	1.22	1.23	1.19	1.23	1.23	1.25	1.26					3.68	3.65	
		velocity	4.62	7.43	7.49	7.43	7.68	7.43	7.43	7.31	7.25			6.97		7.45	7.51	

Heat 1

date 15-Jun-13 wind -0.6 m/s

Feher (2013) - Final report from the men's & women's Czech Republic national championships

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mazáč, Martin (CZE) (1990)		time	2.66	3.75	4.80	5.85	6.89	7.95	8.98	10.06	11.12	12.20		13.69	4 / 1			
reaction time	0.161	interval		1.09	1.05	1.05	1.04	1.06	1.03	1.08	1.06	1.08	1.49			3.19	3.13	3.22
		velocity	5.16	8.39	8.70	8.70	8.79	8.62	8.87	8.46	8.62	8.46	9.41	8.04		8.60	8.76	8.52
Krejčí, Michal (CZE) (1981)		time	2.71	3.86	4.99	6.13	7.27	8.40	9.54	10.70	11.88	13.08		14.66	5 / 2			
reaction time	0.126	interval		1.15	1.13	1.14	1.14	1.13	1.14	1.16	1.18	1.20	1.58			3.42	3.41	3.54
		velocity	5.06	7.95	8.09	8.02	8.02	8.09	8.02	7.88	7.75	7.62	8.87	7.50		8.02	8.04	7.75
Polách, Josef (CZE) (1990)		time	2.74	3.88	5.00	6.17	7.31	8.48	9.59	10.77	11.95	13.12		14.76	3 / 3			
reaction time	0.151	interval		1.14	1.12	1.17	1.14	1.17	1.11	1.18	1.18	1.17	1.64			3.43	3.42	3.53
		velocity	5.01	8.02	8.16	7.81	8.02	7.81	8.23	7.75	7.75	7.81	8.55	7.45		7.99	8.02	7.77
Novotny, Šimon (CZE) (1992)		time	2.86	4.06	5.27	6.47	7.67	8.88	10.11	11.35	12.62			15.58	6 / 4			
reaction time	0.170	interval		1.20	1.21	1.20	1.20	1.21	1.23	1.24	1.27					3.61	3.64	
		velocity	4.80	7.62	7.55	7.62	7.62	7.55	7.43	7.37	7.20			7.06		7.60	7.53	
Štastny, Michal (CZE) (1992)		time	2.88	4.15	5.43	6.75	8.07		10.73	12.09				16.54	7 / 5			
reaction time	0.193	interval		1.27	1.28	1.32	1.32		2.66	1.36						3.87	3.98	
		velocity	4.76	7.20	7.14	6.92	6.92		6.87	6.72				6.65		7.09	6.89	

2013 Japanese National Championships (Chofu, JPN)

FINAL

date 09-Jun-13 wind 1.3 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)		time	2.60	3.69	4.76	5.81	6.86	7.89	8.95	10.01	11.07	12.18		13.59	7 / 1			
reaction time		interval	7 steps	1.09	1.07	1.05	1.05	1.03	1.06	1.06	1.06	1.11	1.41	PB		3.21	3.14	3.23
		velocity	5.28	8.39	8.54	8.70	8.70	8.87	8.62	8.62	8.62	8.23	9.94	8.09		8.54	8.73	8.49
Sato, Hiroyuki (JPN) (1990)		time	2.60	3.67	4.72	5.77	6.83	7.88	8.93	10.01	11.09	12.20		13.61	8 / 2			
reaction time		interval		1.07	1.05	1.05	1.06	1.05	1.05	1.08	1.08	1.11	1.41	PB		3.17	3.16	3.27
		velocity	5.28	8.54	8.70	8.70	8.62	8.70	8.70	8.46	8.46	8.23	9.94	8.08		8.65	8.68	8.39
Omuro, Hideki (JPN) (1990)		time	2.58	3.64	4.70	5.76	6.82	7.87	8.97	10.05	11.13	12.22		13.67	5 / 4			
reaction time		interval		1.06	1.06	1.06	1.06	1.05	1.10	1.08	1.08	1.09	1.45			3.18	3.21	3.25
		velocity	5.32	8.62	8.62	8.62	8.62	8.70	8.31	8.46	8.46	8.39	9.67	8.05		8.62	8.54	8.44

Semi-Final 2

date 09-Jun-13 wind 1.2 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)		time	2.62	3.71	4.75	5.82	6.86	7.91	8.97	10.03	11.11	12.21		13.63	6 / 1			

reaction time	interval	7 steps	1.09	1.04	1.07	1.04	1.05	1.06	1.06	1.08	1.10	1.42			3.20	3.15	3.24
	velocity	5.24	8.39	8.79	8.54	8.79	8.70	8.62	8.62	8.46	8.31	9.87	8.07		8.57	8.70	8.46
Sato, Hiroyuki (JPN) (1990)	time	2.60	3.68	4.73	5.79	6.86	7.91	8.98	10.06	11.20	12.29		13.71	4 / 3			
reaction time	interval		1.08	1.05	1.06	1.07	1.05	1.07	1.08	1.14	1.09	1.42			3.19	3.19	3.31
	velocity	5.28	8.46	8.70	8.62	8.54	8.70	8.54	8.46	8.02	8.39	9.87	8.02		8.60	8.60	8.28
Mita, Kyohei (JPN) (1991)	time	2.69	3.79	4.88	5.96	7.04	8.11	9.19	10.26	11.35	12.45		13.88	2 / 5			
reaction time	interval		1.10	1.09	1.08	1.08	1.07	1.08	1.07	1.09	1.10	1.43			3.27	3.23	3.26
	velocity	5.10	8.31	8.39	8.46	8.46	8.54	8.46	8.54	8.39	8.31	9.80	7.93		8.39	8.49	8.41

Semi-Final 1

date 09-Jun-13 wind 1.5 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.61	3.66	4.71	5.75	6.80	7.86	8.93	10.01	11.07	12.16		13.58	7 / 1			
reaction time	interval		1.05	1.05	1.04	1.05	1.06	1.07	1.08	1.06	1.09	1.42			3.14	3.18	3.23
	velocity	5.26	8.70	8.70	8.79	8.70	8.62	8.54	8.46	8.62	8.39	9.87	8.10		8.73	8.62	8.49

Heat 4

date 08-Jun-13 wind 0.1 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.61	3.70	4.75	5.79	6.83	7.88	8.95	10.03	11.12	12.21		13.62	6 / 1			
reaction time	interval	7 steps	1.09	1.05	1.04	1.04	1.05	1.07	1.08	1.09	1.09	1.41	PB		3.18	3.16	3.26
	velocity	5.26	8.39	8.70	8.79	8.79	8.70	8.54	8.46	8.39	8.39	9.94	8.08		8.62	8.68	8.41

Heat 3

date 08-Jun-13 wind -0.4 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wado, Tatsuya (JPN) (1990)	time	2.63	3.74	4.82	5.91	7.02	8.11	9.22	10.32	11.45	12.63		14.15	5 / 4			
reaction time	interval		1.11	1.08	1.09	1.11	1.09	1.11	1.10	1.13	1.18	1.52			3.28	3.31	3.41
	velocity	5.22	8.23	8.46	8.39	8.23	8.39	8.23	8.31	8.09	7.75	9.22	7.77		8.36	8.28	8.04

Heat 2

date 08-Jun-13 wind 0.1 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.62	3.70	4.76	5.83	6.91	8.00	9.08	10.19	11.29	12.42		13.85	6 / 1			
reaction time	interval		1.08	1.06	1.07	1.08	1.09	1.08	1.11	1.10	1.13	1.43			3.21	3.25	3.34
	velocity	5.24	8.46	8.62	8.54	8.46	8.39	8.46	8.23	8.31	8.09	9.80	7.94		8.54	8.44	8.21

Heat 1

date 08-Jun-13 wind -0.1 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)	time	2.65	3.72	4.79	5.86	6.93	8.00	9.08	10.19	11.29	12.41		13.87	4 / 1			
reaction time	interval		1.07	1.07	1.07	1.07	1.07	1.08	1.11	1.10	1.12	1.46			3.21	3.22	3.33
	velocity	5.18	8.54	8.54	8.54	8.54	8.54	8.46	8.23	8.31	8.16	9.60	7.93		8.54	8.52	8.23
Mita, Kyohei (JPN) (1991)	time	2.71	3.82	4.90	5.98	7.06	8.14	9.23	10.32	11.42	12.52		13.96	3 / 5			
reaction time	interval		1.11	1.08	1.08	1.08	1.08	1.09	1.09	1.10	1.10	1.44			3.27	3.25	3.29
	velocity	5.06	8.23	8.46	8.46	8.46	8.46	8.39	8.39	8.31	8.31	9.74	7.88		8.39	8.44	8.33

2013 Japanese National Multi-Event Championships (Nagano, JPN)

Decathlon - Heat 3

date 02-Jun-13 wind 0.0 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.80	4.00	5.20	6.39	7.61	8.83	10.10	11.38	12.69	13.99		15.66	5 / 3			
reaction time	interval		1.20	1.20	1.19	1.22	1.22	1.27	1.28	1.31	1.30	1.67			3.59	3.71	3.89
	velocity	4.90	7.62	7.62	7.68	7.49	7.49	7.20	7.14	6.98	7.03	8.40	7.02		7.64	7.39	7.05

Decathlon - Heat 1

date 02-Jun-13 wind 0.7 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.68	3.81	4.94	6.06	7.17	8.29	9.38	10.53	11.68	12.81		14.24	6 / 2			
reaction time	interval		1.13	1.13	1.12	1.11	1.12	1.09	1.15	1.15	1.13	1.43			3.38	3.32	3.43
	velocity	5.12	8.09	8.09	8.16	8.23	8.16	8.39	7.95	7.95	8.09	9.80	7.72		8.11	8.26	7.99

2013 Golden Grand Prix (Shanghai, CHN)

FINAL

date 18-May-13 wind -0.5 m/s

Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.54	3.60	4.63	5.64	6.68	7.70	8.74	9.77	10.81	11.87		13.28	/ 3			
reaction time 0.137	interval		1.06	1.03	1.01	1.04	1.02	1.04	1.03	1.04	1.06	1.41	PB		3.10	3.10	3.13
	velocity	5.40	8.62	8.87	9.05	8.79	8.96	8.79	8.87	8.79	8.62	9.94	8.28		8.85	8.85	8.76

2013 Seiko Golden Grand Prix (Tokyo, JPN)

FINAL

date 05-May-13 wind -1.4 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.66	3.75	4.83	5.93	7.01	8.08	9.17	10.28	11.37	12.50		13.94	3 / 5			
reaction time	interval		1.09	1.08	1.10	1.08	1.07	1.09	1.11	1.09	1.13	1.44			3.27	3.24	3.33
	velocity	5.16	8.39	8.46	8.31	8.46	8.54	8.39	8.23	8.39	8.09	9.74	7.89		8.39	8.46	8.23
Sato, Hiroyuki (JPN) (1990)	time	2.65	3.76	4.85	5.95	7.04	8.13	9.21	10.32	11.43	12.56		14.02	2 / 7			
reaction time	interval		1.11	1.09	1.10	1.09	1.09	1.08	1.11	1.11	1.13	1.46			3.30	3.26	3.35

	velocity	5.18	8.23	8.39	8.31	8.39	8.39	8.46	8.23	8.23	8.09	9.60	7.85			8.31	8.41	8.19

2013 Mito Invitational Athletics Meeting (Mito, JPN)

FINAL

date 04-May-13 wind -1.3 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.67	3.80	4.90	5.99	7.06	8.13	9.22	10.32	11.42	12.53		13.97	/ 1			
reaction time	interval		1.13	1.10	1.09	1.07	1.07	1.09	1.10	1.10	1.11	1.44			3.32	3.23	3.31
	velocity	5.14	8.09	8.31	8.39	8.54	8.54	8.39	8.31	8.31	8.23	9.74	7.87		8.26	8.49	8.28
Wado, Tatsuya (JPN) (1990)	time	2.60	3.93	5.15	6.34	7.46	8.60	9.71	10.83	11.97	13.13		14.68	/ 8			
reaction time	interval		1.33	1.22	1.19	1.12	1.14	1.11	1.12	1.14	1.16	1.55			3.74	3.37	3.42
	velocity	5.28	6.87	7.49	7.68	8.16	8.02	8.23	8.16	8.02	7.88	9.05	7.49		7.33	8.14	8.02

Heat 2

date 04-May-13 wind 0.8 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wado, Tatsuya (JPN) (1990)	time	2.64	3.72	4.84	5.93	7.03	8.11	9.20	10.32	11.46	12.62		14.14	/ 2			
reaction time	interval		1.08	1.12	1.09	1.10	1.08	1.09	1.12	1.14	1.16	1.52			3.29	3.27	3.42
	velocity	5.20	8.46	8.16	8.39	8.31	8.46	8.39	8.16	8.02	7.88	9.22	7.78		8.33	8.39	8.02

Heat 1

date 04-May-13 wind 2.0 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.63	3.73	4.79	5.85	6.91	7.97	9.05	10.12	11.22	12.32		13.74	/ 1			
reaction time	interval		1.10	1.06	1.06	1.06	1.06	1.08	1.07	1.10	1.10	1.42			3.22	3.20	3.27
	velocity	5.22	8.31	8.62	8.62	8.62	8.62	8.46	8.54	8.31	8.31	9.87	8.01		8.52	8.57	8.39

2013 Chinese National Grand Prix (Zhaoqing, CHN)

FINAL

date 28-Apr-12 wind 0.1 m/s

Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.60	3.66	4.69	5.75	6.79	7.83	8.87	9.91	10.95	12.03		13.44	/ 1			
reaction time	interval		1.06	1.03	1.06	1.04	1.04	1.04	1.04	1.04	1.08	1.41			3.15	3.12	3.16
	velocity	5.28	8.62	8.87	8.62	8.79	8.79	8.79	8.79	8.79	8.46	9.94	8.18		8.70	8.79	8.68

2013 Mikio Oda Memorial (Hiroshima, JPN)

FINAL

date 29-Apr-13 wind 0.7 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.63	3.71	4.76	5.82	6.87	7.94	9.01	10.11	11.19	12.27		13.70	/ 1			
reaction time	interval		1.08	1.05	1.06	1.05	1.07	1.07	1.10	1.08	1.08	1.43			3.19	3.19	3.26
	velocity	5.22	8.46	8.70	8.62	8.70	8.54	8.54	8.31	8.46	8.46	9.80	8.03		8.60	8.60	8.41
Yazawa, Wataru (JPN) (1991)	time	2.64	3.74	4.82	5.90	6.98	8.03	9.11	10.18	11.27	12.40		13.86	/ 4			
reaction time	interval		1.10	1.08	1.08	1.08	1.05	1.08	1.07	1.09	1.13	1.46			3.26	3.21	3.29
	velocity	5.20	8.31	8.46	8.46	8.46	8.70	8.46	8.54	8.39	8.09	9.60	7.94		8.41	8.54	8.33
Mita, Kyohei (JPN) (1991)	time	2.70	3.80	4.90	5.97	7.03	8.11	9.19	10.28	11.39	12.48		13.92	/ 5			
reaction time	interval		1.10	1.10	1.07	1.06	1.08	1.08	1.09	1.11	1.09	1.44			3.27	3.22	3.29
	velocity	5.08	8.31	8.31	8.54	8.62	8.46	8.46	8.39	8.23	8.39	9.74	7.90		8.39	8.52	8.33
Sato, Hiroyuki (JPN) (1990)	time	2.61	3.69	4.75	5.84	6.91	8.00	9.08	10.19	11.33	12.50		13.99	/ 6			
reaction time	interval		1.08	1.06	1.09	1.07	1.09	1.08	1.11	1.14	1.17	1.49			3.23	3.24	3.42
	velocity	5.26	8.46	8.62	8.39	8.54	8.39	8.46	8.23	8.02	7.81	9.41	7.86		8.49	8.46	8.02

Heat 3

date 29-Apr-13 wind 2.4 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mita, Kyohei (JPN) (1991)	time	2.66	3.76	4.83	5.90	6.96	8.03	9.10	10.17	11.26	12.34		13.77	/ 1			
reaction time	interval		1.10	1.07	1.07	1.06	1.07	1.07	1.07	1.09	1.08	1.43			3.24	3.20	3.24
	velocity	5.16	8.31	8.54	8.54	8.62	8.54	8.54	8.54	8.39	8.46	9.80	7.99		8.46	8.57	8.46
Wado, Tatsuya (JPN) (1990)	time	2.59	3.66	4.75	5.81	6.87	7.95	9.00	10.09	11.12	12.52		14.26	/ 6			
reaction time	interval		1.07	1.09	1.06	1.06	1.08	1.05	1.09	1.03	1.40	1.74			3.22	3.19	3.52
	velocity	5.30	8.54	8.39	8.62	8.62	8.46	8.70	8.39	8.87	6.53	8.06	7.71		8.52	8.60	7.79

Heat 2

date 29-Apr-13 wind 0.4 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)	time	2.64	3.71	4.78	5.84	6.91	7.98	9.07	10.18	11.29	12.43		13.90	/ 2			
reaction time	interval		1.07	1.07	1.06	1.07	1.07	1.09	1.11	1.11	1.14	1.47			3.20	3.23	3.36
	velocity	5.20	8.54	8.54	8.62	8.54	8.54	8.39	8.23	8.23	8.02	9.54	7.91		8.57	8.49	8.16

Heat 1

date 29-Apr-13 wind 1.5 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.64	3.69	4.76	5.81	6.87	7.93	9.01	10.09	11.20	12.31		13.76	/ 1			
reaction time	interval		1.05	1.07	1.05	1.06	1.06	1.08	1.08	1.11	1.11	1.45			3.17	3.20	3.30
	velocity	5.20	8.70	8.54	8.70	8.62	8.62	8.46	8.46	8.23	8.23	9.67	7.99		8.65	8.57	8.31
Yazawa, Wataru (JPN) (1991)	time	2.63	3.73	4.79	5.86	6.91	8.00	9.08	10.18	11.28	12.42		13.85	/ 4			

reaction time	interval		1.10	1.06	1.07	1.05	1.09	1.08	1.10	1.10	1.14	1.43			3.23	3.22	3.34
	velocity	5.22	8.31	8.62	8.54	8.70	8.39	8.46	8.31	8.31	8.02	9.80	7.94		8.49	8.52	8.21

2013 Wakayama Athletics Meeting (Wakayama, JPN)

Decathlon - Heat 2

date 28-Apr-13 wind 0.8 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.80	3.97	5.12	6.29	7.46	8.64	9.82	11.03	12.21	13.43		15.05	3 / 1			
reaction time	interval		1.17	1.15	1.17	1.17	1.18	1.18	1.21	1.18	1.22	1.62			3.49	3.53	3.61
	velocity	4.90	7.81	7.95	7.81	7.81	7.75	7.75	7.55	7.75	7.49	8.65	7.31		7.86	7.77	7.60

Decathlon - Heat 1

date 28-Apr-13 wind 1.5 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.69	3.81	4.91	6.03	7.12	8.23	9.34	10.46	11.58	12.72		14.16	6 / 2			
reaction time	interval		1.12	1.10	1.12	1.09	1.11	1.11	1.12	1.12	1.14	1.44			3.34	3.31	3.38
	velocity	5.10	8.16	8.31	8.16	8.39	8.23	8.23	8.16	8.16	8.02	9.74	7.77		8.21	8.28	8.11

2013 European Indoor Championships (Göteborg, SWE)

Heptathlon - Heat 1

date 03-Mar-13

Blomkvist (2013) - www.elitlandslag.se/SprintHäck/KortHäck.aspx

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Olson, Petter (SWE) (1991)	time	2.70	3.85	4.95	6.05	7.16		8.11	4 / 2	
reaction time 0.150	interval		1.15	1.10	1.10	1.11	0.95			3.35
	velocity	5.08	7.95	8.31	8.31	8.23	10.23	7.40		8.19
Rosenquist, Fabian (SWE) (19	time	2.72	3.85	4.97	6.07	7.21		8.30	7 / 3	
reaction time 0.138	interval		1.13	1.12	1.10	1.14	1.09			3.35
	velocity	5.04	8.09	8.16	8.31	8.02	8.92	7.23		8.19

FINAL

date 01-Mar-13

Blomkvist (2013) - www.elitlandslag.se/SprintHäck/KortHäck.aspx

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Shubenkov, Sergey (RUS) (199	time	2.58	3.62	4.62	5.62	6.64		7.49	6 / 1	
reaction time 0.161	interval		1.04	1.00	1.00	1.02	0.85	=PB		3.04
	velocity	5.32	8.79	9.14	9.14	8.96	11.44	8.01		9.02
Dal Molin, Paolo (ITA) (1987)	time	2.51	3.55	4.60	5.62	6.66		7.51	4 / 2	
reaction time 0.138	interval		1.04	1.05	1.02	1.04	0.85	NR		3.11
	velocity	5.47	8.79	8.70	8.96	8.79	11.44	7.99		8.82
Martinot Lagarde, Pascal (FRA	time	2.57	3.64	4.65	5.65	6.65		7.53	3 / 3	
reaction time 0.155	interval		1.07	1.01	1.00	1.00	0.88	=PB		3.08
	velocity	5.34	8.54	9.05	9.14	9.14	11.05	7.97		8.90
Baji, Balázs (HUN) (1989)	time	2.55	3.61	4.65	5.66	6.67		7.56	8 / 4	
reaction time 0.159	interval	7 steps	1.06	1.04	1.01	1.01	0.89	=NR		3.11
	velocity	5.38	8.62	8.79	9.05	9.05	10.92	7.94		8.82
Balnuweit, Erik (GER) (1988)	time	2.55	3.60	4.62	5.65	6.68		7.58	5 / 5	
reaction time 0.146	interval	7 steps	1.05	1.02	1.03	1.03	0.90	PB		3.10
	velocity	5.38	8.70	8.96	8.87	8.87	10.80	7.92		8.85
Lynsha, Maksim (BLR) (1985)	time	2.56	3.60	4.64	5.66	6.68		7.58	2 / 1	
reaction time 0.162	interval		1.04	1.04	1.02	1.02	0.90	PB		3.10
	velocity	5.36	8.79	8.79	8.96	8.96	10.80	7.92		8.85
Douvalídis, Konstadínos (GRE	time	2.62	3.68	4.72	5.76	6.78		7.64	1 / 7	
reaction time 0.153	interval		1.06	1.04	1.04	1.02	0.86			3.14
	velocity	5.24	8.62	8.79	8.79	8.96	11.30	7.85		8.73
Shabanov, Konstantin (RUS) (	time	2.59	3.64	4.67	5.71	6.77		7.66	7 / 8	
reaction time 0.137	interval		1.05	1.03	1.04	1.06	0.89			3.12
	velocity	5.30	8.70	8.87	8.79	8.62	10.92	7.83		8.79

Semi-Final 1

date 01-Mar-13

Blomkvist (2013) - www.elitlandslag.se/SprintHäck/KortHäck.aspx

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Nossmy, Philip (SWE) (1982)	time	2.62	3.71	4.77	5.82	6.86		7.78	2 / 6	
reaction time 0.153	interval		1.09	1.06	1.05	1.04	0.92			3.20
	velocity	5.24	8.39	8.62	8.70	8.79	10.57	7.71		8.57

Heat 4

date 01-Mar-13

Blomkvist (2013) - www.elitlandslag.se/SprintHäck/KortHäck.aspx

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Lööv, Filip (SWE) (1992)	time	2.66	3.80	4.90	5.97	7.08		8.02	2 / 7	
reaction time 0.167	interval		1.14	1.10	1.07	1.11	0.94			3.31
	velocity	5.16	8.02	8.31	8.54	8.23	10.34	7.48		8.28

Heat 2

date 01-Mar-13

Blomkvist (2013) - www.elitlandslag.se/SprintHäck/KortHäck.aspx

	H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Nossmy, Philip (SWE) (1982)		time	2.63	3.73	4.80	5.84	6.89						7.76	1 / 4			
reaction time	0.162	interval		1.10	1.07	1.04	1.05					0.87			3.21		
		velocity	5.22	8.31	8.54	8.79	8.70					11.17	7.73		8.54		

Heat 1

date 01-Mar-13

Blomkvist (2013) - www.elitlandslag.se/SprintHäck/KortHäck.aspx

			H1	H2	H3	H4	H5					Run-In	Official Time	Lane / Place	H1-H4		
Brorson, Alexander (SWE) (19		time	2.60	3.70	4.77	5.84	6.93						7.85	2 / 6			
reaction time	0.156	interval		1.10	1.07	1.07	1.09					0.92			3.24		
		velocity	5.28	8.31	8.54	8.54	8.39					10.57	7.64		8.46		

2013 Italian National Indoor Junior Championships (Ancona, ITA) (99cm)

FINAL

date 23-Feb-13

FIDAL - Centro Studi & Ricerche (2013) - www.youtube.com/watch?v=Egf_xlSp-DI

		H1	H2	H3	H4	H5					Run-In	Official Time	Lane / Place	H1-H4		
Perini, Lorenzo (ITA) (1994)	time	2.71	3.80	4.86	5.91	6.95						7.90	6 / 1			
reaction time	interval		1.09	1.06	1.05	1.04					0.95			3.20		
	velocity	5.06	8.39	8.62	8.70	8.79					10.23	7.59		8.57		

2013 Italian National Indoor Youth Championships (Ancona, ITA) (91cm)

FINAL

date 23-Feb-13

FIDAL - Centro Studi & Ricerche (2013) - www.youtube.com/watch?v=Xy9UwfVMj6g

		H1	H2	H3	H4	H5					Run-In	Official Time	Lane / Place	H1-H4		
Biondo, Giuseppe (ITA) (1996)	time	2.66	3.78	4.85	5.90	6.95						7.94	6 / 1			
reaction time	interval		1.12	1.07	1.05	1.05					0.99	PB		3.24		
	velocity	5.16	8.16	8.54	8.70	8.70					9.82	7.56		8.46		
Beria, Matteo (ITA) (1996)	time	2.66	3.78	4.87	5.95	7.00						7.99	7 / 2			
reaction time	interval		1.12	1.09	1.08	1.05					0.99			3.29		
	velocity	5.16	8.16	8.39	8.46	8.70					9.82	7.51		8.33		

2012 Memorial Van Damme (Brussels, BEL) (TV Analysis)

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

FINAL

date 07-Sep-12 wind 0.3 m/s

May (2012) - http://www.fgs.uni-halle.de

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.52	3.56	4.56	5.53	6.50	7.48	8.46	9.44	10.44	11.46		12.80	6 / 1			*May (2012)*
reaction time	0.145	interval	*7 steps*	1.04	1.00	0.97	0.97	0.98	0.98	0.98	1.00	1.02	1.34	WR		3.01	2.93	3.00
		velocity	5.44	8.79	9.14	9.42	9.42	9.33	9.33	9.33	9.14	8.96	10.46	8.59		9.11	9.36	9.14
Richardson, Jason (USA) (198	time	2.50	3.54	4.52	5.50	6.50	7.50	8.50	9.50	10.54	11.58		13.05	5 / 2			*Henson (2020)*
reaction time	0.147	interval	*7 steps*	1.04	0.98	0.98	1.00	1.00	1.00	1.00	1.04	1.04	1.47			3.00	3.00	3.08
		velocity	5.49	8.79	9.33	9.33	9.14	9.14	9.14	9.14	8.79	8.79	9.54	8.43		9.14	9.14	8.90
Parchment, Hansle (JAM) (199	time	2.56	3.62	4.62	5.60	6.60	7.58	8.58	9.60	10.62	11.66		13.14	4 / 3			*Henson (2020)*
reaction time	0.157	interval	*7 steps*	1.06	1.00	0.98	1.00	0.98	1.00	1.02	1.02	1.04	1.48			3.04	2.98	3.08
		velocity	5.36	8.62	9.14	9.33	9.14	9.33	9.14	8.96	8.96	8.79	9.47	8.37		9.02	9.20	8.90
Shubenkov, Sergey (RUS) (198	time	2.52	3.56	4.56	5.58	6.58	7.58	8.62	9.66	10.70	11.78		13.21	1 / 4			*Henson (2020)*
reaction time	0.165	interval		1.04	1.00	1.02	1.00	1.00	1.04	1.04	1.04	1.08	1.43			3.06	3.04	3.16
		velocity	5.44	8.79	9.14	8.96	9.14	9.14	8.79	8.79	8.79	8.46	9.80	8.33		8.96	9.02	8.68
Oliver, David (USA) (1990)	time	2.52	3.56	4.58	5.56	6.56	7.58	8.58	9.60	10.62	11.72		13.21	2 / 5			*Henson (2020)*
reaction time	0.171	interval	*7 steps*	1.04	1.02	0.98	1.00	1.02	1.00	1.02	1.02	1.10	1.49			3.04	3.02	3.14
		velocity	5.44	8.79	8.96	9.33	9.14	8.96	9.14	8.96	8.96	8.31	9.41	8.33		9.02	9.08	8.73
Fourie, Lehann (RSA) (1987)	time	2.48	3.52	4.52	5.52	6.52	7.54	8.58	9.60	10.62	11.70		13.24	3 / 6			*Henson (2020)*
reaction time	0.133	interval	*7 steps*	1.04	1.00	1.00	1.00	1.02	1.04	1.02	1.02	1.08	1.54	AR		3.04	3.06	3.12
		velocity	5.53	8.79	9.14	9.14	9.14	8.96	8.79	8.96	8.96	8.46	9.10	8.31		9.02	8.96	8.79
Wilson, Ryan (USA) (1980)	time	2.52	3.56	4.56	5.56	6.58	7.60	8.64	9.66	10.70	11.76		13.26	8 / 7			*Henson (2020)*
reaction time	0.144	interval	*7 steps*	1.04	1.00	1.00	1.02	1.02	1.04	1.02	1.04	1.06	1.50			3.04	3.08	3.12
		velocity	5.44	8.79	9.14	9.14	8.96	8.96	8.79	8.96	8.79	8.62	9.35	8.30		9.02	8.90	8.79
Brathwaite, Ryan (BAR) (1988)	time	2.48	3.52	4.56	5.56	6.56	7.56	8.58	9.62	10.70	11.80		13.39	9 / 8			*Henson (2020)*
reaction time	0.156	interval		1.04	1.04	1.00	1.00	1.00	1.02	1.04	1.08	1.10	1.59			3.08	3.02	3.22
		velocity	5.53	8.79	8.79	9.14	9.14	9.14	8.96	8.79	8.46	8.31	8.82	8.22		8.90	9.08	8.52
Clarke, Lawrence (GBR) (1990)	time	2.50	3.58	4.62	5.68	6.74	7.80	8.84	9.92	11.00	12.14		13.71	7 / 9			*Henson (2020)*
reaction time	0.148	interval		1.08	1.04	1.06	1.06	1.06	1.04	1.08	1.08	1.14	1.57			3.18	3.16	3.30
		velocity	5.49	8.46	8.79	8.62	8.62	8.62	8.79	8.46	8.46	8.02	8.93	8.02		8.62	8.68	8.31

2012 ISTAF (Berlin, GER) (TV Analysis)

FINAL

date 02-Sep-12 wind 1.2 m/s

Henson (2021) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.43	3.45	4.47	5.47	6.47	7.47	8.47	9.47	10.49	11.51		12.97	4 / 1			
reaction time	0.164	interval	*7 steps*	1.02	1.02	1.00	1.00	1.00	1.00	1.00	1.02	1.02	1.46			3.04	3.00	3.04
		velocity	5.65	8.96	8.96	9.14	9.14	9.14	9.14	9.14	8.96	8.96	9.60	8.48		9.02	9.14	9.02
Wilson, Ryan (USA) (1980)	time	2.57	3.63	4.67	5.70	6.70	7.74	8.74	9.77	10.84	11.91		13.45	7 / 2			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	0.192	interval	*7 steps*	1.06	1.04	1.03	1.00	1.04	1.00	1.03	1.07	1.07	1.54			3.13	3.04	3.17
		velocity		5.34	8.62	8.79	8.87	9.14	8.79	9.14	8.87	8.54	8.54	9.10	8.18	8.76	9.02	8.65

2012 AVIVA Grand Prix (Birmingham, GBR) (TV Analysis)

FINAL

date 26-Aug-12 wind -0.9 m/s

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)		time		2.44	3.46	4.47	5.48	6.46	7.46	8.46	9.46	10.46	11.50		12.95	3 / 1			
reaction time	0.146	interval	*7 steps*	1.02	1.01	1.01	0.98	1.00	1.00	1.00	1.00	1.00	1.04	1.45			3.04	2.98	3.04
		velocity		5.62	8.96	9.05	9.05	9.33	9.14	9.14	9.14	9.14	8.79	9.67	8.49		9.02	9.20	9.02
Richardson, Jason (USA) (198(		time		2.48	3.52	4.52	5.52	6.52	7.50	8.48	9.48	10.50	11.52		12.98	2 / 2			
reaction time	0.165	interval	*7 steps*	1.04	1.00	1.00	1.00	0.98	0.98	1.00	1.02	1.02	1.46		**=PB**		3.04	2.96	3.04
		velocity		5.53	8.79	9.14	9.14	9.14	9.33	9.33	9.14	8.96	8.96	9.60	8.47		9.02	9.26	9.02
Oliver, David (USA) (1990)		time		2.50	3.53	4.56	5.59	6.59	7.62	8.64	9.68	10.74	11.78		13.28	4 / 3			
reaction time	0.154	interval	*7 steps*	1.03	1.03	1.03	1.00	1.03	1.02	1.04	1.06	1.04	1.50				3.09	3.05	3.14
		velocity		5.49	8.87	8.87	8.87	9.14	8.87	8.96	8.79	8.62	8.79	9.35	8.28		8.87	8.99	8.73
Wilson, Ryan (USA) (1980)		time		2.54	3.60	4.63	5.64	6.64	7.66	8.70	9.73	10.77	11.83		13.34	1 / 4			
reaction time	0.156	interval	*7 steps*	1.06	1.03	1.01	1.00	1.02	1.04	1.03	1.04	1.06	1.51				3.10	3.06	3.13
		velocity		5.40	8.62	8.87	9.05	9.14	8.96	8.79	8.87	8.79	8.62	9.28	8.25		8.85	8.96	8.76
Brathwaite, Ryan (BAR) (1988)		time		2.52	3.56	4.60	5.62	6.60	7.70	8.74	9.76	10.80	11.86		13.42	7 / 5			
reaction time	0.160	interval			1.04	1.04	1.02	0.98	1.10	1.04	1.02	1.04	1.06	1.56			3.10	3.12	3.12
		velocity		5.44	8.79	8.79	8.96	9.33	8.31	8.79	8.96	8.79	8.62	8.99	8.20		8.85	8.79	8.79
Clarke, Lawrence (GBR) (1990)		time		2.45	3.50	4.57	5.60	6.62	7.66	8.72	9.78	10.84	11.94		13.52	6 / 6			
reaction time	0.146	interval			1.05	1.07	1.03	1.02	1.04	1.06	1.06	1.06	1.10	1.58			3.15	3.12	3.22
		velocity		5.60	8.70	8.54	8.87	8.96	8.79	8.62	8.62	8.62	8.31	8.87	8.14		8.70	8.79	8.52
Fourie, Lehann (RSA) (1987)		time		2.48	3.52	4.54	5.56	6.58	7.60	8.70	9.81	10.87	11.99		13.59	8 / 7			
reaction time	0.139	interval	*7 steps*	1.04	1.02	1.02	1.02	1.02	1.10	1.11	1.06	1.12	1.60				3.08	3.14	3.29
		velocity		5.53	8.79	8.96	8.96	8.96	8.96	8.31	8.23	8.62	8.16	8.76	8.09		8.90	8.73	8.33
Parchment, Hansle (JAM) (199(		time		2.54	3.63	4.75	5.85	6.97	8.00	9.05	10.12	11.16	12.22		13.76	5 / 8			
reaction time	0.155	interval	*7 steps*	1.09	1.12	1.10	1.12	1.03	1.05	1.07	1.04	1.06	1.54				3.31	3.20	3.17
		velocity		5.40	8.39	8.16	8.31	8.16	8.87	8.70	8.54	8.79	8.62	9.10	7.99		8.28	8.57	8.65

2012 Olympic Games (London, GBR)

Decathlon - Heat 1

date 09-Aug-12 wind -0.9 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)		time		2.80	3.99	5.20	6.42	7.62	8.85	10.06	11.30	12.56	13.84		15.47	6 / 5			
reaction time	0.186	interval			1.19	1.21	1.22	1.20	1.23	1.21	1.24	1.26	1.28	1.63			3.62	3.64	3.78
		velocity		4.90	7.68	7.55	7.49	7.62	7.43	7.55	7.37	7.25	7.14	8.60	7.11		7.57	7.53	7.25

Henson (2020) - Athlete First: 2012 Aries Merritt world record season (TV Analysis)

FINAL

date 08-Aug-12 wind -0.3 m/s

Graubner (2012) - http://www.fgs.uni-halle.de (TV Analysis)

				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)		time		2.54	3.55	4.55	5.54	6.53	7.52	8.53	9.53	10.55	11.57		12.92	6 / 1			*Graubner (2012)*
reaction time	0.143	interval	7 steps	1.01	1.00	0.99	0.99	0.99	1.01	1.00	1.02	1.02	1.35		**PB**		3.00	2.99	3.04
		velocity		5.40	9.05	9.14	9.23	9.23	9.23	9.05	9.14	8.96	8.96	10.39	8.51		9.14	9.17	9.02
Richardson, Jason (USA) (198(		time		2.54	3.54	4.54	5.54	6.56	7.58	8.58	9.58	10.58	11.62		13.04	4 / 2			*Henson (2020)*
reaction time	0.194	interval	7 steps	1.00	1.00	1.00	1.02	1.02	1.00	1.00	1.00	1.04	1.42				3.00	3.04	3.04
		velocity		5.40	9.14	9.14	9.14	8.96	8.96	9.14	9.14	9.14	8.79	9.87	8.44		9.14	9.02	9.02
Parchment, Hansle (JAM) (199(		time		2.56	3.62	4.62	5.62	6.62	7.62	8.62	9.62	10.64	11.68		13.12	7 / 3			*Henson (2020)*
reaction time	0.172	interval	7 steps	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.04	1.44		**NR**		3.06	3.00	3.06
		velocity		5.36	8.62	9.14	9.14	9.14	9.14	9.14	9.14	8.96	8.79	9.74	8.38		8.96	9.14	8.96
Clarke, Lawrence (GBR) (1990)		time		2.50	3.54	4.56	5.58	6.62	7.66	8.74	9.78	10.82	11.90		13.39	2 / 4			*Henson (2020)*
reaction time	0.169	interval			1.04	1.02	1.02	1.04	1.04	1.08	1.04	1.04	1.08	1.49			3.08	3.16	3.16
		velocity		5.49	8.79	8.96	8.96	8.79	8.79	8.46	8.79	8.79	8.46	9.41	8.22		8.90	8.68	8.68
Brathwaite, Ryan (BAR) (1988)		time		2.48	3.56	4.60	5.62	6.62	7.66	8.70	9.78	10.82	11.90		13.40	8 / 5			*Henson (2020)*
reaction time	0.163	interval			1.08	1.04	1.02	1.00	1.04	1.04	1.08	1.04	1.08	1.50			3.14	3.08	3.20
		velocity		5.53	8.46	8.79	8.96	9.14	8.79	8.79	8.46	8.79	8.46	9.35	8.21		8.73	8.90	8.57
Ortega, Orlando (CUB) (1991)		time		2.54	3.62	4.64	5.64	6.66	7.68	8.70	9.74	10.80	11.90		13.43	9 / 6			*Henson (2020)*
reaction time	0.135	interval	7 steps	1.08	1.02	1.00	1.02	1.02	1.02	1.04	1.06	1.10	1.53				3.10	3.06	3.20
		velocity		5.40	8.46	8.96	9.14	8.96	8.96	8.96	8.79	8.62	8.31	9.16	8.19		8.85	8.96	8.57
Fourie, Lehann (RSA) (1987)		time		2.48	3.56	4.58	5.58	6.62	7.66	8.74	9.78	10.90	12.02		13.53	3 / 7			*Henson (2020)*
reaction time	0.136	interval	7 steps	1.08	1.02	1.00	1.04	1.04	1.08	1.04	1.12	1.12	1.51				3.10	3.16	3.28
		velocity		5.53	8.46	8.96	9.14	8.79	8.79	8.46	8.79	8.16	8.16	9.28	8.13		8.85	8.68	8.36

Robles, Dayron (CUB) (1986)	time	2.46	3.48	4.50	5.50	6.50	7.72						42.86	5 / --		*Henson (2020)*
reaction time 0.159	interval	*7 steps*	1.02	1.02	1.00	1.00	1.22						DQ		3.04	
	velocity	5.58	8.96	8.96	9.14	9.14	7.49						2.57		9.02	

Semi-Final 3 (TV A

date 08-Aug-12 wind 0.1 m/s — *Henson (2020) - Athlete First: 2012 Aries Merritt world record season*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Robles, Dayron (CUB) (1986)	time	2.48	3.48	4.48	5.46	6.46	7.46	8.50	9.54	10.58	11.62		13.10	7 / 1			
reaction time 0.162	interval	*7 steps*	1.00	1.00	0.98	1.00	1.00	1.04	1.04	1.04	1.04	1.48			2.98	3.04	3.12
	velocity	5.53	9.14	9.14	9.33	9.14	9.14	8.79	8.79	8.79	8.79	9.47	8.40		9.20	9.02	8.79
Parchment, Hansle (JAM) (199	time	2.54	3.58	4.62	5.62	6.62	7.62	8.62	9.62	10.64	11.66		13.14	5 / 2			
reaction time 0.172	interval	*7 steps*	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.02	1.02	1.48	NR		3.08	3.00	3.04
	velocity	5.40	8.79	8.79	9.14	9.14	9.14	9.14	9.14	8.96	8.96	9.47	8.37		8.90	9.14	9.02
Fourie, Lehann (RSA) (1987)	time	2.44	3.52	4.54	5.56	6.56	7.58	8.58	9.64	10.70	11.78		13.28	6 / 3			
reaction time 0.139	interval	*7 steps*	1.08	1.02	1.02	1.00	1.02	1.00	1.06	1.06	1.08	1.50			3.12	3.02	3.20
	velocity	5.62	8.46	8.96	8.96	9.14	8.96	9.14	8.62	8.62	8.46	9.35	8.28		8.79	9.08	8.57

Henson (2020) - Athlete First: 2012 Aries Merritt world record season (TV Analysis)

Semi-Final 2

date 08-Aug-12 wind 0.1 m/s — *Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.48	3.50	4.52	5.50	6.50	7.48	8.46	9.46	10.48	11.50		12.94	7 / 1			*Henson (2020)*
reaction time 0.147	interval	*7 steps*	1.02	1.02	0.98	1.00	0.98	0.98	1.00	1.02	1.02	1.44			3.02	2.96	3.04
	velocity	5.53	8.96	8.96	9.33	9.14	9.33	9.33	9.14	8.96	8.96	9.74	8.50		9.08	9.26	9.02
Braithwaite, Ryan (BAR) (1988	time	2.48	3.50	4.52	5.52	6.52	7.54	8.56	9.58	10.60	11.70		13.23	4 / 2			*Henson (2020)*
reaction time 0.159	interval		1.02	1.02	1.00	1.00	1.02	1.02	1.02	1.02	1.10	1.53			3.04	3.04	3.14
	velocity	5.53	8.96	8.96	9.14	9.14	8.96	8.96	8.96	8.96	8.31	9.16	8.31		9.02	9.02	8.73
Xie Wenjun (CHN) (1990)	time	2.60	3.68	4.72	5.73	6.74	7.78	8.80	9.84	10.89	11.96		13.34	9 / 3			*Wang (2016)*
reaction time 0.158	interval		1.08	1.04	1.01	1.01	1.04	1.02	1.04	1.05	1.07	1.38	PB		3.13	3.07	3.16
	velocity	5.28	8.46	8.79	9.05	9.05	8.79	8.96	8.79	8.70	8.54	10.16	8.25		8.76	8.93	8.68

Semi-Final 1 (TV A

date 08-Aug-12 wind -0.5 m/s — *Henson (2020) - Athlete First: 2012 Aries Merritt world record season*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Richardson, Jason (USA) (198	time	2.46	3.50	4.50	5.48	6.46	7.44	8.44	9.46	10.50	11.54		13.13	5 / 1			
reaction time 0.160	interval	*7 steps*	1.04	1.00	0.98	0.98	0.98	1.00	1.02	1.04	1.04	1.59			3.02	2.96	3.10
	velocity	5.58	8.79	9.14	9.33	9.33	9.33	9.14	8.96	8.79	8.79	8.82	8.38		9.08	9.26	8.85
Ortega, Orlando (CUB) (1991)	time	2.52	3.56	4.60	5.60	6.60	7.62	8.62	9.62	10.66	11.74		13.26	6 / 2			
reaction time 0.151	interval	*7 steps*	1.04	1.04	1.00	1.00	1.02	1.00	1.00	1.04	1.08	1.52			3.08	3.02	3.12
	velocity	5.44	8.79	8.79	9.14	9.14	8.96	9.14	9.14	8.79	8.46	9.22	8.30		8.90	9.08	8.79
Clarke, Lawrence (GBR) (1990)	time	2.48	3.52	4.54	5.54	6.58	7.58	8.62	9.66	10.72	11.80		13.31	4 / 3			
reaction time 0.159	interval		1.04	1.02	1.00	1.04	1.00	1.04	1.04	1.06	1.08	1.51	PB		3.06	3.08	3.18
	velocity	5.53	8.79	8.96	9.14	8.79	9.14	8.79	8.79	8.62	8.46	9.28	8.26		8.96	8.90	8.62

Henson (2020) - Athlete First: 2012 Aries Merritt world record season (TV Analysis)

Heat 5

date 07-Aug-12 wind 0.7 m/s — *Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.46	3.50	4.48	5.50	6.50	7.50	8.50	9.50	10.50	11.58		13.07	7 / 1			*Henson (2020)*
reaction time 0.142	interval	*7 steps*	1.04	0.98	1.02	1.00	1.00	1.00	1.00	1.00	1.08	1.49			3.04	3.00	3.08
	velocity	5.58	8.79	9.33	8.96	9.14	9.14	9.14	9.14	9.14	8.46	9.41	8.42		9.02	9.14	8.90
Xie Wenjun (CHN) (1990)	time	2.55	3.61	4.65	5.70	6.75	7.79	8.85	9.89	10.95	12.03		13.43	2 / 3			*Wang (2016)*
reaction time 0.143	interval		1.06	1.04	1.05	1.05	1.04	1.06	1.04	1.06	1.08	1.40			3.15	3.15	3.18
	velocity	5.38	8.62	8.79	8.70	8.70	8.79	8.62	8.79	8.62	8.46	10.01	8.19		8.70	8.70	8.62

2012 Herculis Meeting International D'Athlétisme (Monaco, MON) (TV Analysis)

FINAL

date 20-Jul-12 wind 0.0 m/s — *Henson (2020) - Athlete First: 2012 Aries Merritt world record season*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.38	3.40	4.44	5.42	6.40	7.38	8.38	9.38	10.42	11.46		12.93	5 / 1			
reaction time 0.112	interval	*7 steps*	1.02	1.04	0.98	0.98	0.98	1.00	1.00	1.04	1.04	1.47	=PB		3.04	2.96	3.08
	velocity	5.76	8.96	8.79	9.33	9.33	9.33	9.14	9.14	8.79	8.79	9.54	8.51		9.02	9.26	8.90
Richardson, Jason (USA) (198	time	2.50	3.52	4.52	5.52	6.50	7.50	8.48	9.48	10.52	11.56		13.07	4 / 2			
reaction time 0.162	interval	*7 steps*	1.02	1.00	1.00	0.98	1.00	0.98	1.00	1.04	1.04	1.51			3.02	2.96	3.08
	velocity	5.49	8.96	9.14	9.14	9.33	9.14	9.33	9.14	8.79	8.79	9.28	8.42		9.08	9.26	8.90
Shubenkov, Sergey (RUS) (198	time	2.46	3.50	4.52	5.54	6.54	7.52	8.52	9.54	10.56	11.60		13.09	7 / 3			
reaction time 0.143	interval		1.04	1.02	1.02	1.00	0.98	1.00	1.02	1.02	1.04	1.49	NR		3.08	2.98	3.08
	velocity	5.58	8.79	8.96	8.96	9.14	9.33	9.14	8.96	8.96	8.79	9.41	8.40		8.90	9.20	8.90
Oliver, David (USA) (1990)	time	2.46	3.50	4.52	5.54	6.52	7.52	8.54	9.54	10.58	11.64		13.14	6 / 4			
reaction time 0.154	interval	*7 steps*	1.04	1.02	1.02	0.98	1.00	1.02	1.00	1.04	1.06	1.50			3.08	3.00	3.10
	velocity	5.58	8.79	8.96	8.96	9.33	9.14	8.96	9.14	8.79	8.62	9.35	8.37		8.90	9.14	8.85

Porter, Jeff (USA) (1985)	time	2.46	3.50	4.53	5.53	6.55	7.55	8.55	9.58	10.62	11.71		13.19	3 / 5			
reaction time 0.153	interval		1.04	1.03	1.00	1.02	1.00	1.00	1.03	1.04	1.09	1.48			3.07	3.02	3.16
	velocity	5.58	8.79	8.87	9.14	8.96	9.14	9.14	8.87	8.79	8.39	9.47	8.34		8.93	9.08	8.68
Darien, Garfield (FRA) (1987)	time	2.48	3.54	4.54	5.56	6.56	7.58	8.60	9.64	10.71	11.81		13.27	2 / 6			
reaction time 0.161	interval		1.06	1.00	1.02	1.00	1.02	1.02	1.04	1.07	1.10	1.46			3.08	3.04	3.21
	velocity	5.53	8.62	9.14	8.96	9.14	8.96	8.96	8.79	8.54	8.31	9.60	8.29		8.90	9.02	8.54
Riley, Andrew (JAM) (1988)	time	2.46	3.50	4.53	5.55	6.57	7.64	8.67	9.71	10.72	11.81		13.28	8 / 7			
reaction time 0.138	interval		1.04	1.03	1.02	1.02	1.07	1.03	1.04	1.01	1.09	1.47			3.09	3.12	3.14
	velocity	5.58	8.79	8.87	8.96	8.96	8.54	8.87	8.79	9.05	8.39	9.54	8.28		8.87	8.79	8.73
Bascou, Dimitri (FRA) (1987)	time	2.50	3.55	4.60	5.64	6.67	7.71	8.77	9.84	10.91	12.01		13.54	1 / 8			
reaction time 0.159	interval	*7 steps*	1.05	1.05	1.04	1.03	1.04	1.06	1.07	1.07	1.10	1.53			3.14	3.13	3.24
	velocity	5.49	8.70	8.70	8.79	8.87	8.79	8.62	8.54	8.54	8.31	9.16	8.12		8.73	8.76	8.46

2012 AVIVA London Grand Prix (London, GBR) (TV Analysis)

FINAL

date 13-Jul-12 wind 0.6 m/s

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.46	3.46	4.48	5.46	6.44	7.42	8.42	9.42	10.46	11.46		12.93	4 / 1			
reaction time 0.137	interval	*7 steps*	1.00	1.02	0.98	0.98	0.98	1.00	1.00	1.04	1.00	1.47	**=PB**		3.00	2.96	3.04
	velocity	5.58	9.14	8.96	9.33	9.33	9.33	9.14	9.14	8.79	9.14	9.54	8.51		9.14	9.26	9.02
Richardson, Jason (USA) (198	time	2.48	3.50	4.50	5.50	6.50	7.50	8.48	9.48	10.54	11.58		13.06	3 / 2			
reaction time 0.166	interval	*7 steps*	1.02	1.00	1.00	1.00	1.00	0.98	1.00	1.06	1.04	1.48			3.02	2.98	3.10
	velocity	5.53	8.96	9.14	9.14	9.14	9.14	9.33	9.14	8.62	8.79	9.47	8.42		9.08	9.20	8.85
Wilson, Ryan (USA) (1980)	time	2.52	3.56	4.60	5.58	6.56	7.56	8.58	9.60	10.64	11.70		13.18	7 / 3			
reaction time 0.153	interval	*7 steps*	1.04	1.04	0.98	0.98	1.00	1.02	1.02	1.04	1.06	1.48			3.06	3.00	3.12
	velocity	5.44	8.79	8.79	9.33	9.33	9.14	8.96	8.96	8.79	8.62	9.47	8.35		8.96	9.14	8.79
Porter, Jeff (USA) (1985)	time	2.48	3.56	4.56	5.56	6.60	7.64	8.68	9.74	10.80	11.86		13.32	5 / 4			
reaction time 0.154	interval		1.08	1.00	1.00	1.04	1.04	1.04	1.06	1.06	1.06	1.46			3.08	3.12	3.18
	velocity	5.53	8.46	9.14	9.14	8.79	8.79	8.79	8.62	8.62	8.62	9.60	8.26		8.90	8.79	8.62
Brown, Joel (USA) (1980)	time	2.52	3.60	4.64	5.64	6.68	7.72	8.76	9.80	10.86	11.92		13.39	6 / 5			
reaction time 0.149	interval		1.08	1.04	1.00	1.04	1.04	1.04	1.04	1.06	1.06	1.47			3.12	3.12	3.16
	velocity	5.44	8.46	8.79	9.14	8.79	8.79	8.79	8.79	8.62	8.62	9.54	8.22		8.79	8.79	8.68
Hicks, Antwon (USA) (1983)	time	2.48	3.54	4.60	5.60	6.62	7.66	8.72	9.78	10.84	11.92		13.46	1 / 6			
reaction time 0.165	interval	*7 steps*	1.06	1.06	1.00	1.02	1.04	1.06	1.06	1.06	1.08	1.54			3.12	3.12	3.20
	velocity	5.53	8.62	8.62	9.14	8.96	8.79	8.62	8.62	8.62	8.46	9.10	8.17		8.79	8.79	8.57
Pozzi, Andy (GBR) (1992)	time	2.52	3.56										dnf	2 / --			
reaction time 0.160	interval		1.04														
	velocity	5.44	8.79														

Heat 2

date 13-Jul-12 wind -0.9 m/s

Henson (2021) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.48	3.52	4.52	5.52	6.52	7.54	8.56	9.58	10.60	11.66		13.14	4 / 1			
reaction time 0.139	interval	*7 steps*	1.04	1.00	1.00	1.00	1.02	1.02	1.02	1.02	1.06	1.48			3.04	3.04	3.10
	velocity	5.53	8.79	9.14	9.14	9.14	8.96	8.96	8.96	8.96	8.62	9.47	8.37		9.02	9.02	8.85
Richardson, Jason (USA) (198	time	2.48	3.54	4.56	5.58	6.60	7.62	8.64	9.66	10.68	11.76		13.23	3 / 2			
reaction time 0.161	interval	*7 steps*	1.06	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.08	1.47			3.10	3.06	3.12
	velocity	5.53	8.62	8.96	8.96	8.96	8.96	8.96	8.96	8.96	8.46	9.54	8.31		8.85	8.96	8.79
Wilson, Ryan (USA) (1980)	time	2.56	3.60	4.60	5.60	6.60	7.62	8.64	9.68	10.72	11.78		13.28	5 / 3			
reaction time 0.157	interval	*7 steps*	1.04	1.00	1.00	1.00	1.02	1.02	1.04	1.04	1.06	1.50			3.04	3.04	3.14
	velocity	5.36	8.79	9.14	9.14	9.14	8.96	8.96	8.79	8.79	8.62	9.35	8.28		9.02	9.02	8.73

2012 USA Olympic Trials (Eugene, OR)

FINAL

date 30-Jun-12 wind 1.2 m/s

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.37	3.40	4.40	5.39	6.37	7.36	8.34	9.34	10.36	11.37		12.93	5 / 1			
reaction time 0.138	interval	*7 steps*	1.03	1.00	0.99	0.98	0.99	0.98	1.00	1.02	1.01	1.56	**PB**		3.02	2.95	3.03
	velocity	5.79	8.87	9.14	9.23	9.33	9.23	9.33	9.14	8.96	9.05	8.99	8.51		9.08	9.29	9.05
Richardson, Jason (USA) (198	time	2.42	3.44	4.44	5.44	6.45	7.44	8.44	9.44	10.44	11.44		12.98	6 / 2			
reaction time 0.185	interval	*7 steps*	1.02	1.00	1.00	1.01	0.99	1.00	1.00	1.00	1.00	1.54	**=PB**		3.02	3.00	3.00
	velocity	5.67	8.96	9.14	9.14	9.05	9.23	9.14	9.14	9.14	9.14	9.10	8.47		9.08	9.14	9.14
Porter, Jeff (USA) (1985)	time	2.40	3.42	4.43	5.42	6.44	7.44	8.44	9.47	10.51	11.53		13.08	4 / 3			
reaction time 0.157	interval		1.02	1.01	0.99	1.02	1.00	1.00	1.03	1.04	1.02	1.55	**PB**		3.02	3.02	3.09

	velocity	5.72	8.96	9.05	9.23	8.96	9.14	9.14	8.87	8.79	8.96	9.05	8.41		9.08	9.08	8.87
Hicks, Antwon (USA) (1983)	time	2.37	3.44	4.44	5.44	6.44	7.44	8.46	9.47	10.51	11.56		13.14	2 / 4			
reaction time 0.158	interval	*7 steps*	1.07	1.00	1.00	1.00	1.00	1.02	1.01	1.04	1.05	1.58			3.07	3.02	3.10
	velocity	5.79	8.54	9.14	9.14	9.14	9.14	8.96	9.05	8.79	8.70	8.87	8.37		8.93	9.08	8.85
Oliver, David (USA) (1982)	time	2.43	3.45	4.47	5.47	6.45	7.44	8.44	9.45	10.51	11.58		13.17	3 / 5			
reaction time 0.165	interval	*7 steps*	1.02	1.02	1.00	0.98	0.99	1.00	1.01	1.06	1.07	1.59			3.04	2.97	3.14
	velocity	5.65	8.96	8.96	9.14	9.33	9.23	9.14	9.05	8.62	8.54	8.82	8.35		9.02	9.23	8.73
Faulk, Dexter (USA) (1984)	time	2.42	3.46	4.48	5.50	6.56	7.60	8.62	9.64	10.69	11.74		13.23	8 / 6			
reaction time 0.142	interval		1.04	1.02	1.02	1.06	1.04	1.02	1.02	1.05	1.05	1.49			3.08	3.12	3.12
	velocity	5.67	8.79	8.96	8.96	8.62	8.79	8.96	8.96	8.70	8.70	9.41	8.31		8.90	8.79	8.79
Wilson, Ryan (USA) (1980)	time	2.43	3.45	4.45	5.42	6.40	7.39	8.37	9.47	10.54	11.61		13.24	7 / 7			
reaction time 0.179	interval	*7 steps*	1.02	1.00	0.97	0.98	0.99	0.98	1.10	1.07	1.07	1.63			2.99	2.95	3.24
	velocity	5.65	8.96	9.14	9.42	9.33	9.23	9.33	8.31	8.54	8.54	8.60	8.31		9.17	9.29	8.46
Akins, Tyron (USA) (1986)	time	2.40	3.47	4.50	5.54	6.59	7.61	8.61					dnf	1 / --			
reaction time 0.179	interval		1.07	1.03	1.04	1.05	1.02	1.00							3.14	3.07	
	velocity	5.72	8.54	8.87	8.79	8.70	8.96	9.14							8.73	8.93	

2012 Chinese National Grand Prix Final (Fuzhou, CHN)

FINAL

date 24-Jun-12 wind 0.5 m/s

Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.64	3.70	4.76	5.78	6.80	7.84	8.88	9.92	10.98	12.06		13.42	/ 1			
reaction time	interval		1.06	1.06	1.02	1.02	1.04	1.04	1.04	1.06	1.08	1.36	PB		3.14	3.10	3.18
	velocity	5.20	8.62	8.62	8.96	8.96	8.79	8.79	8.79	8.62	8.46	10.31	8.20		8.73	8.85	8.62

2012 Windsprint (Sundsvall, SWE)

FINAL

date 17-Jun-12 wind 1.1 m/s

Blomkvist (2012) - www.sub13.se

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Townsend, Fred (USA) (1982)	time	2.64	3.68	4.72	5.75	6.77	7.78	8.83	9.86	10.92	11.98		13.39	4 / 1			
reaction time	interval		1.04	1.04	1.03	1.02	1.01	1.05	1.03	1.06	1.06	1.41	PB		3.11	3.08	3.15
	velocity	5.20	8.79	8.79	8.87	8.96	9.05	8.70	8.87	8.62	8.62	9.94	8.22		8.82	8.90	8.70
Nossmy, Philip (SWE) (1982)	time	2.65	3.74	4.76	5.81	6.84	7.88	8.94	9.99	11.04	12.13		13.56	5 / 2			
reaction time	interval		1.09	1.02	1.05	1.03	1.04	1.06	1.05	1.05	1.09	1.43			3.16	3.13	3.19
	velocity	5.18	8.39	8.96	8.70	8.87	8.79	8.62	8.70	8.70	8.39	9.80	8.11		8.68	8.76	8.60
Vukicevic, Vladimir (NOR) (199	time	2.67	3.76	4.83	5.89	6.94	8.00	9.06	10.12	11.19	12.30		13.77	3 / 3			
reaction time	interval		1.09	1.07	1.06	1.05	1.06	1.06	1.06	1.07	1.11	1.47			3.22	3.17	3.24
	velocity	5.14	8.39	8.54	8.62	8.70	8.62	8.62	8.62	8.54	8.23	9.54	7.99		8.52	8.65	8.46
de Vries, Ruan (RSA) (1986)	time	2.71	3.81	4.89	5.97	7.04	8.10	9.17	10.24	11.32	12.41		13.90	6 / 4			
reaction time	interval		1.10	1.08	1.08	1.07	1.06	1.07	1.07	1.08	1.09	1.49			3.26	3.20	3.24
	velocity	5.06	8.31	8.46	8.46	8.54	8.62	8.54	8.54	8.46	8.39	9.41	7.91		8.41	8.57	8.46
McDonald, Ian (IRL) (1984)	time	2.74	3.84	4.94	6.03	7.12	8.21	9.35	10.48	11.62	12.77		14.36	1 / 5			
reaction time	interval		1.10	1.10	1.09	1.09	1.09	1.14	1.13	1.14	1.15	1.59			3.29	3.32	3.42
	velocity	5.01	8.31	8.31	8.39	8.39	8.39	8.02	8.09	8.02	7.95	8.82	7.66		8.33	8.26	8.02
Stavang, Eivind (NOR) (1982)	time	2.72	3.85	4.99	6.12	7.23	8.36	9.49	10.64	11.79	12.95		14.47	2 / 6			
reaction time	interval		1.13	1.14	1.13	1.11	1.13	1.13	1.15	1.15	1.16	1.52			3.40	3.37	3.46
	velocity	5.04	8.09	8.02	8.09	8.23	8.09	8.09	7.95	7.95	7.88	9.22	7.60		8.06	8.14	7.92
Shaker, Amir (SWE) (1989)	time	2.76	3.87	4.97	6.06	7.15	8.28	9.42	10.58	11.74	12.91		14.52	8 / 7			
reaction time	interval		1.11	1.10	1.09	1.09	1.13	1.14	1.16	1.16	1.17	1.61			3.30	3.36	3.49
	velocity	4.97	8.23	8.31	8.39	8.39	8.09	8.02	7.88	7.88	7.81	8.71	7.58		8.31	8.16	7.86
Brorsson, Alexander (SWE) (1	time	2.67	3.76	4.81	5.89	7.03	8.16	9.26					dnf	7 / --			
reaction time	interval		1.09	1.05	1.08	1.14	1.13	1.10							3.22	3.37	
	velocity	5.14	8.39	8.70	8.46	8.02	8.09	8.31							8.52	8.14	

Heat 2

date 17-Jun-12 wind 0.0 m/s

Blomkvist (2012) - www.sub13.se

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Brorsson, Alexander (SWE) (1	time	2.70	3.80	4.87	5.93	7.00	8.08	9.17	10.28	11.38	12.51		13.99	4 / 1			
reaction time	interval		1.10	1.07	1.06	1.07	1.08	1.09	1.11	1.10	1.13	1.48			3.23	3.24	3.34
	velocity	5.08	8.31	8.54	8.62	8.54	8.46	8.39	8.23	8.31	8.09	9.47	7.86		8.49	8.46	8.21

2012 Japanese National Championships (Osaka, JPN)

FINAL

date 10-Jun-12 wind -0.6 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mita, Kyohei (JPN) (1991)	time	2.67	3.78	4.86	5.94	7.02	8.10	9.18	10.27	11.38	12.47		13.92	2 / 4			
reaction time	interval		1.11	1.08	1.08	1.08	1.08	1.08	1.09	1.11	1.09	1.45			3.27	3.24	3.29

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

	velocity	5.14	8.23	8.46	8.46	8.46	8.46	8.46	8.39	8.23	8.39	9.67	7.90		8.39	8.46	8.33
Sato, Hiroyuki (JPN) (1990)	time	2.62	3.74	4.84	5.92	6.99	8.07	9.18	10.28	11.39	12.53		13.99	4 / 6			
reaction time	interval		1.12	1.10	1.08	1.07	1.08	1.11	1.10	1.11	1.14	1.46			3.30	3.26	3.35
	velocity	5.24	8.16	8.31	8.46	8.54	8.46	8.23	8.31	8.23	8.02	9.60	7.86		8.31	8.41	8.19

Semi-Final 2

date 10-Jun-12 wind 0.5 m/s — *Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.61	3.67	4.72	5.78	6.85	7.90	8.99	10.08	11.18	12.32		13.75	5 / 1			
reaction time	interval		1.06	1.05	1.06	1.07	1.05	1.09	1.09	1.10	1.14	1.43			3.17	3.21	3.33
	velocity	5.26	8.62	8.70	8.62	8.54	8.70	8.39	8.39	8.31	8.02	9.80	8.00		8.65	8.54	8.23
Sato, Hiroyuki (JPN) (1990)	time	2.60	3.68	4.74	5.80	6.85	7.91	9.00	10.08	11.20	12.32		13.78	6 / 2			
reaction time	interval		1.08	1.06	1.06	1.05	1.06	1.09	1.08	1.12	1.12	1.46			3.20	3.20	3.32
	velocity	5.28	8.46	8.62	8.62	8.70	8.62	8.39	8.46	8.16	8.16	9.60	7.98		8.57	8.57	8.26

Semi-Final 1

date 10-Jun-12 wind 2.4 m/s — *Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mita, Kyohei (JPN) (1991)	time	2.68	3.78	4.87	5.95	7.01	8.09	9.16	10.23	11.31	12.38		13.79	3 / 4			
reaction time	interval		1.10	1.09	1.08	1.06	1.08	1.07	1.07	1.08	1.07	1.41			3.27	3.21	3.22
	velocity	5.12	8.31	8.39	8.46	8.62	8.46	8.54	8.54	8.46	8.54	9.94	7.98		8.39	8.54	8.52
Wado, Tatsuya (JPN) (1990)	time	2.61	3.70	4.78	5.86	6.93	8.02	9.11	10.23	11.35	12.48		13.98	4 / 8			
reaction time	interval		1.09	1.08	1.08	1.07	1.09	1.09	1.12	1.12	1.13	1.50			3.25	3.25	3.37
	velocity	5.26	8.39	8.46	8.46	8.54	8.39	8.39	8.16	8.16	8.09	9.35	7.87		8.44	8.44	8.14

Heat 4

date 09-Jun-12 wind -0.2 m/s — *Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)	time	2.61	3.68	4.73	5.80	6.84	7.92	8.99	10.08	11.19	12.31		13.78	7 / 1			
reaction time	interval		1.07	1.05	1.07	1.04	1.08	1.07	1.09	1.11	1.12	1.47			3.19	3.19	3.32
	velocity	5.26	8.54	8.70	8.54	8.79	8.46	8.54	8.39	8.23	8.16	9.54	7.98		8.60	8.60	8.26

Heat 3

date 09-Jun-12 wind 0.0 m/s — *Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mita, Kyohei (JPN) (1991)	time	2.68	3.78	4.89	5.97	7.04	8.11	9.20	10.28	11.38	12.49		13.92	6 / 4			
reaction time	interval		1.10	1.11	1.08	1.07	1.07	1.09	1.08	1.10	1.11	1.43			3.29	3.23	3.29
	velocity	5.12	8.31	8.23	8.46	8.54	8.54	8.39	8.46	8.31	8.23	9.80	7.90		8.33	8.49	8.33

Heat 2

date 09-Jun-12 wind -1.1 m/s — *Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.62	3.71	4.77	5.84	6.91	7.99	9.10	10.21	11.32	12.46		13.94	5 / 2			
reaction time	interval		1.09	1.06	1.07	1.07	1.08	1.11	1.11	1.11	1.14	1.48			3.22	3.26	3.36
	velocity	5.24	8.39	8.62	8.54	8.54	8.46	8.23	8.23	8.23	8.02	9.47	7.89		8.52	8.41	8.16

Heat 1

date 09-Jun-12 wind 0.8 m/s — *Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wado, Tatsuya (JPN) (1990)	time	2.59	3.68	4.76	5.82	6.89	7.98	9.07	10.19	11.30	12.45		13.98	5 / 2			
reaction time	interval		1.09	1.08	1.06	1.07	1.09	1.09	1.12	1.11	1.15	1.53			3.23	3.25	3.38
	velocity	5.30	8.39	8.46	8.62	8.54	8.39	8.39	8.16	8.23	7.95	9.16	7.87		8.49	8.44	8.11

2012 Japanese National Multi-Event Championships (Nagano, JPN)

Decathlon - Heat 2

date 03-Jun-12 wind -1.7 m/s — *Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.76	3.93	5.10	6.25	7.41	8.58	9.78	10.98	12.19	13.42		15.01	5 / 2			
reaction time	interval		1.17	1.17	1.15	1.16	1.17	1.20	1.20	1.21	1.23	1.59			3.49	3.53	3.64
	velocity	4.97	7.81	7.81	7.95	7.88	7.81	7.62	7.62	7.55	7.43	8.82	7.33		7.86	7.77	7.53

Decathlon - Heat 1

date 03-Jun-12 wind 1.7 m/s — *Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.67	3.76	4.84	5.94	7.03	8.12	9.21	10.34	11.47	12.63		14.11	5 / 2			
reaction time	interval		1.09	1.08	1.10	1.09	1.09	1.09	1.13	1.13	1.16	1.48			3.27	3.27	3.42
	velocity	5.14	8.39	8.46	8.31	8.39	8.39	8.39	8.09	8.09	7.88	9.47	7.80		8.39	8.39	8.02

2012 Prefontaine Classic (Eugene, OR) (TV Analysis)

FINAL

date 02-Jun-12 wind 2.4 m/s — *Henson (2020) - Athlete First: 2012 Aries Merritt world record season*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.50	3.52	4.52	5.50	6.48	7.50	8.48	9.48	10.48	11.50		12.87	5 / 1			
reaction time 0.131	interval	*7 steps*	1.02	1.00	0.98	0.98	1.02	0.98	1.00	1.00	1.02	1.37			3.00	2.98	3.02
	velocity	5.49	8.96	9.14	9.33	9.33	8.96	9.33	9.14	9.14	8.96	10.23	8.55		9.14	9.20	9.08
Merritt, Aries (USA) (1985)	time	2.52	3.54	4.56	5.58	6.56	7.56	8.56	9.54	10.54	11.58		12.96	3 / 2			
reaction time 0.151	interval	*7 steps*	1.02	1.02	1.02	0.98	1.00	1.00	0.98	1.00	1.04	1.38			3.06	2.98	3.02
	velocity	5.44	8.96	8.96	8.96	9.33	9.14	9.14	9.33	9.14	8.79	10.16	8.49		8.96	9.20	9.08

Richardson, Jason (USA) (198(	time	2.52	3.56	4.56	5.56	6.56	7.56	8.56	9.58	10.62	11.66		13.11	4 / 3				
reaction time 0.159	interval	*7 steps*	1.04	1.00	1.00	1.00	1.00	1.00	1.02	1.04	1.04	1.45			3.04	3.00	3.10	
	velocity	5.44	8.79	9.14	9.14	9.14	9.14	9.14	8.96	8.79	8.79	9.67	8.39		9.02	9.14	8.85	
Faulk, Dexter (USA) (1984)	time	2.52	3.56	4.58	5.60	6.60	7.60	8.62	9.64	10.66	11.74		13.12	7 / 4				
reaction time 0.143	interval		1.04	1.02	1.02	1.00	1.00	1.02	1.02	1.02	1.08	1.38			3.08	3.02	3.12	
	velocity	5.44	8.79	8.96	8.96	9.14	9.14	8.96	8.96	8.96	8.46	10.16	8.38		8.90	9.08	8.79	
Oliver, David (USA) (1982)	time	2.52	3.56	4.56	5.56	6.54	7.56	8.60	9.60	10.64	11.72		13.13	6 / 5				
reaction time 0.171	interval	*7 steps*	1.04	1.00	1.00	0.98	1.02	1.04	1.00	1.04	1.08	1.41			3.04	3.04	3.12	
	velocity	5.44	8.79	9.14	9.14	9.33	8.96	8.79	9.14	8.79	8.46	9.94	8.38		9.02	9.02	8.79	
Wilson, Ryan (USA) (1980)	time	2.62	3.66	4.68	5.68	6.68	7.70	8.74	9.76	10.80	11.88		13.29	8 / 6				
reaction time 0.194	interval	*7 steps*	1.04	1.02	1.00	1.00	1.02	1.04	1.02	1.04	1.08	1.41			3.06	3.06	3.14	
	velocity	5.24	8.79	8.96	9.14	9.14	8.96	8.79	8.96	8.79	8.46	9.94	8.28		8.96	8.96	8.73	
Eaton, Ashton (USA) (1988)	time	2.56	3.60	4.64	5.66	6.68	7.72	8.76	9.78	10.82	11.90		13.34	1 / 7				
reaction time 0.168	interval	*7 steps*	1.04	1.04	1.02	1.02	1.04	1.04	1.02	1.04	1.08	1.44			3.10	3.10	3.14	
	velocity	5.36	8.79	8.79	8.96	8.96	8.79	8.79	8.96	8.79	8.46	9.74	8.25		8.85	8.85	8.73	
Turner, Andy (GBR) (1980)	time	2.60	3.64	4.68	5.72	6.74	7.76	8.82	9.86	10.92	12.00		13.46	2 / 8				
reaction time 0.149	interval		1.04	1.04	1.04	1.02	1.02	1.06	1.04	1.06	1.08	1.46			3.12	3.10	3.18	
	velocity	5.28	8.79	8.79	8.79	8.96	8.96	8.62	8.79	8.62	8.46	9.60	8.17		8.79	8.85	8.62	

2012 Chinese National Grand Prix (Zibo, CHN)

FINAL date 27-May-12 wind 0.1 m/s

Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.64	3.72	4.76	5.82	6.86	7.88	8.92	9.95	11.00	12.08		13.48	/ 1			
reaction time	interval		1.08	1.04	1.06	1.04	1.02	1.04	1.03	1.05	1.08	1.40			3.18	3.10	3.16
	velocity	5.20	8.46	8.79	8.62	8.79	8.96	8.79	8.87	8.70	8.46	10.01	8.16		8.62	8.85	8.68

2012 Golden Grand Prix (Shanghai, CHN)

Henson (2020) - Athlete First: 2012 Aries Merritt world record season (TV Analysis)

FINAL date 19-May-12 wind 0.4 m/s

Feng (2016) - Liu Xiang's seven-step starting: discussion on the key issues of 110m hurdles technical training

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.38	3.38	4.45	5.42	6.42	7.45	8.42	9.46	10.43	11.47		12.97	5 / 1			*Feng (2016)*
reaction time 0.160	interval		1.00	1.07	0.97	1.00	1.03	0.97	1.04	0.97	1.04	1.50			3.04	3.00	3.05
	velocity	5.76	9.14	8.54	9.42	9.14	8.87	9.42	8.79	9.42	8.79	9.35	8.48		9.02	9.14	8.99
Oliver, David (USA) (1982)	time	2.50	3.52	4.50	5.50	6.50	7.48	8.50	9.52	10.56	11.62		13.13	7 / 2			*Henson (2020)*
reaction time 0.192	interval	*7 steps*	1.02	0.98	1.00	1.00	0.98	1.02	1.02	1.04	1.06	1.51			3.00	3.00	3.12
	velocity	5.49	8.96	9.33	9.14	9.14	9.33	8.96	8.96	8.79	8.62	9.28	8.38		9.14	9.14	8.79
Richardson, Jason (USA) (198(	time	2.48	3.52	4.54	5.54	6.52	7.54	8.56	9.56	10.60	11.66		13.16	4 / 3			*Henson (2020)*
reaction time 0.168	interval	*7 steps*	1.04	1.02	1.00	0.98	1.02	1.02	1.00	1.04	1.06	1.50			3.06	3.02	3.10
	velocity	5.53	8.79	8.96	9.14	9.33	8.96	8.96	9.14	8.79	8.62	9.35	8.36		8.96	9.08	8.85
Merritt, Aries (USA) (1985)	time	2.34	3.38	4.42	5.46	6.50	7.54	8.58	9.62	10.66	11.70		13.26	6 / 4			*Feng (2016)*
reaction time 0.142	interval	*7 steps*	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.56			3.12	3.12	3.12
	velocity	5.86	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.99	8.30		8.79	8.79	8.79
Faulk, Dexter (USA) (1984)	time	2.52	3.58	4.62	5.64	6.66	7.70	8.74	9.80	10.86	11.94		13.43	2 / 5			*Henson (2020)*
reaction time 0.177	interval		1.06	1.04	1.02	1.02	1.04	1.04	1.06	1.06	1.08	1.49			3.12	3.10	3.20
	velocity	5.44	8.62	8.79	8.96	8.96	8.79	8.79	8.62	8.62	8.46	9.41	8.19		8.79	8.85	8.57
Craddock, Kevin (USA) (1987)	time	2.44	3.52	4.54	5.56	6.58	7.62	8.68	9.76	10.84	11.94		13.51	9 / 6			*Henson (2020)*
reaction time 0.167	interval	*7 steps*	1.08	1.02	1.02	1.02	1.04	1.06	1.08	1.08	1.10	1.57			3.12	3.12	3.26
	velocity	5.62	8.46	8.96	8.96	8.96	8.79	8.62	8.46	8.46	8.31	8.93	8.14		8.79	8.79	8.41
Shi Dongpeng (CHN) (1984)	time	2.52	3.60	4.66	5.70	6.74	7.78	8.82	9.86	10.96	12.06		13.60	1 / 7			*Henson (2020)*
reaction time 0.155	interval		1.08	1.06	1.04	1.04	1.04	1.04	1.04	1.10	1.10	1.54			3.18	3.12	3.24
	velocity	5.44	8.46	8.62	8.79	8.79	8.79	8.79	8.79	8.31	8.31	9.10	8.09		8.62	8.79	8.46
Xie Wenjun (CHN) (1990)	time	2.54	3.64	4.68	5.74	6.78	7.82	8.88	9.96	11.06	12.14		13.64	8 / 8			*Henson (2020)*
reaction time 0.179	interval		1.10	1.04	1.06	1.04	1.04	1.06	1.08	1.10	1.08	1.50			3.20	3.14	3.26
	velocity	5.40	8.31	8.79	8.62	8.79	8.79	8.62	8.46	8.31	8.46	9.35	8.06		8.57	8.73	8.41
Thomas, Dwight (JAM) (1980)	time	2.58	3.68	4.78	5.86	6.90	7.94	8.98	10.04	11.12	12.20		13.72	3 / 9			*Henson (2020)*
reaction time 0.174	interval	*7 steps*	1.10	1.10	1.08	1.04	1.04	1.04	1.06	1.08	1.08	1.52			3.28	3.12	3.22
	velocity	5.32	8.31	8.31	8.46	8.79	8.79	8.79	8.62	8.46	8.46	9.22	8.02		8.36	8.79	8.52

2012 Colorful Daegu Meeting (Daegu, KOR) (TV Analysis)

FINAL date 16-May-12 wind -0.4 m/s

Henson (2021) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.53	3.60	4.60	5.60	6.60	7.60	8.64	9.67				13.21	3 / 1			
reaction time 0.165	interval	*7 steps*	1.07	1.00	1.00	1.00	1.00	1.04	1.03						3.07	3.04	

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		velocity	5.42	8.54	9.14	9.14	9.14	9.14	8.79	8.87			8.33			8.93	9.02	
Oliver, David (USA) (1982)		time	2.56	3.60	4.60	5.60	6.60	7.60	8.64	9.67	10.71		13.22	5 / 2				
reaction time	0.180	interval	*7 steps*	1.04	1.00	1.00	1.00	1.00	1.04	1.03	1.04					3.04	3.04	
		velocity	5.36	8.79	9.14	9.14	9.14	9.14	8.79	8.87	8.79		8.32			9.02	9.02	
Richardson, Jason (USA) (198		time	2.65	3.70	4.70	5.72	6.74	7.77	8.77	9.79			13.34	4 / 3				
reaction time	0.234	interval	*7 steps*	1.05	1.00	1.02	1.02	1.03	1.00	1.02						3.07	3.05	
		velocity	5.18	8.70	9.14	8.96	8.96	8.87	9.14	8.96			8.25			8.93	8.99	

2012 Kanto (Tokyo, JPN)

FINAL

date 13-May-12 wind 2.0 m/s

Karube (2013) - the analysis of hurdle clearance and interval sprint in men's 110m sprint hurdle

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.67	3.78	4.86	5.94	7.05	8.11	9.20	10.28	11.37	12.47		13.88	/ 2			
reaction time	interval		1.11	1.08	1.08	1.11	1.06	1.09	1.08	1.09	1.10	1.41			3.27	3.26	3.27
	velocity	5.14	8.23	8.46	8.46	8.23	8.62	8.39	8.46	8.39	8.31	9.94	7.93		8.39	8.41	8.39

2012 Seiko Golden Grand Prix (Kawasaki, JPN)

Karube (2013) - the analysis of hurdle clearance and interval sprint in men's 110m sprint hurdle

FINAL

date 06-May-12 wind 0.2 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.51	3.57	4.57	5.59	6.58	7.59	8.61	9.62	10.63	11.67		13.09	4 / 1			*Karube (2013)*
reaction time	interval	*7 steps*	1.06	1.00	1.02	0.99	1.01	1.02	1.01	1.01	1.04	1.42			3.08	3.02	3.06
	velocity	5.47	8.62	9.14	8.96	9.23	9.05	8.96	9.05	9.05	8.79	9.87	8.40		8.90	9.08	8.96
Wado, Tatsuya (JPN) (1990)	time	2.55	3.64	4.71	5.75	6.80	7.86	8.93	10.00	11.09	12.22		13.71	1 / 4			*Kota (2013)*
reaction time	interval		1.09	1.07	1.04	1.05	1.06	1.07	1.07	1.09	1.13	1.49	PB		3.20	3.18	3.29
	velocity	5.38	8.39	8.54	8.79	8.70	8.62	8.54	8.54	8.39	8.09	9.41	8.02		8.57	8.62	8.33
Sato, Hiroyuki (JPN) (1990)	time	2.62	3.71	4.76	5.84	6.90	7.97	9.06	10.14	11.25	12.38		13.83	6 / 6			*Kota (2013)*
reaction time	interval		1.09	1.05	1.08	1.06	1.07	1.09	1.08	1.11	1.13	1.45			3.22	3.22	3.32
	velocity	5.24	8.39	8.70	8.46	8.62	8.54	8.39	8.46	8.23	8.09	9.67	7.95		8.52	8.52	8.26

2012 Mito Invitational Athletics Meeting (Mito, JPN)

FINAL

date 04-May-12 wind -0.3 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)	time	2.60	3.67	4.74	5.81	6.87	7.95	9.02	10.09	11.19	12.31		13.77	/ 1			
reaction time	interval		1.07	1.07	1.07	1.06	1.08	1.07	1.07	1.10	1.12	1.46			3.21	3.21	3.29
	velocity	5.28	8.54	8.54	8.54	8.62	8.46	8.54	8.54	8.31	8.16	9.60	7.99		8.54	8.54	8.33
Omuro, Hideki (JPN) (1990)	time	2.65	3.72	4.80	5.87	6.91	7.99	9.07	10.16	11.25	12.35		13.78	/ 3			
reaction time	interval		1.07	1.08	1.07	1.04	1.08	1.08	1.09	1.09	1.10	1.43			3.22	3.20	3.28
	velocity	5.18	8.54	8.46	8.54	8.79	8.46	8.46	8.39	8.39	8.31	9.80	7.98		8.52	8.57	8.36
Wado, Tatsuya (JPN) (1990)	time	2.57	3.68	4.75	5.81	6.90	7.96	9.04	10.13	11.26	12.38		13.88	/ 5			
reaction time	interval		1.11	1.07	1.06	1.09	1.06	1.08	1.09	1.13	1.12	1.50			3.24	3.23	3.34
	velocity	5.34	8.23	8.54	8.62	8.39	8.62	8.46	8.39	8.09	8.16	9.35	7.93		8.46	8.49	8.21

2012 Chinese National Grand Prix (Wuhan, CHN)

FINAL

date 29-Apr-12 wind 1.1 m/s

Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.64	3.72	4.76	5.82	6.86	7.88	8.92	9.95	11.00	12.08		13.48	/ 1			
reaction time	interval		1.08	1.04	1.06	1.04	1.02	1.04	1.03	1.05	1.08	1.40			3.18	3.10	3.16
	velocity	5.20	8.46	8.79	8.62	8.79	8.96	8.79	8.87	8.70	8.46	10.01	8.16		8.62	8.85	8.68

2012 Mikio Oda Memorial (Hiroshima, JPN)

A FINAL

date 29-Apr-12 wind 2.1 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)	time	2.61	3.66	4.71	5.74	6.79	7.84	8.91	9.99	11.07	12.17		13.59	3 / 2			
reaction time	interval		1.05	1.05	1.03	1.05	1.05	1.07	1.08	1.08	1.10	1.42			3.13	3.17	3.26
	velocity	5.26	8.70	8.70	8.87	8.70	8.70	8.54	8.46	8.46	8.31	9.87	8.09		8.76	8.65	8.41
Yazawa, Wataru (JPN) (1991)	time	2.59	3.65	4.71	5.78	6.85	7.93	8.99	10.06	11.15	12.27		13.69	6 / 3			
reaction time	interval		1.06	1.06	1.07	1.07	1.08	1.06	1.07	1.09	1.12	1.42			3.19	3.21	3.28
	velocity	5.30	8.62	8.62	8.54	8.54	8.46	8.62	8.54	8.39	8.16	9.87	8.04		8.60	8.54	8.36
Wado, Tatsuya (JPN) (1990)	time	2.58	3.65	4.73	5.78	6.84	7.92	8.98	10.04	11.15	12.26		13.70	5 / 4			
reaction time	interval		1.07	1.08	1.05	1.06	1.08	1.06	1.06	1.11	1.11	1.44			3.20	3.20	3.28
	velocity	5.32	8.54	8.46	8.70	8.62	8.46	8.62	8.62	8.23	8.23	9.74	8.03		8.57	8.57	8.36

B FINAL

date 29-Apr-12 wind 2.1 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.60	3.70	4.76	5.84	6.92	8.00	9.08	10.17	11.27	12.39		13.83	7 / 2			
reaction time	interval		1.10	1.06	1.08	1.08	1.08	1.08	1.09	1.10	1.12	1.44			3.24	3.24	3.31
	velocity	5.28	8.31	8.62	8.46	8.46	8.46	8.46	8.39	8.31	8.16	9.74	7.95		8.46	8.46	8.28

Mita, Kyohei (JPN) (1991)	time	2.69	3.78	4.86	5.94	7.03	8.10	9.19	10.28	11.37	12.46		13.87	6 / 3				
reaction time	interval		1.09	1.08	1.08	1.09	1.07	1.09	1.09	1.09	1.09	1.41	PB		3.25	3.25	3.27	
	velocity	5.10	8.39	8.46	8.46	8.39	8.54	8.39	8.39	8.39	8.39	9.94	7.93		8.44	8.44	8.39	

2012 Tokyo Athletics Championships (Chofu, JPN)

Decathlon - Heat ?' date 22-Apr-12 wind -0.1 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.71	3.83	4.94	6.05	7.15	8.26	9.35	10.46	11.59	12.72		14.15	???			
reaction time	interval		1.12	1.11	1.11	1.10	1.11	1.09	1.11	1.13	1.13	1.43			3.34	3.30	3.37	
	velocity	5.06	8.16	8.23	8.23	8.31	8.23	8.39	8.23	8.09	8.09	9.80	7.77		8.21	8.31	8.14	
Ushiro, Keisuke (JPN) (1986)	time	2.79	3.95	5.15	6.31	7.50	8.73	9.95	11.17	12.41	13.64		15.25	???			
reaction time	interval		1.16	1.20	1.16	1.19	1.23	1.22	1.22	1.24	1.23	1.61			3.52	3.64	3.69	
	velocity	4.92	7.88	7.62	7.88	7.68	7.43	7.49	7.49	7.37	7.43	8.71	7.21		7.79	7.53	7.43	

2012 Arkansas Twilight (Fayetteville, AR)

FINAL date 04-May-12 wind 1.0 m/s

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.50	3.53	4.55	5.57	6.57	7.54	8.54	9.54	10.54			13.03	5 / 1			
reaction time	interval	*7 steps*	1.03	1.02	1.02	1.00	0.97	1.00	1.00	1.00					3.07	2.97	
	velocity	5.49	8.87	8.96	8.96	9.14	9.42	9.14	9.14	9.14			8.44		8.93	9.23	

Heat 3 date 04-May-12 wind 2.9 m/s

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.50	3.53	4.53	5.53	6.52	7.51	8.50	9.51	10.52	11.54		12.99	5 / 1			
reaction time	interval	*7 steps*	1.03	1.00	1.00	0.99	0.99	0.99	1.01	1.01	1.02	1.45			3.03	2.97	3.04	
	velocity	5.49	8.87	9.14	9.14	9.23	9.23	9.23	9.05	9.05	8.96	9.67	8.47		9.05	9.23	9.02	

2012 IAAF World Indoor Championships (Istanbul, TUR) (TV Analysis)

FINAL date 11-Mar-12

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.48	3.48	4.50	5.50	6.50		7.44	4 / 1			
reaction time 0.135	interval	*7 steps*	1.00	1.02	1.00	1.00	0.94			3.02		
	velocity	5.53	9.14	8.96	9.14	9.14	10.34	8.06		9.08		
Liu Xiang (CHN) (1983)	time	2.50	3.52	4.54	5.56	6.58		7.49	3 / 2			
reaction time 0.167	interval	*7 steps*	1.02	1.02	1.02	1.02	0.91			3.06		
	velocity	5.49	8.96	8.96	8.96	8.96	10.68	8.01		8.96		
Martinot Lagarde, Pascal (FRA	time	2.50	3.54	4.56	5.58	6.58		7.53	6 / 3			
reaction time 0.141	interval		1.04	1.02	1.02	1.00	0.95			3.08		
	velocity	5.49	8.79	8.96	8.96	9.14	10.23	7.97		8.90		
Pozzi, Andy (GBR) (1992)	time	2.54	3.56	4.58	5.60	6.60		7.58	5 / 4			
reaction time 0.155	interval		1.02	1.02	1.02	1.00	0.98			3.06		
	velocity	5.40	8.96	8.96	8.96	9.14	9.92	7.92		8.96		
Shabanov, Konstantin (RUS) (	time	2.58	3.60	4.62	5.64	6.66		7.60	2 / 5			
reaction time 0.202	interval		1.02	1.02	1.02	1.02	0.94			3.06		
	velocity	5.32	8.96	8.96	8.96	8.96	10.34	7.89		8.96		
Abate, Emanuele (ITA) (1985)	time	2.60	3.62	4.64	5.66	6.68		7.63	7 / 6			
reaction time 0.155	interval	*7 steps*	1.02	1.02	1.02	1.02	0.95			3.06		
	velocity	5.28	8.96	8.96	8.96	8.96	10.23	7.86		8.96		
Fourie, Lehann (RSA) (1987)	time	2.52	3.58	4.62	5.66	6.70		7.69	8 / 7			
reaction time 0.147	interval	*7 steps*	1.06	1.04	1.04	1.04	0.99			3.14		
	velocity	5.44	8.62	8.79	8.79	8.79	9.82	7.80		8.73		
Noga, Artur (POL) (1988)	time	2.60	3.68	4.68	5.70	6.76		7.74	1 / 8			
reaction time 0.157	interval		1.08	1.00	1.02	1.06	0.98			3.10		
	velocity	5.28	8.46	9.14	8.96	8.62	9.92	7.75		8.85		

2012 USATF National Indoor Championships (Albuquerque, NM) (Altitude) (TV Analysis)

FINAL date 26-Feb-12

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.50	3.52	4.56	5.54	6.54		7.43	6 / 1			
reaction time 0.138	interval	*7 steps*	1.02	1.04	0.98	1.00	0.89	PB		3.04		
	velocity	5.49	8.96	8.79	9.33	9.14	10.92	8.08		9.02		

2012 Czech Republic National Indoor Championships (Praha, CZE)

FINAL date 25-Feb-12

Feher (2012) - Czech Republic indoor national championships - men's 60m hurdles

	H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

Mazáč, Martin (CZE) (1990)	time	2.68	3.76	4.77	5.82	6.84			7.81	4 / 1	
reaction time 0.138	interval		1.08	1.01	1.05	1.02	0.97				3.14
	velocity	5.12	8.46	9.05	8.70	8.96	10.02	7.68			8.73
Sedlák, Václav (CZE) (1993)	time	2.67	3.78	4.85	5.93	7.00			7.89	5 / 2	
reaction time 0.141	interval		1.11	1.07	1.08	1.07	0.89				3.26
	velocity	5.14	8.23	8.54	8.46	8.54	10.92	7.60			8.41
Penáz, Petr (CZE) (1991)	time	2.72	3.83	4.90	5.93	7.02			7.99	3 / 3	
reaction time 0.156	interval		1.11	1.07	1.03	1.09	0.97				3.21
	velocity	5.04	8.23	8.54	8.87	8.39	10.02	7.51			8.54
Kavka, Tomáš (CZE) (1989)	time	2.74	3.88	4.94	6.01	7.10			8.05	6 / 4	
reaction time 0.153	interval		1.14	1.06	1.07	1.09	0.95				3.27
	velocity	5.01	8.02	8.62	8.54	8.39	10.23	7.45			8.39
Helcelet, Adam Sebastian (CZE	time	2.70	3.83	4.88	5.97	7.09			8.06	7 / 5	
reaction time 0.140	interval		1.13	1.05	1.09	1.12	0.97				3.27
	velocity	5.08	8.09	8.70	8.39	8.16	10.02	7.44			8.39
Pokorny, Martin (CZE) (1988)	time	2.72	3.84	4.94	6.03	7.14			8.17	1 / 6	
reaction time 0.156	interval		1.12	1.10	1.09	1.11	1.03				3.31
	velocity	5.04	8.16	8.31	8.39	8.23	9.44	7.34			8.28
Sedlák, Pavel (CZE) (1983)	time	2.67	3.80	4.89	6.02	7.16			8.23	8 / 7	
reaction time 0.149	interval		1.13	1.09	1.13	1.14	1.07				3.35
	velocity	5.14	8.09	8.39	8.09	8.02	9.08	7.29			8.19
Nejedly, Adam (CZE) (1988)	time	2.78	3.95	5.06	6.20	7.29			8.27	2 / 8	
reaction time 0.187	interval		1.17	1.11	1.14	1.09	0.98				3.42
	velocity	4.94	7.81	8.23	8.02	8.39	9.92	7.26			8.02

Heat 3

date 25-Feb-12

Feher (2012) - Czech Republic indoor national championships - men's 60m hurdles

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sedlák, Václav (CZE) (1993)	time	2.70	3.82	4.88	5.99	7.05		7.98	4 / 1			
reaction time 0.141	interval		1.12	1.06	1.11	1.06	0.93			3.29		
	velocity	5.08	8.16	8.62	8.23	8.62	10.45	7.52		8.33		
Helcelet, Adam Sebastian (CZE	time	2.69	3.82	4.90	5.96	7.13		8.13	5 / 2			
reaction time 0.135	interval		1.13	1.08	1.06	1.17	1.00			3.27		
	velocity	5.10	8.09	8.46	8.62	7.81	9.72	7.38		8.39		
Nejedly, Adam (CZE) (1988)	time	2.75	3.91	5.01	6.12	7.23		8.18	3 / 3			
reaction time 0.137	interval		1.16	1.10	1.11	1.11	0.95			3.37		
	velocity	4.99	7.88	8.31	8.23	8.23	10.23	7.33		8.14		
Pokorny, Martin (CZE) (1988)	time	2.71	3.85	4.95	6.06	7.17		8.20	6 / 4			
reaction time 0.154	interval		1.14	1.10	1.11	1.11	1.03			3.35		
	velocity	5.06	8.02	8.31	8.23	8.23	9.44	7.32		8.19		
Ján, Jan (CZE) (1993)	time	2.75	3.92	5.04	6.21	7.34		8.39	2 / 5			
reaction time 0.141	interval		1.17	1.12	1.17	1.13	1.05			3.46		
	velocity	4.99	7.81	8.16	7.81	8.09	9.26	7.15		7.92		
Frolík, Petr (CZE) (1991)	time	2.82	4.01	5.19	6.37	7.54		8.56	7 / 6			
reaction time 0.172	interval		1.19	1.18	1.18	1.17	1.02			3.55		
	velocity	4.87	7.68	7.75	7.75	7.81	9.53	7.01		7.72		
Král, Lukáš (CZE) (1992)	time	2.87	4.09	5.32	6.54	7.77		8.84	1 / 7			
reaction time 0.202	interval		1.22	1.23	1.22	1.23	1.07			3.67		
	velocity	4.78	7.49	7.43	7.49	7.43	9.08	6.79		7.47		
Dinga, Libor (CZE) (1984)	time	2.92	4.15	5.38	6.60	7.85		8.92	8 / 8			
reaction time 0.174	interval		1.23	1.23	1.22	1.25	1.07			3.68		
	velocity	4.70	7.43	7.43	7.49	7.31	9.08	6.73		7.45		

Heat 2

date 25-Feb-12

Feher (2012) - Czech Republic indoor national championships - men's 60m hurdles

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Penáz, Petr (CZE) (1991)	time	2.75	3.85	4.92	5.97	7.03		8.01	4 / 1			
reaction time 0.168	interval		1.10	1.07	1.05	1.06	0.98			3.22		
	velocity	4.99	8.31	8.54	8.70	8.62	9.92	7.49		8.52		
Kavka, Tomáš (CZE) (1989)	time	2.75	3.87	4.95	6.02	7.11		8.09	3 / 2			
reaction time 0.143	interval		1.12	1.08	1.07	1.09	0.98			3.27		
	velocity	4.99	8.16	8.46	8.54	8.39	9.92	7.42		8.39		

Krejčí, Michal (CZE) (1981)	time	2.76	3.90	5.04	6.16	7.28			8.27	5 / 3		
reaction time 0.108	interval		1.14	1.14	1.12	1.12	0.99				3.40	
	velocity	4.97	8.02	8.02	8.16	8.16	9.82	7.26			8.06	
Lukáš, Marek (CZE) (1991)	time	2.66	3.83	4.99	6.14	7.29			8.27	2 / 4		
reaction time 0.111	interval		1.17	1.16	1.15	1.15	0.98				3.48	
	velocity	5.16	7.81	7.88	7.95	7.95	9.92	7.26			7.88	
Hunčovsky, Ondrej (CZE) (199(	time	2.80	4.01	5.22	6.42	7.62			8.67	7 / 5		
reaction time 0.141	interval		1.21	1.21	1.20	1.20	1.05				3.62	
	velocity	4.90	7.55	7.55	7.62	7.62	9.26	6.92			7.57	
Vondráček, Jan (CZE) (1991)	time	2.88	4.06	5.27	6.48	7.66			8.68	1 / 6		
reaction time 0.157	interval		1.18	1.21	1.21	1.18	1.02				3.60	
	velocity	4.76	7.75	7.55	7.55	7.75	9.53	6.91			7.62	
Šebrle, Roman (CZE) (1974)	time	2.85	4.07	5.30	6.54	7.83			9.05	8 / 7		
reaction time 0.140	interval		1.22	1.23	1.24	1.29	1.22				3.69	
	velocity	4.81	7.49	7.43	7.37	7.09	7.97	6.63			7.43	

Heat 1

date 25-Feb-12

Feher (2012) - Czech Republic indoor national championships - men's 60m hurdles

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Mazáč, Martin (CZE) (1990)	time	2.70	3.80	4.83	5.89	6.91		7.84	4 / 1			
reaction time 0.161	interval		1.10	1.03	1.06	1.02	0.93			3.19		
	velocity	5.08	8.31	8.87	8.62	8.96	10.45	7.65		8.60		
Sedlák, Pavel (CZE) (1983)	time	2.66	3.80	4.90	6.04	7.18		8.20	5 / 2			
reaction time 0.135	interval		1.14	1.10	1.14	1.14	1.02			3.38		
	velocity	5.16	8.02	8.31	8.02	8.02	9.53	7.32		8.11		
Haloun, Lukáš (CZE) (1991)	time	2.70	3.86	5.00	6.13	7.30		8.27	2 / 3			
reaction time 0.122	interval		1.16	1.14	1.13	1.17	0.97			3.43		
	velocity	5.08	7.88	8.02	8.09	7.81	10.02	7.26		7.99		
Hedvičák, Jaroslav (CZE) (1990)	time	2.74	3.90	5.05	6.18	7.33		8.32	6 / 4			
reaction time 0.149	interval		1.16	1.15	1.13	1.15	0.99			3.44		
	velocity	5.01	7.88	7.95	8.09	7.95	9.82	7.21		7.97		
Carda, Jan (CZE) (1989)	time	2.76	3.90	5.04	6.16	7.40		8.51	3 / 5			
reaction time 0.157	interval		1.14	1.14	1.12	1.24	1.11			3.40		
	velocity	4.97	8.02	8.02	8.16	7.37	8.76	7.05		8.06		
Šimánek, Jindrich (CZE) (1979)	time	2.85	4.01	5.19	6.35	7.52		8.55	7 / 6			
reaction time 0.189	interval		1.16	1.18	1.16	1.17	1.03			3.50		
	velocity	4.81	7.88	7.75	7.88	7.81	9.44	7.02		7.83		
Juránek, Martin (CZE) (1991)	time	2.85	4.06	5.29	6.54	7.76		8.78	1 / 7			
reaction time 0.174	interval		1.21	1.23	1.25	1.22	1.02			3.69		
	velocity	4.81	7.55	7.43	7.31	7.49	9.53	6.83		7.43		
Linhart, David (CZE) (1989)	time	2.92	4.15	5.37	6.60	7.83		8.93	8 / 8			
reaction time 0.175	interval		1.23	1.22	1.23	1.23	1.10			3.68		
	velocity	4.70	7.43	7.49	7.43	7.43	8.84	6.72		7.45		

2012 Italian National Indoor Championships (Ancona, ITA)

FINAL

date 25-Feb-12

FIDAL - Centro Studi & Ricerche (2012) - www.youtube.com/watch?v=SIDALf6RdBY

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Dal Molin, Paolo (ITA) (1987)	time	2.60	3.66	4.71	5.75	6.82		7.75	6 / 1	
reaction time	interval		1.06	1.05	1.04	1.07	0.93			3.15
	velocity	5.28	8.62	8.70	8.79	8.54	10.45	7.74		8.70

2012 Italian National Indoor Junior Championships (Ancona, ITA) (99cm)

FINAL

date 18-Feb-12

FIDAL - Centro Studi & Ricerche (2012) - www.youtube.com/watch?v=SU_c9jUKwsw

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Perini, Lorenzo (ITA) (1994)	time	2.68	3.77	4.85	5.90	6.95		7.91	3 / 1	
reaction time	interval		1.09	1.08	1.05	1.05	0.96	PB		3.22
	velocity	5.12	8.39	8.46	8.70	8.70	10.13	7.59		8.52

2012 Italian National Indoor Youth Championships (Ancona, ITA) (91cm)

FINAL

date 18-Feb-12

FIDAL - Centro Studi & Ricerche (2012) - www.youtube.com/watch?v=SIDALf6RdBY

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Faragona, Alessandro (ITA) (19	time	2.68	3.78	4.83	5.87	6.93		7.93	4 / 1	
reaction time	interval	7 steps	1.10	1.05	1.04	1.06	1.00	PB		3.19
	velocity	5.12	8.31	8.70	8.79	8.62	9.72	7.57		8.60

2012 Aviva Grand Prix (Birmingham, GBR)

FINAL date 18-Feb-12

Wang (2012) - analysis of the time characteristics of Liu Xiang in his first 110m hurdles competition of 2012

			H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)		time	2.54	3.54	4.54	5.54	6.51		7.41	/ 1			
reaction time	0.154	interval		1.00	1.00	1.00	0.97	0.90	**AR PB**		3.00		
		velocity	5.40	9.14	9.14	9.14	9.42	10.80	8.10		9.14		

2012 Leonard Hilton Memorial Invitational (Houston, TX)

FINAL date 13-Jan-12

Henson (2020) - Athlete First: 2012 Aries Merritt world record season

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Merritt, Aries (USA) (1985)	time	2.53	3.53	4.53	5.52	6.52		7.46	5 / 1			
reaction time	interval	*7 steps*	1.00	1.00	0.99	1.00	0.94			2.99		
	velocity	5.42	9.14	9.14	9.23	9.14	10.34	8.04		9.17		

2011 IAAF World Championships (Daegu, KOR) (TV Analysis)

FINAL date 29-Aug-11 wind -1.1 m/s

Henson (2021) - Athlete First: major championships report

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Robles, Dayron (CUB) (1986)		time	2.40	3.45	4.47	5.47	6.47	7.47	8.47	9.51	10.54	11.64		13.14	5 / ~~1~~			
reaction time	0.150	interval	*7 steps*	1.05	1.02	1.00	1.00	1.00	1.00	1.04	1.03	1.10	1.50	**DQ**		3.07	3.00	3.17
		velocity	5.72	8.70	8.96	9.14	9.14	9.14	9.14	8.79	8.87	8.31	9.35	8.37		8.93	9.14	8.65
Richardson, Jason (USA) (198		time	2.50	3.53	4.55	5.54	6.54	7.54	8.55	9.57	10.61	11.66		13.16	3 / ~~2~~ 1			
reaction time	0.178	interval	*7 steps*	1.03	1.02	0.99	1.00	1.00	1.01	1.02	1.04	1.05	1.50			3.04	3.01	3.11
		velocity	5.49	8.87	8.96	9.23	9.14	9.14	9.05	8.96	8.79	8.70	9.35	8.36		9.02	9.11	8.82
Liu Xiang (CHN) (1983)		time	2.48	3.52	4.52	5.52	6.52	7.51	8.51	9.52	10.54	11.62		13.27	6 / ~~3~~ 2			
reaction time	0.164	interval	*7 steps*	1.04	1.00	1.00	1.00	0.99	1.00	1.01	1.02	1.08	1.65			3.04	2.99	3.11
		velocity	5.53	8.79	9.14	9.14	9.14	9.23	9.14	9.05	8.96	8.46	8.50	8.29		9.02	9.17	8.82
Turner, Andy (GBR) (1980)		time	2.53	3.58	4.64	5.67	6.71	7.74	8.77	9.82	10.89	11.92		13.44	1 / ~~4~~ 3			
reaction time	0.146	interval		1.05	1.06	1.03	1.04	1.03	1.03	1.05	1.07	1.03	1.52			3.14	3.10	3.15
		velocity	5.42	8.70	8.62	8.87	8.79	8.87	8.87	8.70	8.54	8.87	9.22	8.18		8.73	8.85	8.70
Oliver, David (USA) (1982)		time	2.48	3.50	4.58	5.62	6.67	7.71	8.77	9.80	10.84	11.91		13.44	4 / ~~5~~ 4			
reaction time	0.171	interval	*7 steps*	1.02	1.08	1.04	1.05	1.04	1.06	1.03	1.04	1.07	1.53			3.14	3.15	3.14
		velocity	5.53	8.96	8.46	8.79	8.70	8.79	8.62	8.87	8.79	8.54	9.16	8.18		8.73	8.70	8.73
Merritt, Aries (USA) (1985)		time	2.50	3.54	4.57	5.57	6.61	7.71	8.79	9.88	10.94	12.01		13.67	7 / ~~6~~ 5			
reaction time	0.140	interval		1.04	1.03	1.00	1.04	1.10	1.08	1.09	1.06	1.07	1.66			3.07	3.22	3.22
		velocity	5.49	8.79	8.87	9.14	8.79	8.31	8.46	8.39	8.62	8.54	8.45	8.05		8.93	8.52	8.52
Sharman, William (GBR) (1984)		time	2.52	3.62	4.68	5.74	6.77	7.81	8.86	9.92	11.00	12.11		13.67	8 / ~~6~~ 5			
reaction time	0.178	interval	*7 steps*	1.10	1.06	1.06	1.03	1.04	1.05	1.06	1.08	1.11	1.56			3.22	3.12	3.25
		velocity	5.44	8.31	8.62	8.62	8.87	8.79	8.70	8.62	8.46	8.23	8.99	8.05		8.52	8.79	8.44
Thomas, Dwight (JAM) (1980)		time	2.57	3.68										dnf	2 / --			
reaction time	0.153	interval	*7 steps*	1.11														
		velocity	5.34	8.23														

Decathlon - Heat 1

date 28-Aug-11 wind -0.1 m/s

Hisashi (2012) - perfromance analysis of Japanese record holder Keisuke Ushiro

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)		time	2.77	3.92	5.09	6.28	7.45	8.66	9.88	11.10	12.34	13.57		15.20	5 / 6			
reaction time	0.167	interval		1.15	1.17	1.19	1.17	1.21	1.22	1.22	1.24	1.23	1.63			3.51	3.60	3.69
		velocity	4.95	7.95	7.81	7.68	7.81	7.55	7.49	7.49	7.37	7.43	8.60	7.24		7.81	7.62	7.43

2011 Windsprint (Sundsvall, SWE)

FINAL date 31-Jul-11 wind 2.8 m/s

Blomkvist (2011) - www.sub13.se

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Townsend, Fred (USA) (1982)	time	2.62	3.68	4.71	5.75	6.76	7.78	8.83	9.87	10.93	11.99		13.41	/ 1			
reaction time	interval		1.06	1.03	1.04	1.01	1.02	1.05	1.04	1.06	1.06	1.42			3.13	3.08	3.16
	velocity	5.24	8.62	8.87	8.79	9.05	8.96	8.70	8.79	8.62	8.62	9.87	8.20		8.76	8.90	8.68
Vukicevic, Vladimir (NOR) (199	time	2.67	3.74	4.81	5.89	6.98	8.07	9.17	10.28	11.39	12.52		14.04	/ 2			
reaction time	interval		1.07	1.07	1.08	1.09	1.09	1.10	1.11	1.11	1.13	1.52			3.22	3.28	3.35
	velocity	5.14	8.54	8.54	8.46	8.39	8.39	8.31	8.23	8.23	8.09	9.22	7.83		8.52	8.36	8.19
Martinsen, Andreas (DEN) (19	time	2.71	3.81	4.87	5.94	7.01	8.08	9.17	10.31	11.44	12.59		14.19	/ 3			
reaction time	interval		1.10	1.06	1.07	1.07	1.07	1.09	1.14	1.13	1.15	1.60			3.23	3.23	3.42
	velocity	5.06	8.31	8.62	8.54	8.54	8.54	8.39	8.02	8.09	7.95	8.76	7.75		8.49	8.49	8.02
Bentsen, Jon Yde (DEN) (1985)	time	2.72	3.85	4.95	6.04	7.14	8.25	9.37	10.49	11.64	12.81		14.42	/ 4			
reaction time	interval		1.13	1.10	1.09	1.10	1.11	1.12	1.12	1.15	1.17	1.61			3.32	3.33	3.44
	velocity	5.04	8.09	8.31	8.39	8.31	8.23	8.16	8.16	7.95	7.81	8.71	7.63		8.26	8.23	7.97
Acson, Dennis (SWE) (1981)	time	2.74	3.85	4.97	6.09	7.24							14.99	/ 5			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval		1.11	1.12	1.12	1.15								3.35			
	velocity	5.01	8.23	8.16	8.16	7.95						7.34		8.19			

2011 Asian Championships (Kobe, JPN)

FINAL

date 10-Jul-11 wind -2.1 m/s

Hisashi (2012) - perfromance analysis of Japanese record holder Keisuke Ushiro

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.62	3.72	4.80	5.91	7.01	8.11	9.23	10.37	11.51	12.69		14.21	/ 4			
reaction time	interval		1.10	1.08	1.11	1.10	1.10	1.12	1.14	1.14	1.18	1.52			3.29	3.32	3.46
	velocity	5.24	8.31	8.46	8.23	8.31	8.31	8.16	8.02	8.02	7.75	9.22	7.74		8.33	8.26	7.92

Decathlon - Heat 1

date 08-Jul-11 wind 0.3 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.70	3.83	4.95	6.07	7.21	8.34	9.48	10.66	11.82	13.00		14.50	/ 1			
reaction time	interval		1.13	1.12	1.12	1.14	1.13	1.14	1.18	1.16	1.18	1.50			3.37	3.41	3.52
	velocity	5.08	8.09	8.16	8.16	8.02	8.09	8.02	7.75	7.88	7.75	9.35	7.59		8.14	8.04	7.79

2011 European Team Championships (Stockholm, SWE)

Race 1

date 19-Jun-11 wind -0.8 m/s

Blomkvist (2011) - www.sub13.se

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Quiñónez, Jackson (ESP) (1980	time	2.56	3.64	4.68	5.72	6.76	7.80	8.88	9.96	11.08	12.20		13.71	3 / 1			
reaction time 0.171	interval		1.08	1.04	1.04	1.04	1.04	1.08	1.08	1.12	1.12	1.51			3.16	3.16	3.32
	velocity	5.36	8.46	8.79	8.79	8.79	8.79	8.46	8.46	8.16	8.16	9.28	8.02		8.68	8.68	8.26
Nossmy, Phillip (SWE) (1982)	time	2.60	3.68	4.72	5.80	6.84	7.92	8.98	10.06	11.16	12.24		13.73	5 / 2			
reaction time 0.174	interval		1.08	1.04	1.08	1.04	1.08	1.06	1.08	1.10	1.08	1.49			3.20	3.18	3.26
	velocity	5.28	8.46	8.79	8.46	8.79	8.46	8.62	8.46	8.31	8.46	9.41	8.01		8.57	8.62	8.41
Lynsha, Maksim (BLR) (1985)	time	2.60	3.66	4.72	5.80	6.84	7.92	8.98	10.06	11.16	12.24		13.76	6 / 3			
reaction time 0.173	interval		1.06	1.06	1.08	1.04	1.08	1.06	1.08	1.10	1.08	1.52			3.20	3.18	3.26
	velocity	5.28	8.62	8.62	8.46	8.79	8.46	8.62	8.46	8.31	8.46	9.22	7.99		8.57	8.62	8.41
Mazáč, Martin (CZE) (1990)	time	2.66	3.72	4.80	5.84	6.90	7.96	9.02	10.12	11.28	12.40		14.00	1 / 4			
reaction time 0.179	interval		1.06	1.08	1.04	1.06	1.06	1.06	1.10	1.16	1.12	1.60			3.18	3.18	3.38
	velocity	5.16	8.62	8.46	8.79	8.62	8.62	8.62	8.31	7.88	8.16	8.76	7.86		8.62	8.62	8.11
Dabó, Rasul (POR) (1989)	time	2.60	3.72	4.80	5.86	6.96	8.03	9.12	10.28	11.40	12.56		14.14	2 / 5			
reaction time 0.148	interval		1.12	1.08	1.06	1.10	1.07	1.09	1.16	1.12	1.16	1.58			3.26	3.26	3.44
	velocity	5.28	8.16	8.46	8.62	8.31	8.54	8.39	7.88	8.16	7.88	8.87	7.78		8.41	8.41	7.97
Kopanayko, Serhiy (UKR) (198	time	2.68	3.76	4.88	5.96	7.04	8.11	9.26	10.40	11.62	12.84		14.57	4 / 6			
reaction time 0.166	interval		1.08	1.12	1.08	1.08	1.07	1.15	1.14	1.22	1.22	1.73			3.28	3.30	3.58
	velocity	5.12	8.46	8.16	8.46	8.46	8.54	7.95	8.02	7.49	7.49	8.10	7.55		8.36	8.31	7.66

2011 Folksam GP (Göteborg, SWE)

FINAL

date 11-Jun-11 wind 0.6 m/s

Blomkvist (2011) - www.sub13.se

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Akins, Ty (USA) (1986)	time	2.44	3.48	4.52	5.56	6.60	7.64	8.68	9.72	10.76	11.84		13.41	/ 1			
reaction time	interval		1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.08	1.57			3.12	3.12	3.16
	velocity	5.62	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.46	8.93	8.20		8.79	8.79	8.68
Berger, Dominic (USA) (1986)	time	2.48	3.56	4.60	5.64	6.68	7.72	8.76	9.80	10.86	11.92		13.49	/ 2			
reaction time	interval		1.08	1.04	1.04	1.04	1.04	1.04	1.04	1.06	1.06	1.57			3.16	3.12	3.16
	velocity	5.53	8.46	8.79	8.79	8.79	8.79	8.79	8.79	8.62	8.62	8.93	8.15		8.68	8.79	8.68
Townsend, Fred (USA) (1982)	time	2.52	3.56	4.60	5.64	6.68	7.72	8.78	9.84	10.90	11.98		13.57	/ 3			
reaction time	interval		1.04	1.04	1.04	1.04	1.04	1.06	1.06	1.06	1.08	1.59			3.12	3.14	3.20
	velocity	5.44	8.79	8.79	8.79	8.79	8.79	8.62	8.62	8.62	8.46	8.82	8.11		8.79	8.73	8.57
Nossmy, Phillip (SWE) (1982)	time	2.52	3.60	4.68	5.72	6.78	7.82	8.88	9.94	11.00	12.10		13.71	/ 4			
reaction time	interval		1.08	1.08	1.04	1.06	1.04	1.06	1.06	1.06	1.10	1.61			3.20	3.16	3.22
	velocity	5.44	8.46	8.46	8.79	8.62	8.79	8.62	8.62	8.62	8.31	8.71	8.02		8.57	8.68	8.52
Baji, Balázs (HUN) (1989)	time	2.53	3.64	4.72	5.78	6.84	7.88	8.96	10.04	11.12	12.20		13.80	/ 5			
reaction time	interval		1.11	1.08	1.06	1.06	1.04	1.08	1.08	1.08	1.08	1.60			3.25	3.18	3.24
	velocity	5.42	8.23	8.46	8.62	8.62	8.79	8.46	8.46	8.46	8.46	8.76	7.97		8.44	8.62	8.46
Shaker, Amir (IRQ) (1989)	time	2.64	3.72	4.84	5.90	6.96	8.05	9.16	10.26	11.38	12.56		14.27	/ 6			
reaction time	interval		1.08	1.12	1.06	1.06	1.09	1.11	1.10	1.12	1.18	1.71			3.26	3.26	3.40
	velocity	5.20	8.46	8.16	8.62	8.62	8.39	8.23	8.31	8.16	7.75	8.20	7.71		8.41	8.41	8.06
Blaschke, Joakim (SWE) (1977)	time	2.60	3.72	4.84	5.96	7.12	8.28	9.42	10.58	11.76	12.94		14.72	/ 7			
reaction time	interval		1.12	1.12	1.12	1.16	1.16	1.14	1.16	1.18	1.18	1.78			3.36	3.46	3.52
	velocity	5.28	8.16	8.16	8.16	7.88	7.88	8.02	7.88	7.75	7.75	7.88	7.47		8.16	7.92	7.79

2011 Japanese National Championships (Kumagaya, JPN)

FINAL

date 11-Jun-11 wind -0.1 m/s

Hisashi (2012) - perfromance analysis of Japanese record holder Keisuke Ushiro

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.64	3.72	4.80	5.87	6.94	8.01	9.11	10.20	11.30	12.42		13.86	/ 1			
reaction time	interval		1.08	1.08	1.07	1.07	1.07	1.10	1.09	1.10	1.12	1.44	PB		3.23	3.24	3.31
	velocity	5.20	8.46	8.46	8.54	8.54	8.54	8.31	8.39	8.31	8.16	9.74	7.94		8.49	8.46	8.28
Wado, Tatsuya (JPN) (1990)	time	2.59	3.68	4.77	5.85	6.91	7.99	9.09	10.19	11.29	12.44		13.95	/ 4			
reaction time	interval		1.09	1.09	1.08	1.06	1.08	1.10	1.10	1.10	1.15	1.51			3.26	3.24	3.35
	velocity	5.30	8.39	8.39	8.46	8.62	8.46	8.31	8.31	8.31	7.95	9.28	7.89		8.41	8.46	8.19
Omuro, Hideki (JPN) (1990)	time	2.63	3.74	4.84	5.92	7.02	8.10	9.21	10.31	11.41	12.53		13.98	/ 6			
reaction time	interval		1.11	1.10	1.08	1.10	1.08	1.11	1.10	1.10	1.12	1.45			3.29	3.29	3.32
	velocity	5.22	8.23	8.31	8.46	8.31	8.46	8.23	8.31	8.31	8.16	9.67	7.87		8.33	8.33	8.26

Semi-Final 2

date 11-Jun-11 wind -0.1 m/s

Hisashi (2012) - perfromance analysis of Japanese record holder Keisuke Ushiro

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.59	3.70	4.79	5.87	6.95	8.03	9.12	10.23	11.34	12.48		13.95	/ 1			
reaction time	interval		1.11	1.09	1.08	1.08	1.08	1.09	1.11	1.11	1.14	1.47			3.28	3.25	3.36
	velocity	5.30	8.23	8.39	8.46	8.46	8.46	8.39	8.23	8.23	8.02	9.54	7.89		8.36	8.44	8.16
Wado, Tatsuya (JPN) (1990)	time	2.59	3.68	4.75	5.86	6.93	8.03	9.14	10.24	11.36	12.51		14.04	/ 3			
reaction time	interval		1.09	1.07	1.11	1.07	1.10	1.11	1.10	1.12	1.15	1.53			3.27	3.28	3.37
	velocity	5.30	8.39	8.54	8.23	8.54	8.31	8.23	8.31	8.16	7.95	9.16	7.83		8.39	8.36	8.14

Semi-Final 1

date 11-Jun-11 wind -2.0 m/s

Hisashi (2012) - perfromance analysis of Japanese record holder Keisuke Ushiro

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.67	3.76	4.85	5.94	7.03	8.14	9.26	10.39	11.52	12.66		14.09	/ 2			
reaction time	interval		1.09	1.09	1.09	1.09	1.11	1.12	1.13	1.13	1.14	1.43			3.27	3.32	3.40
	velocity	5.14	8.39	8.39	8.39	8.39	8.23	8.16	8.09	8.09	8.02	9.80	7.81		8.39	8.26	8.06
Sato, Hiroyuki (JPN) (1990)	time	2.65	3.75	4.84	5.94	7.03	8.12	9.23	10.35	11.49	12.65		14.17	/ 7			
reaction time	interval		1.10	1.09	1.10	1.09	1.09	1.11	1.12	1.14	1.16	1.52			3.29	3.29	3.42
	velocity	5.18	8.31	8.39	8.31	8.39	8.39	8.23	8.16	8.02	7.88	9.22	7.76		8.33	8.33	8.02

Heat 2

date 10-Jun-11 wind 0.1 m/s

Hisashi (2012) - perfromance analysis of Japanese record holder Keisuke Ushiro

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yazawa, Wataru (JPN) (1991)	time	2.61	3.68	4.74	5.81	6.87	7.95	9.05	10.16	11.29	12.43		13.89	/ 1			
reaction time	interval		1.07	1.06	1.07	1.06	1.08	1.10	1.11	1.13	1.14	1.46	PB		3.20	3.24	3.38
	velocity	5.26	8.54	8.62	8.54	8.62	8.46	8.31	8.23	8.09	8.02	9.60	7.92		8.57	8.46	8.11

2011 Japanese National Multi-Event Championships (Kawasaki, JPN)

Decathlon - Heat ?'

date 05-Jun-11 wind 0.5 m/s

Hisashi (2012) - perfromance analysis of Japanese record holder Keisuke Ushiro

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.75	3.92	5.08	6.25	7.41	8.58	9.75	10.92	12.14	13.33		14.93	???			
reaction time	interval		1.17	1.16	1.17	1.16	1.17	1.17	1.17	1.22	1.19	1.60	PB		3.50	3.50	3.58
	velocity	4.99	7.81	7.88	7.81	7.88	7.81	7.81	7.81	7.49	7.68	8.76	7.37		7.83	7.83	7.66

Decathlon - Heat ?'

date 05-Jun-11 wind 1.4 m/s

Takeo (2014) - decathletes sprint ability and the relationship of the individual event performance

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nakamura, Akihiko (JPN) (1990	time	2.70	3.83	4.95	6.06	7.17	8.28	9.40	10.52	11.65	12.79		14.25	???			
reaction time	interval		1.13	1.12	1.11	1.11	1.11	1.12	1.12	1.13	1.14	1.46			3.36	3.34	3.39
	velocity	5.08	8.09	8.16	8.23	8.23	8.23	8.16	8.16	8.09	8.02	9.60	7.72		8.16	8.21	8.09

2011 Mikio Oda Memorial (Hiroshima, JPN)

FINAL

date 29-Apr-11 wind 2.4 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Omuro, Hideki (JPN) (1990)	time	2.59	3.67	4.72	5.80	6.87	7.90	8.98	10.04	11.14	12.23		13.66	/ 2			
reaction time	interval		1.08	1.05	1.08	1.07	1.03	1.08	1.06	1.10	1.09	1.43			3.21	3.18	3.25
	velocity	5.30	8.46	8.70	8.46	8.54	8.87	8.46	8.62	8.31	8.39	9.80	8.05		8.54	8.62	8.44
Yazawa, Wataru (JPN) (1991)	time	2.62	3.71	4.78	5.84	6.90	7.96	9.04	10.14	11.25	12.36		13.79	/ 6			
reaction time	interval		1.09	1.07	1.06	1.06	1.06	1.08	1.10	1.11	1.11	1.43			3.22	3.20	3.32
	velocity	5.24	8.39	8.54	8.62	8.62	8.62	8.46	8.31	8.23	8.23	9.80	7.98		8.52	8.57	8.26

Heat 3

date 29-Apr-11 wind 2.4 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wado, Tatsuya (JPN) (1990)	time	2.62	3.70	4.77	5.83	6.95	8.03	9.13	10.22	11.31	12.48		13.97	/ 5			
reaction time	interval		1.08	1.07	1.06	1.12	1.08	1.10	1.09	1.09	1.17	1.49			3.21	3.30	3.35
	velocity	5.24	8.46	8.54	8.62	8.16	8.46	8.31	8.39	8.39	7.81	9.41	7.87		8.54	8.31	8.19

Heat 1

date 29-Apr-11 wind 0.7 m/s

Kota (2013) - race analysis of leading Japanese men's 110m hurdlers - from 2011-13

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sato, Hiroyuki (JPN) (1990)	time	2.59	3.66	4.74	5.82	6.92	8.03	9.13	10.25	11.35	12.51		14.00	/ 5			
reaction time	interval		1.07	1.08	1.08	1.10	1.11	1.10	1.12	1.10	1.16	1.49			3.23	3.31	3.38

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

	velocity	5.30	8.54	8.46	8.46	8.31	8.23	8.31	8.16	8.31	7.88	9.41	7.86		8.49	8.28	8.11

2011 Wakayama Athletics Meeting (Wakayama, JPN)

Decathlon - Heat 1

date 24-Apr-11 wind -0.1 m/s

Hisashi (2012) - perfromance analysis of Japanese record holder Keisuke Ushiro

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ushiro, Keisuke (JPN) (1986)	time	2.82	3.98	5.17	6.35	7.56	8.77	10.00	11.21	12.43	13.64		15.28	8 / 2			
reaction time	interval		1.16	1.19	1.18	1.21	1.21	1.23	1.21	1.22	1.21	1.64			3.53	3.65	3.64
	velocity	4.87	7.88	7.68	7.75	7.55	7.55	7.43	7.55	7.49	7.55	8.55	7.20		7.77	7.51	7.53

2011 Swedish National Indoor Championships (Sätra, SWE)

FINAL

date 28-Feb-11

Blomkvist (2011) - www.sub13.se

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Nossmy, Philipp (SWE) (1982)	time	2.66	3.71	4.77	5.80	6.83		7.73	/ 1	
reaction time	interval		1.05	1.06	1.03	1.03	0.90			3.14
	velocity	5.16	8.70	8.62	8.87	8.87	10.80	7.76		8.73

2011 German National Indoor Junior Championships (Leverkusen , GER) (99cm)

FINAL

date 19-Feb-11

May (2011) - zwei jugendliche hürdensprinter im vergleich

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Traber, Gregor (GER) (1992)	time	2.60	3.66	4.70	5.73	6.76		7.66	4 / 1	
reaction time	interval	7 steps	1.06	1.04	1.03	1.03	0.90			3.13
	velocity	5.28	8.62	8.79	8.87	8.87	10.80	7.83		8.76
Mählmann, René (GER) (1993)	time	2.66	3.74	4.80	5.87	6.96		7.91	6 / 2	
reaction time	interval		1.08	1.06	1.07	1.09	0.95			3.21
	velocity	5.16	8.46	8.62	8.54	8.39	10.23	7.59		8.54

2011 Landskamp FIN-SWE-NOR (Tampere, FIN)

FINAL

date 05-Feb-11

Blomkvist (2011) - www.sub13.se

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Heinä, Joona-Ville (FIN) (1989)	time	2.56	3.64	4.68	5.76	6.84		7.87	7 / 1	
reaction time	interval		1.08	1.04	1.08	1.08	1.03			3.20
	velocity	5.36	8.46	8.79	8.46	8.46	9.44	7.62		8.57
Vukicevic, Vladimir (NOR) (199	time	2.52	3.68	4.76	5.82	6.92		7.95	3 / 2	
reaction time	interval		1.16	1.08	1.06	1.10	1.03			3.30
	velocity	5.44	7.88	8.46	8.62	8.31	9.44	7.55		8.31
Korkealaakso, Antti (FIN) (1984	time	2.60	3.72	4.80	5.88	6.96		7.99	4 / 3	
reaction time	interval		1.12	1.08	1.08	1.08	1.03			3.28
	velocity	5.28	8.16	8.46	8.46	8.46	9.44	7.51		8.36
Blaschke, Joakim (SWE) (1977)	time	2.60	3.72	4.80	5.90	7.00		8.06	5 / 4	
reaction time	interval		1.12	1.08	1.10	1.10	1.06			3.30
	velocity	5.28	8.16	8.46	8.31	8.31	9.17	7.44		8.31
Stavang, Eivind (NOR) (1982)	time	2.60	3.76	4.86	5.96	7.08		8.13	6 / 5	
reaction time	interval		1.16	1.10	1.10	1.12	1.05			3.36
	velocity	5.28	7.88	8.31	8.31	8.16	9.26	7.38		8.16
Askros, Rafael (SWE) (1981)	time	2.68	3.86	4.94	6.04	7.12		8.15	2 / 6	
reaction time	interval		1.18	1.08	1.10	1.08	1.03			3.36
	velocity	5.12	7.75	8.46	8.31	8.46	9.44	7.36		8.16

2010 Swedish National Championships (Falun, SWE)

FINAL

date 22-Aug-10 wind -0.7 m/s

Blomkvist (2010) - www.sub13.se

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nossmy, Philip (SWE) (1982)	time	2.70	3.79	4.85	5.92	6.98	8.06	9.15	10.29	11.42	12.55		14.14	/ 1			
reaction time	interval		1.09	1.06	1.07	1.06	1.08	1.09	1.14	1.13	1.13	1.59			3.22	3.23	3.40
	velocity	5.08	8.39	8.62	8.54	8.62	8.46	8.39	8.02	8.09	8.09	8.82	7.78		8.52	8.49	8.06
Askros, Rafael (SWE) (1981)	time	2.79	3.91	5.02	6.14	7.25	8.36	9.50	10.64	11.80	12.97		14.45	/ 2			
reaction time	interval		1.12	1.11	1.12	1.11	1.11	1.14	1.14	1.16	1.17	1.48			3.35	3.36	3.47
	velocity	4.92	8.16	8.23	8.16	8.23	8.23	8.02	8.02	7.88	7.81	9.47	7.61		8.19	8.16	7.90
Blaschke, Joakim (SWE) (1977)	time	2.70	3.84	4.97	6.09	7.21	8.35	9.48	10.64	11.82	13.00		14.57	/ 3			
reaction time	interval		1.14	1.13	1.12	1.12	1.14	1.13	1.16	1.18	1.18	1.57			3.39	3.39	3.52
	velocity	5.08	8.02	8.09	8.16	8.16	8.02	8.09	7.88	7.75	7.75	8.93	7.55		8.09	8.09	7.79
Shaker, Amir (SWE) (1989)	time	2.80	3.94	5.07	6.20	7.32	8.45	9.59	10.77	11.94	13.11		14.68	/ 4			
reaction time	interval		1.14	1.13	1.13	1.12	1.13	1.14	1.18	1.17	1.17	1.57	PB		3.40	3.39	3.52
	velocity	4.90	8.02	8.09	8.09	8.16	8.09	8.02	7.75	7.81	7.81	8.93	7.49		8.06	8.09	7.79
Tay, Marvin (SWE) (1990)	time	2.71	3.82	4.95	6.07	7.20	8.37	9.53	10.70	11.85	13.02		14.77	/ 5			

reaction time	interval		1.11	1.13	1.12	1.13	1.17	1.16	1.17	1.15	1.17	1.75			3.36	3.46	3.49
	velocity	5.06	8.23	8.09	8.16	8.09	7.81	7.88	7.81	7.95	7.81	8.01	7.45		8.16	7.92	7.86
Forsberg, Anton (SWE) (1991)	time	2.82	4.00	5.15	6.30	7.43	8.59	9.78	10.97	12.16	13.39		15.02	/ 6			
reaction time	interval		1.18	1.15	1.15	1.13	1.16	1.19	1.19	1.19	1.23	1.63			3.48	3.48	3.61
	velocity	4.87	7.75	7.95	7.95	8.09	7.88	7.68	7.68	7.68	7.43	8.60	7.32		7.88	7.88	7.60
Gustafsson, Josua (SWE) (198	time	2.80	3.97	5.17	6.33	7.49	8.69	9.89	11.10	12.31	13.54		15.17	/ 7			
reaction time	interval		1.17	1.20	1.16	1.16	1.20	1.20	1.21	1.21	1.23	1.63			3.53	3.56	3.65
	velocity	4.90	7.81	7.62	7.88	7.88	7.62	7.62	7.55	7.55	7.43	8.60	7.25		7.77	7.70	7.51
Chiguer, Adam (SWE) (1991)	time	2.83	4.04	5.27	6.53	7.77	9.05	10.31	11.60	12.89	14.20		15.94	/ 8			
reaction time	interval		1.21	1.23	1.26	1.24	1.28	1.26	1.29	1.29	1.31	1.74			3.70	3.78	3.89
	velocity	4.85	7.55	7.43	7.25	7.37	7.14	7.25	7.09	7.09	6.98	8.06	6.90		7.41	7.25	7.05

2010 Windsprint (Sundsvall, SWE)

FINAL date 08-Aug-10 wind 1.1 m/s

Blomkvist (2010) - www.sub13.se

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Townsend, Fred (USA) (1982)	time	2.61	3.68	4.74	5.79	6.82	7.88	8.94	9.99	11.08	12.16		13.64	/ 1			
reaction time	interval		1.07	1.06	1.05	1.03	1.06	1.06	1.05	1.09	1.08	1.48			3.18	3.15	3.22
	velocity	5.26	8.54	8.62	8.70	8.87	8.62	8.62	8.70	8.39	8.46	9.47	8.06		8.62	8.70	8.52
Nossmy, Philip (SWE) (1982)	time	2.67	3.74	4.82	5.86	6.91	7.97	9.04	10.09	11.17	12.26		13.67	/ 2			
reaction time	interval		1.07	1.08	1.04	1.05	1.06	1.07	1.05	1.08	1.09	1.41			3.19	3.18	3.22
	velocity	5.14	8.54	8.46	8.79	8.70	8.62	8.54	8.70	8.46	8.39	9.94	8.05		8.60	8.62	8.52
Porter, Jeff (USA) (1985)	time	2.63	3.71	4.76	5.85	6.91	8.00	9.08	10.14	11.23	12.32		13.79	/ 3			
reaction time	interval		1.08	1.05	1.09	1.06	1.09	1.08	1.06	1.09	1.09	1.47			3.22	3.23	3.24
	velocity	5.22	8.46	8.70	8.39	8.62	8.39	8.46	8.62	8.39	8.39	9.54	7.98		8.52	8.49	8.46
Hudson, Matt (GBR) (1988)	time	2.63	3.72	4.79	5.84	6.90	7.96	9.05	10.15	11.26	12.40		13.91	/ 4			
reaction time	interval		1.09	1.07	1.05	1.06	1.06	1.09	1.10	1.11	1.14	1.51			3.21	3.21	3.35
	velocity	5.22	8.39	8.54	8.70	8.62	8.62	8.39	8.31	8.23	8.02	9.28	7.91		8.54	8.54	8.19
Herring, Aubrey (USA) (1978)	time	2.68	3.75	4.84	5.90	6.96	8.04	9.13	10.23	11.36	12.49		14.07	/ 5			
reaction time	interval		1.07	1.09	1.06	1.06	1.08	1.09	1.10	1.13	1.13	1.58			3.22	3.23	3.36
	velocity	5.12	8.54	8.39	8.62	8.62	8.46	8.39	8.31	8.09	8.09	8.87	7.82		8.52	8.49	8.16
Al-Ameen, Alex (GBR) (1989)	time	2.75	3.86	4.95	6.03	7.11	8.21	9.31	10.42	11.53	12.67		14.20	/ 6			
reaction time	interval		1.11	1.09	1.08	1.08	1.10	1.10	1.11	1.11	1.14	1.53			3.28	3.28	3.36
	velocity	4.99	8.23	8.39	8.46	8.46	8.31	8.31	8.23	8.23	8.02	9.16	7.75		8.36	8.36	8.16
Askros, Rafael (SWE) (1981)	time	2.79	3.91	5.01	6.11	7.20	8.33	9.44	10.58	11.74	12.90		14.43	/ 7			
reaction time	interval		1.12	1.10	1.10	1.09	1.13	1.11	1.14	1.16	1.16	1.53			3.32	3.33	3.46
	velocity	4.92	8.16	8.31	8.31	8.39	8.09	8.23	8.02	7.88	7.88	9.16	7.62		8.26	8.23	7.92

2010 Areva Meeting (Saint-Denis, FRA)

FINAL date 16-Jul-10 wind 0.5 m/s

Wang (2013) - research upon time characters of Liu Xiang's 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Oliver, David (USA) (1982)	time	2.53	3.53	4.56	5.56	6.53	7.50	8.50	9.50	10.50	11.50		12.89	/ 1			
reaction time 0.161	interval	7 steps	1.00	1.03	1.00	0.97	0.97	1.00	1.00	1.00	1.00	1.39	AR PB		3.03	2.94	3.00
	velocity	5.42	9.14	8.87	9.14	9.42	9.42	9.14	9.14	9.14	9.14	10.09	8.53		9.05	9.33	9.14

2010 Folksam GP (Sollentuna, SWE)

FINAL date 01-Jul-10 wind 0.4 m/s

Blomkvist (2010) - www.sub13.se

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Phillips, Richard (JAM) (1983)	time	2.48	3.54	4.57	5.60	6.63	7.67	8.70	9.75	10.81	11.88		13.52	5 / 1			
reaction time	interval	7 steps	1.06	1.03	1.03	1.03	1.04	1.03	1.05	1.06	1.07	1.64			3.12	3.10	3.18
	velocity	5.53	8.62	8.87	8.87	8.87	8.79	8.87	8.70	8.62	8.54	8.55	8.14		8.79	8.85	8.62
Nossmy, Philip (SWE) (1982)	time	2.49	3.56	4.62	5.66	6.70	7.75	8.80	9.86	10.91	11.99		13.56	4 / 2			
reaction time	interval		1.07	1.06	1.04	1.04	1.05	1.05	1.06	1.05	1.08	1.57			3.17	3.14	3.19
	velocity	5.51	8.54	8.62	8.79	8.79	8.70	8.70	8.62	8.70	8.46	8.93	8.11		8.65	8.73	8.60
Clarke, Lawrence (GBR) (1990)	time	2.51	3.59	4.67	5.71	6.76	7.90	8.85	9.89	10.99	12.09		13.71	6 / 3			
reaction time	interval		1.08	1.08	1.04	1.05	1.14	0.95	1.04	1.10	1.10	1.62			3.20	3.14	3.24
	velocity	5.47	8.46	8.46	8.79	8.70	8.02	9.62	8.79	8.31	8.31	8.65	8.02		8.57	8.73	8.46
Thornton, Kirk (USA) (1986)	time	2.51	3.57	4.64	5.69	6.73	7.79	8.85	9.93	11.01	12.12		13.77	3 / 4			
reaction time	interval	7 steps	1.06	1.07	1.05	1.04	1.06	1.06	1.08	1.08	1.11	1.65			3.18	3.16	3.27
	velocity	5.47	8.62	8.54	8.70	8.79	8.62	8.62	8.46	8.46	8.23	8.50	7.99		8.62	8.68	8.39
Inocêncio, Mateus (BRA) (1981	time	2.53	3.62	4.69	5.73	6.78	7.85	8.93	10.03	11.14	12.28		13.94	2 / 5			
reaction time	interval		1.09	1.07	1.04	1.05	1.07	1.08	1.10	1.11	1.14	1.66			3.20	3.20	3.35
	velocity	5.42	8.39	8.54	8.79	8.70	8.54	8.46	8.31	8.23	8.02	8.45	7.89		8.57	8.57	8.19

Smit, Louw (RSA) (1988)	time	2.53	3.65	4.73									14.12	8 / 6		
reaction time	interval		1.12	1.08												
	velocity	5.42	8.16	8.46									7.79			
Askros, Rafael (SWE) (1981)	time	2.60	3.73	4.83	5.93	7.03	8.15	9.27	10.40	11.56	12.76		14.48	1 / 7		
reaction time	interval		1.13	1.10	1.10	1.10	1.12	1.12	1.13	1.16	1.20	1.72			3.33	3.34	3.49
	velocity	5.28	8.09	8.31	8.31	8.31	8.16	8.16	8.09	7.88	7.62	8.15	7.60		8.23	8.21	7.86
Blaschke, Joakim (SWE) (1977)	time	2.53	3.65	4.79									14.55	7 / 8		
reaction time	interval		1.12	1.14												
	velocity	5.42	8.16	8.02									7.56			

B FINAL

date 01-Jul-10 wind 0.8 m/s *Blomkvist (2010) - www.sub13.se*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Askros, Rafael (SWE) (1981)	time	2.56	3.67	4.77	5.88	6.99	8.10	9.23	10.38	11.56	12.74		14.55	/ 1			
reaction time	interval		1.11	1.10	1.11	1.11	1.11	1.13	1.15	1.18	1.18	1.81			3.32	3.35	3.51
	velocity	5.36	8.23	8.31	8.23	8.23	8.23	8.09	7.95	7.75	7.75	7.75	7.56		8.26	8.19	7.81
Stavang, Eivind (NOR) (1982)	time	2.45	3.64	4.80	5.95	7.09	8.22	9.42	10.58	11.79	12.99		14.81	/ 2			
reaction time	interval		1.19	1.16	1.15	1.14	1.13	1.20	1.16	1.21	1.20	1.82			3.50	3.47	3.57
	velocity	5.60	7.68	7.88	7.95	8.02	8.09	7.62	7.88	7.55	7.62	7.70	7.43		7.83	7.90	7.68
Forsberg, Anton (SWE) (1991)	time	2.60	3.77	4.90	6.05	7.24	8.33	9.55	10.72	11.97	13.28		15.16	/ 3			
reaction time	interval		1.17	1.13	1.15	1.19	1.09	1.22	1.17	1.25	1.31	1.88	PB		3.45	3.50	3.73
	velocity	5.28	7.81	8.09	7.95	7.68	8.39	7.49	7.81	7.31	6.98	7.46	7.26		7.95	7.83	7.35
Nilsson, Nicklas (SWE) (1987)	time	2.66	3.86	5.04	6.23	7.43	8.66		11.07				15.42	/ 4			
reaction time	interval		1.20	1.18	1.19	1.20	1.23		2.41				PB		3.57		
	velocity	5.16	7.62	7.75	7.68	7.62	7.43		7.59				7.13		7.68		
Almgren, Daniel (SWE) (1979)	time	2.66	3.87	5.04	6.25	7.43	8.66		11.09				15.44	/ 5			
reaction time	interval		1.21	1.17	1.21	1.18	1.23		2.43						3.59		
	velocity	5.16	7.55	7.81	7.55	7.75	7.43		7.52				7.12		7.64		

2010 European Team Championships, 1st League (Budapest, HUN)

FINAL

date 20-Jun-10 wind 1.1 m/s *Blomkvist (2010) - www.sub13.se*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kiss, Dániel (HUN) (1982)	time	2.49	3.52	4.54	5.53	6.54	7.54	8.58	9.58	10.67	11.75		13.32	5 / 1			
reaction time 0.160	interval		1.03	1.02	0.99	1.01	1.00	1.04	1.00	1.09	1.08	1.57	NR		3.04	3.05	3.17
	velocity	5.51	8.87	8.96	9.23	9.05	9.14	8.79	9.14	8.39	8.46	8.93	8.26		9.02	8.99	8.65
van der Westen, Marcel (NED)	time	2.46	3.53	4.57	5.59	6.64	7.68	8.75	9.81	10.90	11.98		13.61	3 / 2			
reaction time 0.130	interval		1.07	1.04	1.02	1.05	1.04	1.07	1.06	1.09	1.08	1.63			3.13	3.16	3.23
	velocity	5.58	8.54	8.79	8.96	8.70	8.79	8.54	8.62	8.39	8.46	8.60	8.08		8.76	8.68	8.49
Nossmy, Philip (SWE) (1982)	time	2.51	3.58	4.67	5.71	6.76	7.84	8.89	9.98	11.04	12.16		13.79	4 / 3			
reaction time 0.190	interval		1.07	1.09	1.04	1.05	1.08	1.05	1.09	1.06	1.12	1.63			3.20	3.18	3.27
	velocity	5.47	8.54	8.39	8.79	8.70	8.46	8.70	8.39	8.62	8.16	8.60	7.98		8.57	8.62	8.39
Mihaailescu, Alexandru (ROU)	time	2.51	3.64	4.69	5.75	6.80	7.86	8.93	10.00	11.11	12.22		13.87	2 / 4			
reaction time 0.150	interval		1.13	1.05	1.06	1.05	1.06	1.07	1.07	1.11	1.11	1.65			3.24	3.18	3.29
	velocity	5.47	8.09	8.70	8.62	8.70	8.62	8.54	8.54	8.23	8.23	8.50	7.93		8.46	8.62	8.33
Mazáč, Martin (CZE) (1990)	time	2.57	3.67	4.76	5.80	6.87	7.93	9.01	10.12	11.20	12.33		13.95	6 / 5			
reaction time 0.176	interval		1.10	1.09	1.04	1.07	1.06	1.08	1.11	1.08	1.13	1.62			3.23	3.21	3.32
	velocity	5.34	8.31	8.39	8.79	8.54	8.62	8.46	8.23	8.46	8.09	8.65	7.89		8.49	8.54	8.26
Ferreira, João (POR) (1986)	time	2.62	3.67	4.75	5.80	6.87	7.96	9.04	10.13	11.24	12.36		13.97	7 / 6			
reaction time 0.168	interval		1.05	1.08	1.05	1.07	1.09	1.08	1.09	1.11	1.12	1.61			3.18	3.24	3.32
	velocity	5.24	8.70	8.46	8.70	8.54	8.39	8.46	8.39	8.23	8.16	8.71	7.87		8.62	8.46	8.26

2010 ExxonMobil Bislett Games (Olso, NOR) (99cm)

Junior Final

date 04-Jun-10 wind 0.3 m/s *Blomkvist (2010) - www.sub13.se*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Meredith, Jack (GBR) (1992)	time	2.44	3.52	4.52	5.52	6.56	7.56	8.58	9.62	10.68	11.76		13.32	5 / 1			
reaction time 0.147	interval		1.08	1.00	1.00	1.04	1.00	1.02	1.04	1.06	1.08	1.56	NJR		3.08	3.06	3.18
	velocity	5.62	8.46	9.14	9.14	8.79	9.14	8.96	8.79	8.62	8.46	8.99	8.26		8.90	8.96	8.62
Vukicevic, Vladimir (NOR) (199	time	2.48	3.52	4.52	5.54	6.56	7.56	8.60	9.64	10.72	11.80		13.42	4 / 2			
reaction time 0.158	interval		1.04	1.00	1.02	1.02	1.00	1.04	1.04	1.08	1.08	1.62	NJR		3.06	3.06	3.20
	velocity	5.53	8.79	9.14	8.96	8.96	9.14	8.79	8.79	8.46	8.46	8.65	8.20		8.96	8.96	8.57
Lööv, Filip (SWE) (1992)	time	2.56	3.62	4.68	5.76	6.84	7.89	9.00	10.08	11.16	12.30		13.95	2 / 3			
reaction time 0.214	interval		1.06	1.06	1.08	1.08	1.05	1.11	1.08	1.08	1.14	1.65			3.20	3.24	3.30

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
		velocity	5.36	8.62	8.62	8.46	8.46	8.70	8.23	8.46	8.46	8.02	8.50	7.89		8.57	8.46	8.31
McLean, James (GBR) (1991)		time	2.46	3.52	4.56	5.60	6.68	7.80	8.88	10.00	11.14	12.32		13.97	3 / 4			
reaction time	0.151	interval		1.06	1.04	1.04	1.08	1.12	1.08	1.12	1.14	1.18	1.65	PB		3.14	3.28	3.44
		velocity	5.58	8.62	8.79	8.79	8.46	8.16	8.46	8.16	8.02	7.75	8.50	7.87		8.73	8.36	7.97

2010 NCAA National Championships (Eugene, OR)

Decathlon - Heat 2

date 01-Jun-10 wind 1.6 m/s

Deca Newsletter (2010) - eaton on ncaa three-peat

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Eaton, Ashton (USA) (1988)	time	2.4	3.5	4.7	5.7	6.7	7.7	8.8	9.9	11.1	12.1		13.68	6 / 1			
reaction time	interval		1.1	1.2	1.0	1.0	1.0	1.1	1.1	1.2	1.0	1.58			3.30	3.10	3.30
	velocity	5.72	8.31	7.62	9.14	9.14	9.14	8.31	8.31	7.62	9.14	8.87	8.04		8.31	8.85	8.31

2010 Shanghai Diamond League (Shanghai, CHN)

FINAL

date 23-May-10 wind -0.4 m/s

He (2014) - kinematic analysis of Xie Wenjun's hurdle technique

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.64	3.54	4.54	5.44	6.64	7.74	8.84	9.84	10.84	11.84		13.58	/ 4			
reaction time	0.165 interval		0.90	1.00	0.90	1.20	1.10	1.10	1.00	1.00	1.00	1.74			2.80	3.40	3.00
	velocity	5.20	10.16	9.14	10.16	7.62	8.31	8.31	9.14	9.14	9.14	8.06	8.10		9.79	8.06	9.14

2010 Colorful Daegu Meeting (Daegu, KOR)

FINAL

date 19-May-10 wind -0.2 m/s

Hong (2018) - performance of men's 110m hurdles using rhythmic units

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Oliver, David (USA) (1982)	time	2.61	3.66	4.68	5.66	6.66	7.64	8.64	9.66	10.68	11.75		13.11	/ 1			
reaction time	0.170 interval	7 steps	1.05	1.02	0.98	1.00	0.98	1.00	1.02	1.02	1.07	1.36			3.05	2.98	3.11
	velocity	5.26	8.70	8.96	9.33	9.14	9.33	9.14	8.96	8.96	8.54	10.31	8.39		8.99	9.20	8.82
Robles, Dayron (CUB) (1986)	time	2.69	3.76	4.76	5.74	6.76	7.76	8.76	9.78	10.83	11.88		13.26	/ 2			
reaction time	0.216 interval	7 steps	1.07	1.00	0.98	1.02	1.00	1.00	1.02	1.05	1.05	1.38			3.05	3.02	3.12
	velocity	5.10	8.54	9.14	9.33	8.96	9.14	9.14	8.96	8.70	8.70	10.16	8.30		8.99	9.08	8.79
Thomas, Dwight (JAM) (1980)	time	2.65	3.73	4.73	5.73	6.75	7.78	8.83	9.86	10.93	11.99		13.40	/ 3			
reaction time	0.161 interval		1.08	1.00	1.00	1.02	1.03	1.05	1.03	1.07	1.06	1.41			3.08	3.10	3.16
	velocity	5.18	8.46	9.14	9.14	8.96	8.87	8.70	8.87	8.54	8.62	9.94	8.21		8.90	8.85	8.68

2010 IAAF World Indoor Championships (Doha, QAT)

FINAL

date 14-Mar-10

Kuitunen (2010) - biomencanical analysis of the 14th IAAF world indoor championships

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Robles, Dayron (CUB) (1986)	time	2.54	3.54	4.52	5.49	6.47		7.34	6 / 1	
reaction time	0.196 interval	7 steps	1.00	0.98	0.97	0.98	0.87	CR		2.95
	velocity	5.40	9.14	9.33	9.42	9.33	11.17	8.17		9.29
Trammell, Terrence (USA) (197	time	2.48	3.50	4.50	5.49	6.48		7.36	4 / 2	
reaction time	0.149 interval		1.02	1.00	0.99	0.99	0.88	AR		3.01
	velocity	5.53	8.96	9.14	9.23	9.23	11.05	8.15		9.11
Oliver, David (USA) (1982)	time	2.53	3.56	4.56	5.56	6.56		7.44	8 / 3	
reaction time	0.149 interval	7 steps	1.03	1.00	1.00	1.00	0.88	PB		3.03
	velocity	5.42	8.87	9.14	9.14	9.14	11.05	8.06		9.05
Borisov, Yevgeniy (RUS) (1984	time	2.53	3.57	4.58	5.59	6.63		7.51	3 / 4	
reaction time	0.167 interval	7 steps	1.04	1.01	1.01	1.04	0.88			3.06
	velocity	5.42	8.79	9.05	9.05	8.79	11.05	7.99		8.96
Svoboda, Petr (CZE) (1984)	time	2.57	3.63	4.62	5.65	6.70		7.58	5 / 5	
reaction time	0.134 interval		1.06	0.99	1.03	1.05	0.88			3.08
	velocity	5.34	8.62	9.23	8.87	8.70	11.05	7.92		8.90
Wignall, Maurice (JAM) (1976)	time	2.60	3.66	4.68	5.70	6.75		7.60	1 / 6	
reaction time	0.135 interval		1.06	1.02	1.02	1.05	0.85			3.10
	velocity	5.28	8.62	8.96	8.96	8.70	11.44	7.89		8.85
Liu Xiang (CHN) (1983)	time	2.61	3.67	4.70	5.73	6.77		7.65	7 / 7	
reaction time	0.151 interval		1.06	1.03	1.03	1.04	0.88			3.12
	velocity	5.26	8.62	8.87	8.87	8.79	11.05	7.84		8.79
Kiss, Dániel (HUN) (1982)	time	2.73	3.75	4.82	5.89	6.93		7.81	2 / 8	
reaction time	0.182 interval		1.02	1.07	1.07	1.04	0.88			3.16
	velocity	5.03	8.96	8.54	8.54	8.79	11.05	7.68		8.68

Semi-Final 3

date 14-Mar-10

Blomkvist (2010) - 100/110m Hurdles: Development

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Nossmy, Philip (SWE) (1982)	time	2.63	3.68	4.75	5.77	6.81		7.69	1 / 5	
reaction time	0.157 interval		1.05	1.07	1.02	1.04	0.88			3.14
	velocity	5.22	8.70	8.54	8.96	8.79	11.05	7.80		8.73

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

2010 Swedish Indoor National Championships (Sätra, SWE)

FINAL date 28-Feb-10

Blomkvist (2010) - www.sub13.se

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Nossmy, Philip (SWE) (1982)	time	2.66	3.71	4.77	5.80	6.83		7.73	/ 1	
reaction time	interval		1.05	1.06	1.03	1.03	0.90			3.14
	velocity	5.16	8.70	8.62	8.87	8.87	10.80	7.76		8.73

2010 GE Galan (Stockholm, SWE)

FINAL date 10-Feb-10

Blomkvist (2010) - www.sub13.se

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Robles, Dayron (CUB) (1986)	time	2.35	3.39	4.39	5.37	6.38		7.49	/ 1	
reaction time	interval	7 steps	1.04	1.00	0.98	1.01	1.11			3.02
	velocity	5.84	8.79	9.14	9.33	9.05	8.76	8.01		9.08
Kiss, Dániel (HUN) (1982)	time	2.50	3.53	4.56	5.58	6.60		7.66	/ 2	
reaction time	interval		1.03	1.03	1.02	1.02	1.06			3.08
	velocity	5.49	8.87	8.87	8.96	8.96	9.17	7.83		8.90
Thomas, Dwight (JAM) (1980)	time	2.42	3.48	4.51	5.55	6.58		7.66	/ 3	
reaction time	interval		1.06	1.03	1.04	1.03	1.08			3.13
	velocity	5.67	8.62	8.87	8.79	8.87	9.00	7.83		8.76
Nossmy, Philip (SWE) (1982)	time	2.45	3.51	4.56	5.58	6.60		7.68	/ 4	
reaction time	interval		1.06	1.05	1.02	1.02	1.08			3.13
	velocity	5.60	8.62	8.70	8.96	8.96	9.00	7.81		8.76
Wignall, Maurice (JAM) (1976)	time	2.45	3.52	4.57	5.61	6.67		7.78	/ 5	
reaction time	interval		1.07	1.05	1.04	1.06	1.11			3.16
	velocity	5.60	8.54	8.70	8.79	8.62	8.76	7.71		8.68

2010 Samsung Galan (Göteborg, SWE)

Heat 2 date 02-Feb-10

Blomkvist (2010) - www.sub13.se

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Oliver, David (USA) (1982)	time	2.45	3.52	4.53	5.54	6.58		7.57	/ 1	
reaction time	interval	7 steps	1.07	1.01	1.01	1.04	0.99			3.09
	velocity	5.60	8.54	9.05	9.05	8.79	9.82	7.93		8.87
Nossmy, Philip (SWE) (1982)	time	2.56	3.65	4.72	5.76	6.80		7.78	/ 2	
reaction time	interval		1.09	1.07	1.04	1.04	0.98			3.20
	velocity	5.36	8.39	8.54	8.79	8.79	9.92	7.71		8.57
Baillie, Chris (GBR) (1981)	time	2.52	3.60	4.66	5.72	6.78		7.80	/ 3	
reaction time	interval		1.08	1.06	1.06	1.06	1.02			3.20
	velocity	5.44	8.46	8.62	8.62	8.62	9.53	7.69		8.57
Porter, Jeff (USA) (1985)	time	2.54	3.64	4.68	5.76	6.88		7.87	/ 4	
reaction time	interval		1.10	1.04	1.08	1.12	0.99			3.22
	velocity	5.40	8.31	8.79	8.46	8.16	9.82	7.62		8.52
Sparrman, Markus (SWE) (1989	time	2.56	3.72	4.86	5.96	7.10		8.14	/ 5	
reaction time	interval		1.16	1.14	1.10	1.14	1.04			3.40
	velocity	5.36	7.88	8.02	8.31	8.02	9.35	7.37		8.06
Blaschke, Joakim (SWE) (1977)	time	2.60	3.76	4.90	6.04	7.18		8.29	/ 6	
reaction time	interval		1.16	1.14	1.14	1.14	1.11			3.44
	velocity	5.28	7.88	8.02	8.02	8.02	8.76	7.24		7.97

2010 Five Nations (Glasgow, GBR)

FINAL date 30-Jan-10

Blomkvist (2010) - www.sub13.se

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4
Nossmy, Philip (SWE) (1977)	time	2.46	3.50	4.55	5.58	6.61		7.71	/ 3	
reaction time 0.186	interval		1.04	1.05	1.03	1.03	1.10			3.12
	velocity	5.58	8.79	8.70	8.87	8.87	8.84	7.78		8.79

2009 Seiko Super Grand Prix (Kawasaki, JPN)

FINAL date 23-Sep-09 wind -1.3 m/s

Ryutaro (2010) - an attempt or a creation of a race pattern stadard model for the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Thomas, Dwight (JAM) (1980)	time	2.60	3.66	4.70	5.73	6.74	7.78	8.83	9.85	10.95	11.98		13.37	/ 1			
reaction time	interval		1.06	1.04	1.03	1.01	1.04	1.05	1.02	1.10	1.03	1.39			3.13	3.10	3.15
	velocity	5.28	8.62	8.79	8.87	9.05	8.79	8.70	8.96	8.31	8.87	10.09	8.23		8.76	8.85	8.70
Moses, Yume (JPN) (1988)	time	2.60	3.68	4.74	5.80	6.87	7.94	9.02	10.10	11.18	12.28		13.77	/ 2			
reaction time	interval		1.08	1.06	1.06	1.07	1.07	1.08	1.08	1.08	1.10	1.49			3.20	3.22	3.26

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

	velocity	5.28	8.46	8.62	8.62	8.54	8.54	8.46	8.46	8.46	8.31	9.41	7.99		8.57	8.52	8.41
Shabanov, Konstantin (RUS) (	time	2.61	3.69	4.75	5.79	6.85	7.91	9.02	10.14	11.26	12.41		13.96	/ 3			
reaction time	interval		1.08	1.06	1.04	1.06	1.06	1.11	1.12	1.12	1.15	1.55			3.18	3.23	3.39
	velocity	5.26	8.46	8.62	8.79	8.62	8.62	8.23	8.16	8.16	7.95	9.05	7.88		8.62	8.49	8.09

2009 IAAF World Championships (Berlin, GER)

FINAL

date 20-Aug-09 wind 0.1 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Brathwaite, Ryan (BAR) (1988)	time	2.54	3.60	4.61	5.60	6.59	7.60	8.62	9.65	10.70	11.74		13.14	4 / 1			
reaction time 0.157	interval		1.06	1.01	0.99	0.99	1.01	1.02	1.03	1.05	1.04	1.40	NR		3.06	3.02	3.12
	velocity	5.40	8.62	9.05	9.23	9.23	9.05	8.96	8.87	8.70	8.79	10.01	8.37		8.96	9.08	8.79
Trammell, Terrence (USA) (197	time	2.56	3.60	4.61	5.60	6.60	7.62	8.63	9.66	10.71	11.77		13.15	5 / 2			
reaction time 0.141	interval		1.04	1.01	0.99	1.00	1.02	1.01	1.03	1.05	1.06	1.38			3.04	3.03	3.14
	velocity	5.36	8.79	9.05	9.23	9.14	8.96	9.05	8.87	8.70	8.62	10.16	8.37		9.02	9.05	8.73
Payne, David (USA) (1982)	time	2.54	3.58	4.61	5.61	6.62	7.64	8.66	9.69	10.74	11.78		13.15	3 / 3			
reaction time 0.122	interval		1.04	1.03	1.00	1.01	1.02	1.02	1.03	1.05	1.04	1.37			3.07	3.05	3.12
	velocity	5.40	8.79	8.87	9.14	9.05	8.96	8.96	8.87	8.70	8.79	10.23	8.37		8.93	8.99	8.79
Sharman, William (GBR) (1984)	time	2.54	3.60	4.62	5.64	6.65	7.68	8.73	9.78	10.84	11.91		13.30	6 / 4			
reaction time 0.125	interval	7 steps	1.06	1.02	1.02	1.01	1.03	1.05	1.05	1.06	1.07	1.39	PB		3.10	3.09	3.18
	velocity	5.40	8.62	8.96	8.96	9.05	8.87	8.70	8.70	8.62	8.54	10.09	8.27		8.85	8.87	8.62
Wignall, Maurice (JAM) (1976)	time	2.61	3.66	4.70	5.72	6.75	7.78	8.81	9.85	10.90	11.98		13.31	8 / 5			
reaction time 0.151	interval		1.05	1.04	1.02	1.03	1.03	1.03	1.04	1.05	1.08	1.33			3.11	3.09	3.17
	velocity	5.26	8.70	8.79	8.96	8.87	8.87	8.87	8.79	8.70	8.46	10.54	8.26		8.82	8.87	8.65
Svoboda, Petr (CZE) (1984)	time	2.58	3.62	4.64	5.66	6.69	7.74	8.77	9.82	10.87	11.94		13.38	7 / 6			
reaction time 0.144	interval		1.04	1.02	1.02	1.03	1.05	1.03	1.05	1.05	1.07	1.44			3.08	3.11	3.17
	velocity	5.32	8.79	8.96	8.96	8.87	8.70	8.87	8.70	8.70	8.54	9.74	8.22		8.90	8.82	8.65
Thomas, Dwight (JAM) (1990)	time	2.66	3.73	4.77	5.80	6.84	7.88	8.90	9.95	11.00	12.14		13.56	2 / 7			
reaction time 0.145	interval		1.07	1.04	1.03	1.04	1.04	1.02	1.05	1.05	1.14	1.42			3.14	3.10	3.24
	velocity	5.16	8.54	8.79	8.87	8.79	8.79	8.96	8.70	8.70	8.02	9.87	8.11		8.73	8.85	8.46
Ji Wei (CHN) (1984)	time	2.68	3.77	4.80	5.84	6.86	7.92	8.96	10.02	11.09	12.17		13.57	1 / 8			
reaction time 0.144	interval		1.09	1.03	1.04	1.02	1.06	1.04	1.06	1.07	1.08	1.40			3.16	3.12	3.21
	velocity	5.12	8.39	8.87	8.79	8.96	8.62	8.79	8.62	8.54	8.46	10.01	8.11		8.68	8.79	8.54

Semi-Final 3

date 20-Aug-09 wind 0.1 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sharman, William (GBR) (1984)	time	2.56	3.58	4.63	5.65	6.66	7.69	8.72	9.77	10.82	11.90		13.38	8 / 1			
reaction time 0.110	interval	7 steps	1.02	1.05	1.02	1.01	1.03	1.03	1.05	1.05	1.08	1.48	PB		3.09	3.07	3.18
	velocity	5.36	8.96	8.70	8.96	9.05	8.87	8.87	8.70	8.70	8.46	9.47	8.22		8.87	8.93	8.62
Wignall, Maurice (JAM) (1976)	time	2.60	3.67	4.70	5.73	6.77	7.80	8.84	9.90	10.96	12.03		13.43	4 / 2			
reaction time 0.162	interval		1.07	1.03	1.03	1.04	1.03	1.04	1.06	1.06	1.07	1.40			3.13	3.11	3.19
	velocity	5.28	8.54	8.87	8.87	8.79	8.87	8.79	8.62	8.62	8.54	10.01	8.19		8.76	8.82	8.60
Kiss, Dániel (HUN) (1982)	time	2.67	3.72	4.76	5.76	6.80	7.83	8.86	9.90	10.96	12.04		13.45	3 / 3			
reaction time 0.156	interval		1.05	1.04	1.00	1.04	1.03	1.03	1.04	1.06	1.08	1.41			3.09	3.10	3.18
	velocity	5.14	8.70	8.79	9.14	8.79	8.87	8.87	8.79	8.62	8.46	9.94	8.18		8.87	8.85	8.62
Sands, Shamar (BAH) (1985)	time	2.51	3.58	4.62	5.64	6.68	7.73	8.78	9.86	10.94	12.04		13.47	1 / 4			
reaction time 0.144	interval		1.07	1.04	1.02	1.04	1.05	1.05	1.08	1.08	1.10	1.43			3.13	3.14	3.26
	velocity	5.47	8.54	8.79	8.96	8.79	8.70	8.70	8.46	8.46	8.31	9.80	8.17		8.76	8.73	8.41
Schwarzer, Helge (GER) (1985)	time	2.59	3.69	4.77	5.82	6.88	7.92	8.98	10.04	11.12	12.24		13.72	6 / 7			
reaction time 0.132	interval		1.10	1.08	1.05	1.06	1.04	1.06	1.06	1.08	1.12	1.48			3.23	3.16	3.26
	velocity	5.30	8.31	8.46	8.70	8.62	8.79	8.62	8.62	8.46	8.16	9.47	8.02		8.49	8.68	8.41

Semi-Final 2

date 20-Aug-09 wind 0.6 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Brathwaite, Ryan (BAR) (1988)	time	2.57	3.59	4.62	5.63	6.63	7.63	8.65	9.69	10.73	11.79		13.18	4 / 1			
reaction time 0.169	interval		1.02	1.03	1.01	1.00	1.00	1.02	1.04	1.04	1.06	1.39	NR		3.06	3.02	3.14
	velocity	5.34	8.96	8.87	9.05	9.14	9.14	8.96	8.79	8.79	8.62	10.09	8.35		8.96	9.08	8.73
Payne, David (USA) (1982)	time	2.60	3.65	4.68	5.69	6.71	7.75	8.78	9.80	10.83	11.89		13.24	7 / 2			
reaction time 0.151	interval		1.05	1.03	1.01	1.02	1.04	1.03	1.02	1.03	1.06	1.35			3.09	3.09	3.11
	velocity	5.28	8.70	8.87	9.05	8.96	8.79	8.87	8.96	8.87	8.62	10.39	8.31		8.87	8.87	8.82
Thomas, Dwight (JAM) (1980)	time	2.65	3.73	4.77	5.80	6.81	7.84	8.86	9.89	10.91	11.97		13.37	5 / 3			
reaction time 0.151	interval		1.08	1.04	1.03	1.01	1.03	1.02	1.03	1.02	1.06	1.40			3.15	3.06	3.11

	velocity	5.18	8.46	8.79	8.87	9.05	8.87	8.96	8.87	8.96	8.62	10.01	8.23		8.70	8.96	8.82
Shi Dongpeng (CHN) (1984)	time	2.63	3.73	4.77	5.79	6.81	7.83	8.86	9.90	10.95	12.03		13.42	3 / 4			
reaction time 0.144	interval		1.10	1.04	1.02	1.02	1.02	1.03	1.04	1.05	1.08	1.39			3.16	3.07	3.17
	velocity	5.22	8.31	8.79	8.96	8.96	8.96	8.87	8.79	8.70	8.46	10.09	8.20		8.68	8.93	8.65
Sedoc, Gregory (NED) (1981)	time	2.63	3.66	4.70	5.73	6.77	7.80	8.84	9.90	10.95	12.03		13.45	8 / 5			
reaction time 0.162	interval		1.03	1.04	1.03	1.04	1.03	1.04	1.06	1.05	1.08	1.42			3.10	3.11	3.19
	velocity	5.22	8.87	8.79	8.87	8.79	8.87	8.79	8.62	8.70	8.46	9.87	8.18		8.85	8.82	8.60
Lynsha, Maksim (BLR) (1985)	time	2.59	3.62	4.67	5.70	6.73	7.79	8.85	9.89	10.97	12.05		13.46	1 / 6			
reaction time 0.154	interval		1.03	1.05	1.03	1.03	1.06	1.06	1.04	1.08	1.08	1.41	PB		3.11	3.15	3.20
	velocity	5.30	8.87	8.70	8.87	8.87	8.62	8.62	8.79	8.46	8.46	9.94	8.17		8.82	8.70	8.57
John, Alexander (GER) (1986)	time	2.65	3.71	4.77	5.84	6.89	7.95	9.03	10.09	11.17	12.27		13.64	6 / 8			
reaction time 0.185	interval		1.06	1.06	1.07	1.05	1.06	1.08	1.06	1.08	1.10	1.37			3.19	3.19	3.24
	velocity	5.18	8.62	8.62	8.54	8.70	8.62	8.46	8.62	8.46	8.31	10.23	8.06		8.60	8.60	8.46

Semi-Final 1

date 20-Aug-09 wind 0.9 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Trammell, Terrence (USA) (197	time	2.54	3.58	4.59	5.61	6.62	7.65	8.68	9.71	10.76	11.83		13.24	6 / 1			
reaction time 0.160	interval		1.04	1.01	1.02	1.01	1.03	1.03	1.03	1.05	1.07	1.41			3.07	3.07	3.15
	velocity	5.40	8.79	9.05	8.96	9.05	8.87	8.87	8.87	8.70	8.54	9.94	8.31		8.93	8.93	8.70
Svoboda, Petr (CZE) (1984)	time	2.61	3.65	4.66	5.68	6.69	7.71	8.74	9.80	10.87	11.95		13.33	3 / 2			
reaction time 0.149	interval		1.04	1.01	1.02	1.01	1.02	1.03	1.06	1.07	1.08	1.38			3.07	3.06	3.21
	velocity	5.26	8.79	9.05	8.96	9.05	8.96	8.87	8.62	8.54	8.46	10.16	8.25		8.93	8.96	8.54
Ji Wei (CHN) (1984)	time	2.64	3.71	4.74	5.77	6.79	7.82	8.84	9.89	10.95	12.01		13.41	4 / 3			
reaction time 0.147	interval		1.07	1.03	1.03	1.02	1.03	1.02	1.05	1.06	1.06	1.40			3.13	3.07	3.17
	velocity	5.20	8.54	8.87	8.87	8.96	8.87	8.96	8.70	8.62	8.62	10.01	8.20		8.76	8.93	8.65
Noga, Artur (POL) (1988)	time	2.67	3.73	4.77	5.78	6.79	7.91	8.84	9.89	10.93	12.01		13.43	7 / 4			
reaction time 0.174	interval		1.06	1.04	1.01	1.01	1.12	0.93	1.05	1.04	1.08	1.42			3.11	3.06	3.17
	velocity	5.14	8.62	8.79	9.05	9.05	8.16	9.83	8.70	8.79	8.46	9.87	8.19		8.82	8.96	8.65
Villar, Paulo (COL) (1978)	time	2.55	3.60	4.63	5.65	6.68	7.71	8.75	9.81	10.89	11.97		13.44	5 / 5			
reaction time 0.171	interval		1.05	1.03	1.02	1.03	1.03	1.04	1.06	1.08	1.08	1.47			3.10	3.10	3.22
	velocity	5.38	8.70	8.87	8.96	8.87	8.87	8.79	8.62	8.46	8.46	9.54	8.18		8.85	8.85	8.52

Decathlon - Heat 5

date 20-Aug-09 wind 0.3 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Vos, Ingmar (NED) (1986)	time	2.76	3.91	5.04	6.16	7.28	8.40	9.52	10.66	11.80	12.99		14.51	4 / 1			
reaction time 0.178	interval		1.15	1.13	1.12	1.12	1.12	1.12	1.14	1.14	1.19	1.52	PB		3.40	3.36	3.47
	velocity	4.97	7.95	8.09	8.16	8.16	8.16	8.16	8.02	8.02	7.68	9.22	7.58		8.06	8.16	7.90
Bouraada, Larbi (ALG) (1988)	time	2.74	3.88	5.04	6.18	7.31	8.49	9.64	10.78	11.94	13.12		14.57	5 / 2			
reaction time 0.140	interval		1.14	1.16	1.14	1.13	1.18	1.15	1.14	1.16	1.18	1.45			3.44	3.46	3.48
	velocity	5.01	8.02	7.88	8.02	8.09	7.75	7.95	8.02	7.88	7.75	9.67	7.55		7.97	7.92	7.88
Wiberg, Nicklas (SWE) (1985)	time	2.84	4.00	5.11	6.20	7.33	8.48	9.64	10.86	12.02	13.22		14.75	7 / 3			
reaction time 0.208	interval		1.16	1.11	1.09	1.13	1.15	1.16	1.22	1.16	1.20	1.53			3.36	3.44	3.58
	velocity	4.83	7.88	8.23	8.39	8.09	7.95	7.88	7.49	7.88	7.62	9.16	7.46		8.16	7.97	7.66

Decathlon - Heat 4

date 20-Aug-09 wind 0.0 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Karpov, Dmitriy (KAZ) (1981)	time	2.73	3.85	4.94	6.03	7.17	8.31	9.45	10.61	11.73	12.91		14.46	4 / 1			
reaction time 0.141	interval		1.12	1.09	1.09	1.14	1.14	1.14	1.16	1.12	1.18	1.55			3.30	3.42	3.46
	velocity	5.03	8.16	8.39	8.39	8.02	8.02	8.02	7.88	8.16	7.75	9.05	7.61		8.31	8.02	7.92
Sysoyev, Aleksey (RUS) (1985)	time	2.87	3.95	5.10	6.29	7.49	8.65	9.83	11.02	12.23	13.42		14.97	6 / 5			
reaction time 0.150	interval		1.08	1.15	1.19	1.20	1.16	1.18	1.19	1.21	1.19	1.55			3.42	3.54	3.59
	velocity	4.78	8.46	7.95	7.68	7.62	7.88	7.75	7.68	7.55	7.68	9.05	7.35		8.02	7.75	7.64
Almgren, Daniel (SWE) (1979)	time	2.89	4.08	5.25	6.39	7.53	8.75	9.93	11.11	12.31	13.52		15.14	3 / 6			
reaction time 0.193	interval		1.19	1.17	1.14	1.14	1.22	1.18	1.18	1.20	1.21	1.62			3.50	3.54	3.59
	velocity	4.75	7.68	7.81	8.02	8.02	7.49	7.75	7.75	7.62	7.55	8.65	7.27		7.83	7.75	7.64

Decathlon - Heat 3

date 20-Aug-09 wind -0.1 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Krauchanka, Andrei (BLR) (19	time	2.77	3.89	4.99	6.07	7.17	8.25	9.35	10.45	11.56	12.67		14.13	4 / 1			
reaction time 0.175	interval		1.12	1.10	1.08	1.10	1.08	1.10	1.10	1.11	1.11	1.46			3.30	3.28	3.32
	velocity	4.95	8.16	8.31	8.46	8.31	8.46	8.31	8.31	8.23	8.23	9.60	7.78		8.31	8.36	8.26
Coertzen, Willem (RSA) (1982)	time	2.75	3.86	4.97	6.08	7.17	8.27	9.39	10.49	11.63	12.79		14.26	6 / 2			

reaction time 0.152	interval		1.11	1.11	1.11	1.09	1.10	1.12	1.10	1.14	1.16	1.47	PB		3.33	3.31	3.40
	velocity	4.99	8.23	8.23	8.23	8.39	8.31	8.16	8.31	8.02	7.88	9.54	7.71		8.23	8.28	8.06
Barras, Romain (FRA) (1980)	time	2.72	3.85	4.96	6.07	7.15	8.27	9.37	10.49	11.61	12.75		14.27	8 / 3			
reaction time 0.135	interval		1.13	1.11	1.11	1.08	1.12	1.10	1.12	1.12	1.14	1.52			3.35	3.30	3.38
	velocity	5.04	8.09	8.23	8.23	8.46	8.16	8.31	8.16	8.16	8.02	9.22	7.71		8.19	8.31	8.11
Kasyanov, Oleksiy (UKR) (1985	time	2.73	3.85	4.95	6.07	7.18	8.31	9.45	10.59	11.77	12.96		14.44	7 / 4			
reaction time 0.163	interval		1.12	1.10	1.12	1.11	1.13	1.14	1.14	1.18	1.19	1.48			3.34	3.38	3.51
	velocity	5.03	8.16	8.31	8.16	8.23	8.09	8.02	8.02	7.75	7.68	9.47	7.62		8.21	8.11	7.81
Šebrle, Roman (CZE) (1974)	time	2.77	3.91	5.01	6.11	7.21	8.35	9.44	10.57	11.73	12.90		14.44	2 / 5			
reaction time 0.165	interval		1.14	1.10	1.10	1.10	1.14	1.09	1.13	1.16	1.17	1.54			3.34	3.33	3.46
	velocity	4.95	8.02	8.31	8.31	8.31	8.02	8.39	8.09	7.88	7.81	9.10	7.62		8.21	8.23	7.92
Cleve, Moritz (GER) (1987)	time	2.77	3.87	5.05	6.17	7.28	8.37	9.49	10.67	11.81	12.99		14.54	5 / 6			
reaction time 0.162	interval		1.10	1.18	1.12	1.11	1.09	1.12	1.18	1.14	1.18	1.55			3.40	3.32	3.50
	velocity	4.95	8.31	7.75	8.16	8.23	8.39	8.16	7.75	8.02	7.75	9.05	7.57		8.06	8.26	7.83

Decathlon - Heat 2

date 20-Aug-09 wind 0.3 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hardee, Trey (USA) (1984)	time	2.65	3.75	4.82	5.87	6.93	8.03	9.09	10.21	11.29	12.41		13.86	1 / 1			
reaction time 0.134	interval		1.10	1.07	1.05	1.06	1.10	1.06	1.12	1.08	1.12	1.45			3.22	3.22	3.32
	velocity	5.18	8.31	8.54	8.70	8.62	8.31	8.62	8.16	8.46	8.16	9.67	7.94		8.52	8.52	8.26
García, Yordanis (CUB) (1988)	time	2.61	3.69	4.78	5.89	6.99	8.11	9.21	10.30	11.45	12.59		14.08	4 / 2			
reaction time 0.156	interval		1.08	1.09	1.11	1.10	1.12	1.10	1.09	1.15	1.14	1.49			3.28	3.32	3.38
	velocity	5.26	8.46	8.39	8.23	8.31	8.16	8.31	8.39	7.95	8.02	9.41	7.81		8.36	8.26	8.11
Raja, Andres (EST) (1982)	time	2.67	3.79	4.91	6.00	7.10	8.19	9.29	10.43	11.55	12.71		14.22	7 / 3			
reaction time 0.151	interval		1.12	1.12	1.09	1.10	1.09	1.10	1.14	1.12	1.16	1.51			3.33	3.29	3.42
	velocity	5.14	8.16	8.16	8.39	8.31	8.39	8.31	8.02	8.16	7.88	9.28	7.74		8.23	8.33	8.02
Behrenbruch, Pascal (GER) (19	time	2.75	3.87	4.97	6.07	7.17	8.28	9.39	10.50	11.63	12.77		14.24	2 / 4			
reaction time 0.156	interval		1.12	1.10	1.10	1.10	1.11	1.11	1.11	1.13	1.14	1.47			3.32	3.32	3.38
	velocity	4.99	8.16	8.31	8.31	8.31	8.23	8.23	8.23	8.09	8.02	9.54	7.72		8.26	8.26	8.11
Eaton, Ashton (USA) (1988)	time	2.70	3.79	4.87	5.97	7.07	8.17	9.27	10.45	11.61	12.75		14.28	5 / 5			
reaction time 0.178	interval		1.09	1.08	1.10	1.10	1.10	1.10	1.18	1.16	1.14	1.53			3.27	3.30	3.48
	velocity	5.08	8.39	8.46	8.31	8.31	8.31	8.31	7.75	7.88	8.02	9.16	7.70		8.39	8.31	7.88
Suárez, Leonel (CUB) (1987)	time	2.65	3.78	4.89	6.01	7.13	8.25	9.39	10.51	11.68	12.85		14.45	8 / 7			
reaction time 0.139	interval		1.13	1.11	1.12	1.12	1.12	1.14	1.12	1.17	1.17	1.60			3.36	3.38	3.46
	velocity	5.18	8.09	8.23	8.16	8.16	8.16	8.02	8.16	7.81	7.81	8.76	7.61		8.16	8.11	7.92

Decathlon - Heat 1

date 20-Aug-09 wind 0.3 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pogorelov, Aleksandr (RUS) (1	time	2.82	3.94	5.04	6.15	7.25	8.34	9.41	10.52	11.64	12.74		14.19	8 / 1			
reaction time 0.146	interval		1.12	1.10	1.11	1.10	1.09	1.07	1.11	1.12	1.10	1.45			3.33	3.26	3.33
	velocity	4.87	8.16	8.31	8.23	8.31	8.39	8.54	8.23	8.16	8.31	9.67	7.75		8.23	8.41	8.23
Díaz, Yunior (CUB) (1987)	time	2.69	3.86	5.00	6.13	7.26	8.38	9.51	10.86	11.86	13.08		14.56	6 / 2			
reaction time 0.155	interval		1.17	1.14	1.13	1.13	1.12	1.13	1.35	1.00	1.22	1.48			3.44	3.38	3.57
	velocity	5.10	7.81	8.02	8.09	8.09	8.16	8.09	6.77	9.14	7.49	9.47	7.55		7.97	8.11	7.68
Müller, Norman (GER) (1985)	time	2.79	3.93	5.05	6.17	7.30	8.42	9.55	10.70	11.86	13.40		14.59	5 / 3			
reaction time 0.172	interval		1.14	1.12	1.12	1.13	1.12	1.13	1.15	1.16	1.54	1.19			3.38	3.38	3.85
	velocity	4.92	8.02	8.16	8.16	8.09	8.16	8.09	7.95	7.88	5.94	11.78	7.54		8.11	8.11	7.12

Heat 6

date 19-Aug-09 wind 0.1 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kiss, Dániel (HUN) (1982)	time	2.70	3.77	4.78	5.79	6.79	7.79	8.81	9.83	10.87	11.97		13.34	7 / 1			
reaction time 0.158	interval		1.07	1.01	1.01	1.00	1.00	1.02	1.02	1.04	1.10	1.37	NR		3.09	3.02	3.16
	velocity	5.08	8.54	9.05	9.05	9.14	9.14	8.96	8.96	8.79	8.31	10.23	8.25		8.87	9.08	8.68
Villar, Paulo (COL) (1978)	time	2.58	3.66	4.71	5.75	6.77	7.81	8.86	9.91	10.97	12.07		13.52	2 / 2			
reaction time 0.162	interval		1.08	1.05	1.04	1.02	1.04	1.05	1.05	1.06	1.10	1.45			3.17	3.11	3.21
	velocity	5.32	8.46	8.70	8.79	8.96	8.79	8.70	8.70	8.62	8.31	9.67	8.14		8.65	8.82	8.54
Payne, David (USA) (1982)	time	2.61	3.69	4.75	5.77	6.80	7.85	8.89	9.93	10.99	12.05		13.54	6 / 3			
reaction time 0.150	interval		1.08	1.06	1.02	1.03	1.05	1.04	1.04	1.06	1.06	1.49			3.16	3.12	3.16
	velocity	5.26	8.46	8.62	8.96	8.87	8.70	8.79	8.79	8.62	8.62	9.41	8.12		8.68	8.79	8.68
Capetillo, Dayron (CUB) (1987)	time	2.63	3.67	4.74	5.77	6.79	7.83	8.87	9.93	11.05	12.15		13.61	4 / 4			
reaction time 0.168	interval	7 steps	1.04	1.07	1.03	1.02	1.04	1.04	1.06	1.12	1.10	1.46			3.14	3.10	3.28
	velocity	5.22	8.79	8.54	8.87	8.96	8.79	8.79	8.62	8.16	8.31	9.60	8.08		8.73	8.85	8.36

Bühler, Matthias (GER) (1986)	time	2.71	3.79	4.87	5.95	7.00	8.05	9.11	10.19	11.27	12.35		13.75	8 / 6				
reaction time 0.131	interval		1.08	1.08	1.08	1.05	1.05	1.06	1.08	1.08	1.08	1.40			3.24	3.16	3.24	
	velocity	5.06	8.46	8.46	8.46	8.70	8.70	8.62	8.46	8.46	8.46	10.01	8.00		8.46	8.68	8.46	

Heat 5

date 19-Aug-09 wind 0.0 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ji Wei (CHN) (1984)	time	2.64	3.71	4.75	5.79	6.81	7.86	8.91	9.95	11.03	12.11		13.51	2 / 1			
reaction time 0.124	interval		1.07	1.04	1.04	1.02	1.05	1.05	1.04	1.08	1.08	1.40			3.15	3.12	3.20	
	velocity	5.20	8.54	8.79	8.79	8.96	8.70	8.70	8.79	8.46	8.46	10.01	8.14		8.70	8.79	8.57	
Trammell, Terrence (USA) (197	time	2.61	3.67	4.71	5.72	6.73	7.80	8.87	9.93	11.01	12.11		13.51	8 / 2			
reaction time 0.202	interval		1.06	1.04	1.01	1.01	1.07	1.07	1.06	1.08	1.10	1.40			3.11	3.15	3.24	
	velocity	5.26	8.62	8.79	9.05	9.05	8.54	8.54	8.62	8.46	8.31	10.01	8.14		8.82	8.70	8.46	
Sedoc, Gregory (NED) (1981)	time	2.63	3.69	4.74	5.77	6.79	7.83	8.90	9.95	11.03	12.14		13.54	7 / 3			
reaction time 0.145	interval		1.06	1.05	1.03	1.02	1.04	1.07	1.05	1.08	1.11	1.40			3.14	3.13	3.24	
	velocity	5.22	8.62	8.70	8.87	8.96	8.79	8.54	8.70	8.46	8.23	10.01	8.12		8.73	8.76	8.46	
Bascou, Dimitri (FRA) (1987)	time	2.65	3.72	4.75	5.77	6.80	7.85	8.91	9.97	11.05	12.13		13.55	6 / 4			
reaction time 0.158	interval		1.07	1.03	1.02	1.03	1.05	1.06	1.06	1.08	1.08	1.42			3.12	3.14	3.22	
	velocity	5.18	8.54	8.87	8.96	8.87	8.70	8.62	8.62	8.46	8.46	9.87	8.12		8.79	8.73	8.52	
Sands, Shamar (BAH) (1985)	time	2.63	3.69	4.75	5.79	6.81	7.86	8.90	9.95	11.03	12.13		13.57	4 / 5			
reaction time 0.243	interval		1.06	1.06	1.04	1.02	1.05	1.04	1.05	1.08	1.10	1.44			3.16	3.11	3.23	
	velocity	5.22	8.62	8.62	8.79	8.96	8.70	8.79	8.70	8.46	8.31	9.74	8.11		8.68	8.82	8.49	

Heat 4

date 19-Aug-09 wind 0.5 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Brathwaite, Ryan (BAR) (1988)	time	2.57	3.62	4.63	5.64	6.65	7.67	8.71	9.80	10.85	11.91		13.35	2 / 1			
reaction time 0.149	interval		1.05	1.01	1.01	1.01	1.02	1.04	1.09	1.05	1.06	1.44			3.07	3.07	3.20	
	velocity	5.34	8.70	9.05	9.05	9.05	8.96	8.79	8.39	8.70	8.62	9.74	8.24		8.93	8.93	8.57	
John, Alexander (GER) (1986)	time	2.63	3.70	4.75	5.81	6.84	7.88	8.93	9.96	11.01	12.08		13.41	5 / 2			
reaction time 0.114	interval		1.07	1.05	1.06	1.03	1.04	1.05	1.03	1.05	1.07	1.33			3.18	3.12	3.15	
	velocity	5.22	8.54	8.70	8.62	8.87	8.79	8.70	8.87	8.70	8.54	10.54	8.20		8.62	8.79	8.70	
Sharman, William (GBR) (1984)	time	2.61	3.67	4.71	5.75	6.81	7.85	8.90	9.97	11.03	12.11		13.52	1 / 3			
reaction time 0.143	interval	7 steps	1.06	1.04	1.04	1.06	1.04	1.05	1.07	1.06	1.08	1.41			3.14	3.15	3.21	
	velocity	5.26	8.62	8.79	8.79	8.62	8.79	8.70	8.54	8.62	8.46	9.94	8.14		8.73	8.70	8.54	
Olijar, Stanislavs (LAT) (1979)	time	2.72	3.79	4.83	5.85	6.87	7.91	8.96	10.00	11.07	12.15		13.59	8 / 4			
reaction time 0.160	interval		1.07	1.04	1.02	1.02	1.04	1.05	1.04	1.07	1.08	1.44			3.13	3.11	3.19	
	velocity	5.04	8.54	8.79	8.96	8.96	8.79	8.70	8.79	8.54	8.46	9.74	8.09		8.76	8.82	8.60	

Heat 3

date 19-Aug-09 wind 0.2 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Svoboda, Petr (CZE) (1984)	time	2.63	3.69	4.72	5.74	6.75	7.78	8.85	9.91	10.99	12.09		13.56	6 / =1			
reaction time 0.152	interval		1.06	1.03	1.02	1.01	1.03	1.07	1.06	1.08	1.10	1.47			3.11	3.11	3.24	
	velocity	5.22	8.62	8.87	8.96	9.05	8.87	8.54	8.62	8.46	8.31	9.54	8.11		8.82	8.82	8.46	
Darien, Garfield (FRA) (1987)	time	2.67	3.71	4.75	5.80	6.83	7.87	8.93	9.99	11.07	12.15		13.56	2 / =1			
reaction time 0.149	interval		1.04	1.04	1.05	1.03	1.04	1.06	1.06	1.08	1.08	1.41			3.13	3.13	3.22	
	velocity	5.14	8.79	8.79	8.70	8.87	8.79	8.62	8.62	8.46	8.46	9.94	8.11		8.76	8.76	8.52	
Noga, Artur (POL) (1988)	time	2.70	3.77	4.83	5.87	6.90	7.93	8.97	10.02	11.07	12.14		13.56	3 / 3			
reaction time 0.176	interval		1.07	1.06	1.04	1.03	1.03	1.04	1.05	1.05	1.07	1.42			3.17	3.10	3.17	
	velocity	5.08	8.54	8.62	8.79	8.87	8.87	8.79	8.70	8.70	8.54	9.87	8.11		8.65	8.85	8.65	

Heat 2

date 19-Aug-09 wind -0.2 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wignall, Maurice (JAM) (1976)	time	2.63	3.71	4.75	5.79	6.89	7.97	9.01	10.08	11.15	12.23		13.62	3 / 1			
reaction time 0.168	interval		1.08	1.04	1.04	1.10	1.08	1.04	1.07	1.07	1.08	1.39			3.16	3.22	3.22	
	velocity	5.22	8.46	8.79	8.79	8.31	8.46	8.79	8.54	8.54	8.46	10.09	8.08		8.68	8.52	8.52	
Schwarzer, Helge (GER) (1985)	time	2.59	3.63	4.71	5.74	6.78	7.84	8.91	9.99	11.07	12.17		13.66	7 / 2			
reaction time 0.136	interval		1.04	1.08	1.03	1.04	1.06	1.07	1.08	1.08	1.10	1.49			3.15	3.17	3.26	
	velocity	5.30	8.79	8.46	8.87	8.79	8.62	8.54	8.46	8.46	8.31	9.41	8.05		8.70	8.65	8.41	
Robles, Dayron (CUB) (1986)	time	2.71	3.81	4.91	5.99	7.03	8.08	9.11	10.14	11.17	12.21		13.67	2 / 3			
reaction time 0.178	interval	7 steps	1.10	1.10	1.08	1.04	1.05	1.03	1.03	1.03	1.04	1.46			3.28	3.12	3.10	
	velocity	5.06	8.31	8.31	8.46	8.79	8.70	8.87	8.87	8.87	8.79	9.60	8.05		8.36	8.79	8.85	

Heat 1

date 19-Aug-09 wind -0.4 m/s

Graubner (2009) - biomechanical analyses at the 12th IAAF world championships

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

Shi Dongpeng (CHN) (1984)	time	2.68	3.75	4.79	5.82	6.84	7.90	8.95	10.00	11.06	12.12		13.56	2 / 1				
reaction time 0.155	interval		1.07	1.04	1.03	1.02	1.06	1.05	1.05	1.06	1.06	1.44			3.14	3.13	3.17	
	velocity	5.12	8.54	8.79	8.87	8.96	8.62	8.70	8.70	8.62	8.62	9.74	8.11		8.73	8.76	8.65	
Thomas, Dwight (JAM) (1980)	time	2.64	3.70	4.78	5.82	6.86	7.89	8.94	10.00	11.08	12.16		13.57	7 / 2				
reaction time 0.138	interval		1.06	1.08	1.04	1.04	1.03	1.05	1.06	1.08	1.08	1.41			3.18	3.12	3.22	
	velocity	5.20	8.62	8.46	8.79	8.79	8.87	8.70	8.62	8.46	8.46	9.94	8.11		8.62	8.79	8.52	
Quiñónez, Jackson (ESP) (1980	time	2.70	3.76	4.79	5.82	6.84	7.88	8.92	9.98	11.06	12.16		13.63	8 / 3				
reaction time 0.221	interval		1.06	1.03	1.03	1.02	1.04	1.04	1.06	1.08	1.10	1.47			3.12	3.10	3.24	
	velocity	5.08	8.62	8.87	8.87	8.96	8.79	8.79	8.62	8.46	8.31	9.54	8.07		8.79	8.85	8.46	
Fourie, Lehann (RSA) (1987)	time	2.62	3.66	4.72	5.78	6.84	7.88	8.96	10.02	11.10	12.21		13.67	3 / 4				
reaction time 0.139	interval		1.04	1.06	1.06	1.06	1.04	1.08	1.06	1.08	1.11	1.46			3.16	3.18	3.25	
	velocity	5.24	8.79	8.62	8.62	8.62	8.79	8.46	8.62	8.46	8.23	9.60	8.05		8.68	8.62	8.44	

2009 Windsprint (Sundsvall, SWE)

FINAL date 25-Jul-09 wind 1.6 m/s *(2009) - www.ssg.se/en/Windsprint/Split-times/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Townsend, Fredrick (USA) (19	time		3.67			6.79			9.98				13.56	/ 1			
reaction time	interval					3.12			3.19			3.58					
	velocity		6.23			8.79			8.60			9.02	8.11				

2009 Nambu Chuhei Memorial (Sapporo, JPN)

FINAL date 09-Jul-09 wind 1.2 m/s *Ryutaro (2010) - an attempt or a creation of a race pattern stadard model for the 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tanonaka, Tasuku (JPN) (1978)	time	2.63	3.69	4.75	5.81	6.87	7.94	9.02	10.10	11.18	12.26		13.72	/ 1			
reaction time	interval		1.06	1.06	1.06	1.06	1.07	1.08	1.08	1.08	1.08	1.46			3.18	3.21	3.24
	velocity	5.22	8.62	8.62	8.62	8.62	8.54	8.46	8.46	8.46	8.46	9.60	8.02		8.62	8.54	8.46
Ohashi, Yuji (JPN) (1983)	time	2.63	3.70	4.76	5.81	6.85	7.91	8.97	10.04	11.14	12.25		13.72	/ 2			
reaction time	interval		1.07	1.06	1.05	1.04	1.06	1.06	1.07	1.10	1.11	1.47			3.18	3.16	3.28
	velocity	5.22	8.54	8.62	8.70	8.79	8.62	8.62	8.54	8.31	8.23	9.54	8.02		8.62	8.68	8.36
Iwafune, Yoichi (JPN) (1985)	time	2.65	3.74	4.82	5.87	6.93	8.00	9.06	10.14	11.25	12.38		13.87	/ 3			
reaction time	interval		1.09	1.08	1.05	1.06	1.07	1.06	1.08	1.11	1.13	1.49			3.22	3.19	3.32
	velocity	5.18	8.39	8.46	8.70	8.62	8.54	8.62	8.46	8.23	8.09	9.41	7.93		8.52	8.60	8.26
Naito, Masato (JPN) (1980)	time	2.67	3.76	4.81	5.87	6.91	8.00	9.08	10.18	11.31	12.42		13.88	/ 4			
reaction time	interval		1.09	1.05	1.06	1.04	1.09	1.08	1.10	1.13	1.11	1.46			3.20	3.21	3.34
	velocity	5.14	8.39	8.70	8.62	8.79	8.39	8.46	8.31	8.09	8.23	9.60	7.93		8.57	8.54	8.21
Shuto, Takayuki (JPN) (1986)	time	2.73	3.83	4.91	5.99	7.08	8.16	9.25	10.36	11.45	12.57		13.94	/ 5			
reaction time	interval		1.10	1.08	1.08	1.09	1.08	1.09	1.11	1.09	1.12	1.37			3.26	3.26	3.32
	velocity	5.03	8.31	8.46	8.46	8.39	8.46	8.39	8.23	8.39	8.16	10.23	7.89		8.41	8.41	8.26
Irie, Yukito (JPN) (1983)	time	2.44	3.54	4.65	5.74	6.82	7.91	9.01	10.11	11.22	12.33		13.98	/ 6			
reaction time	interval		1.10	1.11	1.09	1.08	1.09	1.10	1.10	1.11	1.11	1.65			3.30	3.27	3.32
	velocity	5.62	8.31	8.23	8.39	8.46	8.39	8.31	8.31	8.23	8.23	8.50	7.87		8.31	8.39	8.26

2009 Japanese National Championships (Hiroshima, JPN)

FINAL date 27-Jun-09 wind 1.6 m/s *Ryutaro (2010) - an attempt or a creation of a race pattern stadard model for the 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tanonaka, Tasuku (JPN) (1978)	time	2.59	3.67	4.72	5.76	6.80	7.87	8.91	9.97	11.05	12.13		13.57	3 / 1			
reaction time	interval		1.08	1.05	1.04	1.04	1.07	1.04	1.06	1.08	1.08	1.44			3.17	3.15	3.22
	velocity	5.30	8.46	8.70	8.79	8.79	8.54	8.79	8.62	8.46	8.46	9.74	8.11		8.65	8.70	8.52
Shuto, Takayuki (JPN) (1986)	time	2.65	3.75	4.81	5.90	6.94	8.01	9.08	10.15	11.27	12.32		13.77	4 / 2			
reaction time	interval		1.10	1.06	1.09	1.04	1.07	1.07	1.07	1.12	1.05	1.45	PB		3.25	3.18	3.24
	velocity	5.18	8.31	8.62	8.39	8.79	8.54	8.54	8.54	8.16	8.70	9.67	7.99		8.44	8.62	8.46
Naito, Masato (JPN) (1980)	time	2.61	3.71	4.76	5.81	6.86	7.92	8.99	10.08	11.17	12.27		13.81	5 / 3			
reaction time	interval		1.10	1.05	1.05	1.05	1.06	1.07	1.09	1.09	1.10	1.54			3.20	3.18	3.28
	velocity	5.26	8.31	8.70	8.70	8.70	8.62	8.54	8.39	8.39	8.31	9.10	7.97		8.57	8.62	8.36
Ohashi, Yuji (JPN) (1983)	time	2.66	3.73	4.76	5.81	6.86	7.90	8.99	10.07	11.17	12.28		13.81	7 / 3			
reaction time	interval		1.07	1.03	1.05	1.05	1.04	1.09	1.08	1.10	1.11	1.53			3.15	3.18	3.29
	velocity	5.16	8.54	8.87	8.70	8.70	8.79	8.39	8.46	8.31	8.23	9.16	7.97		8.70	8.62	8.33
Yoshinaga, Kazuyuki (JPN) (19	time	2.63	3.71	4.78	5.85	6.91	8.01	9.10	10.19	11.27	12.38		13.86	1 / 5			
reaction time	interval		1.08	1.07	1.07	1.06	1.10	1.09	1.09	1.08	1.11	1.48	PB		3.22	3.25	3.28
	velocity	5.22	8.46	8.54	8.54	8.62	8.31	8.39	8.39	8.46	8.23	9.47	7.94		8.52	8.44	8.36
Ida, Masayuki (JPN) (1987)	time	2.68	3.77	4.87	5.95	7.03	8.09	9.17	10.25	11.33	12.44		13.86	2 / 5			
reaction time	interval		1.09	1.10	1.08	1.08	1.06	1.08	1.08	1.08	1.11	1.42			3.27	3.22	3.27

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

	velocity	5.12	8.39	8.31	8.46	8.46	8.62	8.46	8.46	8.46	8.23	9.87	7.94		8.39	8.52	8.39
Moses, Yume (JPN) (1988)	time	2.64	3.75	4.81	5.87	6.92	7.99	9.07	10.17	11.29	12.41		13.89	6 / 7			
reaction time	interval		1.11	1.06	1.06	1.05	1.07	1.08	1.10	1.12	1.12	1.48			3.23	3.20	3.34
	velocity	5.20	8.23	8.62	8.62	8.70	8.54	8.46	8.31	8.16	8.16	9.47	7.92		8.49	8.57	8.21
Furukawa, Yutaro (JPN) (1985)	time	2.63	3.72	4.80	5.86	6.93	7.99	9.09	10.17	11.27	12.43		13.96	8 / 8			
reaction time	interval		1.09	1.08	1.06	1.07	1.06	1.10	1.08	1.10	1.16	1.53			3.23	3.23	3.34
	velocity	5.22	8.39	8.46	8.62	8.54	8.62	8.31	8.46	8.31	7.88	9.16	7.88		8.49	8.49	8.21

Semi-Final 1

date 27-Jun-09 wind 0.5 m/s

Akirabun (2010) - analysis of speed and stride on straight track events in the 2009 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Naito, Masato (JPN) (1980)	time	2.50	3.59	4.65	5.69	6.74	7.80	8.86	9.93	11.02	12.14		13.79	6 / 1			
reaction time	interval		1.09	1.06	1.04	1.05	1.06	1.06	1.07	1.09	1.12	1.65			3.19	3.17	3.28
	velocity	5.49	8.39	8.62	8.79	8.70	8.62	8.62	8.54	8.39	8.16	8.50	7.98		8.60	8.65	8.36

Heat 5

date 26-Jun-09 wind 0.6 m/s

Akirabun (2010) - analysis of speed and stride on straight track events in the 2009 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Furukawa, Yutaro (JPN) (1985)	time	2.41	3.51	4.57	5.63	6.70	7.77	8.85	9.93	11.04	12.16		13.82	2 / 1			
reaction time	interval		1.10	1.06	1.06	1.07	1.07	1.08	1.08	1.11	1.12	1.66			3.22	3.22	3.31
	velocity	5.69	8.31	8.62	8.62	8.54	8.54	8.46	8.46	8.23	8.16	8.45	7.96		8.52	8.52	8.28

Heat 4

date 26-Jun-09 wind 0.3 m/s

Akirabun (2010) - analysis of speed and stride on straight track events in the 2009 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yahata, Kenji (JPN) (1980)	time	2.44	3.52	4.60	5.66	6.73	7.81	8.91	10.01	11.11	12.23		13.91	3 / 1			
reaction time	interval		1.08	1.08	1.06	1.07	1.08	1.10	1.10	1.10	1.12	1.68			3.22	3.25	3.32
	velocity	5.62	8.46	8.46	8.62	8.54	8.46	8.31	8.31	8.31	8.16	8.35	7.91		8.52	8.44	8.26

Heat 3

date 26-Jun-09 wind 0.6 m/s

Akirabun (2010) - analysis of speed and stride on straight track events in the 2009 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ohashi, Yuji (JPN) (1983)	time	2.46	3.55	4.61	5.65	6.70	7.76	8.83	9.90	11.00	12.12		13.78	3 / 1			
reaction time	interval		1.09	1.06	1.04	1.05	1.06	1.07	1.07	1.10	1.12	1.66			3.19	3.18	3.29
	velocity	5.58	8.39	8.62	8.79	8.70	8.62	8.54	8.54	8.31	8.16	8.45	7.98		8.60	8.62	8.33

Decathlon - Heat 2

date 26-Jun-09 wind 1.6 m/s

Hisashi (2010) - the run performance analysis in the decathlon sprint events

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ikeda, Daisuke (JPN) (1986)	time	2.50	3.64	4.79	5.91	7.04	8.18	9.32	10.48	11.64	12.82		14.53	4 / 1			
reaction time	interval		1.14	1.15	1.12	1.13	1.14	1.14	1.16	1.16	1.18	1.71			3.41	3.41	3.50
	velocity	5.49	8.02	7.95	8.16	8.09	8.02	8.02	7.88	7.88	7.75	8.20	7.57		8.04	8.04	7.83
Tanaka, Hiromasa (JPN) (1981)	time	2.53	3.71	4.89	6.08	7.27	8.48	9.70	10.92	12.17	13.44		15.23	1 / 4			
reaction time	interval		1.18	1.18	1.19	1.19	1.21	1.22	1.22	1.25	1.27	1.79			3.55	3.62	3.74
	velocity	5.42	7.75	7.75	7.68	7.68	7.55	7.49	7.49	7.31	7.20	7.83	7.22		7.72	7.57	7.33
Ushiro, Keisuke (JPN) (1986)	time	2.59	3.78	4.97	6.16	7.36	8.57	9.79	11.06	12.33	13.52		15.34	5 / 7			
reaction time	interval		1.19	1.19	1.19	1.20	1.21	1.22	1.27	1.27	1.19	1.82	PB		3.57	3.63	3.73
	velocity	5.30	7.68	7.68	7.68	7.62	7.55	7.49	7.20	7.20	7.68	7.70	7.17		7.68	7.55	7.35

2009 ISTAF (Berlin, GER)

FINAL

date 14-Jun-09 wind 0.7 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Faulk, Dexter (USA) (1984)	time	2.55	3.61	4.63	5.66	6.69	7.70	8.75	9.77	10.81	11.86		13.18	4 / 1			
reaction time 0.147	interval		1.06	1.02	1.03	1.03	1.01	1.05	1.02	1.04	1.05	1.32	PB		3.11	3.09	3.11
	velocity	5.38	8.62	8.96	8.87	8.87	9.05	8.70	8.96	8.79	8.70	10.62	8.35		8.82	8.87	8.82
Wilson, Ryan (USA) (1980)	time	2.59	3.64	4.65	5.66	6.65	7.69	8.71	9.73	10.77	11.83		13.21	6 / 2			
reaction time 0.171	interval		1.05	1.01	1.01	0.99	1.04	1.02	1.02	1.04	1.06	1.38			3.07	3.05	3.12
	velocity	5.30	8.70	9.05	9.05	9.23	8.79	8.96	8.96	8.79	8.62	10.16	8.33		8.93	8.99	8.79
Payne, David (USA) (1982)	time	2.59	3.63	4.66	5.68	6.69	7.71	8.74	9.78	10.83	11.87		13.22	3 / 3			
reaction time 0.181	interval		1.04	1.03	1.02	1.01	1.02	1.03	1.04	1.05	1.04	1.35			3.09	3.06	3.13
	velocity	5.30	8.79	8.87	8.96	9.05	8.96	8.87	8.79	8.70	8.79	10.39	8.32		8.87	8.96	8.76
Sands, Shamar (BAH) (1985)	time	2.59	3.65	4.69	5.71	6.73	7.77	8.81	9.87	10.93	12.09		13.56	8 / 4			
reaction time 0.234	interval		1.06	1.04	1.02	1.02	1.04	1.04	1.06	1.06	1.16	1.47			3.12	3.10	3.28
	velocity	5.30	8.62	8.79	8.96	8.96	8.79	8.79	8.62	8.62	7.88	9.54	8.11		8.79	8.85	8.36
Wignall, Maurice (JAM) (1976)	time	2.61	3.69	4.71	5.78	6.80	7.85	8.93	9.99	11.08	12.19		13.62	5 / 5			
reaction time 0.189	interval		1.08	1.02	1.07	1.02	1.05	1.08	1.06	1.09	1.11	1.43			3.17	3.15	3.26
	velocity	5.26	8.46	8.96	8.54	8.96	8.70	8.46	8.62	8.39	8.23	9.80	8.08		8.65	8.70	8.41
Olijar, Stanislav (LAT) (1979)	time	2.69	3.77	4.81	5.82	6.86	7.91	8.97	10.03	11.13	12.23		13.66	2 / 6			
reaction time 0.172	interval		1.08	1.04	1.01	1.04	1.05	1.06	1.06	1.10	1.10	1.43			3.13	3.15	3.26
	velocity	5.10	8.46	8.79	9.05	8.79	8.70	8.62	8.62	8.31	8.31	9.80	8.05		8.76	8.70	8.41

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Doucouré, Ladji (FRA) (1983)		time	2.65	3.73	4.76	5.80	6.83	7.90	8.97	10.05	11.13	12.24		13.73	7 / 7			
reaction time	0.206	interval		1.08	1.03	1.04	1.03	1.07	1.07	1.08	1.08	1.11	1.49			3.15	3.17	3.27
		velocity	5.18	8.46	8.87	8.79	8.87	8.54	8.54	8.46	8.46	8.23	9.41	8.01		8.70	8.65	8.39
Mathiszik, Willi (GER) (1984)		time	2.68	3.79	4.84	5.89	6.95	8.03	9.13	10.19	11.31	12.43		13.86	9 / 8			
reaction time	0.204	interval		1.11	1.05	1.05	1.06	1.08	1.10	1.06	1.12	1.12	1.43			3.21	3.24	3.30
		velocity	5.12	8.23	8.70	8.70	8.62	8.46	8.31	8.62	8.16	8.16	9.80	7.94		8.54	8.46	8.31
Bühler, Matthias (GER) (1986)		time	2.68	3.77	4.87	5.93	6.98	8.05	9.13	10.21	11.31	12.43		13.87	1 / 9			
reaction time	0.134	interval		1.09	1.10	1.06	1.05	1.07	1.08	1.08	1.10	1.12	1.44			3.25	3.20	3.30
		velocity	5.12	8.39	8.31	8.62	8.70	8.54	8.46	8.46	8.31	8.16	9.74	7.93		8.44	8.57	8.31

2009 University of Barcelona Hurdle Analysis (Barcelona, ESP)

Time Trials

date Jun-09 wind -0.4 m/s

Padulles (2010) - valoracio funcinal I analisi tecnica biomecanica den dayron robles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Robles, Dayron (CUB) (1986)		time	2.34	3.39	4.42	5.44	6.49	7.54	8.60	9.64	10.70	11.80		13.51	5 /			
reaction time	0.184	interval	7 steps	1.05	1.03	1.02	1.05	1.05	1.06	1.04	1.06	1.10	1.71			3.10	3.16	3.20
		velocity	5.86	8.70	8.87	8.96	8.70	8.70	8.62	8.79	8.62	8.31	8.20	8.14		8.85	8.68	8.57

Time Trials

date Jun-09 wind -0.5 m/s

Padulles (2010) - valoracio funcinal I analisi tecnica biomecanica den dayron robles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Quiñónez, Jackson (ESP) (1980		time	2.37	3.48	4.56	5.61	6.70	7.79	8.91	10.01	11.15	12.32		14.11	5 /			
reaction time	0.148	interval		1.11	1.08	1.05	1.09	1.09	1.12	1.10	1.14	1.17	1.79			3.24	3.30	3.41
		velocity	5.79	8.23	8.46	8.70	8.39	8.39	8.16	8.31	8.02	7.81	7.83	7.80		8.46	8.31	8.04

2009 Osaka Grand Prix (Osaka, JPN)

FINAL

date 09-May-09 wind 0.2 m/s

Ryutaro (2010) - an attempt or a creation of a race pattern stadard model for the 110m hurdles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Sands, Shamar (BAH) (1985)		time	2.55	3.59	4.60	5.63	6.62	7.65	8.71	9.76	10.84	11.94		13.40	/ 1			
reaction time		interval		1.04	1.01	1.03	0.99	1.03	1.06	1.05	1.08	1.10	1.46	NR		3.08	3.08	3.23
		velocity	5.38	8.79	9.05	8.87	9.23	8.87	8.62	8.70	8.46	8.31	9.60	8.21		8.90	8.90	8.49
Shi Dongpeng (CHN) (1984)		time	2.64	3.70	4.74	5.79	6.83	7.84	8.88	9.95	11.00	12.09		13.48	/ 2			
reaction time		interval		1.06	1.04	1.05	1.04	1.01	1.04	1.07	1.05	1.09	1.39			3.15	3.09	3.21
		velocity	5.20	8.62	8.79	8.70	8.79	9.05	8.79	8.54	8.70	8.39	10.09	8.16		8.70	8.87	8.54
Ji Wei (CHN) (1984)		time	2.63	3.69	4.73	5.77	6.78	7.80	8.81	9.84	10.91	11.99		13.51	/ 3			
reaction time		interval		1.06	1.04	1.04	1.01	1.02	1.01	1.03	1.07	1.08	1.52			3.14	3.04	3.18
		velocity	5.22	8.62	8.79	8.79	9.05	8.96	9.05	8.87	8.54	8.46	9.22	8.14		8.73	9.02	8.62
Tanonaka, Tasuku (JPN) (1978)		time	2.60	3.69	4.73	5.79	6.84	7.89	8.96	10.02	11.10	12.19		13.67	/ 4			
reaction time		interval		1.09	1.04	1.06	1.05	1.05	1.07	1.06	1.08	1.09	1.48			3.19	3.17	3.23
		velocity	5.28	8.39	8.79	8.62	8.70	8.70	8.54	8.62	8.46	8.39	9.47	8.05		8.60	8.65	8.49
Nomoto, Hideki (JPN) (1984)		time	2.61	3.69	4.77	5.83	6.90	7.97	9.05	10.15	11.25	12.37		13.94	/ 5			
reaction time		interval		1.08	1.08	1.06	1.07	1.07	1.08	1.10	1.10	1.12	1.57			3.22	3.22	3.32
		velocity	5.26	8.46	8.46	8.62	8.54	8.54	8.46	8.31	8.31	8.16	8.93	7.89		8.52	8.52	8.26

2009 Mikio Oda Memorial (Hiroshima, JPN)

FINAL

date 29-Apr-09 wind 1.9 m/s

Ryutaro (2010) - an attempt or a creation of a race pattern stadard model for the 110m hurdles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yin Jing (CHN) (1988)		time	2.60	3.67	4.70	5.73	6.75	7.77	8.81	9.86	10.90	11.96		13.40	/ 1			
reaction time		interval		1.07	1.03	1.03	1.02	1.02	1.04	1.05	1.04	1.06	1.44	PB		3.13	3.08	3.15
		velocity	5.28	8.54	8.87	8.87	8.96	8.96	8.79	8.70	8.79	8.62	9.74	8.21		8.76	8.90	8.70
Tanonaka, Tasuku (JPN) (1978)		time	2.60	3.68	4.74	5.80	6.85	7.90	8.96	10.04	11.12	12.20		13.65	/ 2			
reaction time		interval		1.08	1.06	1.06	1.05	1.05	1.06	1.08	1.08	1.08	1.45			3.20	3.16	3.24
		velocity	5.28	8.46	8.62	8.62	8.70	8.70	8.62	8.46	8.46	8.46	9.67	8.06		8.57	8.68	8.46
Ohashi, Yuji (JPN) (1983)		time	2.62	3.71	4.75	5.83	6.87	7.95	9.01	10.08	11.18	12.29		13.76	/ 3			
reaction time		interval		1.09	1.04	1.08	1.04	1.08	1.06	1.07	1.10	1.11	1.47			3.21	3.18	3.28
		velocity	5.24	8.39	8.79	8.46	8.79	8.46	8.62	8.54	8.31	8.23	9.54	7.99		8.54	8.62	8.36
Park Tae-Kyong (KOR) (1980)		time	2.64	3.71	4.77	5.84	6.89	7.96	9.08	10.13	11.23	12.33		13.77	/ 4			
reaction time		interval		1.07	1.06	1.07	1.05	1.07	1.12	1.05	1.10	1.10	1.44			3.20	3.24	3.25
		velocity	5.20	8.54	8.62	8.54	8.70	8.54	8.16	8.70	8.31	8.31	9.74	7.99		8.57	8.46	8.44
Yahata, Kenji (JPN) (1983)		time	2.63	3.71	4.78	5.83	6.88	7.94	8.99	10.08	11.17	12.29		13.77	/ 4			
reaction time		interval		1.08	1.07	1.05	1.05	1.06	1.05	1.09	1.09	1.12	1.48			3.20	3.16	3.30
		velocity	5.22	8.46	8.54	8.70	8.70	8.62	8.70	8.39	8.39	8.16	9.47	7.99		8.57	8.68	8.31
Irie, Yukito (JPN) (1983)		time	2.63	3.72	4.75	5.83	6.91	7.96	9.05	10.14	11.25	12.37		13.79	/ 6			
reaction time		interval		1.09	1.03	1.08	1.08	1.05	1.09	1.09	1.11	1.12	1.42	PB		3.20	3.22	3.32
		velocity	5.22	8.39	8.87	8.46	8.46	8.70	8.39	8.39	8.23	8.16	9.87	7.98		8.57	8.52	8.26

Aoki, Yuto (JPN) (1984)	time	2.65	3.74	4.81	5.84	6.92	7.98	9.07	10.16	11.28	12.37		13.80	/ 7			
reaction time	interval		1.09	1.07	1.03	1.08	1.06	1.09	1.09	1.12	1.09	1.43			3.19	3.23	3.30
	velocity	5.18	8.39	8.54	8.87	8.46	8.62	8.39	8.39	8.16	8.39	9.80	7.97		8.60	8.49	8.31
Nomoto, Hideki (JPN) (1984)	time	2.66	3.74	4.82	5.88	6.93	8.00	9.08	10.16	11.27	12.40		13.99	/ 8			
reaction time	interval		1.08	1.08	1.06	1.05	1.07	1.08	1.08	1.11	1.13	1.59			3.22	3.20	3.32
	velocity	5.16	8.46	8.46	8.62	8.70	8.54	8.46	8.46	8.23	8.09	8.82	7.86		8.52	8.57	8.26

Heat 1

date 29-Apr-09 wind 0.6 m/s

Akirabun (2010) - analysis of speed and stride on straight track events in the 2009 season

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Park Tae-Kyong (KOR) (1980)	time	2.45	3.54	4.61	5.68	6.74	7.82	8.93	10.03	11.13	12.23		13.87	/ 1			
reaction time	interval		1.09	1.07	1.07	1.06	1.08	1.11	1.10	1.10	1.10	1.64			3.23	3.25	3.30
	velocity	5.60	8.39	8.54	8.54	8.62	8.46	8.23	8.31	8.31	8.31	8.55	7.93		8.49	8.44	8.31

2008 Seiko Super Grand Prix (Kawasaki, JPN)

FINAL

date 23-Sep-08 wind -0.7 m/s

Akirabun (2009) - race analysis of 2008 men's and women's 100m and 110m & 100m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Lee Jung-Joon (KOR) (1984)	time	2.48	3.57	4.65	5.71	6.78	7.83	8.87	9.95	11.03	12.10		13.71	/ 1			
reaction time	interval		1.09	1.08	1.06	1.07	1.05	1.04	1.08	1.08	1.07	1.61			3.23	3.16	3.23
	velocity	5.53	8.39	8.46	8.62	8.54	8.70	8.79	8.46	8.46	8.54	8.71	8.02		8.49	8.68	8.49
Herring, Aubrey (USA) (1978)	time	2.45	3.54	4.60	5.64	6.66	7.74	8.81	9.89	10.98	12.12		13.77	/ 2			
reaction time	interval		1.09	1.06	1.04	1.02	1.08	1.07	1.08	1.09	1.14	1.65			3.19	3.17	3.31
	velocity	5.60	8.39	8.62	8.79	8.96	8.46	8.54	8.46	8.39	8.02	8.50	7.99		8.60	8.65	8.28
Tanonaka, Tasuku (JPN) (1978)	time	2.44	3.52	4.59	5.66	6.73	7.80	8.89	9.99	11.10	12.20		13.88	/ 4			
reaction time	interval		1.08	1.07	1.07	1.07	1.07	1.09	1.10	1.11	1.10	1.68			3.22	3.23	3.31
	velocity	5.62	8.46	8.54	8.54	8.54	8.54	8.39	8.31	8.23	8.31	8.35	7.93		8.52	8.49	8.28
Aoki, Yuto (JPN) (1984)	time	2.59	3.69	4.75	5.83	6.89	8.00	9.07	10.22	11.31	12.43		14.16	/ 6			
reaction time	interval		1.10	1.06	1.08	1.06	1.11	1.07	1.15	1.09	1.12	1.73			3.24	3.24	3.36
	velocity	5.30	8.31	8.62	8.46	8.62	8.23	8.54	7.95	8.39	8.16	8.10	7.77		8.46	8.46	8.16

2008 Golden Grand Prix (Shanghai, CHN)

FINAL

date 20-Sep-08 wind 0.2 m/s

Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)	time	2.66	3.70	4.74	5.78	6.80	7.84	8.90	9.94	11.04	12.08		13.47	/ 2			
reaction time 0.223	interval		1.04	1.04	1.04	1.02	1.04	1.06	1.04	1.10	1.04	1.39	PB		3.12	3.12	3.18
	velocity	5.16	8.79	8.79	8.79	8.96	8.79	8.62	8.79	8.31	8.79	10.09	8.17		8.79	8.79	8.62

2008 IAAF World Athletic Final (Stuttgart, GER)

FINAL

date 14-Sep-08 wind -1.3 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Oliver, David (USA) (1982)	time	2.65	3.66	4.67	5.68	6.69	7.69	8.71	9.74	10.79	11.84		13.22	6 / 1			
reaction time 0.181	interval		1.01	1.01	1.01	1.01	1.00	1.02	1.03	1.05	1.05	1.38			3.03	3.03	3.13
	velocity	5.18	9.05	9.05	9.05	9.05	9.14	8.96	8.87	8.70	8.70	10.16	8.32		9.05	9.05	8.76
Svoboda, Petr (CZE) (1984)	time	2.65	3.69	4.70	5.70	6.72	7.74	8.78	9.82	10.87	11.93		13.33	8 / 2			
reaction time 0.191	interval		1.04	1.01	1.00	1.02	1.02	1.04	1.04	1.05	1.06	1.40			3.05	3.08	3.15
	velocity	5.18	8.79	9.05	9.14	8.96	8.96	8.79	8.79	8.70	8.62	10.01	8.25		8.99	8.90	8.70
Wilson, Ryan (USA) (1980)	time	2.71	3.78	4.80	5.83	6.85	7.88	8.92	9.98	11.05	12.13		13.54	3 / 3			
reaction time 0.163	interval		1.07	1.02	1.03	1.02	1.03	1.04	1.06	1.07	1.08	1.41			3.12	3.09	3.21
	velocity	5.06	8.54	8.96	8.87	8.96	8.87	8.79	8.62	8.54	8.46	9.94	8.12		8.79	8.87	8.54
Merritt, Aries (USA) (1985)	time	2.66	3.72	4.77	5.80	6.83	7.87	8.91	9.96	11.02	12.10		13.56	4 / 4			
reaction time 0.156	interval		1.06	1.05	1.03	1.03	1.04	1.04	1.05	1.06	1.08	1.46			3.14	3.11	3.19
	velocity	5.16	8.62	8.70	8.87	8.87	8.79	8.79	8.70	8.62	8.46	9.60	8.11		8.73	8.82	8.60
van der Westen, Marcel (NED)	time	2.64	3.69	4.72	5.76	6.79	7.83	8.87	9.93	11.00	12.09		13.57	1 / 5			
reaction time 0.136	interval		1.05	1.03	1.04	1.03	1.04	1.04	1.06	1.07	1.09	1.48			3.12	3.11	3.22
	velocity	5.20	8.70	8.87	8.79	8.87	8.79	8.79	8.62	8.54	8.39	9.47	8.11		8.79	8.82	8.52
Akins, Ty (USA) (1986)	time	2.61	3.69	4.76	5.80	6.86	7.93	9.00	10.06	11.13	12.22		13.62	5 / 6			
reaction time 0.150	interval		1.08	1.07	1.04	1.06	1.07	1.07	1.06	1.07	1.09	1.40			3.19	3.20	3.22
	velocity	5.26	8.46	8.54	8.79	8.62	8.54	8.54	8.62	8.54	8.39	10.01	8.08		8.60	8.57	8.52
Turner, Andy (GBR) (1980)	time	2.65	3.74	4.79	5.83	6.88	7.93	8.98	10.06	11.14	12.24		13.68	2 / 7			
reaction time 0.125	interval		1.09	1.05	1.04	1.05	1.05	1.05	1.08	1.08	1.10	1.44			3.18	3.15	3.26
	velocity	5.18	8.39	8.70	8.79	8.70	8.70	8.70	8.46	8.46	8.31	9.74	8.04		8.62	8.70	8.41
Brown, Joel (USA) (1980)	time	2.66	3.75	4.83	5.88	6.94	8.02	9.11	10.18	11.29	12.38		13.81	7 / 8			
reaction time 0.139	interval		1.09	1.08	1.05	9.00	1.08	1.09	1.07	1.11	1.09	1.43			3.22	3.23	3.27
	velocity	5.16	8.39	8.46	8.70	1.02	8.46	8.39	8.54	8.23	8.39	9.80	7.97		8.52	8.49	8.39

2008 Olympic Games (Beijing, CHN)

FINAL date 21-Aug-08 wind 0.1 m/s

Tsiokanos (2018) - race pattern of men's 110m hurdles- time analysis of olympic hurdle performance

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Robles, Dayron (CUB) (1986)		time	2.50	3.53	4.50	5.49	6.48	7.48	8.48	9.50	10.53	11.56		12.93	6 / 1			
reaction time 0.183		interval	7 steps	1.03	0.97	0.99	0.99	1.00	1.00	1.02	1.03	1.03	1.37			2.99	2.99	3.08
		velocity	5.49	8.87	9.42	9.23	9.23	9.14	9.14	8.96	8.87	8.87	10.23	8.51		9.17	9.17	8.90
Payne, David (USA) (1982)		time	2.58	3.62	4.64	5.65	6.68	7.67	8.69	9.73	10.76	11.80		13.17	5 / 2			
reaction time 0.175		interval		1.04	1.02	1.01	1.03	0.99	1.02	1.04	1.03	1.04	1.37			3.07	3.04	3.11
		velocity	5.32	8.79	8.96	9.05	8.87	9.23	8.96	8.79	8.87	8.79	10.23	8.35		8.93	9.02	8.82
Oliver, David (USA) (1982)		time	2.58	3.64	4.67	5.66	6.68	7.68	8.67	9.73	10.76	11.80		13.18	7 / 3			
reaction time 0.158		interval		1.06	1.03	0.99	1.02	1.00	0.99	1.06	1.03	1.04	1.38			3.08	3.01	3.13
		velocity	5.32	8.62	8.87	9.23	8.96	9.14	9.23	8.62	8.87	8.79	10.16	8.35		8.90	9.11	8.76
Doucouré, Ladji (FRA) (1983)		time	2.58	3.64	4.66	5.68	6.69	7.68	8.69	9.73	10.78	11.84		13.24	8 / 4			
reaction time 0.170		interval		1.06	1.02	1.02	1.01	0.99	1.01	1.04	1.05	1.06	1.40			3.10	3.01	3.15
		velocity	5.32	8.62	8.96	8.96	9.05	9.23	9.05	8.79	8.70	8.62	10.01	8.31		8.85	9.11	8.70
Noga, Artur (POL) (1988)		time	2.66	3.70	4.74	5.77	6.78	7.81	8.84	9.87	10.94	12.00		13.36	4 / 5			
reaction time 0.169		interval		1.04	1.04	1.03	1.01	1.03	1.03	1.03	1.07	1.06	1.36			3.11	3.07	3.16
		velocity	5.16	8.79	8.79	8.87	9.05	8.87	8.87	8.87	8.54	8.62	10.31	8.23		8.82	8.93	8.68
Wignall, Maurice (JAM) (1976)		time	2.58	3.64	4.68	5.72	6.77	7.80	8.86	9.90	10.97	12.09		13.46	2 / 6			
reaction time 0.163		interval		1.06	1.04	1.04	1.05	1.03	1.06	1.04	1.07	1.12	1.37			3.14	3.14	3.23
		velocity	5.32	8.62	8.79	8.79	8.70	8.87	8.62	8.79	8.54	8.16	10.23	8.17		8.73	8.73	8.49
Phillips, Richard (JAM) (1983)		time	2.62	3.70	4.73	5.77	6.80	7.82	8.90	9.96	11.02	12.15		13.60	3 / 7			
reaction time 0.154		interval		1.08	1.03	1.04	1.03	1.02	1.08	1.06	1.06	1.13	1.45			3.15	3.13	3.25
		velocity	5.24	8.46	8.87	8.79	8.87	8.96	8.46	8.62	8.62	8.09	9.67	8.09		8.70	8.76	8.44
Quiñónez, Jackson (ESP) (1980		time	2.64	3.72	4.76	5.79	6.82	7.87	8.92	9.99	11.10	12.20		13.69	9 / 8			
reaction time 0.187		interval		1.08	1.04	1.03	1.03	1.05	1.05	1.07	1.11	1.10	1.49			3.15	3.13	3.28
		velocity	5.20	8.46	8.79	8.87	8.87	8.70	8.70	8.54	8.23	8.31	9.41	8.04		8.70	8.76	8.36

2008 Swiss National Championships (Fribourg, SUI)

FINAL date 03-Aug-08 wind 1.0 m/s

Weber (2008) - wettkampfauswertung 110m hürden

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kundert, Andreas (SUI) (1984)		time	2.67	3.74	4.78	5.83	6.86	7.92	8.97	10.03	11.09	12.15		13.53	5 / 1			
reaction time		interval		1.07	1.04	1.05	1.03	1.06	1.05	1.06	1.06	1.06	1.38			3.16	3.14	3.18
		velocity	5.14	8.54	8.79	8.70	8.87	8.62	8.70	8.62	8.62	8.62	10.16	8.13		8.68	8.73	8.62

2008 USA Olympic Trials (Eugene, OR)

FINAL date 06-Jul-08 wind 3.5 m/s

USATF Hurdle Development (2008)

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Oliver, David (USA) (1985)		time	2.57	3.59	4.60	5.59	6.57	7.56	8.55	9.54	10.53	11.57		12.95	4 / 1			
reaction time 0.191		interval		1.02	1.01	0.99	0.98	0.99	0.99	0.99	0.99	1.04	1.38			3.02	2.96	3.02
		velocity	5.34	8.96	9.05	9.23	9.33	9.23	9.23	9.23	9.23	8.79	10.16	8.49		9.08	9.26	9.08
Trammell, Terrence (USA) (197		time	2.52	3.54	4.53	5.54	6.52	7.52	8.53	9.54	10.56	11.59		13.00	6 / 2			
reaction time 0.157		interval		1.02	0.99	1.01	0.98	1.00	1.01	1.01	1.02	1.03	1.41			3.02	2.99	3.06
		velocity	5.44	8.96	9.23	9.05	9.33	9.14	9.05	9.05	8.96	8.87	9.94	8.46		9.08	9.17	8.96
Payne, David (USA) (1982)		time	2.55	3.64	4.65	5.69	6.71	7.72	8.74	9.75	10.79	11.86		13.25	5 / 3			
reaction time 0.161		interval		1.09	1.01	1.04	1.02	1.01	1.02	1.01	1.04	1.07	1.39			3.14	3.05	3.12
		velocity	5.38	8.39	9.05	8.79	8.96	9.05	8.96	9.05	8.79	8.54	10.09	8.30		8.73	8.99	8.79
Merritt, Aries (USA) (1985)		time	2.59	3.65	4.70	5.74	6.74	7.76	8.79	9.83	10.84	11.89		13.27	1 / 4			
reaction time 0.136		interval		1.06	1.05	1.04	1.00	1.02	1.03	1.04	1.01	1.05	1.38			3.15	3.05	3.10
		velocity	5.30	8.62	8.70	8.79	9.14	8.96	8.87	8.79	9.05	8.70	10.16	8.29		8.70	8.99	8.85
Hicks, Antwon (USA) (1983)		time	2.57	3.64	4.69	5.74	6.76	7.76	8.78	9.81	10.85	11.91		13.33	3 / 5			
reaction time 0.170		interval	7 steps	1.07	1.05	1.05	1.02	1.00	1.02	1.03	1.04	1.06	1.42			3.17	3.04	3.13
		velocity	5.34	8.54	8.70	8.70	8.96	9.14	8.96	8.87	8.79	8.62	9.87	8.25		8.65	9.02	8.76
Brunson, Andrew (USA) (1986		time	2.57	3.64	4.67	5.72	6.74	7.77	8.81	9.86	10.91	12.00		13.43	7 / 6			
reaction time 0.150		interval		1.07	1.03	1.05	1.02	1.03	1.04	1.05	1.05	1.09	1.43			3.15	3.09	3.19
		velocity	5.34	8.54	8.87	8.70	8.96	8.87	8.79	8.70	8.70	8.39	9.80	8.19		8.70	8.87	8.60
Akins, Ty (USA) (1986)		time	2.57	3.67	4.74	5.79	6.84	7.89	8.94	9.98	11.03	12.19		13.82	8 / 7			
reaction time 0.175		interval		1.10	1.07	1.05	1.05	1.05	1.05	1.04	1.05	1.16	1.63			3.22	3.15	3.25
		velocity	5.34	8.31	8.54	8.70	8.70	8.70	8.70	8.79	8.70	7.88	8.60	7.96		8.52	8.70	8.44
Moore, Anwar (USA) (1979)		time	2.52	3.58	4.59	5.59	6.57	7.57	8.57	9.59	10.60	11.73		16.64	2 / 8			
reaction time 0.171		interval		1.06	1.01	1.00	0.98	1.00	1.00	1.02	1.01	1.13	4.91			3.07	2.98	3.16

	velocity	5.44	8.62	9.05	9.14	9.33	9.14	9.14	8.96	9.05	8.09	2.86	6.61		8.93	9.20	8.68

2008 Windsprint (Sundsvall, SWE)

FINAL date 06-Jul-08 wind 0.5 m/s *(2008) - www.ssg.se/en/Windsprint/Split-times/*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Townsend, Fredrick (USA) (19	time		3.72			6.78			10.04				13.63	4 / 1			
reaction time	interval					3.06			3.26			3.59					
	velocity		6.15			8.96			8.41			9.00	8.07				
Kronberg, Robert (SWE) (1976	time		3.76			6.85			10.06				13.69	5 / 2			
reaction time	interval					3.09			3.21			3.63					
	velocity		6.08			8.87			8.54			8.90	8.04				
Blaschke, Joakim (SWE) (1977)	time		3.84			7.22			10.73				14.64	3 / 3			
reaction time	interval					3.38			3.51			3.91					
	velocity		5.95			8.11			7.81			8.26	7.51				
Lindén, Samuel (SWE) (1986)	time		3.97			7.42			10.93				14.97	2 / 4			
reaction time	interval					3.45			3.51			4.04					
	velocity		5.76			7.95			7.81			8.00	7.35				

2008 Nambu Chuhei Memorial (Harodate, JPN)

FINAL date 06-Jul-08 wind 0.5 m/s *Akirabun (2009) - race analysis of 2008 men's and women's 100m and 110m & 100m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tanonaka, Tasuku (JPN) (1978)	time	2.44	3.52	4.57	5.62	6.67	7.74	8.81	9.88	10.95	12.04		13.64	/ 1			
reaction time	interval		1.08	1.05	1.05	1.05	1.07	1.07	1.07	1.07	1.09	1.60			3.18	3.19	3.23
	velocity	5.62	8.46	8.70	8.70	8.70	8.54	8.54	8.54	8.54	8.39	8.76	8.06		8.62	8.60	8.49
Ohashi, Yuji (JPN) (1983)	time	2.47	3.55	4.60	5.64	6.70	7.74	8.80	9.86	10.96	12.07		13.73	/ 2			
reaction time	interval		1.08	1.05	1.04	1.06	1.04	1.06	1.06	1.10	1.11	1.66			3.17	3.16	3.27
	velocity	5.55	8.46	8.70	8.79	8.62	8.79	8.62	8.62	8.31	8.23	8.45	8.01		8.65	8.68	8.39

Heat 2

date 06-Jul-08 wind 2.0 m/s *Akirabun (2009) - race analysis of 2008 men's and women's 100m and 110m & 100m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ohashi, Yuji (JPN) (1983)	time	2.44	3.51	4.55	5.57	6.63	7.72	8.78	9.84	10.92	12.03		13.67	/ 1			
reaction time	interval		1.07	1.04	1.02	1.06	1.09	1.06	1.06	1.08	1.11	1.64			3.13	3.21	3.25
	velocity	5.62	8.54	8.79	8.96	8.62	8.39	8.62	8.62	8.46	8.23	8.55	8.05		8.76	8.54	8.44
Tanonaka, Tasuku (JPN) (1978)	time	2.45	3.52	4.58	5.62	6.69	7.78	8.83	9.91	11.00	12.10		13.72	/ 2			
reaction time	interval		1.07	1.06	1.04	1.07	1.09	1.05	1.08	1.09	1.10	1.62			3.17	3.21	3.27
	velocity	5.60	8.54	8.62	8.79	8.54	8.39	8.70	8.46	8.39	8.31	8.65	8.02		8.65	8.54	8.39

Heat 1

date 06-Jul-08 wind 0.2 m/s *Akirabun (2009) - race analysis of 2008 men's and women's 100m and 110m & 100m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Lee Jung-Joon (KOR) (1984)	time	2.52	3.61	4.67	5.73	6.78	7.84	8.92	10.01	11.09	12.21		13.89	/ 1			
reaction time	interval		1.09	1.06	1.06	1.05	1.06	1.08	1.09	1.08	1.12	1.68			3.21	3.19	3.29
	velocity	5.44	8.39	8.62	8.62	8.70	8.62	8.46	8.39	8.46	8.16	8.35	7.92		8.54	8.60	8.33
Yahata, Kenji (JPN) (1980)	time	2.56	3.67	4.76	5.84	6.93	8.09	9.31	10.51	11.70	12.89		14.67	???			
reaction time	interval		1.11	1.09	1.08	1.09	1.16	1.22	1.20	1.19	1.19	1.78			3.28	3.47	3.58
	velocity	5.36	8.23	8.39	8.46	8.39	7.88	7.49	7.62	7.68	7.68	7.88	7.50		8.36	7.90	7.66

2008 Japanese National Championships (Kawasaki, JPN)

FINAL date 28-Jun-08 wind -0.2 m/s *Akirabun (2009) - race analysis of 2008 men's and women's 100m and 110m & 100m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Naito, Masato (JPN) (1980)	time	2.41	3.49	4.53	5.57	6.60	7.64	8.69	9.75	10.85	11.96		13.66	/ 1			
reaction time	interval		1.08	1.04	1.04	1.03	1.04	1.05	1.06	1.10	1.11	1.70			3.16	3.12	3.27
	velocity	5.69	8.46	8.79	8.79	8.87	8.79	8.70	8.62	8.31	8.23	8.25	8.05		8.68	8.79	8.39
Tanonaka, Tasuku (JPN) (1978)	time	2.43	3.51	4.57	5.63	6.68	7.75	8.81	9.90	10.98	12.09		13.73	/ 2			
reaction time	interval		1.08	1.06	1.06	1.05	1.07	1.06	1.09	1.08	1.11	1.64			3.20	3.18	3.28
	velocity	5.65	8.46	8.62	8.62	8.70	8.54	8.62	8.39	8.46	8.23	8.55	8.01		8.57	8.62	8.36
Ohashi, Yuji (JPN) (1983)	time	2.42	3.51	4.57	5.65	6.71	7.77	8.84	9.92	11.01	12.12		13.83	/ 3			
reaction time	interval		1.09	1.06	1.08	1.06	1.06	1.07	1.08	1.09	1.11	1.71			3.23	3.19	3.28
	velocity	5.67	8.39	8.62	8.46	8.62	8.62	8.54	8.46	8.39	8.23	8.20	7.95		8.49	8.60	8.36

2008 Golden Spike (Ostrava, CZE) (TV Analysis)

FINAL date 12-Jun-08 wind 0.9 m/s *Graubner (2009) - http://www.fgs.uni-halle.de*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Robles, Dayron (CUB) (1986)	time	2.47	3.48	4.46	5.46	6.44	7.43	8.42	9.44	10.46	11.49		12.87	6 / 1			
reaction time	interval	7 steps	1.01	0.98	1.00	0.98	0.99	0.99	1.02	1.02	1.03	1.38	WR		2.99	2.96	3.07
	velocity	5.55	9.05	9.33	9.14	9.33	9.23	9.23	8.96	8.96	8.87	10.16	8.55		9.17	9.26	8.93

2008 Good Luck Beijing 2008 Chinese Open (Beijing, CHN)

FINAL date 23-May-08 wind 0.0 m/s *Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Xie Wenjun (CHN) (1990)		time	2.62	3.68	4.74	5.80	6.82	7.86	8.92	9.98	11.04	12.12		13.51	2 / 4			
reaction time 0.162		interval		1.06	1.06	1.06	1.02	1.04	1.06	1.06	1.06	1.08	1.39	PB		3.18	3.12	3.20
		velocity	5.24	8.62	8.62	8.62	8.96	8.79	8.62	8.62	8.62	8.46	10.09	8.14		8.62	8.79	8.57

2008 Mikio Oda Memorial (Hiroshima, JPN)

FINAL date 29-Apr-08 wind 1.6 m/s *Akirabun (2009) - race analysis of 2008 men's and women's 100m and 110m & 100m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tanonaka, Tsauku (JPN) (1978)	time	2.40	3.47	4.52	5.57	6.63	7.69	8.75	9.84	10.93	12.02		13.62	/ 2			
reaction time	interval		1.07	1.05	1.05	1.06	1.06	1.06	1.09	1.09	1.09	1.60			3.17	3.18	3.27
	velocity	5.72	8.54	8.70	8.70	8.62	8.62	8.62	8.39	8.39	8.39	8.76	8.08		8.65	8.62	8.39
Ohashi, Yuji (JPN) (1983)	time	2.45	3.53	4.59	5.64	6.69	7.74	8.80	9.89	10.98	12.09		13.73	/ 4			
reaction time	interval		1.08	1.06	1.05	1.05	1.05	1.06	1.09	1.09	1.11	1.64			3.19	3.16	3.29
	velocity	5.60	8.46	8.62	8.70	8.70	8.70	8.62	8.39	8.39	8.23	8.55	8.01		8.60	8.68	8.33

Heat 2

date 29-Apr-08 wind 1.3 m/s *Akirabun (2009) - race analysis of 2008 men's and women's 100m and 110m & 100m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tanonaka, Tsauku (JPN) (1978)	time	2.43	3.51	4.56	5.61	6.65	7.71	8.77	9.86	10.95	12.04		13.67	/ 1			
reaction time	interval		1.08	1.05	1.05	1.04	1.06	1.06	1.09	1.09	1.09	1.63			3.18	3.16	3.27
	velocity	5.65	8.46	8.70	8.70	8.79	8.62	8.62	8.39	8.39	8.39	8.60	8.05		8.62	8.68	8.39

Heat 1

date 29-Apr-08 wind 0.1 m/s *Akirabun (2009) - race analysis of 2008 men's and women's 100m and 110m & 100m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ohashi, Yuji (JPN) (1983)	time	2.48	3.57	4.62	5.67	6.72	7.76	8.85	9.95	11.04	12.14		13.81	/ 2			
reaction time	interval		1.09	1.05	1.05	1.05	1.04	1.09	1.10	1.09	1.10	1.67			3.19	3.18	3.29
	velocity	5.53	8.39	8.70	8.70	8.70	8.79	8.39	8.31	8.39	8.31	8.40	7.97		8.60	8.62	8.33
Nomoto, Hideki (JPN) (1984)	time	2.49	3.60	4.67	5.73	6.81	7.90	8.99	10.10	11.22	12.35		14.04	/ 4			
reaction time	interval		1.11	1.07	1.06	1.08	1.09	1.09	1.11	1.12	1.13	1.69			3.24	3.26	3.36
	velocity	5.51	8.23	8.54	8.62	8.46	8.39	8.39	8.23	8.16	8.09	8.30	7.83		8.46	8.41	8.16

2008 Spanish National Indoor Championships (Valencia, ESP)

FINAL date 24-Feb-08 *Frutos (2008) - 7.52 record de españa de 60mv masculino de jackson quiñonez: estudio biomecánico*

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Quiñónez, Jackson (ESP) (1980	time	2.56	3.62	4.62	5.62	6.64		7.52	/ 1			
reaction time	interval		1.06	1.00	1.00	1.02	0.88	NR		3.06		
	velocity	5.36	8.62	9.14	9.14	8.96	11.05	7.98		8.96		

2007 Seiko Super Grand Prix (Yokohama, JPN)

FINAL date 30-Sep-07 wind -1.6 m/s *Akirabun (2008) - 2007 speed analysis of the men's & women's 100m, 100m hurdles, & 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Naito, Masato (JPN) (1980)	time	2.48	3.53	4.58	5.63	6.68	7.76	8.86	9.95	11.06	12.14		13.83	/ 3			
reaction time	interval		1.05	1.05	1.05	1.05	1.08	1.10	1.09	1.11	1.08	1.69			3.15	3.23	3.28
	velocity	5.53	8.70	8.70	8.70	8.70	8.46	8.31	8.39	8.23	8.46	8.30	7.95		8.70	8.49	8.36
Moore, Anwar (USA) (1979)	time	2.31	3.37	4.42	5.48	6.56	7.65	8.79	9.93	11.09	12.23		14.08	/ 6			
reaction time	interval		1.06	1.05	1.06	1.08	1.09	1.14	1.14	1.16	1.14	1.85			3.17	3.31	3.44
	velocity	5.94	8.62	8.70	8.62	8.46	8.39	8.02	8.02	7.88	8.02	7.58	7.81		8.65	8.28	7.97

2007 Golden Grand Prix (Shanghai, CHN)

FINAL date 28-Sep-07 wind -0.4 m/s *Ma (2008) - analysis of Liu Xiang's time characteristic in men's 110m hurdles during golden grand prix in Shanghai*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Robles, Dayron (CUB) (1986)	time	2.27	3.24	4.26	5.33	6.31	7.30	8.24	9.17	10.28	11.35		13.01	/ 1			
reaction time 0.186	interval	7 steps	0.97	1.02	1.07	0.98	0.99	0.94	0.93	1.11	1.07	1.66			3.06	2.91	3.11
	velocity	6.04	9.42	8.96	8.54	9.33	9.23	9.72	9.83	8.23	8.54	8.45	8.46		8.96	9.42	8.82
Liu Xiang (CHN) (1983)	time	2.26	3.22	4.36	5.44	6.40	7.42	8.29	9.32	10.42	11.46		13.21	/ 3			
reaction time 0.164	interval		0.96	1.14	1.08	0.96	1.02	0.87	1.03	1.10	1.04	1.75			3.18	2.85	3.17
	velocity	6.07	9.52	8.02	8.46	9.52	8.96	10.51	8.87	8.31	8.79	8.01	8.33		8.62	9.62	8.65

2007 IAAF World Athletic Final (Stuttgart, GER)

FINAL date 23-Sep-07 wind 0.0 m/s *Graubner (2007) - http://www.fgs.uni-halle.de*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Robles, Dayron (CUB) (1986)	time	2.51	3.55	4.54	5.53	6.53	7.51	8.51	9.51	10.53	11.57		12.92	4 / 1			
reaction time 0.158	interval	7 steps	1.04	0.99	0.99	1.00	0.98	1.00	1.00	1.02	1.04	1.35	CR / AR		3.02	2.98	3.06
	velocity	5.47	8.79	9.23	9.23	9.14	9.33	9.14	9.14	8.96	8.79	10.39	8.51		9.08	9.20	8.96
Payne, David (USA) (1982)	time	2.57	3.61	4.64	5.65	6.67	7.68	8.69	9.69	10.71	11.74		13.08	5 / 2			
reaction time 0.146	interval		1.04	1.03	1.01	1.02	1.01	1.01	1.00	1.02	1.03	1.34			3.08	3.04	3.05
	velocity	5.34	8.79	8.87	9.05	8.96	9.05	9.05	9.14	8.96	8.87	10.46	8.41		8.90	9.02	8.99

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Trammell, Terrence (USA) (197	time	2.53	3.57	4.59	5.58	6.59	7.61	8.63	9.67	10.71	11.75		13.15	3 / 3			
reaction time 0.140	interval		1.04	1.02	0.99	1.01	1.02	1.02	1.04	1.04	1.04	1.40			3.05	3.05	3.12
	velocity	5.42	8.79	8.96	9.23	9.05	8.96	8.96	8.79	8.79	8.79	10.01	8.37		8.99	8.99	8.79
Moore, Anwar (USA) (1979)	time	2.59	3.65	4.66	5.67	6.67	7.67	8.68	9.70	10.73	11.80		13.18	7 / 4			
reaction time 0.161	interval		1.06	1.01	1.01	1.00	1.00	1.01	1.02	1.03	1.07	1.38			3.08	3.01	3.12
	velocity	5.30	8.62	9.05	9.05	9.14	9.14	9.05	8.96	8.87	8.54	10.16	8.35		8.90	9.11	8.79
Doucouré, Ladji (FRA) (1983)	time	2.61	3.65	4.67	5.69	6.70	7.72	8.74	9.77	10.81	11.87		13.27	1 / 5			
reaction time 0.160	interval		1.04	1.02	1.02	1.01	1.02	1.02	1.03	1.04	1.06	1.40			3.08	3.05	3.13
	velocity	5.26	8.79	8.96	8.96	9.05	8.96	8.96	8.87	8.79	8.62	10.01	8.29		8.90	8.99	8.76
Johnson, Allen (USA) (1971)	time	2.59	3.63	4.66	5.68	6.71	7.74	8.77	9.81	10.87	11.95		13.36	2 / 6			
reaction time 0.158	interval		1.04	1.03	1.02	1.03	1.03	1.03	1.04	1.06	1.08	1.41			3.09	3.09	3.18
	velocity	5.30	8.79	8.87	8.96	8.87	8.87	8.87	8.79	8.62	8.46	9.94	8.23		8.87	8.87	8.62
Demidyuk, Sergiy (UKR) (1982)	time	2.68	3.72	4.76	5.79	6.81	7.83	8.86	9.90	10.95	12.01		13.37	8 / 7			
reaction time 0.214	interval		1.04	1.04	1.03	1.02	1.02	1.03	1.04	1.05	1.06	1.36			3.11	3.07	3.15
	velocity	5.12	8.79	8.79	8.87	8.96	8.96	8.87	8.79	8.70	8.62	10.31	8.23		8.82	8.93	8.70
Wilson, Ryan (USA) (1980)	time	2.67	3.71	4.73	5.74	6.75	7.75	8.75	9.77				dnf	6 / --			
reaction time 0.142	interval		1.04	1.02	1.01	1.01	1.00	1.00	1.02						3.07	3.01	
	velocity	5.14	8.79	8.96	9.05	9.05	9.14	9.14	8.96						8.93	9.11	

2007 IAAF World Championships (Osaka, JPN)

Xiao (2014) - development process of the characterisitcs about 110m hurdle training in China

Ae (2008) - IAAF biomechanics team - a booklet of biomechanics data

FINAL

date 31-Aug-07 wind 1.7 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10	
Liu Xiang (CHN) (1983)	time	2.57	3.61	4.58	5.58	6.57	7.55	8.55	9.55	10.53	11.57		12.95	9 / 1				*Ae (2008)*
reaction time 0.161	interval		1.04	0.97	1.00	0.99	0.98	1.00	1.00	0.98	1.04	1.38			3.01	2.97	3.02	
	velocity	5.34	8.79	9.42	9.14	9.23	9.33	9.14	9.14	9.33	8.79	10.16	8.49		9.11	9.23	9.08	
Trammell, Terrence (USA) (197	time	2.53	3.53	4.52	5.53	6.53	7.52	8.53	9.55	10.57	11.60		12.99	5 / 2				*Ae (2008)*
reaction time 0.205	interval		1.00	0.99	1.01	1.00	0.99	1.01	1.02	1.02	1.03	1.39			3.00	3.00	3.07	
	velocity	5.42	9.14	9.23	9.05	9.14	9.23	9.05	8.96	8.96	8.87	10.09	8.47		9.14	9.14	8.93	
Payne, David (USA) (1982)	time	2.52	3.55	4.57	5.58	6.60	7.60	8.62	9.62	10.63	11.67		13.02	7 / 3				*Ae (2008)*
reaction time 0.141	interval		1.03	1.02	1.01	1.02	1.00	1.02	1.00	1.01	1.04	1.35	PB		3.06	3.04	3.05	
	velocity	5.44	8.87	8.96	9.05	8.96	9.14	8.96	9.14	9.05	8.79	10.39	8.45		8.96	9.02	8.99	
Robles, Dayron (CUB) (1986)	0.164	no information available *7 steps*											13.15	4 / 4				
Shi Dongpeng (CHN) (1984)	time	2.59	3.62	4.63	5.62	6.60	7.57	8.57	9.57	10.59	11.62		13.19	6 / 5				*Xiao (2014)*
reaction time 0.150	interval		1.03	1.01	0.99	0.98	0.97	1.00	1.00	1.02	1.03	1.57	PB		3.03	2.95	3.05	
	velocity	5.30	8.87	9.05	9.23	9.33	9.42	9.14	9.14	8.96	8.87	8.93	8.34		9.05	9.29	8.99	
Demydyuk, Serhly (UKR) (1982	0.136	no information available										NR	13.22	3 / 6				
Quiñónez, Jackson (ESP) (1980	0.172	no information available										NR	13.33	2 / 7				
Wignall, Maurice (JAM) (1976)	0.144	no information available											13.39	8 / 8				

Semi-Final 3

date 30-Aug-07 wind -1.0 m/s

Shibayama (2008) - analysis of racing patterns in the men's 110m & women's 100m sprint hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.63	3.65	4.67	5.67	6.69	7.69	8.71	9.74	10.77	11.82		13.25	6 / 2			
reaction time 0.158	interval		1.02	1.02	1.00	1.02	1.00	1.02	1.03	1.03	1.05	1.43			3.04	3.04	3.11
	velocity	5.22	8.96	8.96	9.14	8.96	9.14	8.96	8.87	8.87	8.70	9.80	8.30		9.02	9.02	8.82

Semi-Final 2

date 30-Aug-07 wind 0.4 m/s

Shibayama (2008) - analysis of racing patterns in the men's 110m & women's 100m sprint hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Trammell, Terrence (USA) (197	time	2.55	3.58	4.60	5.62	6.62	7.64	8.64	9.67	10.72	11.79		13.23	7 / 1			
reaction time 0.223	interval		1.03	1.02	1.02	1.00	1.02	1.00	1.03	1.05	1.07	1.44			3.07	3.02	3.15
	velocity	5.38	8.87	8.96	8.96	9.14	8.96	9.14	8.87	8.70	8.54	9.74	8.31		8.93	9.08	8.70

Semi-Final 1

date 30-Aug-07 wind -0.4 m/s

Shibayama (2008) - analysis of racing patterns in the men's 110m & women's 100m sprint hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Payne, David (USA) (1982)	time	2.61	3.66	4.68	5.68	6.68	7.68	8.71	9.73	10.76	11.83		13.19	7 / 1			
reaction time 0.166	interval		1.05	1.02	1.00	1.00	1.00	1.03	1.02	1.03	1.07	1.36			3.07	3.03	3.12
	velocity	5.26	8.70	8.96	9.14	9.14	9.14	8.87	8.96	8.87	8.54	10.31	8.34		8.93	9.05	8.79

Heat 5

date 29-Aug-07 wind 0.6 m/s

Shibayama (2008) - analysis of racing patterns in the men's 110m & women's 100m sprint hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Payne, David (USA) (1982)	time	2.62	3.69	4.71	5.71	6.73	7.75	8.77	9.80	10.83	11.86		13.27	3 / 2			
reaction time 0.163	interval		1.07	1.02	1.00	1.02	1.02	1.02	1.03	1.03	1.03	1.41			3.09	3.06	3.09
	velocity	5.24	8.54	8.96	9.14	8.96	8.96	8.96	8.87	8.87	8.87	9.94	8.29		8.87	8.96	8.87

Heat 4

date 29-Aug-07 wind 0.6 m/s

Shibayama (2008) - analysis of racing patterns in the men's 110m & women's 100m sprint hurdles

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Tanonaka, Tasuku (JPN) (1978)		time	2.64	3.69	4.76	5.81	6.84	7.89	8.94	10.03	11.11	12.19		13.61	5 / 3				
reaction time	0.140	interval		1.05	1.07	1.05	1.03	1.05	1.05	1.09	1.08	1.08	1.42			3.17	3.13	3.25	
		velocity	5.20	8.70	8.54	8.70	8.87	8.70	8.70	8.39	8.46	8.46	9.87	8.08		8.65	8.76	8.44	

Heat 3

date 29-Aug-07 wind 0.2 m/s *Shibayama (2008) - analysis of racing patterns in the men's 110m & women's 100m sprint hurdles*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Naito, Masato (JPN) (1980)		time	2.62	3.68	4.70	5.73	6.73	7.77	8.83	9.90	10.98	12.08		13.54	9 / 3			
reaction time	0.164	interval		1.06	1.02	1.03	1.00	1.04	1.06	1.07	1.08	1.10	1.46			3.11	3.10	3.25	
		velocity	5.24	8.62	8.96	8.87	9.14	8.79	8.62	8.54	8.46	8.31	9.60	8.12		8.82	8.85	8.44	

Heat 2

date 29-Aug-07 wind -0.6 m/s *Shibayama (2008) - analysis of racing patterns in the men's 110m & women's 100m sprint hurdles*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)		time	2.63	3.68	4.71	5.74	6.77	7.79	8.82	9.84	10.89	11.96		13.36	4 / 1			
reaction time	0.141	interval		1.05	1.03	1.03	1.03	1.02	1.03	1.02	1.05	1.07	1.40			3.11	3.08	3.14	
		velocity	5.22	8.70	8.87	8.87	8.87	8.96	8.87	8.96	8.70	8.54	10.01	8.23		8.82	8.90	8.73	

Heat 1

date 29-Aug-07 wind 0.4 m/s *Shibayama (2008) - analysis of racing patterns in the men's 110m & women's 100m sprint hurdles*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Trammell, Terrence (USA) (197		time	2.63	3.66	4.73	5.75	6.77	7.79	8.84	9.91	10.96	12.01		13.40	5 / 1			
reaction time	0.223	interval		1.03	1.07	1.02	1.02	1.02	1.05	1.07	1.05	1.05	1.39			3.12	3.09	3.17	
		velocity	5.22	8.87	8.54	8.96	8.96	8.96	8.70	8.54	8.70	8.70	10.09	8.21		8.79	8.87	8.65	

2007 Windsprint (Sundsvall, SWE)

FINAL

date 24-Jul-07 wind 1.3 m/s *(2007) - www.ssg.se/en/Windsprint/Split-times/*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kronberg, Robert (SWE) (1976		time		3.68			6.82			10.01				13.65	/ 1			
reaction time		interval					3.14			3.19			3.64					
		velocity		6.21			8.73			8.60			8.87	8.06				
Thomas, Chris (USA) (1981)		time		3.73			6.92			10.19				13.95	/ 2			
reaction time		interval					3.19			3.27			3.76					
		velocity		6.13			8.60			8.39			8.59	7.89				
Andrews, Ron (USA) (1979)		time		3.74			6.98			10.22				13.97	/ 3			
reaction time		interval					3.24			3.24			3.75					
		velocity		6.11			8.46			8.46			8.61	7.87				
Askros, Rafael (SWE) (1981)		time		3.76			7.19			10.59				14.46	/ 4			
reaction time		interval					3.43			3.40			3.87					
		velocity		6.08			7.99			8.06			8.35	7.61				
Acson, Dennis (SWE) (1981)		time		3.80			7.21			10.63				14.62	/ 5			
reaction time		interval					3.41			3.42			3.99					
		velocity		6.02			8.04			8.02			8.10	7.52				
Blaschke, Joakim (SWE) (1977)		time		3.87			7.23			10.68				14.79	/ 6			
reaction time		interval					3.36			3.45			4.11					
		velocity		5.91			8.16			7.95			7.86	7.44				
Sjöberg, Christian (SWE) (1984		time		3.90			7.29			10.72				14.84	/ 7			
reaction time		interval					3.39			3.43			4.12					
		velocity		5.86			8.09			7.99			7.84	7.41				
Olsson, Carl-Johan (SWE) (198		time		3.95			7.48			11.07				15.33	/ 8			
reaction time		interval					3.53			3.59			4.26					
		velocity		5.79			7.77			7.64			7.58	7.18				

2007 European Cup (Munich, GER)

FINAL

date 24-Jun-07 wind 0.4 m/s *Graubner (2007) - http://www.fgs.uni-halle.de*

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Doucouré, Ladji (FRA) (1983)		time	2.57	3.61	4.63	5.63	6.64	7.65	8.67	9.70	10.77	11.87		13.35	/ 1			
reaction time	0.152	interval		1.04	1.02	1.00	1.01	1.01	1.02	1.03	1.07	1.10	1.48			3.06	3.04	3.20	
		velocity	5.34	8.79	8.96	9.14	9.05	9.05	8.96	8.87	8.54	8.31	9.47	8.24		8.96	9.02	8.57	
Turner, Andy (GBR) (1980)		time	2.62	3.66	4.69	5.73	6.76	7.80	8.85	9.91	10.98	12.07		13.48	/ 2			
reaction time	0.156	interval		1.04	1.03	1.04	1.03	1.04	1.05	1.06	1.07	1.09	1.41			3.11	3.12	3.22	
		velocity	5.24	8.79	8.87	8.79	8.87	8.79	8.70	8.62	8.54	8.39	9.94	8.16		8.82	8.79	8.52	
Blaschek, Thomas (GER) (1981		time	2.63	3.67	4.71	5.73	6.75	7.78	8.83	9.89	10.97	12.07		13.51	/ 3			
reaction time	0.133	interval		1.04	1.04	1.02	1.02	1.03	1.05	1.06	1.08	1.10	1.44			3.10	3.10	3.24	
		velocity	5.22	8.79	8.79	8.96	8.96	8.87	8.70	8.62	8.46	8.31	9.74	8.14		8.85	8.85	8.46	
Peremota, Igor (RUS) (1981)		time	2.61	3.63	4.67	5.69	6.73	7.77	8.83	9.93	11.03	12.15		13.61	/ 4			
reaction time	0.132	interval		1.02	1.04	1.02	1.04	1.04	1.06	1.10	1.10	1.12	1.46			3.08	3.14	3.32	
		velocity	5.26	8.96	8.79	8.96	8.79	8.79	8.62	8.31	8.31	8.16	9.60	8.08		8.90	8.73	8.26	

Douvalídis, Konstadínos (GRE	time	2.63	3.70	4.74	5.79	6.83	7.91	8.97	10.03	11.10	12.20		13.63	/ 5				
reaction time 0.141	interval		1.07	1.04	1.05	1.04	1.08	1.06	1.06	1.07	1.10	1.43			3.16	3.18	3.23	
	velocity	5.22	8.54	8.79	8.70	8.79	8.46	8.62	8.62	8.54	8.31	9.80	8.07		8.68	8.62	8.49	
Deghelt, Adrien (BEL) (1985)	time	2.65	3.71	4.75	5.80	6.85	7.91	8.96	10.03	11.13	12.23		13.67	/ 6				
reaction time 0.149	interval		1.06	1.04	1.05	1.05	1.06	1.05	1.07	1.10	1.10	1.44	PB		3.15	3.16	3.27	
	velocity	5.18	8.62	8.79	8.70	8.70	8.62	8.70	8.54	8.31	8.31	9.74	8.05		8.70	8.68	8.39	
Kubaszewski, Mariusz (POL) (1	time	2.64	3.73	4.79	5.83	6.91	7.95	9.03	10.08	11.17	12.29		13.74	/ 7				
reaction time 0.127	interval		1.09	1.06	1.04	1.08	1.04	1.08	1.05	1.09	1.12	1.45			3.19	3.20	3.26	
	velocity	5.20	8.39	8.62	8.79	8.46	8.79	8.46	8.70	8.39	8.16	9.67	8.01		8.60	8.57	8.41	
Vahnyakov, Oleksandr (UKR) (	time	2.80	3.93	5.02	6.08	7.15	8.24	9.35	10.47	11.57	12.69		14.21	/ 8				
reaction time 0.243	interval		1.13	1.09	1.06	1.07	1.09	1.11	1.12	1.10	1.12	1.52			3.28	3.27	3.34	
	velocity	4.90	8.09	8.39	8.62	8.54	8.39	8.23	8.16	8.31	8.16	9.22	7.74		8.36	8.39	8.21	

2007 Athletissima Meeting (Lausanne, SUI)

Race 2

date 10-Jul-07 wind 0.0 m/s

Lu (2008) - 110m hurdle technical characteristics of Shi Dongpeng

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shi Dongpeng (CHN) (1984)	time	2.63	3.71	4.76	5.79	6.80	7.80	8.82	9.85	10.90	11.97		13.42	/ 8			
reaction time	interval		1.08	1.05	1.03	1.01	1.00	1.02	1.03	1.05	1.07	1.45			3.16	3.03	3.15	
	velocity	5.22	8.46	8.70	8.87	9.05	9.14	8.96	8.87	8.70	8.54	9.67	8.20		8.68	9.05	8.70	

2007 USATF National Championship (Indianapolis, IN)

FINAL

date 24-Jun-07 wind 0.5 m/s

USATF Men's Hurdle Development (2007)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Trammell, Terrence (USA) (197	time	2.55	3.59	4.59	5.59	6.59	7.59	8.59	9.59	10.61	11.70		13.08	3 / 1			
reaction time	interval		1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.09	1.38			3.04	3.00	3.11	
	velocity	5.38	8.79	9.14	9.14	9.14	9.14	9.14	9.14	8.96	8.39	10.16	8.41		9.02	9.14	8.82	
Arnold, Dominique (USA) (197	time	2.62	3.67	4.70	5.69	6.69	7.69	8.69	9.69	10.71	11.73		13.17	5 / 2			
reaction time	interval		1.05	1.03	0.99	1.00	1.00	1.00	1.00	1.02	1.02	1.44			3.07	3.00	3.04	
	velocity	5.24	8.70	8.87	9.23	9.14	9.14	9.14	9.14	8.96	8.96	9.74	8.35		8.93	9.14	9.02	
Oliver, David (USA) (1982)	time	2.65	3.67	4.72	5.72	6.72	7.72	8.74	9.73	10.76	11.78		13.18	6 / 3			
reaction time	interval		1.02	1.05	1.00	1.00	1.00	1.02	0.99	1.03	1.02	1.40			3.07	3.02	3.04	
	velocity	5.18	8.96	8.70	9.14	9.14	9.14	8.96	9.23	8.87	8.96	10.01	8.35		8.93	9.08	9.02	
Payne, David (USA) (1982)	time	2.59	3.65	4.65	5.69	6.71	7.72	8.74	9.76	10.81	11.86		13.22	4 / 4			
reaction time	interval		1.06	1.00	1.04	1.02	1.01	1.02	1.02	1.05	1.05	1.36			3.10	3.05	3.12	
	velocity	5.30	8.62	9.14	8.79	8.96	9.05	8.96	8.96	8.70	8.70	10.31	8.32		8.85	8.99	8.79	
Moore, Anwar (USA) (1979)	time	2.62	3.67	4.70	5.72	6.72	7.71	8.70	9.74	10.78	11.85		13.23	8 / 5			
reaction time	interval		1.05	1.03	1.02	1.00	0.99	0.99	1.04	1.04	1.07	1.38			3.10	2.98	3.15	
	velocity	5.24	8.70	8.87	8.96	9.14	9.23	9.23	8.79	8.79	8.54	10.16	8.31		8.85	9.20	8.70	
Merritt, Aries (USA) (1985)	time	2.65	3.72	4.74	5.76	6.76	7.77	8.76	9.79	10.83	11.85		13.24	7 / 6			
reaction time	interval		1.07	1.02	1.02	1.00	1.01	0.99	1.03	1.04	1.02	1.39			3.11	3.00	3.09	
	velocity	5.18	8.54	8.96	8.96	9.14	9.05	9.23	8.87	8.79	8.96	10.09	8.31		8.82	9.14	8.87	
Johnson, Allen (USA) (1971)	time	2.59	3.62	4.64	5.64	6.67	7.69	8.76	9.78	10.93	12.03		13.60	2 / 7			
reaction time	interval		1.03	1.02	1.00	1.03	1.02	1.07	1.02	1.15	1.10	1.57			3.05	3.12	3.27	
	velocity	5.30	8.87	8.96	9.14	8.87	8.96	8.54	8.96	7.95	8.31	8.93	8.09		8.99	8.79	8.39	
Wilson, Ryan (USA) (1980)	time	2.62	3.79	4.80	5.91	7.02	8.41						dnf	1 / --			
reaction time	interval		1.17	1.01	1.11	1.11	1.39								3.29		
	velocity	5.24	7.81	9.05	8.23	8.23	6.58								8.33		

Semi-Final 2

date 24-Jun-07 wind -0.9 m/s

USATF Men's Hurdle Development (2007)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Trammell, Terrence (USA) (197	time	2.59	3.64	4.65	5.69	6.71	7.72	8.73	9.78	10.82	11.86		13.26	2 / 1			
reaction time	interval		1.05	1.01	1.04	1.02	1.01	1.01	1.05	1.04	1.04	1.40			3.10	3.04	3.13	
	velocity	5.30	8.70	9.05	8.79	8.96	9.05	9.05	8.70	8.79	8.79	10.01	8.30		8.85	9.02	8.76	
Oliver, David (USA) (1982)	time	2.65	3.70	4.74	5.74	6.76	7.76	8.79	9.81	10.88	11.93		13.29	4 / 2			
reaction time	interval		1.05	1.04	1.00	1.02	1.00	1.03	1.02	1.07	1.05	1.36			3.09	3.05	3.14	
	velocity	5.18	8.70	8.79	9.14	8.96	9.14	8.87	8.96	8.54	8.70	10.31	8.28		8.87	8.99	8.73	
Wilson, Ryan (USA) (1980)	time	2.65	3.70	4.74	5.74	6.72	7.74	8.78	9.81	10.86	11.91		13.33	3 / 3			
reaction time	interval		1.05	1.04	1.00	0.98	1.02	1.04	1.03	1.05	1.05	1.42			3.09	3.04	3.13	
	velocity	5.18	8.70	8.79	9.14	9.33	8.96	8.79	8.87	8.70	8.70	9.87	8.25		8.87	9.02	8.76	
Moore, Anwar (USA) (1979)	time	2.62	3.67	4.69	5.72	6.77	7.81	8.86	9.88	10.92	11.98		13.35	5 / 4			
reaction time	interval		1.05	1.02	1.03	1.05	1.04	1.05	1.02	1.04	1.06	1.37			3.10	3.14	3.12	

	velocity	5.24	8.70	8.96	8.87	8.70	8.79	8.70	8.96	8.79	8.62	10.23	8.24		8.85	8.73	8.79
Faulk, Dexter (USA) (1984)	time	2.65	3.69	4.72	5.76	6.81	7.86	8.90	9.99	11.04	12.12		13.52	1 / 5			
reaction time	interval		1.04	1.03	1.04	1.05	1.05	1.04	1.09	1.05	1.08	1.40			3.11	3.14	3.22
	velocity	5.18	8.79	8.87	8.79	8.70	8.70	8.79	8.39	8.70	8.46	10.01	8.14		8.82	8.73	8.52
Yarbrough, Linnie (USA) (1982	time	2.70	3.75	4.79	5.82	6.86	7.89	8.94	9.99	11.06	12.11		13.55	6 / 6			
reaction time	interval		1.05	1.04	1.03	1.04	1.03	1.05	1.05	1.07	1.05	1.44			3.12	3.12	3.17
	velocity	5.08	8.70	8.79	8.87	8.79	8.87	8.70	8.70	8.54	8.70	9.74	8.12		8.79	8.79	8.65
Yarbrough, John (USA) (1985)	time	2.69	3.75	4.80	5.84	6.87	7.92	8.98	10.02	11.08	12.16		13.61	7 / 7			
reaction time	interval		1.06	1.05	1.04	1.03	1.05	1.06	1.04	1.06	1.08	1.45			3.15	3.14	3.18
	velocity	5.10	8.62	8.70	8.79	8.87	8.70	8.62	8.79	8.62	8.46	9.67	8.08		8.70	8.73	8.62
Odom, Marlon (USA) (1982)	time	2.70	3.75	4.82	5.89	6.92	7.96	9.03	10.11	11.21	12.31		13.79	8 / 8			
reaction time	interval		1.05	1.07	1.07	1.03	1.04	1.07	1.08	1.10	1.10	1.48			3.19	3.14	3.28
	velocity	5.08	8.70	8.54	8.54	8.87	8.79	8.54	8.46	8.31	8.31	9.47	7.98		8.60	8.73	8.36

Semi-Final 1

date 24-Jun-07 wind -0.6 m/s *USATF Men's Hurdle Development (2007)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Payne, David (USA) (1982)	time	2.57	3.64	4.65	5.69	6.69	7.72	8.76	9.78	10.82	11.88		13.28	4 / 1			
reaction time	interval		1.07	1.01	1.04	1.00	1.03	1.04	1.02	1.04	1.06	1.40			3.12	3.07	3.12
	velocity	5.34	8.54	9.05	8.79	9.14	8.87	8.79	8.96	8.79	8.62	10.01	8.28		8.79	8.93	8.79
Arnold, Dominique (USA) (197	time	2.62	3.67	4.69	5.71	6.72	7.72	8.74	9.79	10.81	11.88		13.35	3 / 2			
reaction time	interval		1.05	1.02	1.02	1.01	1.00	1.02	1.05	1.02	1.07	1.47			3.09	3.03	3.14
	velocity	5.24	8.70	8.96	8.96	9.05	9.14	8.96	8.70	8.96	8.54	9.54	8.24		8.87	9.05	8.73
Merritt, Aries (USA) (1985)	time	2.62	3.69	4.70	5.76	6.79	7.79	8.83	9.88	10.89	11.95		13.37	5 / 3			
reaction time	interval		1.07	1.01	1.06	1.03	1.00	1.04	1.05	1.01	1.06	1.42			3.14	3.07	3.12
	velocity	5.24	8.54	9.05	8.62	8.87	9.14	8.79	8.70	9.05	8.62	9.87	8.23		8.73	8.93	8.79
Johnson, Allen (USA) (1971)	time	2.57	3.64	4.64	5.67	6.69	7.71	8.76	9.81	10.86	11.95		13.42	8 / 4			
reaction time	interval		1.07	1.00	1.03	1.02	1.02	1.05	1.05	1.05	1.09	1.47			3.10	3.09	3.19
	velocity	5.34	8.54	9.14	8.87	8.96	8.96	8.70	8.70	8.70	8.39	9.54	8.20		8.85	8.87	8.60
Brown, Joel (USA) (1980)	time	2.65	3.72	4.77	5.82	6.84	7.91	8.94	9.98	11.03	12.10		13.52	1 / 5			
reaction time	interval		1.07	1.05	1.05	1.02	1.07	1.03	1.04	1.05	1.07	1.42			3.17	3.12	3.16
	velocity	5.18	8.54	8.70	8.70	8.96	8.54	8.87	8.79	8.70	8.54	9.87	8.14		8.65	8.79	8.68
Cooper, Jermaine (USA) (1980)	time	2.60	3.67	4.74	5.79	6.84	7.89	8.98	10.06	11.16	12.26		13.75	2 / 6			
reaction time	interval		1.07	1.07	1.05	1.05	1.05	1.09	1.08	1.10	1.10	1.49			3.19	3.19	3.28
	velocity	5.28	8.54	8.54	8.70	8.70	8.70	8.39	8.46	8.31	8.31	9.41	8.00		8.60	8.60	8.36
Hicks, Antwon (USA) (1983)	time	2.59	3.69	4.79	5.86	6.89	7.96	8.99	10.08	11.14	12.25		13.75	6 / 7			
reaction time	interval		1.10	1.10	1.07	1.03	1.07	1.03	1.09	1.06	1.11	1.50			3.27	3.13	3.26
	velocity	5.30	8.31	8.31	8.54	8.87	8.54	8.87	8.39	8.62	8.23	9.35	8.00		8.39	8.76	8.41
Porter, Jeff (USA) (1985)	time	2.67	3.74	4.79	5.86	6.92	7.99	9.06	10.14	11.24	12.36		13.83	7 / 8			
reaction time	interval		1.07	1.05	1.07	1.06	1.07	1.07	1.08	1.10	1.12	1.47			3.19	3.20	3.30
	velocity	5.14	8.54	8.70	8.54	8.62	8.54	8.54	8.46	8.31	8.16	9.54	7.95		8.60	8.57	8.31

Heat 4

date 23-Jun-07 wind -2.8 m/s *USATF Men's Hurdle Development (2007)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Oliver, David (USA) (1982)	time	2.64	3.69	4.77	5.81	6.84	7.91	8.96	10.01	11.08	12.15		13.56	7 / 1			
reaction time	interval		1.05	1.08	1.04	1.03	1.07	1.05	1.05	1.07	1.07	1.41			3.17	3.15	3.19
	velocity	5.20	8.70	8.46	8.79	8.87	8.54	8.70	8.70	8.54	8.54	9.94	8.11		8.65	8.70	8.60
Yarbrough, Linnie (USA) (1982	time	2.64	3.70	4.74	5.79	6.87	7.92	8.98	10.04	11.11	12.18		13.61	5 / 2			
reaction time	interval		1.06	1.04	1.05	1.08	1.05	1.06	1.06	1.07	1.07	1.43			3.15	3.19	3.20
	velocity	5.20	8.62	8.79	8.70	8.46	8.70	8.62	8.62	8.54	8.54	9.80	8.08		8.70	8.60	8.57
Trammell, Terrence (USA) (197	time	2.62	3.72	4.77	5.82	6.89	7.96	9.06	10.13	11.23	12.30		13.78	2 / 3			
reaction time	interval		1.10	1.05	1.05	1.07	1.07	1.10	1.07	1.10	1.07	1.48			3.20	3.24	3.24
	velocity	5.24	8.31	8.70	8.70	8.54	8.54	8.31	8.54	8.31	8.54	9.47	7.98		8.57	8.46	8.46
Kelley, Kai (USA) (1986)	time	2.64	3.77	4.84	5.92	7.01	8.10	9.19	10.28	11.39	12.52		14.00	1 / 4			
reaction time	interval		1.13	1.07	1.08	1.09	1.09	1.09	1.09	1.11	1.13	1.48			3.28	3.27	3.33
	velocity	5.20	8.09	8.54	8.46	8.39	8.39	8.39	8.39	8.23	8.09	9.47	7.86		8.36	8.39	8.23
Mack, Thomas (USA) (1985)	time	2.64	3.74	4.82	5.91	7.01	8.11	9.20	10.31	11.43	12.56		14.03	4 / 5			
reaction time	interval		1.10	1.08	1.09	1.10	1.10	1.09	1.11	1.12	1.13	1.47			3.27	3.29	3.36
	velocity	5.20	8.31	8.46	8.39	8.31	8.31	8.39	8.23	8.16	8.09	9.54	7.84		8.39	8.33	8.16
Akins, Ty (USA) (1986)	time	2.69	3.82	4.90	6.02	7.12	8.19	9.29	10.37	11.49	12.61		14.09	3 / 6			
reaction time	interval		1.13	1.08	1.12	1.10	1.07	1.10	1.08	1.12	1.12	1.48			3.33	3.27	3.32

	velocity	5.10	8.09	8.46	8.16	8.31	8.54	8.31	8.46	8.16	8.16	9.47	7.81		8.23	8.39	8.26
Jiles-Tindall, Julius (USA) (198	time	2.69	3.79	4.90	5.99	7.08	8.16	9.28	10.38	11.47	12.61		14.10	6 / 7			
reaction time	interval		1.10	1.11	1.09	1.09	1.08	1.12	1.10	1.09	1.14	1.49			3.30	3.29	3.33
	velocity	5.10	8.31	8.23	8.39	8.39	8.46	8.16	8.31	8.39	8.02	9.41	7.80		8.31	8.33	8.23
Herring, Aubrey (USA) (1978)	time	2.64	3.79	4.89	5.99	7.07	8.17	9.29	10.41	11.51	12.66		14.27	8 / 8			
reaction time	interval		1.15	1.10	1.10	1.08	1.10	1.12	1.12	1.10	1.15	1.61			3.35	3.30	3.37
	velocity	5.20	7.95	8.31	8.31	8.46	8.31	8.16	8.16	8.31	7.95	8.71	7.71		8.19	8.31	8.14

Heat 3

date 23-Jun-07 wind -3.2 m/s *USATF Men's Hurdle Development (2007)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Moore, Anwar (USA) (1979)	time	2.60	3.67	4.69	5.76	6.79	7.87	8.93	10.00	11.06	12.15		13.62	3 / 1			
reaction time	interval		1.07	1.02	1.07	1.03	1.08	1.06	1.07	1.06	1.09	1.47			3.16	3.17	3.22
	velocity	5.28	8.54	8.96	8.54	8.87	8.46	8.62	8.54	8.62	8.39	9.54	8.08		8.68	8.65	8.52
Wilson, Ryan (USA) (1980)	time	2.65	3.70	4.77	5.86	6.89	7.93	8.98	10.04	11.11	12.18		13.64	5 / 2			
reaction time	interval		1.05	1.07	1.09	1.03	1.04	1.05	1.06	1.07	1.07	1.46			3.21	3.12	3.20
	velocity	5.18	8.70	8.54	8.39	8.87	8.79	8.70	8.62	8.54	8.54	9.60	8.06		8.54	8.79	8.57
Bramlett, Ron (USA) (1979)	time	2.62	3.67	4.75	5.84	6.89	7.97	9.05	10.13	11.21	12.31		13.81	2 / 3			
reaction time	interval		1.05	1.08	1.09	1.05	1.08	1.08	1.08	1.08	1.10	1.50			3.22	3.21	3.26
	velocity	5.24	8.70	8.46	8.39	8.70	8.46	8.46	8.46	8.46	8.31	9.35	7.97		8.52	8.54	8.41
Hughes, Robby (USA) (1978)	time	2.60	3.75	4.85	5.94	7.02	8.09	9.19	10.28	11.38	12.50		13.96	6 / 4			
reaction time	interval		1.15	1.10	1.09	1.08	1.07	1.10	1.09	1.10	1.12	1.46			3.34	3.25	3.31
	velocity	5.28	7.95	8.31	8.39	8.46	8.54	8.31	8.39	8.31	8.16	9.60	7.88		8.21	8.44	8.28
Walker, Josh (USA) (1982)	time	2.67	3.79	4.85	5.94	6.99	8.09	9.18	10.26	11.36	12.46		13.97	1 / 5			
reaction time	interval		1.12	1.06	1.09	1.05	1.10	1.09	1.08	1.10	1.10	1.51			3.27	3.24	3.28
	velocity	5.14	8.16	8.62	8.39	8.70	8.31	8.39	8.46	8.31	8.31	9.28	7.87		8.39	8.46	8.36
Taylor, Logan (USA) (1986)	time	2.64	3.75	4.84	5.94	7.06	8.12	9.22	10.36	11.46	12.63		14.12	7 / 6			
reaction time	interval		1.11	1.09	1.10	1.12	1.06	1.10	1.14	1.10	1.17	1.49			3.30	3.28	3.41
	velocity	5.20	8.23	8.39	8.31	8.16	8.62	8.31	8.02	8.31	7.81	9.41	7.79		8.31	8.36	8.04
Berger, Dominic (USA) (1986)	time	2.70	3.82	4.90	5.99	7.08	8.16	9.26	10.38	11.48	12.61		14.35	8 / 7			
reaction time	interval		1.12	1.08	1.09	1.09	1.08	1.10	1.12	1.10	1.13	1.74			3.29	3.27	3.35
	velocity	5.08	8.16	8.46	8.39	8.39	8.46	8.31	8.16	8.31	8.09	8.06	7.67		8.33	8.39	8.19
DuBose, Jacoby (USA) (1982)	time	2.79	3.90	5.01	6.10	7.22	8.34	9.44	10.58	11.71	12.85		14.37	4 / 8			
reaction time	interval		1.11	1.11	1.09	1.12	1.12	1.10	1.14	1.13	1.14	1.52			3.31	3.34	3.41
	velocity	4.92	8.23	8.23	8.39	8.16	8.16	8.31	8.02	8.09	8.02	9.22	7.65		8.28	8.21	8.04

Heat 2

date 23-Jun-07 wind -1.9 m/s *USATF Men's Hurdle Development (2007)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Arnold, Dominique (USA) (197	time	2.74	3.80	4.87	5.91	6.89	7.92	8.96	10.01	11.09	12.24		13.66	6 / 1			
reaction time	interval		1.06	1.07	1.04	0.98	1.03	1.04	1.05	1.08	1.15	1.42			3.17	3.05	3.28
	velocity	5.01	8.62	8.54	8.79	9.33	8.87	8.79	8.70	8.46	7.95	9.87	8.05		8.65	8.99	8.36
Merritt, Aries (USA) (1985)	time	2.75	3.89	4.92	5.99	7.06	8.11	9.16	10.21	11.26	12.35		13.68	2 / 2			
reaction time	interval		1.14	1.03	1.07	1.07	1.05	1.05	1.05	1.05	1.09	1.33			3.24	3.17	3.19
	velocity	4.99	8.02	8.87	8.54	8.54	8.70	8.70	8.70	8.70	8.39	10.54	8.04		8.46	8.65	8.60
Yarbrough, John (USA) (1985)	time	2.70	3.77	4.84	5.86	6.89	7.94	9.03	10.09	11.18	12.26		13.69	4 / 3			
reaction time	interval		1.07	1.07	1.02	1.03	1.05	1.09	1.06	1.09	1.08	1.43			3.16	3.17	3.23
	velocity	5.08	8.54	8.54	8.96	8.87	8.70	8.39	8.62	8.39	8.46	9.80	8.04		8.68	8.65	8.49
Brown, Joel (USA) (1980)	time	2.75	3.80	4.85	5.92	6.96	8.02	9.08	10.14	11.21	12.33		13.70	3 / 4			
reaction time	interval		1.05	1.05	1.07	1.04	1.06	1.06	1.06	1.07	1.12	1.37			3.17	3.16	3.25
	velocity	4.99	8.70	8.70	8.54	8.79	8.62	8.62	8.62	8.54	8.16	10.23	8.03		8.65	8.68	8.44
Mitchum, Eric (USA) (1984)	time	2.74	3.79	4.87	5.91	6.95	8.02	9.09	10.18	11.28	12.40		13.82	5 / 5			
reaction time	interval		1.05	1.08	1.04	1.04	1.07	1.07	1.09	1.10	1.12	1.42			3.17	3.18	3.31
	velocity	5.01	8.70	8.46	8.79	8.79	8.54	8.54	8.39	8.31	8.16	9.87	7.96		8.65	8.62	8.28
Thomas, Chris (USA) (1981)	time	2.82	3.90	4.99	6.06	7.12	8.19	9.27	10.34	11.43	12.55		13.90	8 / 6			
reaction time	interval		1.08	1.09	1.07	1.06	1.07	1.08	1.07	1.09	1.12	1.35			3.24	3.21	3.28
	velocity	4.87	8.46	8.39	8.54	8.62	8.54	8.46	8.54	8.39	8.16	10.39	7.91		8.46	8.54	8.36
McDowell, Jon (USA) (1984)	time	2.84	3.94	5.00	6.11	7.18	8.26	9.36	10.46	11.58	12.71		14.05	1 / 7			
reaction time	interval		1.10	1.06	1.11	1.07	1.08	1.10	1.10	1.12	1.13	1.34			3.27	3.25	3.35
	velocity	4.83	8.31	8.62	8.23	8.54	8.46	8.31	8.31	8.16	8.09	10.46	7.83		8.39	8.44	8.19
Hon, Brandon (USA) (1979)	time	2.74	3.85	4.95	6.06	7.14	8.22	9.32	10.46	11.64	12.90		14.49	7 / 8			
reaction time	interval		1.11	1.10	1.11	1.08	1.08	1.10	1.14	1.18	1.26	1.59			3.32	3.26	3.58

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
	velocity	5.01	8.23	8.31	8.23	8.46	8.46	8.31	8.02	7.75	7.25	8.82	7.59		8.26	8.41	7.66

Heat 1

date 23-Jun-07 wind 0.1 m/s *USATF Men's Hurdle Development (2007)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Payne, David (USA) (1982)	time	2.59	3.65	4.70	5.72	6.73	7.76	8.78	9.83	10.88	11.95		13.43	8 / 1			
reaction time	interval		1.06	1.05	1.02	1.01	1.03	1.02	1.05	1.05	1.07	1.48			3.13	3.06	3.17
	velocity	5.30	8.62	8.70	8.96	9.05	8.87	8.96	8.70	8.70	8.54	9.47	8.19		8.76	8.96	8.65
Hicks, Antwon (USA) (1983)	time	2.57	3.64	4.70	5.77	6.81	7.82	8.88	9.91	10.96	12.05		13.49	7 / 2			
reaction time	interval		1.07	1.06	1.07	1.04	1.01	1.06	1.03	1.05	1.09	1.44			3.20	3.11	3.17
	velocity	5.34	8.54	8.62	8.54	8.79	9.05	8.62	8.87	8.70	8.39	9.74	8.15		8.57	8.82	8.65
Johnson, Allen (USA) (1971)	time	2.57	3.62	4.64	5.67	6.71	7.73	8.77	9.86	10.93	12.02		13.52	3 / 3			
reaction time	interval		1.05	1.02	1.03	1.04	1.02	1.04	1.09	1.07	1.09	1.50			3.10	3.10	3.25
	velocity	5.34	8.70	8.96	8.87	8.79	8.96	8.79	8.39	8.54	8.39	9.35	8.14		8.85	8.85	8.44
Faulk, Dexter (USA) (1984)	time	2.56	3.65	4.67	5.72	6.87	7.93	9.01	10.08	11.18	12.23		13.67	1 / 4			
reaction time	interval		1.09	1.02	1.05	1.15	1.06	1.08	1.07	1.10	1.05	1.44			3.16	3.29	3.22
	velocity	5.36	8.39	8.96	8.70	7.95	8.62	8.46	8.54	8.31	8.70	9.74	8.05		8.68	8.33	8.52
Cooper, Jermaine (USA) (1980)	time	2.58	3.67	4.74	5.82	6.87	7.92	8.99	10.04	11.18	12.27		13.75	2 / 5			
reaction time	interval		1.09	1.07	1.08	1.05	1.05	1.07	1.05	1.14	1.09	1.48			3.24	3.17	3.28
	velocity	5.32	8.39	8.54	8.46	8.70	8.70	8.54	8.70	8.02	8.39	9.47	8.00		8.46	8.65	8.36
Odom, Marlon (USA) (1982)	time	2.70	3.77	4.82	5.89	6.94	7.99	9.03	10.07	11.16	12.28		13.76	4 / 6			
reaction time	interval		1.07	1.05	1.07	1.05	1.05	1.04	1.04	1.09	1.12	1.48			3.19	3.14	3.25
	velocity	5.08	8.54	8.70	8.54	8.70	8.70	8.79	8.79	8.39	8.16	9.47	7.99		8.60	8.73	8.44
Porter, Jeff (USA) (1985)	time	2.62	3.67	4.77	5.84	6.91	7.95	9.04	10.11	11.21	12.27		13.80	5 / 7			
reaction time	interval		1.05	1.10	1.07	1.07	1.04	1.09	1.07	1.10	1.06	1.53			3.22	3.20	3.23
	velocity	5.24	8.70	8.31	8.54	8.54	8.79	8.39	8.54	8.31	8.62	9.16	7.97		8.52	8.57	8.49
Lindsey, Justin (USA) (1979)	time	2.65	3.70	4.80	5.84	6.92	7.99	9.09	10.19	11.29	12.39		13.88	6 / 8			
reaction time	interval		1.05	1.10	1.04	1.08	1.07	1.10	1.10	1.10	1.10	1.49			3.19	3.25	3.30
	velocity	5.18	8.70	8.31	8.79	8.46	8.54	8.31	8.31	8.31	8.31	9.41	7.93		8.60	8.44	8.31

2007 USATF National Junior Championship (Indianapolis, IN) (99cm)

FINAL

date 21-Jun-07 wind 2.7 m/s *USATF Men's Hurdle Development (2007)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ames, Brendan (USA) (1988)	time	2.59	3.67	4.70	5.69	6.67	7.66	8.64	9.63	10.64	11.68		13.15	/ 1			
reaction time	interval		1.08	1.03	0.99	0.98	0.99	0.98	0.99	1.01	1.04	1.47			3.10	2.95	3.04
	velocity	5.30	8.46	8.87	9.23	9.33	9.23	9.33	9.23	9.05	8.79	9.54	8.37		8.85	9.29	9.02
Dutch, Johnny (USA) (1989)	time	2.64	3.67	4.70	5.69	6.67	7.67	8.68	9.74	10.81	11.88		13.36	/ 2			
reaction time	interval		1.03	1.03	0.99	0.98	1.00	1.01	1.06	1.07	1.07	1.48			3.05	2.99	3.20
	velocity	5.20	8.87	8.87	9.23	9.33	9.14	9.05	8.62	8.54	8.54	9.47	8.23		8.99	9.17	8.57
Brown, Bryce (USA) (1988)	time	2.67	3.77	4.80	5.82	6.86	7.91	8.94	9.96	11.01	12.08		13.42	/ 3			
reaction time	interval		1.10	1.03	1.02	1.04	1.05	1.03	1.02	1.05	1.07	1.34			3.15	3.12	3.14
	velocity	5.14	8.31	8.87	8.96	8.79	8.70	8.87	8.96	8.70	8.54	10.46	8.20		8.70	8.79	8.73
Prentice, Terry (USA) (1989)	time	2.70	3.77	4.89	5.91	6.94	7.96	8.98	10.01	11.06	12.10		13.52	/ 4			
reaction time	interval		1.07	1.12	1.02	1.03	1.02	1.02	1.03	1.05	1.04	1.42			3.21	3.07	3.12
	velocity	5.08	8.54	8.16	8.96	8.87	8.96	8.96	8.87	8.70	8.79	9.87	8.14		8.54	8.93	8.79
Osaghae, Omo (USA) (1988)	time	2.72	3.80	4.87	5.92	6.96	7.99	9.06	10.13	11.18	12.28		13.71	/ 5			
reaction time	interval		1.08	1.07	1.05	1.04	1.03	1.07	1.07	1.05	1.10	1.43			3.20	3.14	3.22
	velocity	5.04	8.46	8.54	8.70	8.79	8.87	8.54	8.54	8.70	8.31	9.80	8.02		8.57	8.73	8.52
Reed, Darius (USA) (1988)	time	2.65	3.72	4.75	5.77	6.81	7.86	8.93	9.98	11.09	12.21		13.79	/ 6			
reaction time	interval		1.07	1.03	1.02	1.04	1.05	1.07	1.05	1.11	1.12	1.58			3.12	3.16	3.28
	velocity	5.18	8.54	8.87	8.96	8.79	8.70	8.54	8.70	8.23	8.16	8.87	7.98		8.79	8.68	8.36
McDowell, Andrew (USA) (198	time	2.69	3.74	4.77	5.82	6.89	7.94	8.98	10.09	11.18	12.30		13.84	/ 7			
reaction time	interval		1.05	1.03	1.05	1.07	1.05	1.04	1.11	1.09	1.12	1.54			3.13	3.16	3.32
	velocity	5.10	8.70	8.87	8.70	8.54	8.70	8.79	8.23	8.39	8.16	9.10	7.95		8.76	8.68	8.26
Nunley, Booker (USA) (1990)	time	2.69	3.77	4.85	5.95	7.01	8.14	9.26	10.39	11.51	12.68		14.28	/ 8			
reaction time	interval		1.08	1.08	1.10	1.06	1.13	1.12	1.13	1.12	1.17	1.60			3.26	3.31	3.42
	velocity	5.10	8.46	8.46	8.31	8.62	8.09	8.16	8.09	8.16	7.81	8.76	7.70		8.41	8.28	8.02

2007 National Grand Prix (Zhaoqing, CHN)

FINAL

date 19-May-07 wind 0.4 m/s *Zhao (2009) - kinematic research on the 110m hurdle technique of Shi Dongpeng*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shi Dongpeng (CHN) (1984)	time	2.63	3.70	4.73	5.75	6.77	7.79	8.82	9.86	10.92	11.99		13.47	/ 1			

reaction time	interval		1.07	1.03	1.02	1.02	1.02	1.03	1.04	1.06	1.07	1.48			3.12	3.07	3.17
	velocity	5.22	8.54	8.87	8.96	8.96	8.96	8.87	8.79	8.62	8.54	9.47	8.17		8.79	8.93	8.65

2007 Osaka Grand Prix (Osaka, JPN)

FINAL date 05-May-07 wind 0.8 m/s *Akirabun (2008) - 2007 speed analysis of the men's & women's 100m, 100m hurdles, & 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.43	3.49	4.51	5.50	6.50	7.50	8.51	9.53	10.55	11.58		13.14	/ 1			
reaction time	interval		1.06	1.02	0.99	1.00	1.00	1.01	1.02	1.02	1.03	1.56			3.07	3.01	3.07
	velocity	5.65	8.62	8.96	9.23	9.14	9.14	9.05	8.96	8.96	8.87	8.99	8.37		8.93	9.11	8.93
Tanonaka, Tasuku (JPN) (1978)	time	2.40	3.48	4.52	5.56	6.62	7.68	8.74	9.82	10.90	11.99		13.59	/ 3			
reaction time	interval		1.08	1.04	1.04	1.06	1.06	1.06	1.08	1.08	1.09	1.60			3.16	3.18	3.25
	velocity	5.72	8.46	8.79	8.79	8.62	8.62	8.62	8.46	8.46	8.39	8.76	8.09		8.68	8.62	8.44
Naito, Masato (JPN) (1980)	time	2.43	3.51	4.55	5.58	6.62	7.66	8.71	9.78	10.87	11.96		13.60	/ 4			
reaction time	interval		1.08	1.04	1.03	1.04	1.04	1.05	1.07	1.09	1.09	1.64			3.15	3.13	3.25
	velocity	5.65	8.46	8.79	8.87	8.79	8.79	8.70	8.54	8.39	8.39	8.55	8.09		8.70	8.76	8.44

2007 Mikio Oda Memorial (Hiroshima, JPN)

FINAL date 29-Apr-07 wind 0.0 m/s *Akirabun (2008) - 2007 speed analysis of the men's & women's 100m, 100m hurdles, & 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Naito, Masato (JPN) (1980)	time	2.42	3.50	4.55	5.59	6.64	7.69	8.75	9.82	10.90	12.01		13.64	/ 1			
reaction time	interval		1.08	1.05	1.04	1.05	1.05	1.06	1.07	1.08	1.11	1.63			3.17	3.16	3.26
	velocity	5.67	8.46	8.70	8.79	8.70	8.70	8.62	8.54	8.46	8.23	8.60	8.06		8.65	8.68	8.41
Tanonaka, Tasuku (JPN) (1978)	time	2.42	3.49	4.54	5.59	6.65	7.71	8.78	9.87	10.98	12.10		13.73	/ 1			
reaction time	interval		1.07	1.05	1.05	1.06	1.06	1.07	1.09	1.11	1.12	1.63			3.17	3.19	3.32
	velocity	5.67	8.54	8.70	8.70	8.62	8.62	8.54	8.39	8.23	8.16	8.60	8.01		8.65	8.60	8.26

Heat 2

date 29-Apr-07 wind 2.6 m/s *Akirabun (2008) - 2007 speed analysis of the men's & women's 100m, 100m hurdles, & 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Tanonaka, Tasuku (JPN) (1978)	time	2.40	3.49	4.55	5.60	6.65	7.70	8.76	9.83	10.90	11.99		13.60	/ 1			
reaction time	interval		1.09	1.06	1.05	1.05	1.05	1.06	1.07	1.07	1.09	1.61			3.20	3.16	3.23
	velocity	5.72	8.39	8.62	8.70	8.70	8.70	8.62	8.54	8.54	8.39	8.71	8.09		8.57	8.68	8.49

2006 IAAF World Cup (Athens, GRE) (TV Analysis)

FINAL date 17-Sep-06 wind 0.4 m/s *Graubner (2009) - http://www.fgs.uni-halle.de*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.55	3.54	4.54	5.53	6.51	7.50	8.49	9.49	10.51	11.55		12.96	3 / 1			
reaction time 0.164	interval		0.99	1.00	0.99	0.98	0.99	0.99	1.00	1.02	1.04	1.41	CR		2.98	2.96	3.06
	velocity	5.38	9.23	9.14	9.23	9.33	9.23	9.23	9.14	8.96	8.79	9.94	8.49		9.20	9.26	8.96

Liu, Xiang (CHN) (1983)	0.185	no information available		13.03	2 / 2
Robles, Dayron (CUB) (1986)	0.174	no information available	*7 steps*	13.06	8 / 3
Olijars, Stanislavs (LAT) (1979)	0.147	no information available		13.15	6 / 4
Lavanne, Cedric (FRA) (1980)	0.148	no information available		13.56	7 / 5
Peremota, Igor (RUS) (1981)	0.190	no information available	*7 steps*	13.57	1 / 6
Mortimer, James (NZL) (1983)	0.171	no information available		13.94	5 / 7
Marridis, Theopistos (GRE) (19	0.241	no information available		13.96	9 / 8
Ben Ahmed, Aymen (TUN) (19	0.231	no information available		14.08	4 / 9

2006 IAAF World Athletic Final (Stuttgart, GER) (TV Anallysis)

FINAL date 09-Sep-06 wind -0.6 m/s *Graubner (2009) - http://www.fgs.uni-halle.de*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.57	3.59	4.58	5.57	6.55	7.53	8.54	9.55	10.56	11.57		12.93	5 / 1			
reaction time 0.108	interval		1.02	0.99	0.99	0.98	0.98	1.01	1.01	1.01	1.01	1.36	CR		3.00	2.97	3.03
	velocity	5.34	8.96	9.23	9.23	9.33	9.33	9.05	9.05	9.05	9.05	10.31	8.51		9.14	9.23	9.05

Robles, Dayron (CUB) (1986)	0.163	no information available	*7 steps*	13.00	4 / 2
Johnson, Allen (USA) (1971)	0.159	no information available		13.01	8 / 3
Trammell, Terrence (USA) (197	0.140	no information available		13.22	3 / 4
Oliver, David (USA) (1982)	0.175	no information available		13.24	2 / 5
Merritt, Aries (USA) (1985)	0.135	no information available		13.25	6 / 6
Olijars, Stanislavs (LAT) (1979)	0.167	no information available		13.27	1 / 7
Blaschek, Thomas (GER) (1981	0.169	no information available		13.28	7 / 8

2006 European Championships (Göteborg, SWE) (TV Analysis)

FINAL date 12-Aug-06 wind -1.0 m/s *Graubner (2009) - http://www.fgs.uni-halle.de*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Olijar, Stanislav (LAT) (1979)	time	2.64	3.68	4.70	5.71	6.69	7.68	8.70	9.72	10.76	11.84		13.24	6 / 1			
reaction time 0.151	interval		1.04	1.02	1.01	0.98	0.99	1.02	1.02	1.04	1.08	1.40			3.07	2.99	3.14
	velocity	5.20	8.79	8.96	9.05	9.33	9.23	8.96	8.96	8.79	8.46	10.01	8.31		8.93	9.17	8.73

Blaschek, Thomas (GER) (1981)	no information available	13.46	3 / 2

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Turner, Andy (GBR) (1980)		no information available	13.52	2 / 3	
Peremota, Igor (RUS) (1981)	*7 steps*	no information available	13.55	4 / 4	
Kronber, Robert (SWE) (1976)		no information available	13.57	7 / 5	
Wermann, Jens (GER) (1985)		no information available	13.73	1 / 6	
Kiss, Daniel (HUN) (1982)		no information available	13.77	8 / 7	
Demydyuk, Serhiy (UKR) (1982)		no information available	13.96	5 / 8	

Heat 4

date 11-Aug-06 wind -1.1 m/s — *Weber (2006) - wettkampfauswertung 110m hürden*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Bitzi, Ivan (SUI) (1975)	time	2.71	3.77	4.82	5.87	6.91	7.96	9.02	10.12	11.21	12.30		13.68	4 / 4			
reaction time	interval		1.06	1.05	1.05	1.04	1.05	1.06	1.10	1.09	1.09	1.38			3.16	3.15	3.28
	velocity	5.06	8.62	8.70	8.70	8.79	8.70	8.62	8.31	8.39	8.39	10.16	8.04		8.68	8.70	8.36

2006 German National Junior Championships (Wattenscheid, GER) (99cm)

FINAL

date 22-Jul-06 wind 0.8 m/s — *Killing (2006) - Werrmann und Dittmer im vergleich*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Dittmer, Paul (GER) (1987)	time	2.64	3.73	4.79	5.85	6.91	7.97	9.05	10.13	11.23	12.34		13.83	/ 1			
reaction time	interval		1.09	1.06	1.06	1.06	1.06	1.08	1.08	1.10	1.11	1.49	PB		3.21	3.20	3.29
	velocity	5.20	8.39	8.62	8.62	8.62	8.62	8.46	8.46	8.31	8.23	9.41	7.95		8.54	8.57	8.33

2006 German National Championships (Ulm, GER)

FINAL

date 15-Jul-06 wind 1.0 m/s — *Killing (2006) - Werrmann und Dittmer im vergleich*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Werrmann, Jens (GER) (1985)	time	2.65	3.75	4.80	5.85	6.91	7.98	9.02	10.08	11.15	12.21		13.62	/ 2			
reaction time 0.137	interval		1.10	1.05	1.05	1.06	1.07	1.04	1.06	1.07	1.06	1.41	PB		3.20	3.17	3.19
	velocity	5.18	8.31	8.70	8.70	8.62	8.54	8.79	8.62	8.54	8.62	9.94	8.08		8.57	8.65	8.60

Heat 1

date 15-Jul-06 wind -0.3 m/s — *Killing (2006) - Werrmann und Dittmer im vergleich*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Werrmann, Jens (GER) (1985)	time	2.68	3.78	4.84	5.90	6.95	8.03	9.09	10.16	11.24	12.37		13.78	/ 1			
reaction time 0.146	interval		1.10	1.06	1.06	1.05	1.08	1.06	1.07	1.08	1.13	1.41	PB		3.22	3.19	3.28
	velocity	5.12	8.31	8.62	8.62	8.70	8.46	8.62	8.54	8.46	8.09	9.94	7.98		8.52	8.60	8.36

2006 Athletissima Meeting (Lausanne, SUI)

Li (2013) - technical characteristics of Merritt, the 110m hurdle champion at London Olympics

Race 2

date 11-Jul-06 wind 1.1 m/s — *Xiao (2014) - development process of the characterisitcs about 110m hurdle training in China*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.52	3.54	4.55	5.56	6.54	7.51	8.49	9.47	10.50	11.53		12.88	2 / 1			*Xiao (2014)*
reaction time	interval		1.02	1.01	1.01	0.98	0.97	0.98	0.98	1.03	1.03	1.35	WR		3.04	2.93	3.04
	velocity	5.44	8.96	9.05	9.05	9.33	9.42	9.33	9.33	8.87	8.87	10.39	8.54		9.02	9.36	9.02
Arnold, Dominique (USA) (197	time	2.59	3.61	4.59	5.55	6.51	7.47	8.45	9.45	10.47	11.48		12.90	4 / 2			*Li (2013)*
reaction time	interval		1.02	0.98	0.96	0.96	0.96	0.98	1.00	1.02	1.01	1.42	AR		2.96	2.90	3.03
	velocity	5.30	8.96	9.33	9.52	9.52	9.52	9.33	9.14	8.96	9.05	9.87	8.53		9.26	9.46	9.05
Trammell, Terrence (USA) (197	time	2.54	3.55	4.55	5.51	6.48	7.47	8.49	9.51	10.53	11.59		13.02	5 / 3			*Li (2013)*
reaction time	interval		1.01	1.00	0.96	0.97	0.99	1.02	1.02	1.02	1.06	1.43	=PB		2.97	2.98	3.10
	velocity	5.40	9.05	9.14	9.52	9.42	9.23	8.96	8.96	8.96	8.62	9.80	8.45		9.23	9.20	8.85

2006 USATF National Championship (Indianapolis, IN)

FINAL

date 25-Jun-06 wind -0.4 m/s — *USATF Men's Hurdle Development (2006)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Arnold, Dominique (USA) (197	time	2.55	3.59	4.57	5.56	6.56	7.57	8.56	9.59	10.61	11.68		13.10	/ 1			
reaction time	interval		1.04	0.98	0.99	1.00	1.01	0.99	1.03	1.02	1.07	1.42			3.01	3.00	3.12
	velocity	5.38	8.79	9.33	9.23	9.14	9.05	9.23	8.87	8.96	8.54	9.87	8.40		9.11	9.14	8.79
Trammell, Terrence (USA) (197	time	2.57	3.62	4.62	5.62	6.64	7.64	8.64	9.68	10.71	11.75		13.14	/ 2			
reaction time	interval		1.05	1.00	1.00	1.02	1.00	1.00	1.04	1.03	1.04	1.39			3.05	3.02	3.11
	velocity	5.34	8.70	9.14	9.14	8.96	9.14	9.14	8.79	8.87	8.79	10.09	8.37		8.99	9.08	8.82
Wilson, Ryan (USA) (1980)	time	2.62	3.65	4.66	5.66	6.66	7.64	8.64	9.68	10.71	11.76		13.22	/ 3			
reaction time	interval		1.03	1.01	1.00	1.00	0.98	1.00	1.04	1.03	1.05	1.46	PB		3.04	2.98	3.12
	velocity	5.24	8.87	9.05	9.14	9.14	9.33	9.14	8.79	8.87	8.70	9.60	8.32		9.02	9.20	8.79
Hughes, Robby (USA) (1978)	time	2.62	3.64	4.66	5.71	6.69	7.74	8.78	9.81	10.86	11.93		13.30	/ 4			
reaction time	interval		1.02	1.02	1.05	0.98	1.05	1.04	1.03	1.05	1.07	1.37			3.09	3.07	3.15
	velocity	5.24	8.96	8.96	8.70	9.33	8.70	8.79	8.87	8.70	8.54	10.23	8.27		8.87	8.93	8.70
Payne, David (USA) (1982)	time	2.59	3.67	4.69	5.72	6.72	7.76	8.78	9.84	10.93	12.01		13.42	/ 5			
reaction time	interval		1.08	1.02	1.03	1.00	1.04	1.02	1.06	1.09	1.08	1.41			3.13	3.06	3.23
	velocity	5.30	8.46	8.96	8.87	9.14	8.79	8.96	8.62	8.39	8.46	9.94	8.20		8.76	8.96	8.49
Merritt, Aries (USA) (1985)	time	2.67	3.75	4.81	5.84	6.86	7.86	8.89	9.93	10.98	12.03		13.43	/ 6			
reaction time	interval		1.08	1.06	1.03	1.02	1.00	1.03	1.04	1.05	1.05	1.40			3.17	3.05	3.14
	velocity	5.14	8.46	8.62	8.87	8.96	9.14	8.87	8.79	8.70	8.70	10.01	8.19		8.65	8.99	8.73

Herring, Aubrey (USA) (1978)	time	2.60	3.65	4.69	5.74	6.77	7.81	8.83	9.86	10.93	12.00		13.45	/ 7			
reaction time	interval		1.05	1.04	1.05	1.03	1.04	1.02	1.03	1.07	1.07	1.45			3.14	3.09	3.17
	velocity	5.28	8.70	8.79	8.70	8.87	8.79	8.96	8.87	8.54	8.54	9.67	8.18		8.73	8.87	8.65
Hicks, Antwon (USA) (1983)	time	2.65	3.74	4.79	5.84	6.89	7.93	8.98	10.08	11.13	12.23		13.71	/ 8			
reaction time	interval		1.09	1.05	1.05	1.05	1.04	1.05	1.10	1.05	1.10	1.48			3.19	3.14	3.25
	velocity	5.18	8.39	8.70	8.70	8.70	8.79	8.70	8.31	8.70	8.31	9.47	8.02		8.60	8.73	8.44

2006 Osaka Grand Prix (Osaka, JPN)

FINAL date 06-May-06 wind 1.2 m/s

Akirabun (2007) - speed analysis of the 100m and hurdles with a laser system

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.42	3.48	4.49	5.50	6.51	7.53	8.55	9.58	10.60	11.67		13.22	/ 1			
reaction time	interval		1.06	1.01	1.01	1.01	1.02	1.02	1.03	1.02	1.07	1.55			3.08	3.05	3.12
	velocity	5.67	8.62	9.05	9.05	9.05	8.96	8.96	8.87	8.96	8.54	9.05	8.32		8.90	8.99	8.79
Naito, Masato (JPN) (1980)	time	2.46	3.53	4.58	5.60	6.64	7.69	8.75	9.82	10.91	12.02		13.64	/ 3			
reaction time	interval		1.07	1.05	1.02	1.04	1.05	1.06	1.07	1.09	1.11	1.62			3.14	3.15	3.27
	velocity	5.58	8.54	8.70	8.96	8.79	8.70	8.62	8.54	8.39	8.23	8.65	8.06		8.73	8.70	8.39
Tanonaka, Tasuku (JPN) (1978)	time	2.45	3.53	4.60	5.65	6.70	7.77	8.85	9.93	11.03	12.13		13.72	/ 4			
reaction time	interval		1.08	1.07	1.05	1.05	1.07	1.08	1.08	1.10	1.10	1.59			3.20	3.20	3.28
	velocity	5.60	8.46	8.54	8.70	8.70	8.54	8.46	8.46	8.31	8.31	8.82	8.02		8.57	8.57	8.36

2005 Chinese National Games (Nanjing, CHN)

FINAL date 20-Oct-05 wind 0.4 m/s

Wang (2013) - analysis on the technical characteristics of Liu Xiang's and Shi Dongpeng's 110m Hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.60	3.63	4.65	5.64	6.65	7.65	8.65	9.67	10.69	11.71		13.10	/ 1			
reaction time	interval		1.03	1.02	0.99	1.01	1.00	1.00	1.02	1.02	1.02	1.39			3.04	3.01	3.06
	velocity	5.28	8.87	8.96	9.23	9.05	9.14	9.14	8.96	8.96	8.96	10.09	8.40		9.02	9.11	8.96
Shi Dongpeng (CHN) (1984)	time	2.70	3.75	4.77	5.78	6.78	7.81	8.84	9.89	10.93	11.98		13.44	/ 2			
reaction time	interval		1.05	1.02	1.01	1.00	1.03	1.03	1.05	1.04	1.05	1.46			3.08	3.06	3.14
	velocity	5.08	8.70	8.96	9.05	9.14	8.87	8.87	8.70	8.79	8.70	9.60	8.18		8.90	8.96	8.73

2005 IAAF World Championships (Helsinki, FIN)

FINAL date 12-Aug-05 wind -0.2 m/s

Longuevre (2005) - Helsinki 2005 - Les haies: Cinq qualifiées et un titre mondial

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Doucouré, Ladji (FRA) (1983)	time	2.30	3.30	4.30	5.28	6.26	7.26	8.26	9.26	10.32	11.36		13.07	5 / 1			
reaction time 0.164	interval		1.00	1.00	0.98	0.98	1.00	1.00	1.00	1.06	1.04	1.71			2.98	2.98	3.10
	velocity	5.97	9.14	9.14	9.33	9.33	9.14	9.14	9.14	8.62	8.79	8.20	8.42		9.20	9.20	8.85

Liu Xiang (CHN) (1983)	0.142	no information available	13.08	2 / 2
Johnson, Allen (USA) (1971)	0.147	no information available	13.10	7 / 3
Arnold, Dominique (USA) (197	0.173	no information available	13.13	8 / 4
Trammell, Terrence (USA) (197	0.222	no information available	13.20	6 / 5
Brown, Joel (USA) (`980)	0.160	no information available	13.47	1 / 6
Wignall, Maurice (JAM) (1976)	0.167	no information available	13.47	3 / 7
Inocêncio, Mateus Facho (BRA	0.157	no information available	13.48	7 / 8

2005 USATF National Championship (Carson, CA)

FINAL date 24-Jun-05 wind 0.2 m/s

USATF Women's Sprint Development (2005)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.56	3.57	4.58	5.58	6.56	7.56	8.58	9.56	10.58	11.64		12.99	2 / 1			
reaction time	interval		1.01	1.01	1.00	0.98	1.00	1.02	0.98	1.02	1.06	1.35			3.02	3.00	3.06
	velocity	5.36	9.05	9.05	9.14	9.33	9.14	8.96	9.33	8.96	8.62	10.39	8.47		9.08	9.14	8.96
Arnold, Dominique (USA) (197	time	2.61	3.66	4.66	5.66	6.61	7.60	8.56	9.61	10.61	11.62		13.01	5 / 2			
reaction time	interval		1.05	1.00	1.00	0.95	0.99	0.96	1.05	1.00	1.01	1.39	PB		3.05	2.90	3.06
	velocity	5.26	8.70	9.14	9.14	9.62	9.23	9.52	8.70	9.14	9.05	10.09	8.46		8.99	9.46	8.96
Trammell, Terrence (USA) (197	time	2.54	3.57	4.61	5.61	6.61	7.61	8.63	9.64	10.64	11.69		13.02	6 / 3			
reaction time	interval		1.03	1.04	1.00	1.00	1.00	1.02	1.01	1.00	1.05	1.33	PB		3.07	3.02	3.06
	velocity	5.40	8.87	8.79	9.14	9.14	9.14	8.96	9.05	9.14	8.70	10.54	8.45		8.93	9.08	8.96
Brown, Joel (USA) (1980)	time	2.61	3.67	4.71	5.73	6.74	7.78	8.80	9.81	10.86	11.91		13.28	4 / 4			
reaction time	interval		1.06	1.04	1.02	1.01	1.04	1.02	1.01	1.05	1.05	1.37	PB		3.12	3.07	3.11
	velocity	5.26	8.62	8.79	8.96	9.05	8.79	8.96	9.05	8.70	8.70	10.23	8.28		8.79	8.93	8.82
Payne, David (USA) (1982)	time	2.62	3.67	4.71	5.73	6.76	7.81	8.83	9.84	10.90	11.91		13.33	7 / 5			
reaction time	interval		1.05	1.04	1.02	1.03	1.05	1.02	1.01	1.06	1.01	1.42	PB		3.11	3.10	3.08
	velocity	5.24	8.70	8.79	8.96	8.87	8.70	8.96	9.05	8.62	9.05	9.87	8.25		8.82	8.85	8.90
Hicks, Antwon (USA) (1983)	time	2.61	3.67	4.71	5.71	6.76	7.78	8.83	9.84	10.89	11.95		13.35	1 / 6			
reaction time	interval	*7 steps*	1.06	1.04	1.00	1.05	1.02	1.05	1.01	1.05	1.06	1.40	PB		3.10	3.12	3.12

	velocity	5.26	8.62	8.79	9.14	8.70	8.96	8.70	9.05	8.70	8.62	10.01	8.24		8.85	8.79	8.79
Merritt, Aries (USA) (1985)	time	2.66	3.74	4.81	5.81	6.84	7.88	8.93	9.91	10.97	12.03		13.39	8 / 7			
reaction time	interval		1.08	1.07	1.00	1.03	1.04	1.05	0.98	1.06	1.06	1.36			3.15	3.12	3.10
	velocity	5.16	8.46	8.54	9.14	8.87	8.79	8.70	9.33	8.62	8.62	10.31	8.22		8.70	8.79	8.85
Oliver, David (USA) (1982)	time	2.66	3.71	4.76	5.76	6.76	7.81	8.83	9.86	10.92	11.97		13.46	3 / 8			
reaction time	interval		1.05	1.05	1.00	1.00	1.05	1.02	1.03	1.06	1.05	1.49			3.10	3.07	3.14
	velocity	5.16	8.70	8.70	9.14	9.14	8.70	8.96	8.87	8.62	8.70	9.41	8.17		8.85	8.93	8.73
Bramlett, Ron (USA) (1979)	time	2.59	3.62	4.71	5.73	6.74	7.78	8.83	9.87	10.92	12.01		13.58	9 / 9			
reaction time	interval		1.03	1.09	1.02	1.01	1.04	1.05	1.04	1.05	1.09	1.57			3.14	3.10	3.18
	velocity	5.30	8.87	8.39	8.96	9.05	8.79	8.70	8.79	8.70	8.39	8.93	8.10		8.73	8.85	8.62

2004 Olympic Games (Athens, GRE)

FINAL

date 27-Aug-04 wind 0.3 m/s

Ruiz (2004) - las carreras con vallas de juegos olimpicos de atenas '04

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.41	3.43	4.43	5.42	6.41	7.39	8.39	9.39	10.41	11.44		12.91	4 / 1			
reaction time 0.139	interval		1.02	1.00	0.99	0.99	0.98	1.00	1.00	1.02	1.03	1.47	=WR / OR		3.01	2.97	3.05
	velocity	5.69	8.96	9.14	9.23	9.23	9.33	9.14	9.14	8.96	8.87	9.54	8.52		9.11	9.23	8.99
Trammell, Terrence (USA) (197	time	2.40	3.42	4.43	5.45	6.45	7.45	8.48	9.50	10.54	11.60		13.18	6 / 2			
reaction time 0.154	interval		1.02	1.01	1.02	1.00	1.00	1.03	1.02	1.04	1.06	1.58			3.05	3.03	3.12
	velocity	5.72	8.96	9.05	8.96	9.14	9.14	8.87	8.96	8.79	8.62	8.87	8.35		8.99	9.05	8.79
García, Anier (CUB) (1976)	time	2.47	3.51	4.53	5.55	6.55	7.55	8.57	9.61	10.65	11.69		13.2	7 / 3			
reaction time 0.169	interval		1.04	1.02	1.02	1.00	1.00	1.02	1.04	1.04	1.04	1.51			3.08	3.02	3.12
	velocity	5.55	8.79	8.96	8.96	9.14	9.14	8.96	8.79	8.79	8.79	9.28	8.33		8.90	9.08	8.79
Wignall, Maurice (JAM) (1976)	time	2.47	3.50	4.53	5.55	6.55	7.56	8.60	9.64	10.67	11.73		13.21	5 / 4			
reaction time 0.164	interval		1.03	1.03	1.02	1.00	1.01	1.04	1.04	1.03	1.06	1.48			3.08	3.05	3.13
	velocity	5.55	8.87	8.87	8.96	9.14	9.05	8.79	8.79	8.87	8.62	9.47	8.33		8.90	8.99	8.76
Olijars, Stanislavs (LAT) (1979)	time	2.49	3.52	4.54	5.55	6.56	7.56	8.57	9.61	10.67	11.74		13.21	2 / 5			
reaction time 0.174	interval		1.03	1.02	1.01	1.01	1.00	1.01	1.04	1.06	1.07	1.47			3.06	3.02	3.17
	velocity	5.51	8.87	8.96	9.05	9.05	9.14	9.05	8.79	8.62	8.54	9.54	8.33		8.96	9.08	8.65
Allen, Charles (CAN) (1977)	time	2.46	3.50	4.53	5.57	6.63	7.66	8.71	9.75	10.82	11.88		13.48	1 / 6			
reaction time 0.139	interval		1.04	1.03	1.04	1.06	1.03	1.05	1.04	1.07	1.06	1.60			3.11	3.14	3.17
	velocity	5.58	8.79	8.87	8.79	8.62	8.87	8.70	8.79	8.54	8.62	8.76	8.16		8.82	8.73	8.65
Inocêncio, Mateus Facho (BRA	time	2.50	3.58	4.63	5.67	6.69	7.72	8.75	9.81	10.89	11.95		13.49	7 / 7			
reaction time 0.169	interval		1.08	1.05	1.04	1.02	1.03	1.03	1.06	1.08	1.06	1.54			3.17	3.08	3.20
	velocity	5.49	8.46	8.70	8.79	8.96	8.87	8.87	8.62	8.46	8.62	9.10	8.15		8.65	8.90	8.57
Doucouré, Ladji (FRA) (1983)	time	2.52	3.54	4.55	5.56	6.55	7.54	8.54	9.55	10.58	11.63		13.76	3 / 8			
reaction time 0.204	interval		1.02	1.01	1.01	0.99	0.99	1.00	1.01	1.03	1.05	2.13			3.04	2.98	3.09
	velocity	5.44	8.96	9.05	9.05	9.23	9.23	9.14	9.05	8.87	8.70	6.58	7.99		9.02	9.20	8.87

Semi-Final 2

date 26-Aug-04 wind 0.0 m/s

Liagonne (2007) - Historique: Le 110m haies en chiffres

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Doucouré, Ladji (FRA) (1983)	time	2.48	3.50	4.49	5.48	6.48	7.46	8.48	9.48	10.50	11.56		13.06	5 / 1			
reaction time 0.200	interval		1.02	0.99	0.99	1.00	0.98	1.02	1.00	1.02	1.06	1.50	NR / PB		3.00	3.00	3.08
	velocity	5.53	8.96	9.23	9.23	9.14	9.33	8.96	9.14	8.96	8.62	9.35	8.42		9.14	9.14	8.90

Heat 1

date 24-Aug-04 wind 1.5 m/s

Liagonne (2007) - Historique: Le 110m haies en chiffres

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Doucouré, Ladji (FRA) (1983)	time	2.52	3.56	4.55	5.54	6.54	7.54	8.55	9.56	10.60	11.64		13.18	8 / 1			
reaction time 0.205	interval		1.04	0.99	0.99	1.00	1.00	1.01	1.01	1.04	1.04	1.54	NR / PB		3.02	3.01	3.09
	velocity	5.44	8.79	9.23	9.23	9.14	9.14	9.05	9.05	8.79	8.79	9.10	8.35		9.08	9.11	8.87
													(2016.05.12) - https://twitter.com/touchdown_time/media?lang=en&lang=en&lang=en&lang=en				
Tanigawa, Satoru (JPN) (1972)	time	2.55	3.60	4.63	5.65	6.68	7.71	8.78	9.83	10.90	12.00		13.39	5 / 3			
reaction time 0.128	interval		1.05	1.03	1.02	1.03	1.03	1.07	1.05	1.07	1.10	1.39	NR / PB		3.10	3.13	3.22
	velocity	5.38	8.70	8.87	8.96	8.87	8.87	8.54	8.70	8.54	8.31	10.09	8.22		8.85	8.76	8.52

2004 Chinese National Grand Prix (Tianjin, CHN)

FINAL

date 01-Aug-04 wind -0.8 m/s

Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.57	3.61	4.62	5.62	6.62	7.63	8.63	9.65	10.67	11.72		13.06	/ 1			
reaction time	interval		1.04	1.01	1.00	1.00	1.01	1.00	1.02	1.02	1.05	1.34	=PB		3.05	3.01	3.09
	velocity	5.34	8.79	9.05	9.14	9.14	9.05	9.14	8.96	8.96	8.70	10.46	8.42		8.99	9.11	8.87

2004 Atletica (Genève, SUI)

Race 3

date 12-Jun-04 wind 1.0 m/s

Weber (2004) - wettkampfauswertung 110m hürden

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Monachon, Raphal (SUI) (1973		time	2.70	3.78	4.80	5.84	6.86	7.96	9.02	10.09	11.16	12.26		13.64	/ 3			
reaction time 0.200		interval		1.08	1.02	1.04	1.02	1.10	1.06	1.07	1.07	1.10	1.38			3.14	3.18	3.24
		velocity	5.08	8.46	8.96	8.79	8.96	8.31	8.62	8.54	8.54	8.31	10.16	8.06		8.73	8.62	8.46

2004 Mt. SAC Relays (Walnut, CA)

Decathlon - Heat ?' date 15-Apr-04 wind 2.8 m/s

Henson (2004) - USATF OTC sport science

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Smith, Chad (USA) (1974)	time	2.55	3.67	4.75	5.83	6.92	8.02	9.12	10.22	11.37	12.52		14.19	/ 1			
reaction time	interval		1.12	1.08	1.08	1.09	1.10	1.10	1.10	1.15	1.15	1.67			3.28	3.29	3.40
	velocity	5.38	8.16	8.46	8.46	8.39	8.31	8.31	8.31	7.95	7.95	8.40	7.75		8.36	8.33	8.06

Yao (2012) - research on rhythm training methods between men's straight hurdles

2003 IAAF World Championships (Paris, FRA)

Xu (2004) - analysis on the hurdling techniques of the excellence chinese male 110m hurdle athletes

FINAL date 30-Aug-03 wind 0.3 m/s

Leynier (2003) - Paris 2003 - Haies: Le 110m haies

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.56	3.60	4.60	5.60	6.60	7.62	8.62	9.64	10.68	11.72		13.12	4 / 1			*Leynier (2003)*
reaction time 0.159	interval		1.04	1.00	1.00	1.00	1.02	1.00	1.02	1.04	1.04	1.40			3.04	3.02	3.10
	velocity	5.36	8.79	9.14	9.14	9.14	8.96	9.14	8.96	8.79	8.79	10.01	8.38		9.02	9.08	8.85
Trammell, Terrence (USA) (197	time	2.57	3.61	4.63	5.63	6.63	7.63	8.65	9.67	10.73	11.79		13.20	6 / 2			*Xu (2004)*
reaction time 0.154	interval		1.04	1.02	1.00	1.00	1.00	1.02	1.02	1.06	1.06	1.41			3.06	3.02	3.14
	velocity	5.34	8.79	8.96	9.14	9.14	9.14	8.96	8.96	8.62	8.62	9.94	8.33		8.96	9.08	8.73
Liu Xiang (CHN) (1983)	time	2.58	3.63	4.65	5.65	6.67	7.68	8.70	9.74	10.80	11.85		13.23	5 / 3			*Xu (2004)*
reaction time 0.140	interval		1.05	1.02	1.00	1.02	1.01	1.02	1.04	1.06	1.05	1.38			3.07	3.05	3.15
	velocity	5.32	8.70	8.96	9.14	8.96	9.05	8.96	8.79	8.62	8.70	10.16	8.31		8.93	8.99	8.70
Wade, Larry (USA) (1974)	0.157	no information available											13.34	1 / 4			
Phillips, Chris (USA) (1972)	0.150	no information available										DV	13.36	8 / ~~5~~			
de Souza, Márcio (BRA) (1975)	0.155	no information available											13.48	7 / ~~6~~ 5			
Shi Dongpeng (CHN) (1984)	time	2.71	3.78	4.79	5.81	6.83	7.85	8.87	9.91	10.99	12.07		13.55	3 / ~~7~~ 6			*Yao (2012)*
reaction time 0.145	interval		1.07	1.01	1.02	1.02	1.02	1.02	1.04	1.08	1.08	1.48			3.10	3.06	3.20
	velocity	5.06	8.54	9.05	8.96	8.96	8.96	8.96	8.79	8.46	8.46	9.47	8.12		8.85	8.96	8.57
Hernández, Yoel (CUB) (1977)	0.152	no information available											13.57	2 / ~~8~~ 7			

2003 Athletissima Meeting (Lausanne, SUI)

Zhang (2005) - technical characteristics analysis of 110m hurdles race of Liu Xiang

FINAL date 01-Jul-03 wind 0.0 m/s

Xu (2004) - an analysis of Liu Xiang's technique in 100m hurdle final at the Athens Olympic Games

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.56	3.58	4.60	5.60	6.58	7.58	8.60	9.60	10.62	11.66		13.06	/ 1			*Xu (2004)*
reaction time	interval		1.02	1.02	1.00	0.98	1.00	1.02	1.00	1.02	1.04	1.40			3.04	3.00	3.06
	velocity	5.36	8.96	8.96	9.14	9.33	9.14	8.96	9.14	8.96	8.79	10.01	8.42		9.02	9.14	8.96
Olijar, Stanislav (LAT) (1979)	time	2.58	3.60	4.60	5.60	6.58	7.58	8.60	9.60	10.64	11.70		13.08	/ 2			*Zhang (2005)*
reaction time	interval		1.02	1.00	1.00	0.98	1.00	1.02	1.00	1.04	1.06	1.38	NR PB		3.02	3.00	3.10
	velocity	5.32	8.96	9.14	9.14	9.33	9.14	8.96	9.14	8.79	8.62	10.16	8.41		9.08	9.14	8.85
Liu Xiang (CHN) (1983)	time	2.57	3.61	4.63	5.63	6.65	7.65	8.67	9.69	10.73	11.79		13.17	/ 3			*Xu (2004)*
reaction time	interval		1.04	1.02	1.00	1.02	1.00	1.02	1.02	1.04	1.06	1.38			3.06	3.04	3.12
	velocity	5.34	8.79	8.96	9.14	8.96	9.14	8.96	8.96	8.79	8.62	10.16	8.35		8.96	9.02	8.79

2003 USATF National Junior Championships (Palo Alto, CA) (99cm)

FINAL date 22-Jun-03 wind -0.4 m/s

USATF Women's Sprint Development (2003)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ferguson, Kenneth (USA) (198	time	2.55	3.62	4.67	5.69	6.72	7.75	8.79	9.86	10.94	12.04		13.60	4 / 1			
reaction time	interval		1.07	1.05	1.02	1.03	1.03	1.04	1.07	1.08	1.10	1.56			3.14	3.10	3.25
	velocity	5.38	8.54	8.70	8.96	8.87	8.87	8.79	8.54	8.46	8.31	8.99	8.09		8.73	8.85	8.44
Faulk, Dexter (USA) (1984)	time	2.55	3.64	4.72	5.76	6.82	7.89	8.94	10.03	11.11	12.19		13.75	5 / 2			
reaction time	interval		1.09	1.08	1.04	1.06	1.07	1.05	1.09	1.08	1.08	1.56			3.21	3.18	3.25
	velocity	5.38	8.39	8.46	8.79	8.62	8.54	8.70	8.39	8.46	8.46	8.99	8.00		8.54	8.62	8.44
Mitchum, Eric (USA) (1984)	time	2.58	3.67	4.76	5.82	6.87	7.92	8.99	10.06	11.16	12.28		13.81	7 / 3			
reaction time	interval		1.09	1.09	1.06	1.05	1.05	1.07	1.07	1.10	1.12	1.53			3.24	3.17	3.29
	velocity	5.32	8.39	8.39	8.62	8.70	8.70	8.54	8.54	8.31	8.16	9.16	7.97		8.46	8.65	8.33
Loyd, Michael (USA) (1984)	time	2.58	3.73	4.82	5.87	6.97	8.09	9.21	10.34	11.48	12.63		14.28	8 / 4			
reaction time	interval		1.15	1.09	1.05	1.10	1.12	1.12	1.13	1.14	1.15	1.65			3.29	3.34	3.42
	velocity	5.32	7.95	8.39	8.70	8.31	8.16	8.16	8.09	8.02	7.95	8.50	7.70		8.33	8.21	8.02
Craddock, Kevin (USA) (1987)	time	2.60	3.72	4.86	5.94	7.07	8.19	9.31	10.44	11.56	12.73		14.36	6 / 5			
reaction time	interval		1.12	1.14	1.08	1.13	1.12	1.12	1.13	1.12	1.17	1.63			3.34	3.37	3.42
	velocity	5.28	8.16	8.02	8.46	8.09	8.16	8.16	8.09	8.16	7.81	8.60	7.66		8.21	8.14	8.02
Whitely, Aaron (USA)	time	2.68	3.77	4.90	5.96	7.07	8.19	9.33	10.46	11.64	12.82		14.48	3 / 6			

reaction time	interval		1.09	1.13	1.06	1.11	1.12	1.14	1.13	1.18	1.18	1.66			3.28	3.37	3.49
	velocity	5.12	8.39	8.09	8.62	8.23	8.16	8.02	8.09	7.75	7.75	8.45	7.60		8.36	8.14	7.86
Jiles-Tindall, Julius (USA) (198	time	2.70	3.84	4.94	6.04	7.14	8.29	9.41	10.54	11.71	12.89		14.51	2 / 7			
reaction time	interval		1.14	1.10	1.10	1.10	1.15	1.12	1.13	1.17	1.18	1.62			3.34	3.37	3.48
	velocity	5.08	8.02	8.31	8.31	8.31	7.95	8.16	8.09	7.81	7.75	8.65	7.58		8.21	8.14	7.88
English, Andre (USA) (1984)	time	2.63	3.75	4.89	6.01	7.12	8.24	9.39	10.54	11.69	12.85		14.52	9 / 8			
reaction time	interval		1.12	1.14	1.12	1.11	1.12	1.15	1.15	1.15	1.16	1.67			3.38	3.38	3.46
	velocity	5.22	8.16	8.02	8.16	8.23	8.16	7.95	7.95	7.95	7.88	8.40	7.58		8.11	8.11	7.92

2003 USATF National Championship (Palo Alto, CA)

FINAL

date 21-Jun-03 wind -2.4 m/s *USATF Women's Sprint Development (2003)*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.35	3.44	4.44	5.49	6.51	7.52	8.56	9.59	10.64	11.70		13.37	6 / 1			
reaction time	interval		1.09	1.00	1.05	1.02	1.01	1.04	1.03	1.05	1.06	1.67			3.14	3.07	3.14
	velocity	5.84	8.39	9.14	8.70	8.96	9.05	8.79	8.87	8.70	8.62	8.40	8.23		8.73	8.93	8.73
Trammell, Terrence (USA) (197	time	2.34	3.44	4.44	5.50	6.52	7.52	8.54	9.58	10.64	11.70		13.38	3 / 2			
reaction time	interval		1.10	1.00	1.06	1.02	1.00	1.02	1.04	1.06	1.06	1.68			3.16	3.04	3.16
	velocity	5.86	8.31	9.14	8.62	8.96	9.14	8.96	8.79	8.62	8.62	8.35	8.22		8.68	9.02	8.68
Wade, Larry (USA) (1974)	time	2.40	3.47	4.52	5.59	6.61	7.61	8.62	9.64	10.69	11.75		13.43	4 / 3			
reaction time	interval		1.07	1.05	1.07	1.02	1.00	1.01	1.02	1.05	1.06	1.68			3.19	3.03	3.13
	velocity	5.72	8.54	8.70	8.54	8.96	9.14	9.05	8.96	8.70	8.62	8.35	8.19		8.60	9.05	8.76
Phillips, Christopher (USA) (19	time	2.42	3.50	4.55	5.56	6.62	7.64	8.68	9.71	10.78	11.88		13.55	7 / 4			
reaction time	interval		1.08	1.05	1.01	1.06	1.02	1.04	1.03	1.07	1.10	1.67			3.14	3.12	3.20
	velocity	5.67	8.46	8.70	9.05	8.62	8.96	8.79	8.87	8.54	8.31	8.40	8.12		8.73	8.79	8.57
Bramlett, Ron (USA) (1979)	time	2.39	3.47	4.51	5.57	6.61	7.66	8.69	9.73	10.83	11.95		13.66	2 / 5			
reaction time	interval		1.08	1.04	1.06	1.04	1.05	1.03	1.04	1.10	1.12	1.71			3.18	3.12	3.26
	velocity	5.74	8.46	8.79	8.62	8.79	8.70	8.87	8.79	8.31	8.16	8.20	8.05		8.62	8.79	8.41
Crear, Mark (USA) (1968)	time	2.44	3.54	4.59	5.66	6.69	7.70	8.73	9.78	10.83	11.93		13.68	8 / 6			
reaction time	interval		1.10	1.05	1.07	1.03	1.01	1.03	1.05	1.05	1.10	1.75			3.22	3.07	3.20
	velocity	5.62	8.31	8.70	8.54	8.87	9.05	8.87	8.70	8.70	8.31	8.01	8.04		8.52	8.93	8.57
Walker, Josh (USA) (1982)	time	2.37	3.52	4.57	5.64	6.71	7.76	8.83	9.89	10.96	12.08		13.84	1 / 7			
reaction time	interval		1.15	1.05	1.07	1.07	1.05	1.07	1.06	1.07	1.12	1.76			3.27	3.19	3.25
	velocity	5.79	7.95	8.70	8.54	8.54	8.70	8.54	8.62	8.54	8.16	7.97	7.95		8.39	8.60	8.44
Ross, Duane (USA) (1972)		no information available											dnf	5 / --			

2003 Chinese National Grand Prix (Nanning, CHN)

Race 1

date 05-Apr-03 wind 0.4 m/s *Wang (2016) - comparative analysis of the grey relational grade of segment times and final results of the 110m hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.63	3.73	4.73	5.73	6.75	7.77	8.82	9.87	10.92	11.98		13.32	/ 1			
reaction time	interval		1.10	1.00	1.00	1.02	1.02	1.05	1.05	1.05	1.06	1.34			3.10	3.09	3.16
	velocity	5.22	8.31	9.14	9.14	8.96	8.96	8.70	8.70	8.70	8.62	10.46	8.26		8.85	8.87	8.68

2002 Chinese National Grand Prix (Shanghai, CHN)

FINAL

date 19-May-02 wind 0.4 m/s *Huang (2002) - technical research on the men's 110m hurdles at the 9th national games*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.59	3.63	4.64	5.69	6.71	7.73	8.76	9.80	10.84	11.91		13.36	/ 1			
reaction time	interval		1.04	1.01	1.05	1.02	1.02	1.03	1.04	1.04	1.07	1.45			3.10	3.07	3.15
	velocity	5.30	8.79	9.05	8.70	8.96	8.96	8.87	8.79	8.79	8.54	9.67	8.23		8.85	8.93	8.70

2002 IAAF World Cup (Madrid, ESP)

FINAL

date 21-Sep-02 wind -2.2 m/s *Sanchez (2002) - copa del mundo de Madrid '02: análisis de la carreras con villas*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Garcia, Anier (CUB) (1976)	time	2.47	3.49	4.50	5.50	6.50	7.51	8.52	9.52	10.56	11.61		13.10	9 / 1			
reaction time 0.136	interval		1.02	1.01	1.00	1.00	1.01	1.01	1.00	1.04	1.05	1.49			3.03	3.02	3.09
	velocity	5.55	8.96	9.05	9.14	9.14	9.05	9.05	9.14	8.79	8.70	9.41	8.40		9.05	9.08	8.87
Johnson, Allen (USA) (1971)	time	2.48	3.49	4.51	5.51	6.52	7.55	8.59	9.65	10.71	11.78		13.45	5 / 2			
reaction time 0.135	interval		1.01	1.02	1.00	1.01	1.03	1.04	1.06	1.06	1.07	1.67			3.03	3.08	3.19
	velocity	5.53	9.05	8.96	9.14	9.05	8.87	8.79	8.62	8.62	8.54	8.40	8.18		9.05	8.90	8.60
Olijars, Stanislav (LAT) (1979)	time	2.52	3.54	4.57	5.60	6.64	7.70	8.76	9.83	10.90	11.97		13.58	3 / 3			
reaction time 0.151	interval		1.02	1.03	1.03	1.04	1.06	1.06	1.07	1.07	1.07	1.61			3.08	3.16	3.21
	velocity	5.44	8.96	8.87	8.87	8.79	8.62	8.62	8.54	8.54	8.54	8.71	8.10		8.90	8.68	8.54
Bownes, Shaun (RSA) (1970)	time	2.58	3.62	4.65	5.66	6.69	7.75	8.83	9.89	10.97	12.07		13.67	1 / 4			
reaction time 0.146	interval	7 steps	1.04	1.03	1.01	1.03	1.06	1.08	1.06	1.08	1.10	1.60			3.08	3.17	3.24

		velocity	5.32	8.79	8.87	9.05	8.87	8.62	8.46	8.62	8.46	8.31	8.76	8.05		8.90	8.65	8.46
Vivancos, Felipe (ESP) (1980)		time	2.53	3.61	4.65	5.69	6.74	7.81	8.90	9.99	11.08	12.18		13.79	7 / 5			
reaction time	0.124	interval		1.08	1.04	1.04	1.05	1.07	1.09	1.09	1.09	1.10	1.61			3.16	3.21	3.28
		velocity	5.42	8.46	8.79	8.79	8.70	8.54	8.39	8.39	8.39	8.31	8.71	7.98		8.68	8.54	8.36
Schwarthoff, Florian (GER) (19		time	2.59	3.65	4.70	5.72	6.77	7.83	8.93	10.02	11.10	12.20		13.79	4 / 6			
reaction time	0.176	interval	7 steps	1.06	1.05	1.02	1.05	1.06	1.10	1.09	1.08	1.10	1.59			3.13	3.21	3.27
		velocity	5.30	8.62	8.70	8.96	8.70	8.62	8.31	8.39	8.46	8.31	8.82	7.98		8.76	8.54	8.39
Ewen, Tim (AUS) (1977)		time	2.69	3.78	4.85	5.93	6.97	8.03	9.13	10.22	11.31	12.42		14.10	8 / 7			
reaction time	0.140	interval		1.09	1.07	1.08	1.04	1.06	1.10	1.09	1.09	1.11	1.68			3.24	3.20	3.29
		velocity	5.10	8.39	8.54	8.46	8.79	8.62	8.31	8.39	8.39	8.23	8.35	7.80		8.46	8.57	8.33
Liu Xiang (CHN) (1983)		0.156	no information available											dnf	6 / --			
Jackson, Colin (GBR) (1967)		0.138	no information available											DQ	2 / --			

2002 European Championships (Munich, GER)

FINAL

date 10-Aug-02 wind 0.4 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)		time	2.57	3.59	4.59	5.59	6.59	7.61	8.63	9.66	10.71	11.77		13.11	/ 1			
reaction time	0.117	interval		1.02	1.00	1.00	1.00	1.02	1.02	1.03	1.05	1.06	1.34			3.02	3.04	3.14
		velocity	5.34	8.96	9.14	9.14	9.14	8.96	8.96	8.87	8.70	8.62	10.46	8.39		9.08	9.02	8.73
Olijar, Stanislavs (LAT) (1979)		time	2.59	3.61	4.63	5.62	6.63	7.63	8.65	9.67	10.73	11.78		13.22	/ 2			
reaction time	0.157	interval		1.02	1.02	0.99	1.01	1.00	1.02	1.02	1.06	1.05	1.44			3.03	3.03	3.13
		velocity	5.30	8.96	8.96	9.23	9.05	9.14	8.96	8.96	8.62	8.70	9.74	8.32		9.05	9.05	8.76
Kohutek, Artur (POL) (1971)		time	2.62	3.67	4.69	5.71	6.71	7.73	8.77	9.79	10.85	11.91		13.32	/ 3			
reaction time	0.157	interval		1.05	1.02	1.02	1.00	1.02	1.04	1.02	1.06	1.06	1.41			3.09	3.06	3.14
		velocity	5.24	8.70	8.96	8.96	9.14	8.96	8.79	8.96	8.62	8.62	9.94	8.26		8.87	8.96	8.73
Schwarthoff, Florian (GER) (19		time	2.61	3.67	4.69	5.71	6.71	7.75	8.77	9.81	10.85	11.93		13.37	/ 4			
reaction time	0.164	interval		1.06	1.02	1.02	1.00	1.04	1.02	1.04	1.04	1.08	1.44			3.10	3.06	3.16
		velocity	5.26	8.62	8.96	8.96	9.14	8.79	8.96	8.79	8.79	8.46	9.74	8.23		8.85	8.96	8.68
Fenner, Mike (GER) (1971)		time	2.63	3.67	4.71	5.73	6.75	7.77	8.83	9.85	10.91	11.97		13.39	/ 5			
reaction time	0.161	interval		1.04	1.04	1.02	1.02	1.02	1.06	1.02	1.06	1.06	1.42			3.10	3.10	3.14
		velocity	5.22	8.79	8.79	8.96	8.96	8.96	8.62	8.96	8.62	8.62	9.87	8.22		8.85	8.85	8.73
Favaro, Denis (ITA) (1972)		time	2.73	3.79	4.85	5.89	6.93	7.95	8.99	10.03	11.09	12.18		13.59	/ 6			
reaction time	0.202	interval		1.06	1.06	1.04	1.04	1.02	1.04	1.04	1.06	1.09	1.41	PB		3.16	3.10	3.19
		velocity	5.03	8.62	8.62	8.79	8.79	8.96	8.79	8.79	8.62	8.39	9.94	8.09		8.68	8.85	8.60
Kronberg, Robert (SWE) (1976		time	2.63	3.67	4.71	5.76	6.77	7.85	8.89	9.95	11.06	12.15		13.63	/ 7			
reaction time	0.134	interval		1.04	1.04	1.05	1.01	1.08	1.04	1.06	1.11	1.09	1.48			3.13	3.13	3.26
		velocity	5.22	8.79	8.79	8.70	9.05	8.46	8.79	8.62	8.23	8.39	9.47	8.07		8.76	8.76	8.41
Videnov, Zhivko (BUL) (1977)		time	2.63	3.69	4.73	5.75	6.79	7.85	8.90	10.01	11.09	12.25		13.67	/ 8			
reaction time	0.146	interval		1.06	1.04	1.02	1.04	1.06	1.05	1.11	1.08	1.16	1.42			3.12	3.15	3.35
		velocity	5.22	8.62	8.79	8.96	8.79	8.62	8.70	8.23	8.46	7.88	9.87	8.05		8.79	8.70	8.19

Semi-Final 2

date 10-Aug-02 wind 0.8 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)		time	2.58	3.62	4.64	5.66	6.66	7.68	8.70	9.73	10.76	11.82		13.21	/ 1			
reaction time	0.112	interval		1.04	1.02	1.02	1.00	1.02	1.02	1.03	1.03	1.06	1.39			3.08	3.04	3.12
		velocity	5.32	8.79	8.96	8.96	9.14	8.96	8.96	8.87	8.87	8.62	10.09	8.33		8.90	9.02	8.79
Fenner, Mike (GER) (1971)		time	2.62	3.66	4.70	5.72	6.76	7.78	8.80	9.84	10.92	11.99		13.44	/ 2			
reaction time	0.138	interval		1.04	1.04	1.02	1.04	1.02	1.02	1.04	1.08	1.07	1.45			3.10	3.08	3.19
		velocity	5.24	8.79	8.79	8.96	8.79	8.96	8.96	8.79	8.46	8.54	9.67	8.18		8.85	8.90	8.60
Videnov, Zhivko (BUL) (1977)		time	2.64	3.68	4.70	5.74	6.76	7.80	8.82	9.88	10.94	12.04		13.45	/ 3			
reaction time	0.128	interval		1.04	1.02	1.04	1.02	1.04	1.02	1.06	1.06	1.10	1.41			3.10	3.08	3.22
		velocity	5.20	8.79	8.96	8.79	8.96	8.79	8.96	8.62	8.62	8.31	9.94	8.18		8.85	8.90	8.52
Kronberg, Robert (SWE) (1976		time	2.58	3.64	4.66	5.72	6.74	7.80	8.86	9.92	10.99	12.06		13.53	/ 4			
reaction time	0.103	interval		1.06	1.02	1.06	1.02	1.06	1.06	1.06	1.07	1.07	1.47			3.14	3.14	3.20
		velocity	5.32	8.62	8.96	8.62	8.96	8.62	8.62	8.62	8.54	8.54	9.54	8.13		8.73	8.73	8.57

Semi-Final 1

date 10-Aug-02 wind -0.5 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Olijar, Stanislavs (LAT) (1979)		time	2.60	3.63	4.65	5.67	6.68	7.71	8.75	9.79	10.85	11.94		13.34	/ 1			
reaction time	0.143	interval		1.03	1.02	1.02	1.01	1.03	1.04	1.04	1.06	1.09	1.40			3.07	3.08	3.19
		velocity	5.28	8.87	8.96	8.96	9.05	8.87	8.79	8.79	8.62	8.39	10.01	8.25		8.93	8.90	8.60

Kohutek, Artur (POL) (1971)		time	2.65	3.70	4.73	5.74	6.75	7.77	8.82	9.85	10.93	12.01		13.44	/ 2			
reaction time	0.135	interval		1.05	1.03	1.01	1.01	1.02	1.05	1.03	1.08	1.08	1.43			3.09	3.08	3.19
		velocity	5.18	8.70	8.87	9.05	9.05	8.96	8.70	8.87	8.46	8.46	9.80	8.18		8.87	8.90	8.60
Schwarthoff, Florian (GER) (19		time	2.63	3.71	4.73	5.75	6.79	7.83	8.86	9.89	10.97	12.03		13.52	/ 3			
reaction time	0.149	interval		1.08	1.02	1.02	1.04	1.04	1.03	1.03	1.08	1.06	1.49			3.12	3.11	3.17
		velocity	5.22	8.46	8.96	8.96	8.79	8.79	8.87	8.87	8.46	8.62	9.41	8.14		8.79	8.82	8.65

Heat 5

date 09-Aug-02 wind 0.0 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Videnov, Zhivko (BUL) (1977)		time	2.69	3.72	4.73	5.77	6.79	7.84	8.88	9.93	11.01	12.11		13.52	/ 1			
reaction time	0.139	interval		1.03	1.01	1.04	1.02	1.05	1.04	1.05	1.08	1.10	1.41			3.08	3.11	3.23
		velocity	5.10	8.87	9.05	8.79	8.96	8.70	8.79	8.70	8.46	8.31	9.94	8.14		8.90	8.82	8.49
Lichtenegger, Elmar (AUT) (19		time	2.57	3.62	4.65	5.67	6.70	7.75	8.82	9.88	10.97	12.07		13.53	/ 2			
reaction time	0.150	interval		1.05	1.03	1.02	1.03	1.05	1.07	1.06	1.09	1.10	1.46			3.10	3.15	3.25
		velocity	5.34	8.70	8.87	8.96	8.87	8.70	8.54	8.62	8.39	8.31	9.60	8.13		8.85	8.70	8.44

Heat 4

date 09-Aug-02 wind -0.1 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Olijar, Stanislavs (LAT) (1979)		time	2.69	3.71	4.73	5.76	6.79	7.81	8.87	9.93	10.99	12.07		13.50	/ 1			
reaction time	0.157	interval		1.02	1.02	1.03	1.03	1.02	1.06	1.06	1.06	1.08	1.43			3.07	3.11	3.20
		velocity	5.10	8.96	8.96	8.87	8.87	8.96	8.62	8.62	8.62	8.46	9.80	8.15		8.93	8.82	8.57
Jarrett, Tony (GBR) (1968)		time	2.66	3.72	4.78	5.80	6.86	7.90	8.96	10.01	11.09	12.19		13.63	/ 2			
reaction time	0.153	interval		1.06	1.06	1.02	1.06	1.04	1.06	1.05	1.08	1.10	1.44			3.14	3.16	3.23
		velocity	5.16	8.62	8.62	8.96	8.62	8.79	8.62	8.70	8.46	8.31	9.74	8.07		8.73	8.68	8.49

Heat 3

date 09-Aug-02 wind 2.0 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Giaconi, Andrea (ITA) (1974)		time	2.61	3.69	4.75	5.79	6.81	7.87	8.91	9.97	11.02	12.11		13.55	/ 1			
reaction time	0.116	interval		1.08	1.06	1.04	1.02	1.06	1.04	1.06	1.05	1.09	1.44			3.18	3.12	3.20
		velocity	5.26	8.46	8.62	8.79	8.96	8.62	8.79	8.62	8.70	8.39	9.74	8.12		8.62	8.79	8.57
Lavanne, Cédric (FRA) (1980)		time	2.65	3.73	4.76	5.81	6.84	7.87	8.91	9.98	11.03	12.13		13.58	/ 2			
reaction time	0.142	interval		1.08	1.03	1.05	1.03	1.03	1.04	1.07	1.05	1.10	1.45	PB		3.16	3.10	3.22
		velocity	5.18	8.46	8.87	8.70	8.87	8.87	8.79	8.54	8.70	8.31	9.67	8.10		8.68	8.85	8.52

Heat 2

date 09-Aug-02 wind 0.5 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kohutek, Artur (POL) (1971)		time	2.68	3.74	4.78	5.78	6.80	7.83	8.85	9.92	10.98	12.05		13.49	/ 1			
reaction time	0.152	interval		1.06	1.04	1.00	1.02	1.03	1.02	1.07	1.06	1.07	1.44			3.10	3.07	3.20
		velocity	5.12	8.62	8.79	9.14	8.96	8.87	8.96	8.54	8.62	8.54	9.74	8.15		8.85	8.93	8.57
Fenner, Mike (GER) (1971)		time	2.64	3.70	4.76	5.81	6.84	7.88	8.94	9.99	11.05	12.14		13.57	/ 2			
reaction time	0.134	interval		1.06	1.06	1.05	1.03	1.04	1.06	1.05	1.06	1.09	1.43			3.17	3.13	3.20
		velocity	5.20	8.62	8.62	8.70	8.87	8.79	8.62	8.70	8.62	8.39	9.80	8.11		8.65	8.76	8.57

Heat 1

date 09-Aug-02 wind -0.9 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)		time	2.59	3.63	4.66	5.67	6.69	7.72	8.75	9.79	10.85	11.95		13.41	/ 1			
reaction time	0.107	interval		1.04	1.03	1.01	1.02	1.03	1.03	1.04	1.06	1.10	1.46			3.08	3.08	3.20
		velocity	5.30	8.79	8.87	9.05	8.96	8.87	8.87	8.79	8.62	8.31	9.60	8.20		8.90	8.90	8.57
Schwarthoff, Florian (GER) (19		time	2.62	3.69	4.74	5.75	6.75	7.80	8.85	9.89	10.97	12.05		13.53	/ 2			
reaction time	0.135	interval		1.07	1.05	1.01	1.00	1.05	1.05	1.04	1.08	1.08	1.48			3.13	3.10	3.20
		velocity	5.24	8.54	8.70	9.05	9.14	8.70	8.70	8.79	8.46	8.46	9.47	8.13		8.76	8.85	8.57

2001 Chinese National Games (Guangzhou, CHN)

FINAL

date 19-Nov-01 wind 0.4 m/s

Huang (2002) - technical research on the men's 110m hurdles at the 9th national games

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Yanhao (CHN) (1972)		time	2.61	3.67	4.69	5.72	6.73	7.76	8.80	9.85	10.89	11.95		13.42	/ 2			
reaction time		interval		1.06	1.02	1.03	1.01	1.03	1.04	1.05	1.04	1.06	1.47			3.11	3.08	3.15
		velocity	5.26	8.62	8.96	8.87	9.05	8.87	8.79	8.70	8.79	8.62	9.54	8.20		8.82	8.90	8.70

2001 IAAF World Championships (Edmonton, CAN)

FINAL

date 09-Aug-01 wind -0.3 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	0.150	no information available											13.04	3 / 1			
García, Anier (CUB) (1976)	0.150	no information available											13.07	4 / 2			
Dorival, Dudley (HAI) (1975)	0.134	no information available										NR	13.25	8 / 3			
Hernández, Yoel (CUB) (1977)	0.151	no information available											13.30	6 / 4			
Kronberg, Robert (SWE) (1976	0.136	no information available											13.51	1 / 5			
Pechonkin, Yevgeniy (RUS) (19	0.131	no information available				7 steps							13.52	5 / 6			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Wallace, Dawane (USA) (1976)	0.159	no information available			13.76	7 / 7
Bownes, Shaun (RSA) (1970)	0.133	no information available	7 steps		13.84	2 / 8

2001 ISTAF (Berlin, GER)

FINAL

date 31-Aug-09 wind 1.0 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)		time	2.58	3.59	4.60	5.58	6.58	7.58	8.58	9.60	10.62	11.66		13.04	4 / 1			
reaction time	0.170	interval		1.01	1.01	0.98	1.00	1.00	1.00	1.02	1.02	1.04	1.38			3.00	3.00	3.08
		velocity	5.32	9.05	9.05	9.33	9.14	9.14	9.14	8.96	8.96	8.79	10.16	8.44		9.14	9.14	8.90
García, Anier (CUB) (1976)		time	2.57	3.60	4.61	5.60	6.61	7.64	8.66	9.68	10.69	11.76		13.15	5 / 2			
reaction time	0.168	interval		1.03	1.01	0.99	1.01	1.03	1.02	1.02	1.01	1.07	1.39			3.03	3.06	3.10
		velocity	5.34	8.87	9.05	9.23	9.05	8.87	8.96	8.96	9.05	8.54	10.09	8.37		9.05	8.96	8.85
Arnold, Dominique (USA) (197		time	2.58	3.60	4.63	5.67	6.68	7.67	8.69	9.70	10.74	11.80		13.21	3 / 3			
reaction time	0.167	interval		1.02	1.03	1.04	1.01	0.99	1.02	1.01	1.04	1.06	1.41			3.09	3.02	3.11
		velocity	5.32	8.96	8.87	8.79	9.05	9.23	8.96	9.05	8.79	8.62	9.94	8.33		8.87	9.08	8.82
Crear, Mark (USA) (1968)			no information available											13.42	2 / 4			
Dorival, Dudley (HAI) (1975)			no information available											13.58	6 / 5			
Crews, Jerome (GER) (1977)		time	2.66	3.74	4.80	5.85	6.91	7.98	9.04	10.14	11.24	12.35		13.70	7 / 6			
reaction time	0.180	interval		1.08	1.06	1.05	1.06	1.07	1.06	1.10	1.10	1.11	1.35			3.19	3.19	3.31
		velocity	5.16	8.46	8.62	8.70	8.62	8.54	8.62	8.31	8.31	8.23	10.39	8.03		8.60	8.60	8.28
Fenner, Mike (GER) (1971)		time	2.62	3.70	4.79	5.86	6.92	8.01	9.09	10.18	11.27	12.38		13.83	1 / 7			
reaction time	0.140	interval		1.08	1.09	1.07	1.06	1.09	1.08	1.09	1.09	1.11	1.45			3.24	3.23	3.29
		velocity	5.24	8.46	8.39	8.54	8.62	8.39	8.46	8.39	8.39	8.23	9.67	7.95		8.46	8.49	8.33
Schwarthoff, Florian (GER) (19		time	2.68	3.76	4.80	5.82	6.84	7.90	8.94	10.00	10.10	12.20		13.85	7 / 8			
reaction time	0.161	interval	7 steps	1.08	1.04	1.02	1.02	1.06	1.04	1.06	0.10	2.10	1.65			3.14	3.12	3.26
		velocity	5.12	8.46	8.79	8.96	8.96	8.62	8.79	8.62	91.40	4.35	8.50	7.94		8.73	8.79	8.41

2001 European Cup (Bremen, GER)

FINAL

date 24-Jun-01 wind 1.3 m/s

Graubner (2007) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pechonkin, Yevgeniy (RUS) (19		time	2.61	3.66	4.68	5.69	6.71	7.76	8.79	9.83	10.90	11.98		13.38	8 / 1			
reaction time	0.128	interval		1.05	1.02	1.01	1.02	1.05	1.03	1.04	1.07	1.08	1.40			3.08	3.10	3.19
		velocity	5.26	8.70	8.96	9.05	8.96	8.70	8.87	8.79	8.54	8.46	10.01	8.22		8.90	8.85	8.60
Schwarthoff, Florian (GER) (19		time	2.60	3.65	4.74	5.81	6.85	7.87	8.91	9.96	11.06	12.14		13.57	3 / 2			
reaction time	0.129	interval	7 steps	1.05	1.09	1.07	1.04	1.02	1.04	1.05	1.10	1.08	1.43			3.21	3.10	3.23
		velocity	5.28	8.70	8.39	8.54	8.79	8.96	8.79	8.70	8.31	8.46	9.80	8.11		8.54	8.85	8.49
Jarrett, Tony (GBR) (1968)		time	2.64	3.70	4.76	5.80	6.84	7.91	8.95	10.01	11.10	12.17		13.58	4 / 3			
reaction time	0.150	interval		1.06	1.06	1.04	1.04	1.07	1.04	1.06	1.09	1.07	1.41			3.16	3.15	3.22
		velocity	5.20	8.62	8.62	8.79	8.79	8.54	8.79	8.62	8.39	8.54	9.94	8.10		8.68	8.70	8.52
Pizzoli, Emiliano (ITA) (1974)		time	2.63	3.73	4.79	5.83	6.88	7.93	8.98	10.04	11.14	12.25		13.71	6 / 4			
reaction time	0.138	interval		1.10	1.06	1.04	1.05	1.05	1.05	1.06	1.10	1.11	1.46			3.20	3.15	3.27
		velocity	5.22	8.31	8.62	8.79	8.70	8.70	8.70	8.62	8.31	8.23	9.60	8.02		8.57	8.70	8.39
Mehlich, Krzysztof (POL) (1974		time	2.63	3.72	4.78	5.85	6.92	8.00	9.08	10.16	11.26	12.39		13.86	5 / 5			
reaction time	0.157	interval	7 steps	1.09	1.06	1.07	1.07	1.08	1.08	1.08	1.10	1.13	1.47			3.22	3.23	3.31
		velocity	5.22	8.39	8.62	8.54	8.54	8.46	8.46	8.46	8.31	8.09	9.54	7.94		8.52	8.49	8.28
Montesinos, Hipólito (ESP) (19		time	2.66	3.72	4.78	5.84	6.91	8.00	9.08	10.18	11.28	12.42		13.88	2 / 6			
reaction time	0.144	interval		1.06	1.06	1.06	1.07	1.09	1.08	1.10	1.10	1.14	1.46			3.18	3.24	3.34
		velocity	5.16	8.62	8.62	8.62	8.54	8.39	8.46	8.31	8.31	8.02	9.60	7.93		8.62	8.46	8.21
Doucouré, Ladji (FRA) (1983)		time	2.70	3.78	4.82	5.84	6.86	7.91	8.98	10.03	11.17	12.44		14.02	7 / 7			
reaction time	0.164	interval		1.08	1.04	1.02	1.02	1.05	1.07	1.05	1.14	1.27	1.58			3.14	3.14	3.46
		velocity	5.08	8.46	8.79	8.96	8.96	8.70	8.54	8.70	8.02	7.20	8.87	7.85		8.73	8.73	7.92
Piétris, Dimítrios (GRE) (1979)		time	2.78	3.87	4.93	6.02	7.09	8.17	9.23	10.31	11.45	12.56		14.04	1 / 8			
reaction time	0.155	interval		1.09	1.06	1.09	1.07	1.08	1.06	1.08	1.14	1.11	1.48			3.24	3.21	3.33
		velocity	4.94	8.39	8.62	8.39	8.54	8.46	8.62	8.46	8.02	8.23	9.47	7.83		8.46	8.54	8.23

2001 Chinese National Grand Prix (Shanghai, CHN)

FINAL

date 06-May-01 wind 1.9 m/s

Fang (2001) - analysis on technical characteristics in Liu Xiang's 110m hurdles

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)		time	2.63	3.73	4.73	5.73	6.75	7.77	8.82	9.87	10.92	11.98		13.32	/ 1			
reaction time		interval		1.10	1.00	1.00	1.02	1.02	1.05	1.05	1.05	1.06	1.34	WYB17 / PB		3.10	3.09	3.16
		velocity	5.22	8.31	9.14	9.14	8.96	8.96	8.70	8.70	8.70	8.62	10.46	8.26		8.85	8.87	8.68

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Yanhao (CHN) (1972)	time	2.64	3.69	4.75	5.78	6.81	7.83	8.86	9.90	10.97	12.02		13.37	/ 2			
reaction time	interval		1.05	1.06	1.03	1.03	1.02	1.03	1.04	1.07	1.05	1.35	PB		3.14	3.08	3.16
	velocity	5.20	8.70	8.62	8.87	8.87	8.96	8.87	8.79	8.54	8.70	10.39	8.23		8.73	8.90	8.68
Shi Dongpeng (CHN) (1984)	time	2.71	3.78	4.79	5.81	6.83	7.86	8.87	9.91	10.99	12.07		13.43	/ 3			
reaction time	interval		1.07	1.01	1.02	1.02	1.03	1.01	1.04	1.08	1.08	1.36	WYR NR PB		3.10	3.06	3.20
	velocity	5.06	8.54	9.05	8.96	8.96	8.87	9.05	8.79	8.46	8.46	10.31	8.19		8.85	8.96	8.57
Qi Zhen (CHN) (1976)	time	2.66	3.77	4.86	5.90	6.93	8.00	9.07	10.13	11.29	12.45		13.95	/ 5			
reaction time	interval		1.11	1.09	1.04	1.03	1.07	1.07	1.06	1.16	1.16	1.50			3.24	3.17	3.38
	velocity	5.16	8.23	8.39	8.79	8.87	8.54	8.54	8.62	7.88	7.88	9.35	7.89		8.46	8.65	8.11

2001 Chinese National Grand Prix (Ningbo, CHN)

FINAL date 28-Apr-01 wind 2.5 m/s

Fang (2001) - analysis on technical characteristics in Liu Xiang's 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Liu Xiang (CHN) (1983)	time	2.66	3.74	4.78	5.82	6.85	7.88	8.90	9.92	10.97	12.04		13.45	/ 1			
reaction time	interval		1.08	1.04	1.04	1.03	1.03	1.02	1.02	1.05	1.07	1.41			3.16	3.08	3.14
	velocity	5.16	8.46	8.79	8.79	8.87	8.87	8.96	8.96	8.70	8.54	9.94	8.18		8.68	8.90	8.73
Chen Yanhao (CHN) (1972)	time	2.66	3.74	4.78	5.83	6.87	7.89	8.93	9.97	11.02	12.06		13.47	/ 2			
reaction time	interval		1.08	1.04	1.05	1.04	1.02	1.04	1.04	1.05	1.04	1.41	PB		3.17	3.10	3.13
	velocity	5.16	8.46	8.79	8.70	8.79	8.96	8.79	8.79	8.70	8.79	9.94	8.17		8.65	8.85	8.76

2000 Olympic Games (Sydney, AUS)

FINAL date 25-Sep-00 wind 0.6 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
García, Anier (CUB) (1976)	0.172	no information available										NR	13.00	3 / 1			
Trammel, Terrence (USA) (1978	0.221	no information available										PB	13.16	4 / 2			
Crear, Mark (USA) (1968)	0.214	no information available											13.22	6 / 3			
Johnson, Allen (USA) (1971)	0.182	no information available											13.23	5 / 4			
Jackson, Colin (GBR) (1967)	0.139	no information available											13.28	1 / 5			
Schwarthoff, Florian (GER) (19	0.184	no information available				7 steps							13.42	7 / 6			
Dorival, Dudley (HAI) (1975)	0.161	no information available											13.49	2 / 7			
Kronberg, Robert (SWE) (1976	0.244	no information available											13.61	8 / 8			

2000 ISTAF (Berlin, GER)

FINAL date 01-Sep-00 wind -0.4 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Trammel, Terrence (USA) (1978	time		2.54	3.59	4.62	5.63	6.66	7.68	8.72	9.74	10.78	11.85		13.28	/ 1			
reaction time	0.154	interval		1.05	1.03	1.01	1.03	1.02	1.04	1.02	1.04	1.07	1.43			3.09	3.09	3.13
		velocity	5.40	8.70	8.87	9.05	8.87	8.96	8.79	8.96	8.79	8.54	9.80	8.28		8.87	8.87	8.76
Arnold, Dominique (USA) (197	time		2.55	3.63	4.66	5.68	6.70	7.73	8.76	9.78	10.82	11.88		13.31	/ 2			
reaction time	0.157	interval		1.08	1.03	1.02	1.02	1.03	1.03	1.02	1.04	1.06	1.43			3.13	3.08	3.12
		velocity	5.38	8.46	8.87	8.96	8.96	8.87	8.87	8.96	8.79	8.62	9.80	8.26		8.76	8.90	8.79
Schwarthoff, Florian (GER) (19	time		2.56	3.62	4.68	5.70	6.70	7.75	8.78	9.82	10.86	11.96		13.40	/ 3			
reaction time	0.148	interval		1.06	1.06	1.02	1.00	1.05	1.03	1.04	1.04	1.10	1.44			3.14	3.08	3.18
		velocity	5.36	8.62	8.62	8.96	9.14	8.70	8.87	8.79	8.79	8.31	9.74	8.21		8.73	8.90	8.62
Balzer, Falk (GER) (1973)	time		2.60	3.67	4.70	5.72	6.72	7.73	8.78	9.80	10.88	12.00		13.47	/ 4			
reaction time	0.158	interval		1.07	1.03	1.02	1.00	1.01	1.05	1.02	1.08	1.12	1.47			3.12	3.06	3.22
		velocity	5.28	8.54	8.87	8.96	9.14	9.05	8.70	8.96	8.46	8.16	9.54	8.17		8.79	8.96	8.52

1999 IAAF World Championships (Sevilla, ESP)

FINAL date 25-Aug-99 wind 1.0 m/s

Sanchez (1999) - Sevilla '99: análisis de la carreras con villas

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time		2.51	3.52	4.52	5.50	6.51	7.52	8.52	9.55	10.58	11.64		13.04	5 / 1			
reaction time	0.116	interval		1.01	1.00	0.98	1.01	1.01	1.00	1.03	1.03	1.06	1.40			2.99	3.02	3.12
		velocity	5.47	9.05	9.14	9.33	9.05	9.05	9.14	8.87	8.87	8.62	10.01	8.44		9.17	9.08	8.79
Garcia, Anier (CUB) (1976)	time		2.52	3.53	4.54	5.53	6.53	7.52	8.51	9.53	10.59	11.65		13.07	3 / 2			
reaction time	0.158	interval		1.01	1.01	0.99	1.00	0.99	0.99	1.02	1.06	1.06	1.42	AR		3.01	2.98	3.14
		velocity	5.44	9.05	9.05	9.23	9.14	9.23	9.23	8.96	8.62	8.62	9.87	8.42		9.11	9.20	8.73
Ross, Duane (USA) (1972)	time		2.47	3.49	4.51	5.53	6.52	7.54	8.56	9.58	10.61	11.68		13.12	4 / 3			
reaction time	0.141	interval		1.02	1.02	1.02	0.99	1.02	1.02	1.02	1.03	1.07	1.44	PB		3.06	3.03	3.12
		velocity	5.55	8.96	8.96	8.96	9.23	8.96	8.96	8.96	8.87	8.54	9.74	8.38		8.96	9.05	8.79
Dees, Tony (USA) (1963)	time		2.47	3.51	4.53	5.52	6.53	7.53	8.56	9.58	10.64	11.72		13.22	8 / 4			
reaction time	0.148	interval		1.04	1.02	0.99	1.01	1.00	1.03	1.02	1.06	1.08	1.50			3.05	3.04	3.16
		velocity	5.55	8.79	8.96	9.23	9.05	9.14	8.87	8.96	8.62	8.46	9.35	8.32		8.99	9.02	8.68
Balzer, Falk (GER) (1973)	time		2.60	3.64	4.65	5.67	6.69	7.71	8.71	9.72	10.76	11.84		13.26	2 / 5			
reaction time	0.153	interval		1.04	1.01	1.02	1.02	1.02	1.00	1.01	1.04	1.08	1.42			3.07	3.04	3.13

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
		velocity	5.28	8.79	9.05	8.96	8.96	8.96	9.14	9.05	8.79	8.46	9.87	8.30		8.93	9.02	8.76
Hernández, Yoel (CUB) (1977)		time	2.57	3.61	4.63	5.66	6.65	7.65	8.68	9.71	10.73	11.83		13.30	7 / 6			
reaction time	0.129	interval		1.04	1.02	1.03	0.99	1.00	1.03	1.03	1.02	1.10	1.47			3.09	3.02	3.15
		velocity	5.34	8.79	8.96	8.87	9.23	9.14	8.87	8.87	8.96	8.31	9.54	8.27		8.87	9.08	8.70
Schwarthoff, Florian (GER) (19		time	2.56	3.59	4.64	5.64	6.67	7.67	8.69	9.73	10.80	11.89		13.39	6 / 7			
reaction time	0.132	interval	7 steps	1.03	1.05	1.00	1.03	1.00	1.02	1.04	1.07	1.09	1.50			3.08	3.05	3.20
		velocity	5.36	8.87	8.70	9.14	8.87	9.14	8.96	8.79	8.54	8.39	9.35	8.22		8.90	8.99	8.57
Nsenga, Jonathan (BEL) (1973		time	2.61	3.65	4.72	5.77	6.80	7.86	8.90	9.93	11.01	12.08		13.54	1 / 8			
reaction time	0.142	interval		1.04	1.07	1.05	1.03	1.06	1.04	1.03	1.08	1.07	1.46			3.16	3.13	3.18
		velocity	5.26	8.79	8.54	8.70	8.87	8.62	8.79	8.87	8.46	8.54	9.60	8.12		8.68	8.76	8.62

Semi-Final 2

date 24-Aug-99 wind 0.0 m/s

Sanchez (1999) - Sevilla '99: análisis de la carreras con villas

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Garcia, Anier (CUB) (1976)		time	2.51	3.55	4.55	5.55	6.55	7.54	8.56	9.60	10.64	11.72		13.18	5 / 1			
reaction time	0.139	interval		1.04	1.00	1.00	1.00	0.99	1.02	1.04	1.04	1.08	1.46			3.04	3.01	3.16
		velocity	5.47	8.79	9.14	9.14	9.14	9.23	8.96	8.79	8.79	8.46	9.60	8.35		9.02	9.11	8.68
Jackson, Colin (GBR) (1967)		time	2.50	3.52	4.53	5.54	6.54	7.56	8.57	9.60	10.66	11.72		13.19	6 / 2			
reaction time	0.110	interval		1.02	1.01	1.01	1.00	1.02	1.01	1.03	1.06	1.06	1.47			3.04	3.03	3.15
		velocity	5.49	8.96	9.05	9.05	9.14	8.96	9.05	8.87	8.62	8.62	9.54	8.34		9.02	9.05	8.70
Dees, Tony (USA) (1963)		time	2.43	3.45	4.49	5.49	6.50	7.51	8.54	9.60	10.70	11.81		13.30	4 / 3			
reaction time	0.123	interval		1.02	1.04	1.00	1.01	1.01	1.03	1.06	1.10	1.11	1.49			3.06	3.05	3.27
		velocity	5.65	8.96	8.79	9.14	9.05	9.05	8.87	8.62	8.31	8.23	9.41	8.27		8.96	8.99	8.39
Nsenga, Jonathan (BEL) (1973		time	2.56	3.61	4.66	5.70	6.71	7.74	8.77	9.86	10.91	12.00		13.47	7 / 4			
reaction time	0.134	interval		1.05	1.05	1.04	1.01	1.03	1.03	1.09	1.05	1.09	1.47			3.14	3.07	3.23
		velocity	5.36	8.70	8.70	8.79	9.05	8.87	8.87	8.39	8.70	8.39	9.54	8.17		8.73	8.93	8.49
Philibert, Dan (FRA) (1970)		time	2.58	3.59	4.62	5.64	6.65	7.66	8.70	9.77	10.84	11.92		13.49	8 / 5			
reaction time	0.113	interval		1.01	1.03	1.02	1.01	1.01	1.04	1.07	1.07	1.08	1.57			3.06	3.06	3.22
		velocity	5.32	9.05	8.87	8.96	9.05	9.05	8.79	8.54	8.54	8.46	8.93	8.15		8.96	8.96	8.52
Olijar, Stanislav (CZE) (1979)		time	2.59	3.64	4.67	5.67	6.68	7.70	8.73	9.81	10.95	12.09		13.70	3 / 6			
reaction time	0.137	interval		1.05	1.03	1.00	1.01	1.02	1.03	1.08	1.14	1.14	1.61			3.08	3.06	3.36
		velocity	5.30	8.70	8.87	9.14	9.05	8.96	8.87	8.46	8.02	8.02	8.71	8.03		8.90	8.96	8.16
Dorival, Dudley (HAI) (1975)		time	2.60	3.62	4.65	5.70	6.74	7.82	8.87	9.96	11.05	12.20		13.86	2 / 7			
reaction time	0.151	interval		1.02	1.03	1.05	1.04	1.08	1.05	1.09	1.09	1.15	1.66			3.10	3.17	3.33
		velocity	5.28	8.96	8.87	8.70	8.79	8.46	8.70	8.39	8.39	7.95	8.45	7.94		8.85	8.65	8.23

Semi-Final 1

date 24-Aug-99 wind 0.0 m/s

Sanchez (1999) - Sevilla '99: análisis de la carreras con villas

			H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ross, Duane (USA) (1972)		time	2.53	3.56	4.56	5.58	6.57	7.56	8.59	9.60	10.63	11.68		13.14	3 / 1			
reaction time	0.151	interval		1.03	1.00	1.02	0.99	0.99	1.03	1.01	1.03	1.05	1.46			3.05	3.01	3.09
		velocity	5.42	8.87	9.14	8.96	9.23	9.23	8.87	9.05	8.87	8.70	9.60	8.37		8.99	9.11	8.87
Schwarthoff, Florian (GER) (19		time	2.52	3.56	4.59	5.59	6.60	7.61	8.61	9.64	10.67	11.75		13.30	8 / 2			
reaction time	0.135	interval		1.04	1.03	1.00	1.01	1.01	1.00	1.03	1.03	1.08	1.55			3.07	3.02	3.14
		velocity	5.44	8.79	8.87	9.14	9.05	9.05	9.14	8.87	8.87	8.46	9.05	8.27		8.93	9.08	8.73
Hernández, Yoel (CUB) (1977)		time	2.60	3.61	4.64	5.64	6.66	7.65	8.68	9.71	10.77	11.83		13.32	4 / 3			
reaction time	0.143	interval		1.01	1.03	1.00	1.02	0.99	1.03	1.03	1.06	1.06	1.49			3.04	3.04	3.15
		velocity	5.28	9.05	8.87	9.14	8.96	9.23	8.87	8.87	8.62	8.62	9.41	8.26		9.02	9.02	8.70
Balzer, Falk (GER) (1973)		time	2.58	3.61	4.62	5.63	6.65	7.66	8.70	9.74	10.80	11.88		13.32	6 / 4			
reaction time	0.136	interval		1.03	1.01	1.01	1.02	1.01	1.04	1.04	1.06	1.08	1.44			3.05	3.07	3.18
		velocity	5.32	8.87	9.05	9.05	8.96	9.05	8.79	8.79	8.62	8.46	9.74	8.26		8.99	8.93	8.62
Coghlan, Peter (IRL) (1975)		time	2.59	3.62	4.67	5.67	6.70	7.72	8.72	9.78	10.86	11.97		13.35	1 / 5			
reaction time	0.161	interval		1.03	1.05	1.00	1.03	1.02	1.00	1.06	1.08	1.11	1.38			3.08	3.05	3.25
		velocity	5.30	8.87	8.70	9.14	8.87	8.96	9.14	8.62	8.46	8.23	10.16	8.24		8.90	8.99	8.44
Batte, Erick (CUB) (1974)		time	2.54	3.58	4.60	5.64	6.64	7.66	8.67	9.72	10.76	11.86		13.40	7 / 6			
reaction time	0.136	interval		1.04	1.02	1.04	1.00	1.02	1.01	1.05	1.04	1.10	1.54			3.10	3.03	3.19
		velocity	5.40	8.79	8.96	8.79	9.14	8.96	9.05	8.70	8.79	8.31	9.10	8.21		8.85	9.05	8.60
Korving, Robin (NED) (1974)		time	2.59	3.62	4.66	5.67	6.72	7.74	8.78	9.84	10.91	11.96		13.45	2 / 7			
reaction time	0.133	interval		1.03	1.04	1.01	1.05	1.02	1.04	1.06	1.07	1.05	1.49			3.08	3.11	3.18
		velocity	5.30	8.87	8.79	9.05	8.70	8.96	8.79	8.62	8.54	8.70	9.41	8.18		8.90	8.82	8.62
Lichteneggar, Elmar (AUT) (19		time	2.55	3.57	4.62	5.66	6.69	7.73	8.78	9.85	10.90	12.00		13.52	5 / 8			
reaction time	0.133	interval		1.02	1.05	1.04	1.03	1.04	1.05	1.07	1.05	1.10	1.52			3.11	3.12	3.22

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
	velocity	5.38	8.96	8.70	8.79	8.87	8.79	8.70	8.54	8.70	8.31	9.22	8.14		8.82	8.79	8.52

Quarter-Final 2

date 23-Aug-99 wind -0.2 m/s *Sanchez (1999) - Sevilla '99: análisis de la carreras con villas*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.50	3.52	4.53	5.53	6.52	7.53	8.54	9.57	10.63	11.71		13.21	6 / 1			
reaction time 0.117	interval		1.02	1.01	1.00	0.99	1.01	1.01	1.03	1.06	1.08	1.50			3.03	3.01	3.17
	velocity	5.49	8.96	9.05	9.14	9.23	9.05	9.05	8.87	8.62	8.46	9.35	8.33		9.05	9.11	8.65

Quarter-Final 1

date 23-Aug-99 wind -0.4 m/s *Sanchez (1999) - Sevilla '99: análisis de la carreras con villas*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ross, Duane (USA) (1972)	time	2.52	3.55	4.56	5.57	6.56	7.58	8.58	9.59	10.63	11.68		13.13	5 / 1			
reaction time 0.139	interval		1.03	1.01	1.01	0.99	1.02	1.00	1.01	1.04	1.05	1.45	PB		3.05	3.01	3.10
	velocity	5.44	8.87	9.05	9.05	9.23	8.96	9.14	9.05	8.79	8.70	9.67	8.38		8.99	9.11	8.85
Garcia, Anier (CUB) (1976)	time	2.54	3.57	4.58	5.58	6.58	7.58	8.59	9.62	10.68	11.74		13.20	3 / 2			
reaction time 0.169	interval		1.03	1.01	1.00	1.00	1.00	1.01	1.03	1.06	1.06	1.46			3.04	3.01	3.15
	velocity	5.40	8.87	9.05	9.14	9.14	9.14	9.05	8.87	8.62	8.62	9.60	8.33		9.02	9.11	8.70

Heat 6

date 23-Aug-99 wind 0.0 m/s *Sanchez (1999) - Sevilla '99: análisis de la carreras con villas*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Garcia, Anier (CUB) (1976)	time	2.53	3.54	4.54	5.55	6.55	7.56	8.59	9.63	10.71	11.80		13.40	1 / 1			
reaction time 0.155	interval		1.01	1.00	1.01	1.00	1.01	1.03	1.04	1.08	1.09	1.60			3.02	3.04	3.21
	velocity	5.42	9.05	9.14	9.05	9.14	9.05	8.87	8.79	8.46	8.39	8.76	8.21		9.08	9.02	8.54

Heat 5

date 23-Aug-99 wind -0.5 m/s *Sanchez (1999) - Sevilla '99: análisis de la carreras con villas*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.49	3.50	4.50	5.50	6.51	7.52	8.55	9.57	10.61	11.67		13.19	1 / 1			
reaction time 0.115	interval		1.01	1.00	1.00	1.01	1.01	1.03	1.02	1.04	1.06	1.52			3.01	3.05	3.12
	velocity	5.51	9.05	9.14	9.14	9.05	9.05	8.87	8.96	8.79	8.62	9.22	8.34		9.11	8.99	8.79

Heat 1

date 23-Aug-99 wind 0.6 m/s *Sanchez (1999) - Sevilla '99: análisis de la carreras con villas*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ross, Duane (USA) (1972)	time	2.53	3.55	4.57	5.58	6.59	7.64	8.69	9.77	10.82	11.89		13.39	1 / 1			
reaction time 0.162	interval		1.02	1.02	1.01	1.01	1.05	1.05	1.08	1.05	1.07	1.50			3.05	3.11	3.20
	velocity	5.42	8.96	8.96	9.05	9.05	8.70	8.70	8.46	8.70	8.54	9.35	8.22		8.99	8.82	8.57

1999 Sydney Grand Prix (Sydney, AUS)

FINAL

date 20-Feb-99 wind 0.6 m/s *Arnold (2009) - UK Athletics - Hurdling Masterclass*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.57	3.62	4.66	5.68	6.70	7.72	8.76	9.79	10.85	11.92		13.30	/ 1			
reaction time	interval		1.05	1.04	1.02	1.02	1.02	1.04	1.03	1.06	1.07	1.38			3.11	3.08	3.16
	velocity	5.34	8.70	8.79	8.96	8.96	8.96	8.79	8.87	8.62	8.54	10.16	8.27		8.82	8.90	8.68

1998 European Championships (Budapest, HUN)

FINAL

date 22-Aug-98 wind 1.5 m/s *Sanchez (1998) - Budapest '98: análisis de la carreras con villas*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.56	3.58	4.60	5.58	6.59	7.59	8.57	9.59	10.63	11.69		13.02	3 / 1			
reaction time	interval		1.02	1.02	0.98	1.01	1.00	0.98	1.02	1.04	1.06	1.33	CR		3.02	2.99	3.12
	velocity	5.36	8.96	8.96	9.33	9.05	9.14	9.33	8.96	8.79	8.62	10.54	8.45		9.08	9.17	8.79
Balzer, Falk (GER) (1973)	time	2.60	3.62	4.63	5.64	6.67	7.67	8.68	9.68	10.71	11.77		13.12	6 / 2			
reaction time	interval		1.02	1.01	1.01	1.03	1.00	1.01	1.00	1.03	1.06	1.35	PB		3.04	3.04	3.09
	velocity	5.28	8.96	9.05	9.05	8.87	9.14	9.05	9.14	8.87	8.62	10.39	8.38		9.02	9.02	8.87
Korving, Robin (NED) (1974)	time	2.60	3.62	4.66	5.67	6.68	7.70	8.70	9.72	10.77	11.81		13.20	5 / 3			
reaction time	interval		1.02	1.04	1.01	1.01	1.02	1.00	1.02	1.05	1.04	1.39	NR		3.07	3.03	3.11
	velocity	5.28	8.96	8.79	9.05	9.05	8.96	9.14	8.96	8.70	8.79	10.09	8.33		8.93	9.05	8.82
Schwarthoff, Florian (GER) (19	time	2.59	3.64	4.68	5.68	6.70	7.70	8.71	9.75	10.78	11.83		13.23	4 / 4			
reaction time	interval		1.05	1.04	1.00	1.02	1.00	1.01	1.04	1.03	1.05	1.40			3.09	3.03	3.12
	velocity	5.30	8.70	8.79	9.14	8.96	9.14	9.05	8.79	8.87	8.70	10.01	8.31		8.87	9.05	8.79
Kohutek, Artur (POL) (1971)	time	2.60	3.62	4.65	5.67	6.67	7.70	8.72	9.73	10.75	11.83		13.29	7 / 5			
reaction time	interval		1.02	1.03	1.02	1.00	1.03	1.02	1.01	1.02	1.08	1.46			3.07	3.05	3.11
	velocity	5.28	8.96	8.87	8.96	9.14	8.87	8.96	9.05	8.96	8.46	9.60	8.28		8.93	8.99	8.82
Jarrett, Tony (GBR) (1968)	time	2.58	3.61	4.66	5.69	6.74	7.74	8.74	9.76	10.80	11.89		13.32	8 / 6			
reaction time	interval		1.03	1.05	1.03	1.05	1.00	1.00	1.02	1.04	1.09	1.43			3.11	3.05	3.15
	velocity	5.32	8.87	8.70	8.87	8.70	9.14	9.14	8.96	8.79	8.39	9.80	8.26		8.82	8.99	8.70
Fenner, Mike (GER) (1971)	time	2.61	3.63	4.68	5.72	6.74	7.77	8.82	9.85	10.88	11.97		13.38	2 / 7			
reaction time	interval		1.02	1.05	1.04	1.02	1.03	1.05	1.03	1.03	1.09	1.41			3.11	3.10	3.15
	velocity	5.26	8.96	8.70	8.79	8.96	8.87	8.70	8.87	8.87	8.39	9.94	8.22		8.82	8.85	8.70
Nsenga, Jonathan (BEL) (1973	time	2.62	3.66	4.71	5.76	6.81	7.83	8.87	9.94	11.02	12.12		13.54	1 / 8			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval		1.04	1.05	1.05	1.05	1.02	1.04	1.07	1.08	1.10	1.42			3.14	3.11	3.25
	velocity	5.24	8.79	8.70	8.70	8.70	8.96	8.79	8.54	8.46	8.31	9.87	8.12		8.73	8.82	8.44

1998 Spanish National Championships (San Sebastián, ESP)

FINAL date 02-Aug-98 wind 0.1 m/s

Ruiz (1998) - campeonato des españa absoluto: análisis de la carreras con villas

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
López, Francisco (ESP) (1973)	time	2.64	3.72	4.82	5.94	6.98	8.05	9.12	10.25	11.37	12.52		14.12	5 / 1			
reaction time	interval		1.08	1.10	1.12	1.04	1.07	1.07	1.13	1.12	1.15	1.60			3.30	3.18	3.40
	velocity	5.20	8.46	8.31	8.16	8.79	8.54	8.54	8.09	8.16	7.95	8.76	7.79		8.31	8.62	8.06
Santos, Miguel (ESP) (1973)	time	2.66	3.75	4.85	5.98	7.04	8.16	9.28	10.38	11.50	12.63		14.17	6 / 2			
reaction time	interval		1.09	1.10	1.13	1.06	1.12	1.12	1.10	1.12	1.13	1.54			3.32	3.30	3.35
	velocity	5.16	8.39	8.31	8.09	8.62	8.16	8.16	8.31	8.16	8.09	9.10	7.76		8.26	8.31	8.19
Vega, Javier (ESP) (1975)	time	2.66	3.75	4.84	5.95	7.02	8.14	9.24	10.37	11.50	12.64		14.21	7 / 3			
reaction time	interval		1.09	1.09	1.11	1.07	1.12	1.10	1.13	1.13	1.14	1.57			3.29	3.29	3.40
	velocity	5.16	8.39	8.39	8.23	8.54	8.16	8.31	8.09	8.09	8.02	8.93	7.74		8.33	8.33	8.06
Pérez, Eduardo (ESP) (1970)	time	2.69	3.76	4.89	6.03	7.08	8.20	9.32	10.45	11.58	12.78		14.33	1 / 4			
reaction time	interval		1.07	1.13	1.14	1.05	1.12	1.12	1.13	1.13	1.20	1.55			3.34	3.29	3.46
	velocity	5.10	8.54	8.09	8.02	8.70	8.16	8.16	8.09	8.09	7.62	9.05	7.68		8.21	8.33	7.92
Belmar, Félix (ESP) (1978)	time	2.70	3.82	4.96	6.06	7.20	8.36	9.51	10.70	11.86	13.08		14.73	8 / 5			
reaction time	interval		1.12	1.14	1.10	1.14	1.16	1.15	1.19	1.16	1.22	1.65			3.36	3.45	3.57
	velocity	5.08	8.16	8.02	8.31	8.02	7.88	7.95	7.68	7.88	7.49	8.50	7.47		8.16	7.95	7.68

1998 ??? (Chengdu, CHN)

FINAL date 12-May-98 wind ???

Yuan (1998) - Chen Yanhao analysis of 110m results

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Yanhao (CHN) (1972)	time	2.56	3.60	4.64	5.67	6.70	7.72	8.84	9.87	10.92	11.99		13.50	/ 1			
reaction time	interval		1.04	1.04	1.03	1.03	1.02	1.12	1.03	1.05	1.07	1.51			3.11	3.17	3.15
	velocity	5.36	8.79	8.79	8.87	8.87	8.96	8.16	8.87	8.70	8.54	9.28	8.15		8.82	8.65	8.70

1997 Chinese National Games (Shanghai, CHN)

FINAL date 19-Oct-97 wind 0.0 m/s

Zhang (1999) - analysis of 110m hurdles of Chen Yanhao

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Yanhao (CHN) (1972)	time	2.52	3.57	4.63	5.66	6.67	7.70	8.82	9.84	10.99	11.96		13.41	/ 1			
reaction time	interval		1.05	1.06	1.03	1.01	1.03	1.12	1.02	1.15	0.97	1.45			3.14	3.16	3.14
	velocity	5.44	8.70	8.62	8.87	9.05	8.87	8.16	8.96	7.95	9.42	9.67	8.20		8.73	8.68	8.73

1997 IAAF World Championships (Athens, GRE)

FINAL date 07-Aug-97 wind 0.0 m/s

Hommel (1997) - biomechanical research project at the VI th world championships in athletics, Athens 1997

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.56	3.56	4.54	5.54	6.52	7.54	8.52	9.57	10.59	11.62		12.93	4 / 1			
reaction time 0.128	interval		1.00	0.98	1.00	0.98	1.02	0.98	1.05	1.02	1.03	1.31			2.98	2.98	3.10
	velocity	5.36	9.14	9.33	9.14	9.33	8.96	9.33	8.70	8.96	8.87	10.70	8.51		9.20	9.20	8.85
Jackson, Colin (GBR) (1967)	time	2.58	3.62	4.62	5.62	6.62	7.62	8.62	9.64	10.68	11.72		13.05	5 / 2			
reaction time 0.118	interval		1.04	1.00	1.00	1.00	1.00	1.00	1.02	1.04	1.04	1.33			3.04	3.00	3.10
	velocity	5.32	8.79	9.14	9.14	9.14	9.14	9.14	8.96	8.79	8.79	10.54	8.43		9.02	9.14	8.85
Kováč, Igor (SVK) (1969)	time	2.62	3.68	4.70	5.72	6.72	7.74	8.78	9.78	10.82	11.86		13.18	1 / 3			
reaction time 0.161	interval		1.06	1.02	1.02	1.00	1.02	1.04	1.00	1.04	1.04	1.32			3.10	3.06	3.08
	velocity	5.24	8.62	8.96	8.96	9.14	8.96	8.79	9.14	8.79	8.79	10.62	8.35		8.85	8.96	8.90
Schwarthoff, Florian (GER) (19	time	2.58	3.64	4.64	5.66	6.68	7.70	8.72	9.74	10.78	11.84		13.20	3 / 4			
reaction time 0.141	interval	7 steps	1.06	1.00	1.02	1.02	1.02	1.02	1.02	1.04	1.06	1.36			3.08	3.06	3.12
	velocity	5.32	8.62	9.14	8.96	8.96	8.96	8.96	8.96	8.79	8.62	10.31	8.33		8.90	8.96	8.79
Philibert, Dan (FRA) (1970)	time	2.62	3.70	4.70	5.70	6.70	7.72	8.74	9.76	10.82	11.86		13.26	6 / 5			
reaction time 0.118	interval		1.08	1.00	1.00	1.00	1.02	1.02	1.02	1.06	1.04	1.40	PB		3.08	3.04	3.12
	velocity	5.24	8.46	9.14	9.14	9.14	8.96	8.96	8.96	8.62	8.79	10.01	8.30		8.90	9.02	8.79
Reese, Terry (USA) (1967)	time	2.66	3.72	4.74	5.74	6.76	7.78	8.80	9.82	10.90	12.00		13.30	7 / 6			
reaction time 0.117	interval		1.06	1.02	1.00	1.02	1.02	1.02	1.02	1.08	1.10	1.30	=PB		3.08	3.06	3.20
	velocity	5.16	8.62	8.96	9.14	8.96	8.96	8.96	8.96	8.46	8.31	10.78	8.27		8.90	8.96	8.57
Crear, Mark (USA) (1968)	time	2.60	3.64	4.65	5.66	6.66	7.76	8.78	9.86	10.92	12.06		13.55	8 / 7			
reaction time 0.134	interval		1.04	1.01	1.01	1.00	1.10	1.02	1.08	1.06	1.14	1.49			3.06	3.12	3.28
	velocity	5.28	8.79	9.05	9.05	9.14	8.31	8.96	8.46	8.62	8.02	9.41	8.12		8.96	8.79	8.36
Kohutek, Artur (POL) (1971)													DNS	2 / --			

1997 European Cup (Munich, GER)

FINAL

date 22-Jun-97 wind 0.2 m/s

Jung (2003) - http://www.fgs.uni-halle.de

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Schwarthoff, Florian (GER) (19	time	2.56	3.62	4.63	5.63	6.63	7.66	8.69	9.70	10.74	11.80		13.20	/ 1			
reaction time	interval	7 steps	1.06	1.01	1.00	1.00	1.03	1.03	1.01	1.04	1.06	1.40			3.07	3.06	3.11
	velocity	5.36	8.62	9.05	9.14	9.14	8.87	8.87	9.05	8.79	8.62	10.01	8.33		8.93	8.96	8.82
Jackson, Colin (GBR) (1967)	time	2.57	3.60	4.62	5.62	6.62	7.64	8.68	9.72	10.77	11.85		13.28	/ 2			
reaction time	interval		1.03	1.02	1.00	1.00	1.02	1.04	1.04	1.05	1.08	1.43			3.05	3.06	3.17
	velocity	5.34	8.87	8.96	9.14	9.14	8.96	8.79	8.79	8.70	8.46	9.80	8.28		8.99	8.96	8.65
Kislykh, Andrey (RUS) (1976)	time	2.65	3.70	4.71	5.73	6.74	7.78	8.84	9.90	10.97	12.05		13.53	/ 3			
reaction time	interval		1.05	1.01	1.02	1.01	1.04	1.06	1.06	1.07	1.08	1.48			3.08	3.11	3.21
	velocity	5.18	8.70	9.05	8.96	9.05	8.79	8.62	8.62	8.54	8.46	9.47	8.13		8.90	8.82	8.54
Clarico, Vincent (FRA) (1966)	time	2.66	3.72	4.78	5.82	6.88	7.92	9.00	10.06	11.16	12.28		13.67	/ 4			
reaction time	interval		1.06	1.06	1.04	1.06	1.04	1.08	1.06	1.10	1.12	1.39			3.16	3.18	3.28
	velocity	5.16	8.62	8.62	8.79	8.62	8.79	8.46	8.62	8.31	8.16	10.09	8.05		8.68	8.62	8.36
Gundersen, Gaute (NOR) (1972	time	2.66	3.74	4.78	5.82	6.86	7.91	8.98	10.04	11.14	12.26		13.70	/ 5			
reaction time	interval		1.08	1.04	1.04	1.04	1.05	1.07	1.06	1.10	1.12	1.44			3.16	3.16	3.28
	velocity	5.16	8.46	8.79	8.79	8.79	8.70	8.54	8.62	8.31	8.16	9.74	8.03		8.68	8.68	8.36
Re, Mauro (ITA) (1967)	time	2.70	3.76	4.81	5.84	6.89	7.94	9.00	10.06	11.18	12.30		13.76	/ 6			
reaction time	interval		1.06	1.05	1.03	1.05	1.05	1.06	1.06	1.12	1.12	1.46			3.14	3.16	3.30
	velocity	5.08	8.62	8.70	8.87	8.70	8.70	8.62	8.62	8.16	8.16	9.60	7.99		8.73	8.68	8.31
Mágos, Stamátios (GRE) (1972	time	2.66	3.74	4.82	5.88	6.94	8.02	9.12	10.24	11.36	12.52		13.97	/ 7			
reaction time	interval		1.08	1.08	1.06	1.06	1.08	1.10	1.12	1.12	1.16	1.45			3.22	3.24	3.40
	velocity	5.16	8.46	8.46	8.62	8.62	8.46	8.31	8.16	8.16	7.88	9.67	7.87		8.52	8.46	8.06
de los Santos, Miguel (ESP) (19	time	2.77	3.87	4.94	6.02	7.08	8.17	9.29	10.40	11.52	12.70		14.16	/ 8			
reaction time	interval		1.10	1.07	1.08	1.06	1.09	1.12	1.11	1.12	1.18	1.46			3.25	3.27	3.41
	velocity	4.95	8.31	8.54	8.46	8.62	8.39	8.16	8.23	8.16	7.75	9.60	7.77		8.44	8.39	8.04

1996 Memorial Van Damme (Brussels, BEL)

FINAL

date 23-Aug-96 wind 0.2 m/s

Shi (2013) - comprehensive research on the "three characteristics" of the men's 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.56	3.56	4.54	5.54	6.52	7.53	8.51	9.56	10.58	11.61		12.92	/ 1			
reaction time	interval		1.00	0.98	1.00	0.98	1.01	0.98	1.05	1.02	1.03	1.31	=AR =PB		2.98	2.97	3.10
	velocity	5.36	9.14	9.33	9.14	9.33	9.05	9.33	8.70	8.96	8.87	10.70	8.51		9.20	9.23	8.85

1996 Olympic Games (Atlanta, GA)

FINAL

date 29-Jul-96 wind 0.6 m/s

Butler (2016) - IAAF statistics handbook- special edition: Games of the XXXI Olympiad- Rio 2016

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.34	3.38	4.39	5.36	6.32	7.30	8.30	9.33	10.36	11.38		12.95	6 / 1			
reaction time 0.170	interval		1.04	1.01	0.97	0.96	0.98	1.00	1.03	1.03	1.02	1.57	OR		3.02	2.94	3.08
	velocity	5.86	8.79	9.05	9.42	9.52	9.33	9.14	8.87	8.87	8.96	8.93	8.49		9.08	9.33	8.90
Crear, Mark (USA) (1968)	time	2.35	3.38	4.37	5.39	6.39	7.41	8.46	9.47	10.51	11.56		13.09	8 / 2			
reaction time 0.124	interval		1.03	0.99	1.02	1.00	1.02	1.05	1.01	1.04	1.05	1.53			3.04	3.07	3.10
	velocity	5.84	8.87	9.23	8.96	9.14	8.96	8.70	9.05	8.79	8.70	9.16	8.40		9.02	8.93	8.85
Schwarthoff, Florian (GER) (19	time	2.38	3.46	4.44	5.43	6.44	7.44	8.44	9.49	10.54	11.61		13.17	3 / 3			
reaction time 0.164	interval	7 steps	1.08	0.98	0.99	1.01	1.00	1.00	1.05	1.05	1.07	1.56			3.05	3.01	3.17
	velocity	5.76	8.46	9.33	9.23	9.05	9.14	9.14	8.70	8.70	8.54	8.99	8.35		8.99	9.11	8.65
Jackson, Colin (GBR) (1967)	time	2.36	3.42	4.42	5.48	6.43	7.40	8.48	9.54	10.56	11.62		13.19	5 / 4			
reaction time 0.133	interval		1.06	1.00	1.06	0.95	0.97	1.08	1.06	1.02	1.06	1.57			3.12	3.00	3.14
	velocity	5.81	8.62	9.14	8.62	9.62	9.42	8.46	8.62	8.96	8.62	8.93	8.34		8.79	9.14	8.73
Valle, Emilo (CUB) (1967)	time	2.36	3.44	4.46	5.46	6.48	7.49	8.50	9.54	10.58	11.61		13.20	7 / 5			
reaction time 0.179	interval		1.08	1.02	1.00	1.02	1.01	1.01	1.04	1.04	1.03	1.59			3.10	3.04	3.11
	velocity	5.81	8.46	8.96	9.14	8.96	9.05	9.05	8.79	8.79	8.87	8.82	8.33		8.85	9.02	8.82
Swift, Eugene (USA) (1964)	time	2.36	3.42	4.44	5.47	6.48	7.47	8.46	9.50	10.55	11.62		13.23	4 / 6			
reaction time 0.151	interval		1.06	1.02	1.03	1.01	0.99	0.99	1.04	1.05	1.07	1.61			3.11	2.99	3.16
	velocity	5.81	8.62	8.96	8.87	9.05	9.23	9.23	8.79	8.70	8.54	8.71	8.31		8.82	9.17	8.68
Vander-Kuyp, Kyle (AUS) (197	time	2.40	3.46	4.54	5.58	6.64	7.61	8.68	9.64	10.78	11.83		13.40	2 / 7			
reaction time 0.160	interval		1.06	1.08	1.04	1.06	0.97	1.07	0.96	1.14	1.05	1.57			3.18	3.10	3.15
	velocity	5.72	8.62	8.46	8.79	8.62	9.42	8.54	9.52	8.02	8.70	8.93	8.21		8.62	8.85	8.70
Batte, Erik (CUB) (1974)	time	2.40	3.48	4.52	5.58	6.63	7.62	8.68	9.64	10.78	11.83		13.43	1 / 8			
reaction time 0.160	interval		1.08	1.04	1.06	1.05	0.99	1.06	0.96	1.14	1.05	1.60			3.18	3.10	3.15
	velocity	5.72	8.46	8.79	8.62	8.70	9.23	8.62	9.52	8.02	8.70	8.76	8.19		8.62	8.85	8.70

1996 USA Olympic Trials (Atlanta, GA)

FINAL date 23-Jun-96 wind 0.9 m/s

McNichols (2000) - Hurdle technique study through video analysis

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	time	2.36	3.40	4.40	5.36	6.36	7.33	8.32	9.32	10.36	11.42		12.92	6 / 1			
reaction time	interval		1.04	1.00	0.96	1.00	0.97	0.99	1.00	1.04	1.06	1.50	AR PB		3.00	2.96	3.10
	velocity	5.81	8.79	9.14	9.52	9.14	9.42	9.23	9.14	8.79	8.62	9.35	8.51		9.14	9.26	8.85
Crear, Mark (USA) (1968)	time	2.38	3.40	4.73	5.40	6.42	7.39	8.42	9.38	10.46	11.52		13.05	4 / 2			
reaction time	interval		1.02	1.33	0.67	1.02	0.97	1.03	0.96	1.08	1.06	1.53			3.02	3.02	3.10
	velocity	5.76	8.96	6.87	13.64	8.96	9.42	8.87	9.52	8.46	8.62	9.16	8.43		9.08	9.08	8.85
Swift, Eugene (USA) (1964)	time	2.38	3.43	4.46	5.44	6.43	7.52	8.54	9.55	10.62	11.66		13.21	7 / 3			
reaction time	interval		1.05	1.03	0.98	0.99	1.09	1.02	1.01	1.07	1.04	1.55	PB		3.06	3.10	3.12
	velocity	5.76	8.70	8.87	9.33	9.23	8.39	8.96	9.05	8.54	8.79	9.05	8.33		8.96	8.85	8.79
Brown, Steven (USA) (1969)	time	2.40	3.46	4.46	5.44	6.44	7.52	8.58	9.63	10.66	11.72		13.28	8 / 4			
reaction time	interval		1.06	1.00	0.98	1.00	1.08	1.06	1.05	1.03	1.06	1.56			3.04	3.14	3.14
	velocity	5.72	8.62	9.14	9.33	9.14	8.46	8.62	8.70	8.87	8.62	8.99	8.28		9.02	8.73	8.73
Kingdom, Roger (USA) (1962)	time	2.45	3.50	4.53	5.52	6.55	7.54	8.55	9.62	10.65	11.77		13.34	1 / 5			
reaction time	interval		1.05	1.03	0.99	1.03	0.99	1.01	1.07	1.03	1.12	1.57			3.07	3.03	3.22
	velocity	5.60	8.70	8.87	9.23	8.87	9.23	9.05	8.54	8.87	8.16	8.93	8.25		8.93	9.05	8.52
Dees, Tony (USA) (1963)	time	2.45	3.47	4.52	5.51	6.57	7.62	8.68	9.80	10.88	12.01		13.67	2 / 6			
reaction time	interval		1.02	1.05	0.99	1.06	1.05	1.06	1.12	1.08	1.13	1.66			3.06	3.17	3.33
	velocity	5.60	8.96	8.70	9.23	8.62	8.70	8.62	8.16	8.46	8.09	8.45	8.05		8.96	8.65	8.23
Harrington, Larry (USA) (1970)	time	2.42											dnf	3 / --			
reaction time	interval																
	velocity	5.67															
Pierce, Jack (USA) (1962)	time	2.38											dnf	5 / --			
reaction time	interval																
	velocity	5.76															

1996 LIVE (Nurnberg, GER)

FINAL date 07-Jun-96 wind 0.0 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Schwarthoff, Florian (GER) (19	time	2.57	3.62	4.62	5.62	6.62	7.64	8.65	9.67	10.69	11.73		13.11	/ 1			
reaction time	interval		1.05	1.00	1.00	1.00	1.02	1.01	1.02	1.02	1.04	1.38			3.05	3.03	3.08
	velocity	5.34	8.70	9.14	9.14	9.14	8.96	9.05	8.96	8.96	8.79	10.16	8.39		8.99	9.05	8.90

1995 IAAF World Championships (Göteborg, SWE)

FINAL date 12-Aug-95 wind -0.1 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Johnson, Allen (USA) (1971)	0.143	no information available										PB	13.00	6 / 1			
Jarrett, Tony (GBR) (1968)	0.129	no information available											13.04	3 / 2			
Kingdom, Roger (USA) (1962)	0.153	no information available											13.19	4 / 3			
Pierce, Jack (USA) (1962)	0.136	no information available											13.27	5 / 4			
Vander-Kuyp, Kyle (AUS) (197	0.129	no information available											13.30	1 / 5			
Philibert, Dan (FRA) (1970)	0.152	no information available											13.34	8 / 6			
Batte, Erik (CUB) (1974)	0.143	no information available										PB	13.38	2 / 7			
Valle, Emilo (CUB) (1967)	0.188	no information available											13.43	7 / 8			

1995 German National Championships (Bremen, GER)

FINAL date 02-Jul-95 wind -0.8 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Schwarthoff, Florian (GER) (19	time	2.54	3.59	4.61	5.60	6.59	7.60	8.58	9.59	10.61	11.65		13.05	/ 1			
reaction time	interval		1.05	1.02	0.99	0.99	1.01	0.98	1.01	1.02	1.04	1.40	NR		3.06	2.98	3.07
	velocity	5.40	8.70	8.96	9.23	9.23	9.05	9.33	9.05	8.96	8.79	10.01	8.43		8.96	9.20	8.93

1994 Asian Games (Hiroshima, JPN)

FINAL date 15-Oct-94 wind 1.6 m/s

Yuan (1998) - Chen Yanhao analysis of 110m results

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Yanhao (CHN) (1972)	time	2.58	3.62	4.66	5.68	6.63	7.70	8.74	9.78	10.84	11.92		13.39	/ 2			
reaction time	interval		1.04	1.04	1.02	0.95	1.07	1.04	1.04	1.06	1.08	1.47	PB		3.10	3.06	3.18
	velocity	5.32	8.79	8.79	8.96	9.62	8.54	8.79	8.79	8.62	8.46	9.54	8.22		8.85	8.96	8.62

1994 Hallensportfest (Sindelfingen, GER)

FINAL date 6-Mar-94

Vazel (2020) - coaching observations

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.51	3.53	4.52	5.51	6.49		7.30	2 / 1			
reaction time	interval		1.02	0.99	0.99	0.98	0.81	WR		3.00		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
	velocity	5.47	8.96	9.23	9.23	9.33						12.00	8.22		9.14		

1993 Chinese National Games (Beijing, CHN)

FINAL date 13-Sep-93 wind -0.5 m/s

Yuan (1998) - Chen Yanhao analysis of 110m results

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Chen Yanhao (CHN) (1972)	time	2.59	3.69	4.77	5.83	6.89	7.93	8.98	10.03	11.11	12.22		13.59	/ 1			
reaction time	interval		1.10	1.08	1.06	1.06	1.04	1.05	1.05	1.08	1.11	1.37	PB		3.24	3.15	3.24
	velocity	5.30	8.31	8.46	8.62	8.62	8.79	8.70	8.70	8.46	8.23	10.23	8.09		8.46	8.70	8.46

1993 IAAF World Championships (Stuttgart, GER)

FINAL date 20-Aug-93 wind 0.5 m/s

Graubner (2009) - http://www.fgs.uni-halle.de

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.53	3.54	4.53	5.51	6.49	7.47	8.47	9.48	10.51	11.55		12.91	3 / 1			
reaction time 0.122	interval		1.01	0.99	0.98	0.98	0.98	1.00	1.01	1.03	1.04	1.36	WR		2.98	2.96	3.08
	velocity	5.42	9.05	9.23	9.33	9.33	9.33	9.14	9.05	8.87	8.79	10.31	8.52		9.20	9.26	8.90

Jarrett, Tony (GBR) (1968)	0.159	no information available		13.00	5 / 2
Pierce, Jack (USA) (1962)	0.170	no information available		13.06	6 / 3
Valle, Emilo (CUB) (1967)	0.171	no information available		13.20	2 / 4
Schwarthoff, Florian (GER) (19	0.128	no information available	*7 steps*	13.27	1 / 5
Kazanovs, Igors (LAT) (1963)	0.166	no information available		13.38	7 / 6
Koszewski, Dietmar (GER) (196	0.153	no information available		13.60	8 / 7
Dees, Tony (USA) (1963)	0.160	no information available		14.13	4 / 8

1992 Olympic Games (Barcelona, ESP)

FINAL date 03-Aug-92 wind 0.8 m/s

Knight (1992) - 1992 Olympic report: the hurdling events

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McKoy, Mark (CAN) (1961)	time	2.46	3.51	4.52	5.53	6.53	7.56	8.57	9.61	10.66	11.73		13.12	4 / 1			
reaction time 0.155	interval		1.05	1.01	1.01	1.00	1.03	1.01	1.04	1.05	1.07	1.39			3.07	3.04	3.16
	velocity	5.58	8.70	9.05	9.05	9.14	8.87	9.05	8.79	8.70	8.54	10.09	8.38		8.93	9.02	8.68
Dees, Tony (USA) (1963)	time	2.53	3.56	4.56	5.57	6.59	7.60	8.64	9.69	10.78	11.85		13.24	7 / 2			
reaction time 0.159	interval		1.03	1.00	1.01	1.02	1.01	1.04	1.05	1.09	1.07	1.39			3.04	3.07	3.21
	velocity	5.42	8.87	9.14	9.05	8.96	9.05	8.79	8.70	8.39	8.54	10.09	8.31		9.02	8.93	8.54
Pierce, Jack (USA) (1962)	time	2.60	3.66	4.69	5.70	6.75	7.78	8.81	9.84	10.89	11.92		13.26	6 / 3			
reaction time 0.173	interval		1.06	1.03	1.01	1.05	1.03	1.03	1.03	1.05	1.03	1.34			3.10	3.11	3.11
	velocity	5.28	8.62	8.87	9.05	8.70	8.87	8.87	8.87	8.70	8.87	10.46	8.30		8.85	8.82	8.82
Jarrett, Tony (GBR) (1968)	time	2.63	3.69	4.71	5.72	6.75	7.78	8.79	9.82	10.88	11.93		13.26	8 / 4			
reaction time 0.163	interval		1.06	1.02	1.01	1.03	1.03	1.01	1.03	1.06	1.05	1.33			3.09	3.07	3.14
	velocity	5.22	8.62	8.96	9.05	8.87	8.87	9.05	8.87	8.62	8.70	10.54	8.30		8.87	8.93	8.73
Schwarthoff, Florian (GER) (19	time	2.56	3.57	4.61	5.61	6.61	7.64	8.69	9.74	10.81	11.87		13.29	5 / 5			
reaction time 0.175	interval	7 steps	1.01	1.04	1.00	1.00	1.03	1.05	1.05	1.07	1.06	1.42			3.05	3.08	3.18
	velocity	5.36	9.05	8.79	9.14	9.14	8.87	8.70	8.70	8.54	8.62	9.87	8.28		8.99	8.90	8.62
Valle, Emilo (CUB) (1967)	time	2.60	3.68	4.71	5.74	6.75	7.78	8.82	9.86	10.93	12.02		13.41	2 / 6			
reaction time 0.171	interval		1.08	1.03	1.03	1.01	1.03	1.04	1.04	1.07	1.09	1.39			3.14	3.08	3.20
	velocity	5.28	8.46	8.87	8.87	9.05	8.87	8.79	8.79	8.54	8.39	10.09	8.20		8.73	8.90	8.57
Jackson, Colin (GBR) (1967)	time	2.57	3.59	4.58	5.66	6.77	7.80	8.83	9.87	10.88	11.90		13.46	3 / 7			
reaction time 0.133	interval		1.02	0.99	1.08	1.11	1.03	1.03	1.04	1.01	1.02	1.56			3.09	3.17	3.07
	velocity	5.34	8.96	9.23	8.46	8.23	8.87	8.87	8.79	9.05	8.96	8.99	8.17		8.87	8.65	8.93
Teape, Hugh (GBR) (1963)	time	2.64	3.78	4.84	5.97	6.99	8.03	9.10	10.19	11.34	12.57		14.00	1 / 8			
reaction time 0.156	interval		1.14	1.06	1.13	1.02	1.04	1.07	1.09	1.15	1.23	1.43			3.33	3.13	3.47
	velocity	5.20	8.02	8.62	8.09	8.96	8.79	8.54	8.39	7.95	7.43	9.80	7.86		8.23	8.76	7.90

1992 Fresno Relays (Fresno, CA)

Heat 1 date 04-Apr-92 wind 0.0 m/s

Wang (2009) - research of training characteristic during different stages in the development of 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Li Tong (CHN) (1967)	time	2.54	3.64	4.67	5.71	6.76	7.83	8.90	9.99	11.09	12.21		13.59	/ 1			
reaction time	interval		1.10	1.03	1.04	1.05	1.07	1.07	1.09	1.10	1.12	1.38			3.17	3.19	3.31
	velocity	5.40	8.31	8.87	8.79	8.70	8.54	8.54	8.39	8.31	8.16	10.16	8.09		8.65	8.60	8.28

1991 IAAF World Championships (Tokyo, JPN)

FINAL date 29-Aug-91 wind 0.7 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Foster, Greg (USA) (1958)	0.148	no information available											13.06	4 / 1			
Pierce, Jack (USA) (1962)	0.114	no information available											13.06	6 / 2			
Jarrett, Tony (GBR) (1968)	0.160	no information available											13.25	5 / 3			
McKoy, Mark (CAN) (1961)	0.128	no information available											13.30	3 / 4			
Philibert, Dan (FRA) (1970)	0.134	no information available											13.33	2 / 5			

Shishkin, Vladimir (URS) (1964)	0.161	no information available	7 steps	13.39	1 / 6
Schwarthoff, Florian (GER) (19	0.154	no information available	7 steps	13.41	7 / 7
Li Tong (CHN) (1967)	0.161	no information available	7 steps	13.46	8 / 8

1991 European Cup (Frankfurt, GER)

FINAL date 30-Jun-91 wind -0.9 m/s

Federle (2003) - http://www.fgs.uni-halle.de

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.55	3.61	4.64	5.66	6.69	7.72	8.75	9.79	10.83	11.89		13.31	/ 1			
reaction time	interval		1.06	1.03	1.02	1.03	1.03	1.03	1.04	1.04	1.06	1.42			3.11	3.09	3.14
	velocity	5.38	8.62	8.87	8.96	8.87	8.87	8.87	8.79	8.79	8.62	9.87	8.26		8.82	8.87	8.73
Schwarthoff, Florian (GER) (19	time	2.54	3.61	4.66	5.69	6.74	7.79	8.83	9.86	10.90	11.98		13.43	/ 2			
reaction time	interval		1.07	1.05	1.03	1.05	1.05	1.04	1.03	1.04	1.08	1.45			3.15	3.14	3.15
	velocity	5.40	8.54	8.70	8.87	8.70	8.70	8.79	8.87	8.79	8.46	9.67	8.19		8.70	8.73	8.70
Tourret, Philippe (FRA) (1967)	time	2.63	3.72	4.77	5.82	6.87	7.93	8.97	10.07	11.09	12.20		13.63	/ 3			
reaction time	interval		1.09	1.05	1.05	1.05	1.06	1.04	1.10	1.02	1.11	1.43			3.19	3.15	3.23
	velocity	5.22	8.39	8.70	8.70	8.70	8.62	8.79	8.31	8.96	8.23	9.80	8.07		8.60	8.70	8.49
Kazanov, Igor (URS) (1963)	time	2.54	3.64	4.69	5.75	6.79	7.86	8.93	9.99	11.09	12.18		13.64	/ 4			
reaction time	interval		1.10	1.05	1.06	1.04	1.07	1.07	1.06	1.10	1.09	1.46			3.21	3.18	3.25
	velocity	5.40	8.31	8.70	8.62	8.79	8.54	8.54	8.62	8.31	8.39	9.60	8.06		8.54	8.62	8.44
Kováč, Igor (TCH) (1969)	time	2.63	3.72	4.78	5.86	6.92	7.99	9.05	10.14	11.25	12.45		13.94	/ 5			
reaction time	interval		1.09	1.06	1.08	1.06	1.07	1.06	1.09	1.11	1.20	1.49			3.23	3.19	3.40
	velocity	5.22	8.39	8.62	8.46	8.62	8.54	8.62	8.39	8.23	7.62	9.41	7.89		8.49	8.60	8.06
Frigerio, Fausto (ITA) (1966)		no information available											14.03	/ 6			
Bakos, György (HUN) (1960)		no information available											14.20	/ 7			
Georgiev, Georgi (BUL) (1968)		no information available											14.21	/ 8			

1990 Asian Games (Beijing, CHN)

FINAL date 28-Sep-90 wind 2.0 m/s

Feng (1993) - an analysis of the racing technique in the entire course of the men's 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yu Zhicheng (CHN) (1963)	time	2.70	3.79	4.86	5.94	6.99	8.06	9.14	10.22	11.32	12.40		13.82	3 / 1			
reaction time	interval		1.09	1.07	1.08	1.05	1.07	1.08	1.08	1.10	1.08	1.42	=AR		3.24	3.20	3.26
	velocity	5.08	8.39	8.54	8.46	8.70	8.54	8.46	8.46	8.31	8.46	9.87	7.96		8.46	8.57	8.41

1989 IAAF World Cup (Barcelona, ESP)

FINAL date 10-Sep-89 wind 2.6 m/s

Gill (1990) - atletismo (I) carreras y marcha

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kingdom, Roger (USA) (1962)	time	2.55	3.60	4.61	5.61	6.58	7.56	8.54	9.54	10.54	11.57		12.87	9 / 1			
reaction time	interval		1.05	1.01	1.00	0.97	0.98	0.98	1.00	1.00	1.03	1.30			3.06	2.93	3.03
	velocity	5.38	8.70	9.05	9.14	9.42	9.33	9.33	9.14	9.14	8.87	10.78	8.55		8.96	9.36	9.05
Jackson, Colin (GBR) (1967)	time	2.55	3.59	4.60	5.61	6.61	7.60	8.61	9.62	10.63	11.67		12.95	4 / 2			
reaction time	interval		1.04	1.01	1.01	1.00	0.99	1.01	1.01	1.01	1.04	1.28			3.06	3.00	3.06
	velocity	5.38	8.79	9.05	9.05	9.14	9.23	9.05	9.05	9.05	8.79	10.95	8.49		8.96	9.14	8.96
Valle, Emilio (CUB) (1967)	time	2.59	3.65	4.67	5.71	6.70	7.70	8.72	9.72	10.77	11.83		13.21	5 / 3			
reaction time	interval		1.06	1.02	1.04	0.99	1.00	1.02	1.00	1.05	1.06	1.38			3.12	3.01	3.11
	velocity	5.30	8.62	8.96	8.79	9.23	9.14	8.96	9.14	8.70	8.62	10.16	8.33		8.79	9.11	8.82
Pohland, Holger (GDR) (1963)		no information available											13.50	2 / 4			
Moracho, Javier (ESP) (1957)	time	2.60	3.67	4.73	5.78	6.86	7.92	9.02	10.12	11.23	12.39		13.83	6 / 5			
reaction time	interval	7 steps	1.07	1.06	1.05	1.08	1.06	1.10	1.10	1.11	1.16	1.44			3.18	3.24	3.37
	velocity	5.28	8.54	8.62	8.70	8.46	8.62	8.31	8.31	8.23	7.88	9.74	7.95		8.62	8.46	8.14
Iwasaki, Toshikiko (JPN) (1967)		no information available											14.00	3 / 6			
Mbadugha, Ikechukwu (NGR) (1966)		no information available											14.05	8 / 7			
Caliguri, John (AUS) (1962)		no information available											14.18	1 / 8			

1988 Olympic Games (Seoul, KOR)

FINAL date 26-Sep-88 wind 1.5 m/s

Brüggemann (1990) - scientific research project at the games of the XXXIV Olympiad, Seoul 1988

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kingdom, Roger (USA) (1962)	time	2.55	3.60	4.61	5.61	6.61	7.59	8.59	9.59	10.62	11.64		12.98	4 / 1			
reaction time 0.142	interval		1.05	1.01	1.00	1.00	0.98	1.00	1.00	1.03	1.02	1.34	OR		3.06	2.98	3.05
	velocity	5.38	8.70	9.05	9.14	9.14	9.33	9.14	9.14	8.87	8.96	10.46	8.47		8.96	9.20	8.99
Jackson, Colin (GBR) (1967)	time	2.57	3.61	4.65	5.67	6.70	7.72	8.75	9.79	10.82	11.87		13.28	1 / 2			
reaction time 0.131	interval		1.04	1.04	1.02	1.03	1.02	1.03	1.04	1.03	1.05	1.41			3.10	3.08	3.12
	velocity	5.34	8.79	8.79	8.96	8.87	8.96	8.87	8.79	8.87	8.70	9.94	8.28		8.85	8.90	8.79
Campbell, Tonie (USA) (1960)	time	2.60	3.66	4.69	5.69	6.69	7.71	8.73	9.78	10.83	11.95		13.38	6 / 3			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time 0.161	interval	7 steps	1.06	1.03	1.00	1.00	1.02	1.02	1.05	1.05	1.12	1.43			3.09	3.04	3.22
	velocity		5.28	8.62	8.87	9.14	9.14	8.96	8.96	8.70	8.70	8.16	9.80	8.22	8.87	9.02	8.52
Shishkin, Vladimir (URS) (1964	time		2.57	3.63	4.67	5.71	6.74	7.79	8.83	9.87	10.96	12.06		13.51	3 / 4			
reaction time 0.139	interval	7 steps	1.06	1.04	1.04	1.03	1.05	1.04	1.04	1.09	1.10	1.45			3.14	3.12	3.23	
	velocity		5.34	8.62	8.79	8.79	8.87	8.70	8.79	8.79	8.39	8.31	9.67	8.14	8.73	8.79	8.49	
Ridgeon, Jon (GBR) (1967)	time		2.58	3.66	4.70	5.73	6.80	7.86	8.91	9.99	11.06	12.13		13.52	7 / 5			
reaction time 0.150	interval			1.08	1.04	1.03	1.07	1.06	1.05	1.08	1.07	1.07	1.39		3.15	3.18	3.22	
	velocity		5.32	8.46	8.79	8.87	8.54	8.62	8.70	8.46	8.54	8.54	10.09	8.14	8.70	8.62	8.52	
Jarrett, Tony (GBR) (1968)	time		2.58	3.65	4.73	5.77	6.84	7.89	8.93	9.99	11.05	12.15		13.54	2 / 6			
reaction time 0.164	interval			1.07	1.08	1.04	1.07	1.05	1.04	1.06	1.06	1.10	1.39		3.19	3.16	3.22	
	velocity		5.32	8.54	8.46	8.79	8.54	8.70	8.79	8.62	8.62	8.31	10.09	8.12	8.60	8.68	8.52	
McCoy, Mark (CAN) (1961)	time		2.49	3.55	4.57	5.62	6.65	7.77	8.86	9.97	11.08	12.17		13.61	8 / 7			
reaction time 0.142	interval			1.06	1.02	1.05	1.03	1.12	1.09	1.11	1.11	1.09	1.44		3.13	3.24	3.31	
	velocity		5.51	8.62	8.96	8.70	8.87	8.16	8.39	8.23	8.23	8.39	9.74	8.08	8.76	8.46	8.28	
Blake, Arthur (USA) (1966)	time		2.48	3.57	4.61	5.65	6.67	7.68	8.85	10.01	11.21	12.40		13.96	5 / 8			
reaction time 0.160	interval			1.09	1.04	1.04	1.02	1.01	1.17	1.16	1.20	1.19	1.56		3.17	3.20	3.55	
	velocity		5.53	8.39	8.79	8.79	8.96	9.05	7.81	7.88	7.62	7.68	8.99	7.88	8.65	8.57	7.72	

Semi-Final 2

date 26-Sep-88 wind -0.7 m/s

Brüggemann (1990) - scientific research project at the games of the XXXIV Olympiad, Seoul 1988

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kingdom, Roger (USA) (1962)	time	2.60	3.66	4.68	5.67	6.66	7.68	8.71	9.76	10.83	11.91		13.37	3 / 1			
reaction time 0.192	interval		1.06	1.02	0.99	0.99	1.02	1.03	1.05	1.07	1.08	1.46			3.07	3.04	3.20
	velocity	5.28	8.62	8.96	9.23	9.23	8.96	8.87	8.70	8.54	8.46	9.60	8.23		8.93	9.02	8.57
Blake, Arthur (USA) (1966)	time	2.61	3.65	4.70	5.74	6.78	7.82	8.86	9.95	11.02	12.10		13.52	4 / 2			
reaction time 0.154	interval		1.04	1.05	1.04	1.04	1.04	1.04	1.09	1.07	1.08	1.42			3.13	3.12	3.24
	velocity	5.26	8.79	8.70	8.79	8.79	8.79	8.79	8.39	8.54	8.46	9.87	8.14		8.76	8.79	8.46
McCoy, Mark (CAN) (1961)	time	2.49	3.54	4.61	5.66	6.72	7.77	8.82	9.91	10.99	12.08		13.54	5 / 3			
reaction time 0.144	interval		1.05	1.07	1.05	1.06	1.05	1.05	1.09	1.08	1.09	1.46			3.17	3.16	3.26
	velocity	5.51	8.70	8.54	8.70	8.62	8.70	8.70	8.39	8.46	8.39	9.60	8.12		8.65	8.68	8.41
Jarrett, Tony (GBR) (1968)	time	2.54	3.62	4.69	5.74	6.78	7.82	8.90	9.96	11.04	12.11		13.56	6 / 4			
reaction time 0.152	interval		1.08	1.07	1.05	1.04	1.04	1.08	1.06	1.08	1.07	1.45			3.20	3.16	3.21
	velocity	5.40	8.46	8.54	8.70	8.79	8.79	8.46	8.62	8.46	8.54	9.67	8.11		8.57	8.68	8.54
Hudec, Jiri (TCH) (1964)	time	2.56	3.64	4.68	5.74	6.78	7.82	8.90	9.99	11.11	12.23		13.73	1 / 5			
reaction time 0.158	interval		1.08	1.04	1.06	1.04	1.04	1.08	1.09	1.12	1.12	1.50			3.18	3.16	3.33
	velocity	5.36	8.46	8.79	8.62	8.79	8.79	8.46	8.39	8.16	8.16	9.35	8.01		8.62	8.68	8.23
Yu Zhicheng (CHN) (1963)	time	2.62	3.74	4.82	5.88	6.94	8.03	9.11	10.23	11.35	12.47		13.94	7 / 6			
reaction time 0.143	interval		1.12	1.08	1.06	1.06	1.09	1.08	1.12	1.12	1.12	1.47			3.26	3.23	3.36
	velocity	5.24	8.16	8.46	8.62	8.62	8.39	8.46	8.16	8.16	8.16	9.54	7.89		8.41	8.49	8.16
Tourret, Philippe (FRA) (1967)	time	2.55	3.62	4.70	5.78	6.86	7.97	9.07	10.19	11.31	12.43		13.96	8 / 7			
reaction time 0.155	interval		1.07	1.08	1.08	1.08	1.11	1.10	1.12	1.12	1.12	1.53			3.23	3.29	3.36
	velocity	5.38	8.54	8.46	8.46	8.46	8.23	8.31	8.16	8.16	8.16	9.16	7.88		8.49	8.33	8.16
Ylöstalo, Mikael (FIN) (1963)	time	2.61	3.70	4.78	5.86	6.98	8.06	9.18	10.28	11.39	12.51		14.09	2 / 8			
reaction time 0.146	interval		1.09	1.08	1.08	1.12	1.08	1.12	1.10	1.11	1.12	1.58			3.25	3.32	3.33
	velocity	5.26	8.39	8.46	8.46	8.16	8.46	8.16	8.31	8.23	8.16	8.87	7.81		8.44	8.26	8.23

Semi-Final 1

date 26-Sep-88 wind 0.0 m/s

Brüggemann (1990) - scientific research project at the games of the XXXIV Olympiad, Seoul 1988

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Shishkin, Vladimir (URS) (1964	time	2.60	3.67	4.70	5.73	6.75	7.78	8.81	9.87	10.93	12.01		13.46	5 / 1			
reaction time 0.160	interval	7 steps	1.07	1.03	1.03	1.02	1.03	1.03	1.06	1.06	1.08	1.45			3.13	3.08	3.20
	velocity	5.28	8.54	8.87	8.87	8.96	8.87	8.87	8.62	8.62	8.46	9.67	8.17		8.76	8.90	8.57
Campbell, Tonie (USA) (1960)	time	2.60	3.65	4.68	5.68	6.70	7.73	8.77	9.81	10.89	11.97		13.47	6 / 2			
reaction time 0.163	interval	7 steps	1.05	1.03	1.00	1.02	1.03	1.04	1.04	1.08	1.08	1.50			3.08	3.09	3.20
	velocity	5.28	8.70	8.87	9.14	8.96	8.87	8.79	8.79	8.46	8.46	9.35	8.17		8.90	8.87	8.57
Jackson, Colin (GBR) (1967)	time	2.58	3.69	4.73	5.74	6.78	7.81	8.85	9.89	10.97	12.05		13.55	4 / 3			
reaction time 0.137	interval		1.11	1.04	1.01	1.04	1.03	1.04	1.04	1.08	1.08	1.50			3.16	3.11	3.20
	velocity	5.32	8.23	8.79	9.05	8.79	8.87	8.79	8.79	8.46	8.46	9.35	8.12		8.68	8.82	8.57
Ridgeon, Jon (GBR) (1967)	time	2.60	3.73	4.77	5.84	6.89	7.97	9.05	10.13	11.20	12.31		13.68	1 / 4			
reaction time 0.170	interval		1.13	1.04	1.07	1.05	1.08	1.08	1.08	1.07	1.11	1.37			3.24	3.21	3.26
	velocity	5.28	8.09	8.79	8.54	8.70	8.46	8.46	8.46	8.54	8.23	10.23	8.04		8.46	8.54	8.41
Caristan, Stéphane (FRA) (196	time	2.60	3.72	4.76	5.80	6.85	7.89	8.96	10.05	11.13	12.25		13.71	3 / 5			

reaction time	0.150	interval		1.12	1.04	1.04	1.05	1.04	1.07	1.09	1.08	1.12	1.46			3.20	3.16	3.29
		velocity	5.28	8.16	8.79	8.79	8.70	8.79	8.54	8.39	8.46	8.16	9.60	8.02		8.57	8.68	8.33
Sala, Carles (ESP) (1960)		time	2.60	3.73	4.81	5.85	6.90	7.97	9.05	10.15	11.25	12.37		13.85	7 / 6			
reaction time	0.127	interval		1.13	1.08	1.04	1.05	1.07	1.08	1.10	1.10	1.12	1.48			3.25	3.20	3.32
		velocity	5.28	8.09	8.46	8.79	8.70	8.54	8.46	8.31	8.31	8.16	9.47	7.94		8.44	8.57	8.26
Cuypers, Alain (BEL) (1967)		time	2.69	3.80	4.86	5.95	7.01	8.09	9.16	10.29	11.38	12.50		13.92	8 / 7			
reaction time	0.169	interval		1.11	1.06	1.09	1.06	1.08	1.07	1.13	1.09	1.12	1.42			3.26	3.21	3.34
		velocity	5.10	8.23	8.62	8.39	8.62	8.46	8.54	8.09	8.39	8.16	9.87	7.90		8.41	8.54	8.21
Bucknor, Richard (JAM) (1966)		time	2.62	3.73	4.82	5.93	7.00	8.09	9.17	10.29	11.41	12.53		13.98	2 / 8			
reaction time	0.166	interval		1.11	1.09	1.11	1.07	1.09	1.08	1.12	1.12	1.12	1.45			3.31	3.24	3.36
		velocity	5.24	8.23	8.39	8.23	8.54	8.39	8.46	8.16	8.16	8.16	9.67	7.87		8.28	8.46	8.16

1987 Chinese National Games (Guangzhou, CHN)

Heat 1

date 28-Nov-87 wind 1.6 m/s

Wang (2009) - research of training characteristic during different stages in the development of 110m hurdles

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Yu Zhicheng (CHN) (1963)	time	2.62	3.73	4.85	5.93	6.95	7.98	9.02	10.04	11.12	12.24		13.72	/ 2			
reaction time	interval		1.11	1.12	1.08	1.02	1.03	1.04	1.02	1.08	1.12	1.48			3.31	3.09	3.22
	velocity	5.24	8.23	8.16	8.46	8.96	8.87	8.79	8.96	8.46	8.16	9.47	8.02		8.28	8.87	8.52

1987 IAAF World Championships (Rome, ITA)

FINAL

date 03-Sep-87 wind 0.5 m/s

Susanka (1988) - time analysis of the sprint hurdle events at the II World Championships in Athletics

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Foster, Greg (USA) (1958)	time	2.60	3.64	4.64	5.64	6.64	7.65	8.67	9.72	10.76	11.81		13.21	3 / 1			
reaction time	interval		1.04	1.00	1.00	1.00	1.01	1.02	1.05	1.04	1.05	1.40			3.04	3.03	3.14
	velocity	5.28	8.79	9.14	9.14	9.14	9.05	8.96	8.70	8.79	8.70	10.01	8.33		9.02	9.05	8.73
Ridgeon, Jon (GBR) (1967)	time	2.60	3.64	4.70	5.72	6.76	7.79	8.82	9.88	10.93	11.96		13.29	6 / 2			
reaction time	interval		1.04	1.06	1.02	1.04	1.03	1.03	1.06	1.05	1.03	1.33			3.12	3.10	3.14
	velocity	5.28	8.79	8.62	8.96	8.79	8.87	8.87	8.62	8.70	8.87	10.54	8.28		8.79	8.85	8.73
Jackson, Colin (GBR) (1967)	time	2.60	3.65	4.71	5.75	6.76	7.80	8.83	9.88	10.94	11.99		13.38	2 / 3			
reaction time	interval		1.05	1.06	1.04	1.01	1.04	1.03	1.05	1.06	1.05	1.39			3.15	3.08	3.16
	velocity	5.28	8.70	8.62	8.79	9.05	8.79	8.87	8.70	8.62	8.70	10.09	8.22		8.70	8.90	8.68
Pierce, Jack (USA) (1962)		no information available											13.41	5 / 4			
Kazanovs, Igors (URS) (1963)		no information available											13.48	1 / 5			
Sala, Carles (ESP) (1960)		no information available											13.55	7 / 6			
McKoy, Mark (CAN) (1961)		no information available											13.71	4 / 7			
Bryggare, Arto (FIN) (1958)													DNS	8 / --			

Semi-Final 2

date 01-Sep-87 wind -1.2 m//s

Susanka (1988) - time analysis of the sprint hurdle events at the II World Championships in Athletics

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.64	3.68	4.77	5.80	6.84	7.88	8.92	10.00	11.08	12.17		13.58	6 / 4			
reaction time	interval		1.04	1.09	1.03	1.04	1.04	1.04	1.08	1.08	1.09	1.41			3.16	3.12	3.25
	velocity	5.20	8.79	8.39	8.87	8.79	8.79	8.79	8.46	8.46	8.39	9.94	8.10		8.68	8.79	8.44

Semi-Final 1

date 01-Sep-87 wind -0.5 m/s

Susanka (1988) - time analysis of the sprint hurdle events at the II World Championships in Athletics

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ridgeon, Jon (GBR) (1967)	time	2.60	3.65	4.72	5.73	6.75	7.78	8.85	9.89	10.93	11.98		13.34	3 / 1			
reaction time	interval		1.05	1.07	1.01	1.02	1.03	1.07	1.04	1.04	1.05	1.36			3.13	3.12	3.13
	velocity	5.28	8.70	8.54	9.05	8.96	8.87	8.54	8.79	8.79	8.70	10.31	8.25		8.76	8.79	8.76
Foster, Greg (USA) (1958)	time	2.60	3.65	4.68	5.70	6.72	7.76	8.79	9.85	10.93	11.99		13.41	6 / 2			
reaction time	interval		1.05	1.03	1.02	1.02	1.04	1.03	1.06	1.08	1.06	1.42			3.10	3.09	3.20
	velocity	5.28	8.70	8.87	8.96	8.96	8.79	8.87	8.62	8.46	8.62	9.87	8.20		8.85	8.87	8.57

Heat 3

date 01-Sep-87 wind 0.2 m/s

Susanka (1988) - time analysis of the sprint hurdle events at the II World Championships in Athletics

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ridgeon, Jon (GBR) (1967)	time	2.72	3.77	4.81	5.85	6.88	7.94	8.98	10.02	11.06	12.15		13.46	/ 1			
reaction time	interval		1.05	1.04	1.04	1.03	1.06	1.04	1.04	1.04	1.09	1.31			3.13	3.13	3.17
	velocity	5.04	8.70	8.79	8.79	8.87	8.62	8.79	8.79	8.79	8.39	10.70	8.17		8.76	8.76	8.65

Heat 1

date 01-Sep-87 wind 1.4 m/s

Susanka (1988) - time analysis of the sprint hurdle events at the II World Championships in Athletics

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Foster, Greg (USA) (1958)	time	2.60	3.63	4.64	5.64	6.64	7.62	8.63	9.67	10.72	11.79		13.20	8 / 1			
reaction time	interval		1.03	1.01	1.00	1.00	0.98	1.01	1.04	1.05	1.07	1.41	CR		3.04	2.99	3.16
	velocity	5.28	8.87	9.05	9.14	9.14	9.33	9.05	8.79	8.70	8.54	9.94	8.33		9.02	9.17	8.68
Jackson, Colin (GBR) (1967)	time	2.61	3.67	4.70	5.71	6.73	7.73	8.75	9.79	10.87	11.95		13.37	7 / 2			
reaction time	interval		1.06	1.03	1.01	1.02	1.00	1.02	1.04	1.08	1.08	1.42	PB		3.10	3.04	3.20
	velocity	5.26	8.62	8.87	9.05	8.96	9.14	8.96	8.79	8.46	8.46	9.87	8.23		8.85	9.02	8.57

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

1986 European Championships (Stuttgart, GER)

FINAL

date 30-Aug-86 wind 2.0 m/s

Hommel (1988) - nsa photosequence 4 - 110m hurdles - stephane caristan (FRA)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Caristan, Stéphane (FRA) (196	time	2.59	3.62	4.63	5.62	6.63	7.66	8.66	9.72	10.76	11.86		13.20	3 / 1			
reaction time	interval		1.03	1.01	0.99	1.01	1.03	1.00	1.06	1.04	1.10	1.34	CR / NR		3.03	3.04	3.20
	velocity	5.30	8.87	9.05	9.23	9.05	8.87	9.14	8.62	8.79	8.31	10.46	8.33		9.05	9.02	8.57
Bryggare, Arto (FIN) (1958)	*7 steps*	no information available											13.42	6 / 2			
Sala, Carlos (ESP) (1960)		no information available											13.50	4 / 3			
Walker, Nigel (GBR) (1963)		no information available											13.52	5 / 4			
Oschkenat, Andreas (GDR) (1962)		no information available											13.55	2 / 5			
Ridgeon, Jonathan (GBR) (1967)		no information available											13.70	7 / 6			
Giurgian, Liviu (ROU) (1962)	*7 steps*	no information available											13.71	1 / 7			
Bakos, György (HUN) (1960)	*7 steps*	no information available											13.84	8 / 8			

Semi-Final 1

date 29-Aug-86 wind 0.9 m/s

Hommel (1988) - nsa photosequence 4 - 110m hurdles - stephane caristan (FRA)

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Caristan, Stéphane (FRA) (196	time	2.59	3.59	4.61	5.65	6.67	7.69	8.71	9.75	10.81	11.85		13.28	/ 1			
reaction time	interval		1.00	1.02	1.04	1.02	1.02	1.02	1.04	1.06	1.04	1.43	CR / NR		3.06	3.06	3.14
	velocity	5.30	9.14	8.96	8.79	8.96	8.96	8.96	8.79	8.62	8.79	9.80	8.28		8.96	8.96	8.73

1986 IAAF World Junor Championships (Athens, GRE) (1.07m)

FINAL

date 19-Jul-86 wind -0.8 m/s

Miskos (1986) - IAAF biomechanical research - Athens 1986 - hurdle races

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.58	3.63	4.68	5.70	6.71	7.79	8.83	9.90	10.98	12.07		13.44	/ 1			
reaction time	interval		1.05	1.05	1.02	1.01	1.08	1.04	1.07	1.08	1.09	1.37	CR / AJR		3.12	3.13	3.24
	velocity	5.32	8.70	8.70	8.96	9.05	8.46	8.79	8.54	8.46	8.39	10.23	8.18		8.79	8.76	8.46
Ridgeon, Jon (GBR) (1967)	time	2.62	3.73	4.79	5.89	6.93	8.04	9.14	10.24	11.33	12.49		13.91	/ 2			
reaction time	interval		1.11	1.06	1.10	1.04	1.11	1.10	1.10	1.09	1.16	1.42			3.27	3.25	3.35
	velocity	5.24	8.23	8.62	8.31	8.79	8.23	8.31	8.31	8.39	7.88	9.87	7.91		8.39	8.44	8.19
Valle, Emilio (CUB) (1967)	time	2.62	3.50	4.83	5.91	6.98	8.07	9.19	10.30	11.42	12.54		14.00	/ 3			
reaction time	interval		0.88	1.33	1.08	1.07	1.09	1.12	1.11	1.12	1.12	1.46			3.29	3.28	3.35
	velocity	5.24	10.39	6.87	8.46	8.54	8.39	8.16	8.23	8.16	8.16	9.60	7.86		8.33	8.36	8.19
Tourret, Philippe (FRA) (1967)		no information available											14.11	/ 4			
Tomaschek, Norbert (AUT) (1967)		no information available											14.43	/ 5			
Weimann, Thomas (AUT) (1967)		no information available											14.46	/ 6			
Ivashchenko, Vyacheslav (URS) (1967)		no information available											14.48	/ 7			
Ryabukhin, Mikhail (URS) (1967)		no information available											14.49	/ 8			

1986 East German National Championships (Jena, GDR)

FINAL

date 27-Jun-86 wind 1.7 m/s

Aubert (1987) - mesures et observations biomecaniques a propos des courses de haies hautes

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pohland, Holger (GDR) (1963)	time	2.61	3.66	4.68	5.71	6.76	7.81	8.88	9.94	11.03	12.12		13.56	/ 1			
reaction time	interval		1.05	1.02	1.03	1.05	1.05	1.07	1.06	1.09	1.09	1.44			3.10	3.17	3.24
	velocity	5.26	8.70	8.96	8.87	8.70	8.70	8.54	8.62	8.39	8.39	9.74	8.11		8.85	8.65	8.46
Oschkenat, Andreas (GDR) (19	time	2.62	3.68	4.73	5.76	6.82	7.88	8.95	10.01	11.10	12.17		13.63	/ 2			
reaction time	interval		1.06	1.05	1.03	1.06	1.06	1.07	1.06	1.09	1.07	1.46			3.14	3.19	3.22
	velocity	5.24	8.62	8.70	8.87	8.62	8.62	8.54	8.62	8.39	8.54	9.60	8.07		8.73	8.60	8.52
Kitz, Silvio (GDR) (1966)	time	2.62	3.74	4.84	5.95	7.06	8.17	9.29	10.40	11.51	12.66		14.12	/ 3			
reaction time	interval		1.12	1.10	1.11	1.11	1.11	1.12	1.11	1.11	1.15	1.46			3.33	3.34	3.37
	velocity	5.24	8.16	8.31	8.23	8.23	8.23	8.16	8.23	8.23	7.95	9.60	7.79		8.23	8.21	8.14

1986 French National Indoor Championship (Lievin, FRA)

FINAL

date 26-Jan-86

Aubert (1986) - indoor - video - haies, etude des performances

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Caristan, Stéphane (FRA) (196	time	2.54	3.61	4.64	5.65	6.66		7.55	/ 1			
reaction time	interval		1.07	1.03	1.01	1.01	0.89	NR		3.11		
	velocity	5.40	8.54	8.87	9.05	9.05	10.92	7.95		8.82		
Aubert, Philippe (FRA) (1957)	time	2.61	3.69	4.78	5.83	6.91		7.82	/ 2			
reaction time	interval		1.08	1.09	1.05	1.08	0.91			3.22		
	velocity	5.26	8.46	8.39	8.70	8.46	10.68	7.67		8.52		
Chaucoy, Eric (FRA) (1963)	time	2.61	3.71	4.78	5.86	6.93		7.89	/ 3			
reaction time	interval		1.10	1.07	1.08	1.07	0.96			3.25		
	velocity	5.26	8.31	8.54	8.46	8.54	10.13	7.60		8.44		
Darien, Daniel (FRA) (1961)	time	2.60	3.70	4.79	5.90	7.00		7.91	/ 4			
reaction time	interval		1.10	1.09	1.11	1.10	0.91			3.30		
	velocity	5.28	8.31	8.39	8.23	8.31	10.68	7.59		8.31		

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

Richard, Thierry (FRA) (1961)	time	2.59	3.66	4.75	5.84	7.00		8.09	/ 5		
reaction time	interval		1.07	1.09	1.09	1.16	1.09			3.25	
	velocity	5.30	8.54	8.39	8.39	7.88	8.92	7.42		8.44	
Boussemart, Pascal (FRA) (195	time	2.63	3.69	4.83	6.00	7.14		8.11	/ 6		
reaction time	interval		1.06	1.14	1.17	1.14	0.97			3.37	
	velocity	5.22	8.62	8.02	7.81	8.02	10.02	7.40		8.14	

Semi-Final

date 26-Jan-86

Aubert (1986) - indoor - video - haies, etude des performances

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Caristan, Stéphane (FRA) (196	time	2.63	3.68	4.72	5.73	6.76		7.65	/ 1			
reaction time	interval		1.05	1.04	1.01	1.03	0.89			3.10		
	velocity	5.22	8.70	8.79	9.05	8.87	10.92	7.84		8.85		
Aubert, Philippe (FRA) (1957)	time	2.66	3.75	4.79	5.86	6.95		7.86	/ 2			
reaction time	interval		1.09	1.04	1.07	1.09	0.91			3.20		
	velocity	5.16	8.39	8.79	8.54	8.39	10.68	7.63		8.57		
Chaucoy, Eric (FRA) (1963)	time	2.61	3.72	4.78	5.84	6.93		7.87	/ 3			
reaction time	interval		1.11	1.06	1.06	1.09	0.94			3.23		
	velocity	5.26	8.23	8.62	8.62	8.39	10.34	7.62		8.49		
Darien, Daniel (FRA) (1961)	time	2.67	3.76	4.85	5.95	7.04		7.94	/ 4			
reaction time	interval		1.09	1.09	1.10	1.09	0.90			3.28		
	velocity	5.14	8.39	8.39	8.31	8.39	10.80	7.56		8.36		
Richard, Thierry (FRA) (1961)	time	2.68	3.78	4.85	5.93	7.07		7.82	/ 5			
reaction time	interval		1.10	1.07	1.08	1.14	0.75			3.25		
	velocity	5.12	8.31	8.54	8.46	8.02	12.96	7.67		8.44		
Boussemart, Pascal (FRA) (195	time	2.62	3.73	4.83	5.93	7.02		7.94	/ 6			
reaction time	interval		1.11	1.10	1.10	1.09	0.92			3.31		
	velocity	5.24	8.23	8.31	8.31	8.39	10.57	7.56		8.28		
Paviowicz, Piotr (POL)	time	2.68	3.79	4.89	5.97	7.10		8.00	/ 1			
reaction time	interval		1.11	1.10	1.08	1.13	0.90			3.29		
	velocity	5.12	8.23	8.31	8.46	8.09	10.80	7.50		8.33		
Chevallier, Franck (FRA) (1964)	time	2.72	3.82	4.95	6.05	7.14		8.08	/ 2			
reaction time	interval		1.10	1.13	1.10	1.09	0.94			3.33		
	velocity	5.04	8.31	8.09	8.31	8.39	10.34	7.43		8.23		
Clarico, Vincent (FRA) (1966)	time	2.64	3.76	4.86	5.99	7.09		8.03	/ 3			
reaction time	interval		1.12	1.10	1.13	1.10	0.94			3.35		
	velocity	5.20	8.16	8.31	8.09	8.31	10.34	7.47		8.19		
St. Gilles, Olivier (FRA)	time	2.68	3.81	4.90	5.98	7.07		8.03	/ 4			
reaction time	interval		1.13	1.09	1.08	1.09	0.96			3.30		
	velocity	5.12	8.09	8.39	8.46	8.39	10.13	7.47		8.31		
Gabriel, G. (christian?)	time	2.66	3.76	4.91	6.01	7.10		8.08	/ 5			
reaction time	interval		1.10	1.15	1.10	1.09	0.98			3.35		
	velocity	5.16	8.31	7.95	8.31	8.39	9.92	7.43		8.19		
Vesin, Yannick (FRA)	no information available											

Heats

date 25-Jan-86

Aubert (1986) - indoor - video - haies, etude des performances

		H1	H2	H3	H4	H5	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Caristan, Stéphane (FRA) (196	time	2.58	3.68	4.72	5.78	6.81		7.69	/ 1			
reaction time	interval		1.10	1.04	1.06	1.03	0.88			3.20		
	velocity	5.32	8.31	8.79	8.62	8.87	11.05	7.80		8.57		
Boussemart, Pascal (FRA) (195	time	2.64	3.75	4.83	5.91	6.98		7.94	/ 6			
reaction time	interval		1.11	1.08	1.08	1.07	0.96			3.27		
	velocity	5.20	8.23	8.46	8.46	8.54	10.13	7.56		8.39		
Paviowicz, Piotr (POL)	time	2.75	3.88	5.00	6.08	7.20		8.06	/ 1			
reaction time	interval		1.13	1.12	1.08	1.12	0.86			3.33		
	velocity	4.99	8.09	8.16	8.46	8.16	11.30	7.44		8.23		
Chevallier, Franck (FRA) (1964)	time	2.67	3.77	4.88	5.98	7.08		8.05	/ 2			
reaction time	interval		1.10	1.11	1.10	1.10	0.97			3.31		
	velocity	5.14	8.31	8.23	8.31	8.31	10.02	7.45		8.28		
Clarico, Vincent (FRA) (1966)	time	2.62	3.76	4.88	6.01	7.12		8.08	/ 3			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time	interval		1.14	1.12	1.13	1.11					0.96			3.39	
	velocity	5.24	8.02	8.16	8.09	8.23					10.13	7.43		8.09	
St. Gilles, Olivier (FRA) (1963)	time	2.78	3.90	5.02	6.10	7.20						8.07	/ 4		
reaction time	interval		1.12	1.12	1.08	1.10					0.87			3.32	
	velocity	4.94	8.16	8.16	8.46	8.31					11.17	7.43		8.26	
Gabriel, G.	time	2.70	3.85	4.98	6.08	7.24						8.16	/ 5		
reaction time	interval		1.15	1.13	1.10	1.16					0.92			3.38	
	velocity	5.08	7.95	8.09	8.31	7.88					10.57	7.35		8.11	
Vésin, Yannick (FRA) (1954)	time	2.64	3.78	4.88	5.95	7.07						8.06	/ 6		
reaction time	interval		1.14	1.10	1.07	1.12					0.99			3.31	
	velocity	5.20	8.02	8.31	8.54	8.16					9.82	7.44		8.28	
Gonigam, Philippe (FRA) (1963	time	2.72	3.84	4.96	6.07	7.20						8.18	/ 5		
reaction time	interval		1.12	1.12	1.11	1.13					0.98			3.35	
	velocity	5.04	8.16	8.16	8.23	8.09					9.92	7.33		8.19	
Viala, Didier (FRA)	time	2.69	3.82	4.94	6.08	7.22						8.19	/ 6		
reaction time	interval		1.13	1.12	1.14	1.14					0.97			3.39	
	velocity	5.10	8.09	8.16	8.02	8.02					10.02	7.33		8.09	

1985 European Junior Championships (Cottbus, GDR) (99cm)

FINAL

date 23-Aug-85 wind 1.8 m/s *Warburton (1985) - 1985 european junior championships - hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ridgeon, Johathan (GBR) (196	time	2.32	3.39	4.40	5.39	6.42	7.46	8.53	9.60	10.65	11.72		13.46	/ 1			
reaction time	interval		1.07	1.01	0.99	1.03	1.04	1.07	1.07	1.05	1.07	1.74	PB		3.07	3.14	3.19
	velocity	5.91	8.54	9.05	9.23	8.87	8.79	8.54	8.54	8.70	8.54	8.06	8.17		8.93	8.73	8.60
Jackson, Colin (GBR) (1967)	time	2.32	3.41	4.44	5.51	6.57	7.63	8.69	9.76	10.87	11.96		13.69	/ 2			
reaction time	interval		1.09	1.03	1.07	1.06	1.06	1.06	1.07	1.11	1.09	1.73			3.19	3.18	3.27
	velocity	5.91	8.39	8.87	8.54	8.62	8.62	8.62	8.54	8.23	8.39	8.10	8.04		8.60	8.62	8.39

Semi-Final 2

date 23-Aug-85 wind -0.8 m/s *Warburton (1985) - 1985 european junior championships - hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.42	3.51	4.57	5.64	6.70	7.73	8.86	9.91	11.00	12.13		14.05	/ 1			
reaction time	interval		1.09	1.06	1.07	1.06	1.03	1.13	1.05	1.09	1.13	1.92			3.22	3.22	3.27
	velocity	5.67	8.39	8.62	8.54	8.62	8.87	8.09	8.70	8.39	8.09	7.30	7.83		8.52	8.52	8.39

Semi-Final 1

date 23-Aug-85 wind 1.1 m/s *Warburton (1985) - 1985 european junior championships - hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ridgeon, Johathan (GBR) (196	time	2.41	3.54	4.55	5.65	6.65	7.76	8.83	9.89	10.89	12.02		13.75	/ 1			
reaction time	interval		1.13	1.01	1.10	1.00	1.11	1.07	1.06	1.00	1.13	1.73			3.24	3.18	3.19
	velocity	5.69	8.09	9.05	8.31	9.14	8.23	8.54	8.62	9.14	8.09	8.10	8.00		8.46	8.62	8.60

Heat 3

date 23-Aug-85 wind 1.9 m/s *Warburton (1985) - 1985 european junior championships - hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Ridgeon, Johathan (GBR) (196	time	2.47	3.52	4.58	5.70	6.75	7.82	8.89	10.05	11.09	12.23		14.09	/ 1			
reaction time	interval		1.05	1.06	1.12	1.05	1.07	1.07	1.16	1.04	1.14	1.86			3.23	3.19	3.34
	velocity	5.55	8.70	8.62	8.16	8.70	8.54	8.54	7.88	8.79	8.02	7.54	7.81		8.49	8.60	8.21

Heat 2

date 23-Aug-85 wind 1.7 m/s *Warburton (1985) - 1985 european junior championships - hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jackson, Colin (GBR) (1967)	time	2.32	3.40	4.47	5.51	6.62	7.74	8.82	9.88	10.94	12.08		13.97	/ 1			
reaction time	interval		1.08	1.07	1.04	1.11	1.12	1.08	1.06	1.06	1.14	1.89			3.19	3.31	3.26
	velocity	5.91	8.46	8.54	8.79	8.23	8.16	8.46	8.62	8.62	8.02	7.42	7.87		8.60	8.28	8.41

1984 Olympic Games (Los Angeles, CA)

FINAL

date 06-Aug-84 wind -0.4 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kingdom, Roger (USA) (1962)	0.137	no information available										OR	13.20	8 / 1			
Foster, Greg (USA) (1958)	0.150	no information available											13.23	1 / 2			
Bryggare, Arto (FIN) (1958)	0.136	no information available				7 steps							13.40	2 / 3			
McKoy, Mark (CAN) (1961)	0.149	no information available											13.45	3 / 4			
Campbell, Tonie (USA) (1960)	0.144	no information available				7 steps							13.55	7 / 5			
Caristan, Stéphane (FRA) (196	0.151	no information available											13.71	6 / 6			
Sala, Carlos (ESP) (1960)	0.159	no information available											13.80	4 / 7			
Glass, Jeff (CAN) (1962)	0.170	no information available											14.15	5 / 8			

1983 IAAF World Championships (Helsinki, FIN)

FINAL

date 12-Aug-83 wind 1.3 m/s *Knoke (1984) - the hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Foster, Greg (USA) (1958)	time	2.58	3.68	4.62	5.62	6.61	7.61	8.60	9.61	10.68	11.81		13.42	5 / 1			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

reaction time 0.191	interval		1.10	0.94	1.00	0.99	1.00	0.99	1.01	1.07	1.13	1.61			3.04	2.98	3.21
	velocity	5.32	8.31	9.72	9.14	9.23	9.14	9.23	9.05	8.54	8.09	8.71	8.20		9.02	9.20	8.54
Bryggare, Arto (FIN) (1958)	time	2.53	3.67	4.63	5.62	6.67	7.67	8.81	9.82	10.87	11.95		13.46	7 / 2			
reaction time 0.159	interval	7 steps	1.14	0.96	0.99	1.05	1.00	1.14	1.01	1.05	1.08	1.51			3.09	3.19	3.14
	velocity	5.42	8.02	9.52	9.23	8.70	9.14	8.02	9.05	8.70	8.46	9.28	8.17		8.87	8.60	8.73
Gault, Willie (USA) (1960)	time	2.54	3.57	4.64	5.69	6.72	7.74	8.78	9.83	10.97	12.05		13.48	8 / 3			
reaction time 0.161	interval		1.03	1.07	1.05	1.03	1.02	1.04	1.05	1.14	1.08	1.43			3.15	3.09	3.27
	velocity	5.40	8.87	8.54	8.70	8.87	8.96	8.79	8.70	8.02	8.46	9.80	8.16		8.70	8.87	8.39
McKoy, Mark (CAN) (1961) 0.132	no information available												13.56	2 / 4			
Munkelt, Thomas (GDR) (1952)	no information available												13.66	4 / 5			
Bakos, György (HUN) (1960)	no information available					7 steps							13.68	1 / 6			
Radev, Ventsislav (BUL) (1961)	no information available					7 steps							13.73	6 / 7			
Turner, Sam (USA) (1957)	no information available					7 steps							13.82	3 / 8			

Semi-Final 2

date 12-Aug-83 wind -0.7 m/s — *Knoke (1984) - the hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wright, Don (AUS) (1959)	time	2.66	3.82	4.96	5.98	7.04	8.42	9.57	10.58	11.72	12.88		14.28	3 / 7			
reaction time	interval		1.16	1.14	1.02	1.06	1.38	1.15	1.01	1.14	1.16	1.40			3.32	3.59	3.31
	velocity	5.16	7.88	8.02	8.96	8.62	6.62	7.95	9.05	8.02	7.88	10.01	7.70		8.26	7.64	8.28

Heat 4

date 11-Aug-83 wind 2.1 m/s — *Knoke (1984) - the hurdles*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Wright, Don (AUS) (1959)	time	2.55	3.68	4.77	5.75	6.81	7.82	9.00	10.04	11.10	12.19		13.70	/ 2			
reaction time	interval		1.13	1.09	0.98	1.06	1.01	1.18	1.04	1.06	1.09	1.51			3.20	3.25	3.19
	velocity	5.38	8.09	8.39	9.33	8.62	9.05	7.75	8.79	8.62	8.39	9.28	8.03		8.57	8.44	8.60

1982 European Championships (Athens, GRE)

FINAL

date 11-Sep-82 wind -0.9 m/s — *Heß (1985) - entwicklungsaspekte die leichtathletischen sprint-/hürdendisziplinen im olympiazyklus 1981/84*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Munkelt, Thomas (GDR) (1952)	time	2.58		4.70		6.77		8.84			11.98		13.41	/ 1			
reaction time	interval			2.12		2.07		2.07			3.14	1.43					3.14
	velocity	5.32		8.62		8.83		8.83			8.73	9.80	8.20				8.73
Prokofyev, Andrey (URS) (1959	time	2.56		4.64		6.72		8.81			12.01		13.46	/ 2			
reaction time	interval			2.08		2.08		2.09			3.20	1.45	PB				3.20
	velocity	5.36		8.79		8.79		8.75			8.57	9.67	8.17				8.57

1981 International Abendsportfest (Koblenz, FRG)

FINAL

date 26-Aug-81 wind 0.0 m/s — *Heß (1985) - entwicklungsaspekte die leichtathletischen sprint-/hürdendisziplinen im olympiazyklus 1981/84*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Nehemiah, Renaldo (USA) (195	time	2.50		4.53		6.54		8.54			11.63		13.04	/ 1			
reaction time	interval			2.03		2.01		2.00			3.09	1.41					3.09
	velocity	5.49		9.00		9.09		9.14			8.87	9.94	8.44				8.87

1981 USSR vs. USA (Leningrad, URS)

FINAL

date 10-Jul-81 wind 2.8 m/s — *Chanon (1987) - analyse comparee des caracteristiques des courses de 100m haies et 110m haies*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Foster, Greg (USA) (1958)	time	2.48	3.58	4.60	5.61	6.62	7.67	8.72	9.82	10.92	12.02		13.30	/ 1			
reaction time	interval		1.10	1.02	1.01	1.01	1.05	1.05	1.10	1.10	1.10	1.28			3.13	3.11	3.30
	velocity	5.53	8.31	8.96	9.05	9.05	8.70	8.70	8.31	8.31	8.31	10.95	8.27		8.76	8.82	8.31
Cowling, Larry (USA) (1960)	time	2.48	3.59	4.62	5.65	6.68	7.75	8.82	9.94	11.06	12.21		13.53	/ 2			
reaction time	interval		1.11	1.03	1.03	1.03	1.07	1.07	1.12	1.12	1.15	1.32			3.17	3.17	3.39
	velocity	5.53	8.23	8.87	8.87	8.87	8.54	8.54	8.16	8.16	7.95	10.62	8.13		8.65	8.65	8.09
Chervanyev, Yuriy (URS) (1958	time	2.50	3.61	4.65	5.68	6.72	7.78	8.87	10.00	11.17	12.42		13.74	/ 3			
reaction time	interval		1.11	1.04	1.03	1.04	1.06	1.09	1.13	1.17	1.25	1.32			3.18	3.19	3.55
	velocity	5.49	8.23	8.79	8.87	8.79	8.62	8.39	8.09	7.81	7.31	10.62	8.01		8.62	8.60	7.72
Shabanov, Georgiy (URS) (196	time	2.50	3.61	4.66	5.69	6.74	7.80	8.90	10.06	11.24	12.49		13.81	/ 4			
reaction time	interval		1.11	1.05	1.03	1.05	1.06	1.10	1.16	1.18	1.25	1.32			3.19	3.21	3.59
	velocity	5.49	8.23	8.70	8.87	8.70	8.62	8.31	7.88	7.75	7.31	10.62	7.97		8.60	8.54	7.64

1981 USSR vs. GDR (Tbilisi, URS)

FINAL

date 26-Jun-81 wind ??? — *Chanon (1987) - analyse comparee des caracteristiques des courses de 100m haies et 110m haies*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Munkelt, Thomas (GDR) (1952)	time	2.56	3.59	4.75	5.78	6.81	7.86	8.94	10.00	11.14	12.32		13.69	/ 1			
reaction time	interval		1.03	1.16	1.03	1.03	1.05	1.08	1.06	1.14	1.18	1.37			3.22	3.16	3.38
	velocity	5.36	8.87	7.88	8.87	8.87	8.70	8.46	8.62	8.02	7.75	10.23	8.04		8.52	8.68	8.11
Shabanov, Georgiy (URS) (196	time	2.48	3.61	4.69	5.72	6.74	7.81	8.90	10.00	11.20	12.44		13.82	/ 2			

reaction time	interval		1.13	1.08	1.03	1.02	1.07	1.09	1.10	1.20	1.24	1.38			3.24	3.18	3.54
	velocity	5.53	8.09	8.46	8.87	8.96	8.54	8.39	8.31	7.62	7.37	10.16	7.96		8.46	8.62	7.75
Chervanyev, Yuriy (URS) (1958	time	2.49	3.62	4.71	5.73	6.75	7.82	8.96	10.12	11.30	12.56		13.93	/ 3			
reaction time	interval		1.13	1.09	1.02	1.02	1.07	1.14	1.16	1.18	1.26	1.37			3.24	3.23	3.60
	velocity	5.51	8.09	8.39	8.96	8.96	8.54	8.02	7.88	7.75	7.25	10.23	7.90		8.46	8.49	7.62
Dittrich, Thomas (GDR) (1954)	time	2.50	3.65	4.78	5.80	6.82	7.89	9.04	10.19	11.39	12.64		13.94	/ 4			
reaction time	interval		1.15	1.13	1.02	1.02	1.07	1.15	1.15	1.20	1.25	1.30			3.30	3.24	3.60
	velocity	5.49	7.95	8.09	8.96	8.96	8.54	7.95	7.95	7.62	7.31	10.78	7.89		8.31	8.46	7.62

1980 Olympic Games (Moscow, URS)

FINAL

date 27-Jul-80 wind 0.9 m/s

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Munkelt, Thomas (GDR) (1952)	0.129	no information available											13.39	3 / 1			
Casañas, Alejandro (CUB) (195	0.144	no information available											13.40	6 / 2			
Puchkov, Aleksandr (URS) (19	0.145	no information available											13.44	4 / 3			
Prokofyev, Andrey (URS) (1959	0.145	no information available				7 steps							13.49	5 / 4			
Pusty, Jan (POL) (1952)	0.149	no information available				7 steps							13.68	1 / 5			
Bryggare, Arto (FIN) (1958)	1.750	no information available				7 steps							13.76	2 / 6			
Moracho, Javier (ESP) (1957)	0.151	no information available											13.78	8 / 7			
Chervanyev, Yuriy (URS) (1958	0.166	no information available				7 steps							15.80	7 / 8			

1976 Olympic Games (Montreal, CAN)

Tepper (1978) - Analyse der traininsgestaltung und leistungsentwicklung in den sprintdisziplinen der M und F der DVfL

FINAL

date 28-Jul-76 wind 0.0 m/s

Ewen (1977) - montreal 1976

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Drut, Guy (FRA) (1950)	time	2.5	3.5	4.6	5.6	6.6	7.6	8.7	9.7	10.7	11.8		13.30	5 / 1			*Ewen (1977)*
reaction time	interval		1.0	1.1	1.0	1.0	1.0	1.1	1.0	1.0	1.1	1.5			3.10	3.10	3.10
	velocity	5.49	9.14	8.31	9.14	9.14	9.14	8.31	9.14	9.14	8.31	9.35	8.27		8.85	8.85	8.85
Casañas, Alejandro (CUB) (195	time	2.6	3.6	4.7	5.7	6.8	7.8	8.8	9.8	10.9	11.9		13.33	7 / 2			*Ewen (1977)*
reaction time	interval		1.0	1.1	1.0	1.1	1.0	1.0	1.0	1.1	1.0	1.4	PB		3.10	3.10	3.10
	velocity	5.28	9.14	8.31	9.14	8.31	9.14	9.14	9.14	8.31	9.14	9.80	8.25		8.85	8.85	8.85
Davenport, Willie (USA) (1943)	time	2.6	3.6	4.6	5.7	6.7	7.7	8.8	9.8	10.9	11.9		13.38	3 / 3			*Ewen (1977)*
reaction time	interval		1.0	1.0	1.1	1.0	1.0	1.1	1.0	1.1	1.0	1.5			3.10	3.10	3.10
	velocity	5.28	9.14	9.14	8.31	9.14	9.14	8.31	9.14	8.31	9.14	9.47	8.22		8.85	8.85	8.85
Foster, Charles (USA) (1953)		no information available											13.41	6 / 4			
Munkelt, Thomas (GDR) (1952)	time	2.59	3.67	4.73	5.75	6.77	7.83	8.87	9.91	10.97	12.04		13.44	1 / 5			*Tepper (1978)*
reaction time	interval	7 steps	1.08	1.06	1.02	1.02	1.06	1.04	1.04	1.06	1.07	1.40	PB		3.16	3.12	3.17
	velocity	5.30	8.46	8.62	8.96	8.96	8.62	8.79	8.79	8.62	8.54	10.01	8.18		8.68	8.79	8.65
Owens, James (USA) (1955)		no information available											13.73	4 / 6			
Kulebyakin, Vyacheslav (URS) (1950)		no information available											13.93	8 / 7			
Myasnikov, Victor (URS) (1948)		no information available											13.94	2 / 8			

Heat 3

date 26-Jul-76 wind 0.0 m/s

Lamare (1976) - les jeux de la XXI olympia, Montreal 1976

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Munkelt, Thomas (GDR) (1952)	time	2.3			5.5	6.6							13.69	1 / 1			
reaction time	interval	7 steps			3.22	1.12									3.22		
	velocity	6.04			8.52	8.16							8.04		8.52		

Heat 2

date 26-Jul-76 wind 0.0 m/s

Lamare (1976) - les jeux de la XXI olympia, Montreal 1976

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Casañas, Alejandro (CUB) (195	time	2.3			5.5	6.6							13.73	1 / 2			
reaction time	interval				3.18	1.08									3.18		
	velocity	5.97			8.62	8.46							8.01		8.62		

Heat 1

date 26-Jul-76 wind 0.0 m/s

Lamare (1976) - les jeux de la XXI olympia, Montreal 1976

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Foster, Charles (USA) (1953)	time	2.4			5.5	6.6							13.68	6 / 1			
reaction time	interval				3.15	1.07									3.15		
	velocity	5.84			8.70	8.54							8.04		8.70		

1975 International "Pravda" Sportfest (Sotschi, URS)

FINAL

date 30-May-75 wind -0.2 m/s

Artyschenko (1977) - zwischen den hürden geht es um die sekunde, teil 1

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Myasnikov, Viktor (URS) (1948)	time	2.4	3.5	4.6	5.7	6.8	7.8	8.9	9.9	11.0	12.1		13.7	/ 1			
reaction time	interval		1.06	1.10	1.16	1.04	1.04	1.10	1.04	1.04	1.10	1.62			3.32	3.18	3.18
	velocity	5.72	8.62	8.31	7.88	8.79	8.79	8.31	8.79	8.79	8.31	8.65	8.03		8.26	8.62	8.62
Kulebyakin, Vyacheslav (URS)	time	2.2	3.3	4.5	5.6	6.6	7.7	8.8	9.9	11.0	12.1		13.8	/ 2			
reaction time	interval		1.10	1.16	1.09	1.05	1.07	1.09	1.13	1.06	1.09	1.73			3.35	3.21	3.28

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

	velocity	6.15	8.31	7.88	8.39	8.70	8.54	8.39	8.09	8.62	8.39	8.10	7.97		8.19	8.54	8.36
Moshiashvili, Anatoliy (URS) (1	time	2.2	3.2	4.4	5.5	6.7	7.8	8.9	10.1	11.2			dnf	/ --			
reaction time	interval		1.07	1.13	1.17	1.13	1.13	1.13	1.15	1.15					3.37	3.39	
	velocity	6.35	8.54	8.09	7.81	8.09	8.09	8.09	7.95	7.95					8.14	8.09	

Heat ??

date 30-May-75 wind ??? — Artyschenko (1977) - zwischen den hürden geht es um die sekunde, teil 1

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kulebyakin, Vyacheslav (URS) (	time	2.4	3.33	4.49	5.58	6.63	7.70	8.79	9.92	10.98	12.07		13.6	???			
reaction time	interval		1.14	1.12	1.12	1.10	1.08	1.12	1.14	1.16	1.22	1.52			3.18	3.21	3.28
	velocity	5.72	8.02	8.16	8.16	8.31	8.46	8.16	8.02	7.88	7.49	9.22	8.09		8.62	8.54	8.36

1972 Olympic Games (Munich, GER)

Letzelter (1977) - Hurdensprint: geschwindigkeitsverlauf und spezielle eigenschaften

FINAL

date 07-Sep-72 wind 0.3 m/s — *Kay (1972) - BAAB Munich Technical Report*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Milburn, Rodney (USA) (1950)	time	2.5	3.5	4.5	5.6	6.6	7.6	8.6	9.6	10.6	11.7		13.24	5 / 1			*Kay (1972)*
reaction time	interval		1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.54	WR		3.10	3.00	3.10
	velocity	5.49	9.14	9.14	8.31	9.14	9.14	9.14	9.14	9.14	8.31	9.10	8.31		8.85	9.14	8.85
Drut, Guy (FRA) (1950)	time	2.5	3.6	4.6	5.6	6.6	7.7	8.7	9.7	10.7	11.8		13.34	8 / 2			*Kay (1972)*
reaction time	interval		1.1	1.0	1.0	1.0	1.1	1.0	1.0	1.0	1.1	1.54			3.10	3.10	3.10
	velocity	5.49	8.31	9.14	9.14	9.14	8.31	9.14	9.14	9.14	8.31	9.10	8.25		8.85	8.85	8.85
Hill, Thomas (USA) (1949)	time	2.5	3.5	4.6	5.6	6.6	7.6	8.7	9.8	10.9	12.0		13.48	7 / 3			*Kay (1972)*
reaction time	interval		1.0	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.48			3.10	3.10	3.30
	velocity	5.49	9.14	8.31	9.14	9.14	9.14	8.31	8.31	8.31	8.31	9.47	8.16		8.85	8.85	8.31
Davenport, Willie (USA) (1943)	time	2.5	3.5	4.6	5.6	6.6	7.6	8.7	9.8	10.9	11.9		13.50	1 / 4			*Kay (1972)*
reaction time	interval		1.0	1.1	1.0	1.0	1.0	1.1	1.1	1.1	1.0	1.60			3.10	3.10	3.20
	velocity	5.49	9.14	8.31	9.14	9.14	9.14	8.31	8.31	8.31	9.14	8.76	8.15		8.85	8.85	8.57
Siebeck, Frank (GDR) (1949)	time	2.5	3.6	4.6	5.6	6.7	7.8	8.9	9.9	11.1	12.2		13.71	6 / 5			*Kay (1972)*
reaction time	interval	7 steps	1.1	1.0	1.0	1.1	1.1	1.1	1.0	1.2	1.1	1.51			3.10	3.30	3.30
	velocity	5.49	8.31	9.14	9.14	8.31	8.31	8.31	9.14	7.62	8.31	9.28	8.02		8.85	8.31	8.31
Wodzynski, Leszek (POL) (1946)	no information available												13.72	3 / 6			
Nádenicek, Lubomir (TCH) (19	time	2.5			5.7								13.76	2 / 7			*Letzelter (1977)*
reaction time	interval				3.2										3.20		
	velocity	5.60			8.57								7.99		8.57		
Cech, Petr (TCH) (1944)	no information available												13.86	4 / 8			

Heat 4

date 03-Sep-72 wind 0.9 m/s — *Letzelter (1977) - Hurdensprint: geschwindigkeitsverlauf und spezielle eigenschaften*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
McDonald, Rich (CAN) (1949)	time	2.5			5.8								14.36	8 / 3			
reaction time	interval				3.3										3.32		
	velocity	5.44			8.26								7.66		8.26		
Tørring, Jesper (DEN) (1947)	time	2.6			6.0								14.50	1 / 5			
reaction time	interval				3.4										3.38		
	velocity	5.34			8.11								7.59		8.11		

Heat 3

date 03-Sep-72 wind -1.6 m/s — *Letzelter (1977) - Hurdensprint: geschwindigkeitsverlauf und spezielle eigenschaften*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Pascoe, Alan (GBR) (1947)	time	2.5			5.8								14.08	3 / 3			
reaction time	interval				3.3										3.26		
	velocity	5.51			8.41								7.81		8.41		

1970 Commonwealth Games (Edinburgh, GBR)

FINAL

date 18-Jul-70 wind 2.9 m/s — *LeMasurier (1972) - track speed- hurdles, sprints, and relays*

		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Hemery, David (GBR) (1944)	time	2.55	3.65	4.65	5.70	6.75	7.80	8.85	9.90	11.00	12.10	*(13.66)*	13.6	1 / 1			
reaction time	interval		1.10	1.00	1.05	1.05	1.05	1.05	1.05	1.10	1.10	1.50			3.15	3.15	3.25
	velocity	5.38	8.31	9.14	8.70	8.70	8.70	8.70	8.70	8.31	8.31	9.35	8.09		8.70	8.70	8.44

Baird, Malcolm (AUS) (1948)	no information available	13.8	4 / 2
Murray, Godfrey (JAM) (1950)	no information available	14.0	3 / 3
Neeland, George (CAN)	no information available	14.2	5 / 4
Donnelly, Brian (CAN)	no information available	14.2	7 / 5
Macdonald, Richard (CAN) (1949)	no information available	14.4	2 / 6
Ohene-Frempong, Kwaku (GHA)	no information available	14.7	6 / 7
Pascoe, Alan (GBR) (1947)	no information available	dnf	8 / 8

1968 Olympic Games (Mexico City, MEX)

FINAL date 17-Oct-68 wind 0.0 m/s

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Davenport, Willie (USA) (1943)	no information available										=OR	13.3	4 / 1	(13.33)		
Hall, Ervin (USA) (1947)	no information available											13.4	6 / 2	(13.42)		
Ottoz, Eddy (ITA) (1944)	no information available											13.4	3 / 3	(13.46)		
Coleman, Leon (USA) (1944)	no information available											13.6	7 / 4	(13.67)		
Trzmiel, Werner (FRG) (1942)	no information available											13.6	1 / 5	(13.68)		
Forssander, Bo (SWE) (1942)	no information available											13.7	2 / 6	(13.73)		
Duriez, Marcel (FRA) (1940)	no information available											13.7	8 / 7	(13.77)		
Schoebel, Pierre (FRA) (1942)	no information available											14.0	7 / 8	(14.02)		

1964 Olympic Games (Tokyo, JPN)

FINAL date 18-Oct-64 wind 2.0 m/s

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Jones, Hayes (USA) (1938)	no information available											13.6	6 / 1	(13.67)		
Lindgren, Blaine (USA) (1939)	no information available											13.7	1 / 2	(13.74)		
Mikhailov, Anatoliy (URS) (1936)	no information available											13.7	8 / 3	(13.78)		
Ottoz, Eddy (ITA) (1944)	no information available											13.8	3 / 4	(13.84)		
Singh, Gurbachan (IND) (1939)	no information available											14.0	4 / 5	(14.09)		
Duriez, Marcel (FRA) (1940)	no information available											14.0	5 / 6	(14.09)		
Cornacchia, Giovanni (ITA) (1939)	no information available											14.1	7 / 7	(14.12)		
Mazza, Giorgio (ITA) (1939)	no information available											14.1	2 / 8	(14.17)		

1960 Olympic Games (Rome, ITA)

FINAL date 05-Sep-60 wind 0.0 m/s

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Calhoun, Lee (USA) (1933)	no information available											13.8	2 / 1	(13.98)		
May, Willie (USA) (1936)	no information available											13.8	1 / 2	(13.99)		
Jones, Hayes (USA) (1938)	no information available											14.0	6 / 3	(14.17)		
Lauer, Martin (EUA/FRG) (1937)	no information available											14.0	3 / 4	(14.20)		
Gardner, Keith (BWI) (1929)	no information available											14.4	4 / 5	(14.55)		
Chistyakov, Valentin (URS) (1939)	no information available											14.6	6 / 5	(14.71)		

1956 Olympic Games (Melbourne, AUS)

FINAL date 26-Nov-56 wind -1.9 m/s

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Calhoun, Lee (USA) (1933)	no information available										OR	13.5	4 / 1	(13.70)		
Davis, Jack (USA) (1930)	no information available										OR	13.5	7 / 2	(13.73)		
Shankle, Joel (USA) (1933)	no information available											14.1	3 / 3	(14.25)		
Lauer, Martin (EUA/FRG) (1937)	no information available											14.5	8 / 4	(14.67)		
Lorger, Stanko (YUG) (1931)	no information available											14.5	5 / 5	(14.68)		
Stolyarov, Boris (URS) (1932)	no information available											14.6	6 / 6	(14.71)		

1952 Olympic Games (Helsinki, FIN)

FINAL date 24-Jul-52 wind *legal*

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Dillard, Harrison (USA) (1923)	no information available										OR	13.7	4 / 1	(13.91)		
Davis, Jack (USA) (1930)	no information available										OR	13.7	1 / 2	(14.00)		
Barnard, Arthur (USA) (1929)	no information available											14.1	5 / 3	(14.40)		
Bulanchik, Yevgeniy (URS) (1922)	no information available											14.5	2 / 4	(14.73)		
Doubleday, Ken (AUS) (1926)	no information available											14.7	3 / 5	(14.82)		
Weinberg, Ray (AUS) (1929)	no information available											14.8	6 / 6	(15.15)		

1948 Olympic Games (London, GBR)

FINAL date 04-Aug-48 wind *against*

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Porter, William (USA) (1926)	no information available										OR	13.9	3 / 1			
Scott, Clyde (USA) (1924)	no information available											14.1	7 / 2			
Dixon, Craig (USA) (1926)	no information available											14.1	2 / 3			
Triulzi, Alberto (ARG) (1928)	no information available												5 / 4			
Gardner, Peter (AUS) (1925)	no information available												6 / 5			
Linman, Håkan (SWE) (1915)	no information available												4 / 6			

1936 Olympic Games (Berlin, GER)

FINAL date 06-Aug-36 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Towns, Forrest (USA) (1914)	no information available											14.2	3 / 1			
Finlay, Don (GBR) (1909)	no information available											14.4	2 / 2			
Pollard, Frederick (USA) (1915)	no information available											14.4	7 / 3			
Linman, Håkan (SWE) (1915)	no information available											14.4	4 / 4			
Thornton, John (GBR) (1911)	no information available											14.7	5 / 5			
O'Connor, Larry (CAN) (1916)	no information available											15.0	6 / 6			

WR=World Rec. AR=Area Rec. OR=Olympic Rec. CR=Championship Rec. NR=National Rec. PB=Personal Best DQ=Disqualified DV=Drug Violation

1932 Olympic Games (Los Angeles, CA)

FINAL date 03-Aug-32 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Saling, George (USA) (1909)	no information available											14.6	5 / 1	(14.57)		
Beard, Percy (USA) (1908)	no information available											14.7	2 / 2	(14.72)		
Finlay, Don (GBR) (1909)	no information available											14.8	3 / 3	(14.79)		
Keller, Jack (USA) (1911)	no information available											14.8	7 / 4	(14.83)		
Burghley, Lord David (GBR) (1905)	no information available											14.8	6 / 5	(14.84)		
Welscher, Willi (GER) (1906)	no information available						*(knocked down 4 hurdles)*				DQ	15.3e	4 / ~~6~~			

1928 Olympic Games (Amsterdam, NED)

FINAL date 01-Aug-28 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Atkinson, Sydney (RSA) (1901)	no information available											14.8	3 / 1			
Anderson, Stephen (USA) (1906)	no information available											14.8e	4 / 2			
Collier, John (USA) (1907)	no information available											14.9e	2 / 3			
Dye, Leighton (USA) (1901)	no information available											15.0e	6 / 4			
Weightman-Smith, George (RSA) (1905)	no information available											15.0e	1 / 5			
Gaby, Fred (GBR) (1895)	no information available											15.2e	5 / 6			

1924 Olympic Games (Paris, FRA)

FINAL date 09-Jul-24 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kinsey, Daniel (USA) (1902	no information available											15.0	5 / 1			
Atkinson, Sydney (RSA) (1901)	no information available											15.0	4 / 2			
Guthrie, George (USA) (1904)	no information available						*(knocked down 3 hurdles)*				DQ	15.1	1 / ~~3~~			
Pettersson, Sten-Pelle (SWE) (1902)	no information available											15.4	6 / ~~4~~ 3			
Christiernsson, Carl-Axel (SWE) (1898)	no information available											15.5	3 / ~~5~~ 4			
Anderson, Karl (USA) (1900)	no information available												2 / ~~6~~ 5			

1920 Olympic Games (Antwerp, BEL)

FINAL date 18-Aug-20 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Thomson, Earl (CAN) (1895)	no information available										WR	14.8	6 / 1			
Barron, Harold (USA) (1894)	no information available											15.0e	1 / 2			
Murray, Frederick (USA) (1894)	no information available											15.2e	4 / 3			
Wilson, Harry (NZL) (1896)	no information available											15.2e	2 / 4			
Smith, Walker (USA) (1896)	no information available											15.3e	5 / 5			
Christiernsson, Carl-Axel (SWE) (1898)	no information available											15.5e	3 / 6			

1912 Olympic Games (Stockholm, SWE)

FINAL date 12-Jul-12 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kelly, Fred (USA) (1891)	no information available											15.1	5 / 1			
Wendell, James (USA) (1890)	no information available											15.2	2 / 2			
Hawkins, Martin (USA) (1888)	no information available											15.3	6 / 3			
Case, John (USA) (1889)	no information available											15.3	1 / 4			
Powell, Kenneth (GBR) (1885)	no information available											15.5	3 / 5			
Nicholson, John (USA) (1889)	no information available											dnf	4 / --			

1908 Olympic Games (London, GBR) (587yd Track)

FINAL date 25-Jul-08 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Smithson, Forrest (USA) (1884)	no information available										WR	15.0	2 / 1			
Garrels, John (USA) (1885)	no information available											15.7e	1 / 2			
Shaw, Arthur (USA) (1886)	no information available											15.8e	4 / 3			
Rand, William (USA) (1886)	no information available											16.0e	3 / 4			

1906 Intercalated Games (Athens, GRE)

FINAL date 01-May-06 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Leavitt, Robert (USA) (1883)	no information available											16.2	2 / 1			
Healey, Alfred (GBR) (1879)	no information available											16.2e	4 / 2			
Duncker, Vincent (RSA) (1884)	no information available											16.3e	3 / 3			
Friend, Hugo (USA) (1882)	no information available											16.4e	1 / 4			
Molinié, Henri (FRA) (1874)	no information available												5 / 5			

1904 Olympic Games (St. Louis, MO)

FINAL date 03-Sep-04 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Schule, Fred (USA) (1879)	no information available											16.0	4 / 1			
Shideler, Thaddeus (USA) (1883)	no information available											16.2e	1 / 2			
Ashburner, Lesley (USA) (1883)	no information available											16.4e	2 / 3			

Castleman, Frank (USA) (1877) no information available 3 / 4

1900 Olympic Games (Paris, FRA) (500m Grass Track)

FINAL date 07-Jul-00 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Kraenzlein, Alvin (USA) (1876)	no information available										OR	15.4				
McLean, John (USA) (1878)	no information available											15.8e				
Moloney, Frederick (USA) (1882)	no information available											15.9e				
Lécuyer, Jean (FRA) (1876)	no information available															
Pritchard, Norman (GBR) (1875)	no information available											dnf				

1896 Olympic Games (Athens, GRE) (333.33m Track)

FINAL date 07-Apr-96 wind

	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	Run-In	Official Time	Lane / Place	H1-H4	H4-H7	H7-H10
Curtis, Thomas (USA) (1873)	no information available										OR	17.6				
Goulding, Grantley (GBR) (1874)	no information available											17.7e				

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