

Preliminary Analysis of the Men's Discus Final



The Competition

IAAF
World Championships

London
4-13 August 2017



RESULTS



Discus Throw Men - Final

RECORDS	RESULT	NAME	COUNTRY	AGE	VENUE	DATE
World Record WR	74.06	Jürgen SCHULT	GDR	26	Neubrandenburg (Jahn Sportpark)	6 Jun 1986
Championships Record CR	70.17	Virgilijus ALEKNA	LTU	33	Helsinki (Olympic Stadium)	7 Aug 2005
World Leading WL	71.29	Daniel STÄHL	SWE	25	Sollentuna	29 Jun 2017
Area Record AR		National Record NR		Personal Best PB		Season Best SB

5 August 2017 19:27 START TIME 19° C 49%
 TEMPERATURE HUMIDITY
 20:28 END TIME 20° C 46%

PLACE	NAME	COUNTRY	DATE of BIRTH	ORDER	RESULT	1	2	3	ORDER	4	5	6
1	Andrius GUDŽIUS	LTU	14 Feb 91	3	69.21 PB	67.52	69.21	63.43	8	X	63.98	67.89
2	Daniel STÄHL	SWE	27 Aug 92	2	69.19	X	69.19	66.58	7	68.57	X	63.06
3	Mason FINLEY	USA	7 Oct 90	1	68.03 PB	67.07	68.03	65.21	6	37.36	66.59	X
4	Fedrick DACRES	JAM	28 Feb 94	11	65.83	65.62	65.70	X	5	65.83	64.41	64.67
5	Piotr MALACHOWSKI	POL	7 Jun 83	12	65.24	63.96	65.14	64.88	4	X	65.24	63.92
6	Robert HARTING	GER	18 Oct 84	7	65.10	65.10	X	64.75	3	X	X	X
7	Robert URBANEK	POL	29 Apr 87	9	64.15	61.93	64.15	63.91	2	64.14	X	63.46
8	Traves SMIKLE	JAM	7 May 92	6	64.04	63.64	64.04	X	1	62.28	X	63.37
9	Lukas WEISSHAIDINGER	AUT	20 Feb 92	10	63.76	63.76	62.75	X				
10	Apostolos PARELLIS	CYP	24 Jul 85	5	63.17	62.18	63.17	X				
11	Simon PETTERSSON	SWE	3 Jan 94	8	60.39	55.58	60.39	X				
12	Gerd KANTER	EST	6 May 79	4	60.00	59.72	60.00	X				

All of the medal winning throws came in succession at the start of round 2 with the lead changing hands in 3 consecutive throws.

Two of the top 4 set lifetime best performances in the competition.

	Performance in Final	SB	% of SB	PB	% of PB
Gudzius	69.21	68.61	101.0	68.61	101.0
Stahl	69.19	71.29	97.1	71.29	97.1
Finley	68.03	65.48	103.9	66.72	102.0
Dacres	65.83	68.88	95.6	68.88	95.6

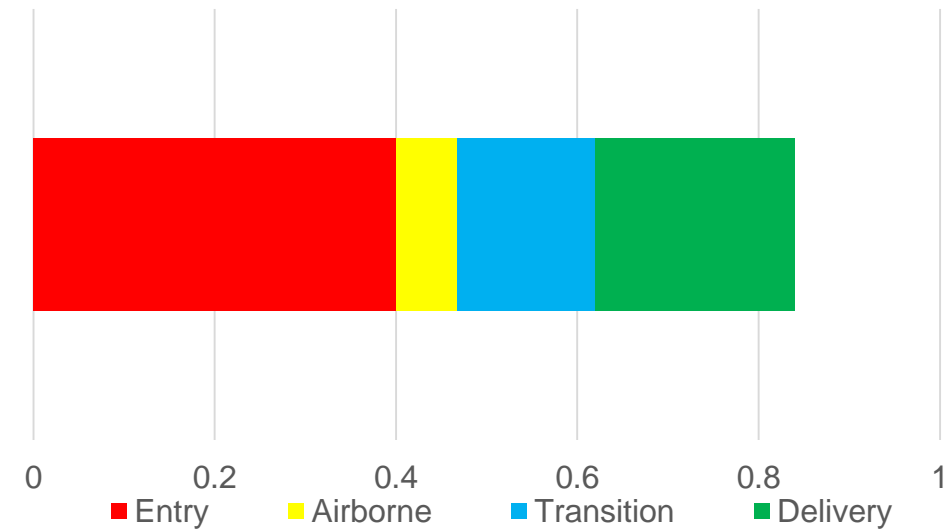
Brief Data Capture Details

- Three high speed digital video cameras were placed in the stands around the stadium to record data for 3D motion analysis. The cameras recorded at 150 frames per second.
- All three attempts of each athlete were recorded during the initial round. Each attempt of the eight athletes during the final round was also recorded for subsequent biomechanical analysis.
- For the purposes of this flash report, **only selected variables** have been included while a more detailed report is being prepared.
- These variables were selected from the best attempts of the top four athletes during the competition.

Fourth Place Throw



Phase Analysis of Discus Throw

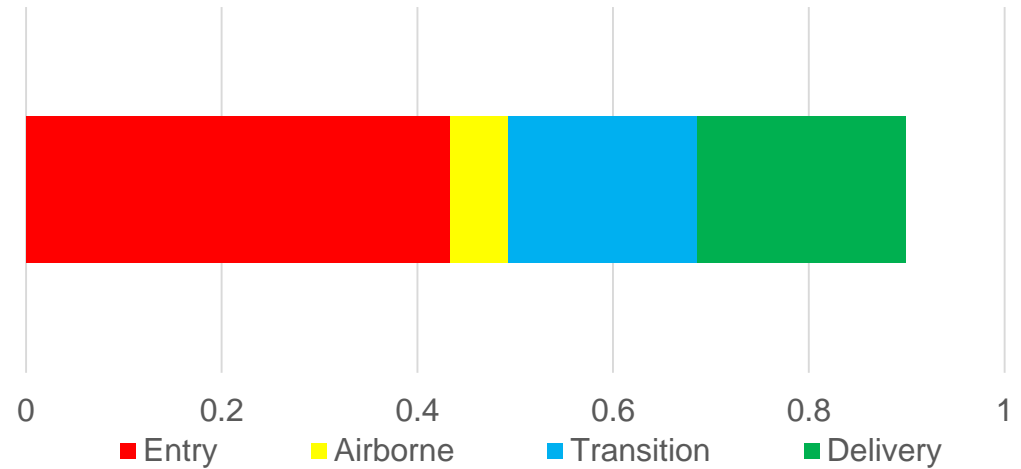


	Throw Distance (m)	Release Velocity (m/s)	Angle of Release (°)	Release Height (m)	Aero (%)
Fedrick Dacres	65.83	23.40	37.17	1.68	15.1

Bronze Medal Throw



Phase Analysis of Discus Throw

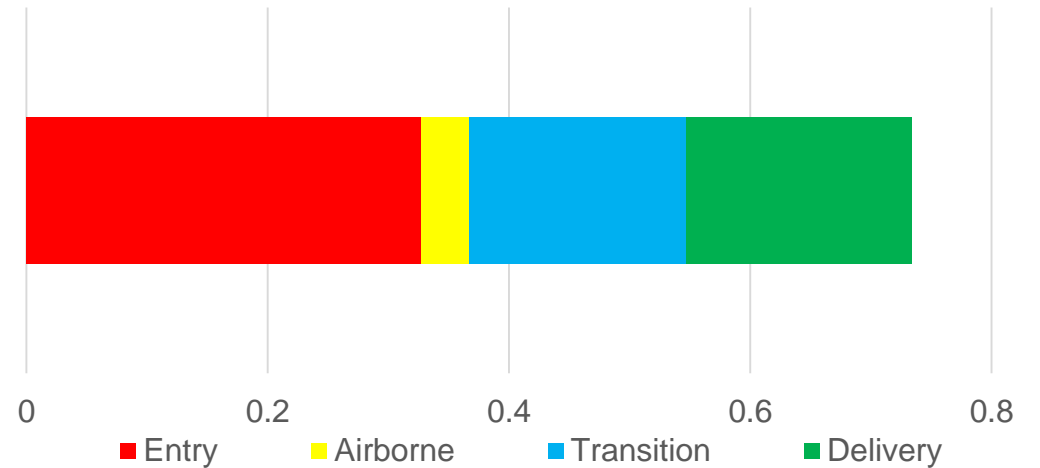


	Throw Distance (m)	Release Velocity (m/s)	Angle of Release (°)	Release Height (m)	Aero (%)
Mason Finley	68.03	23.59	37.74	1.63	16.3

Silver Medal Throw



Phase Analysis of Discus Throw

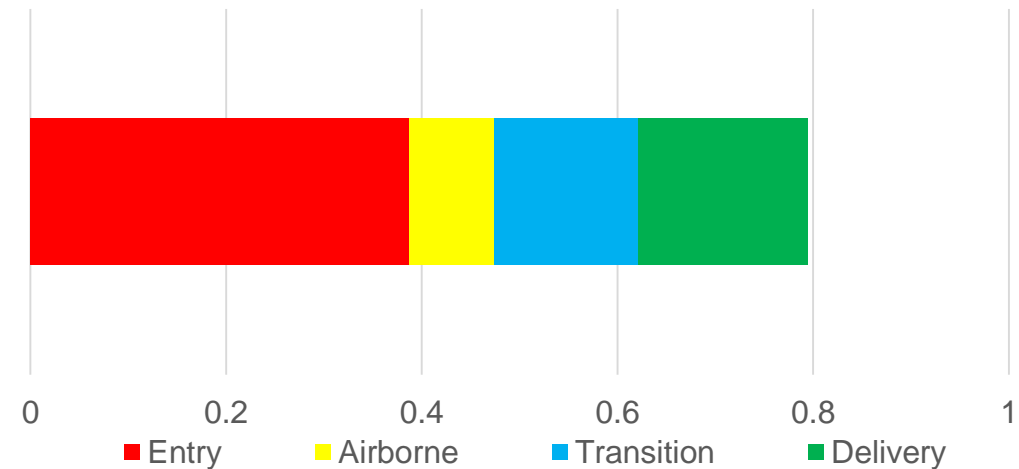


	Throw Distance (m)	Release Velocity (m/s)	Angle of Release (°)	Release Height (m)	Aero (%)
Daniel Stahl	69.19	23.97	38.90	1.65	14.4

Gold Medal Throw



Phase Analysis of Discus Throw



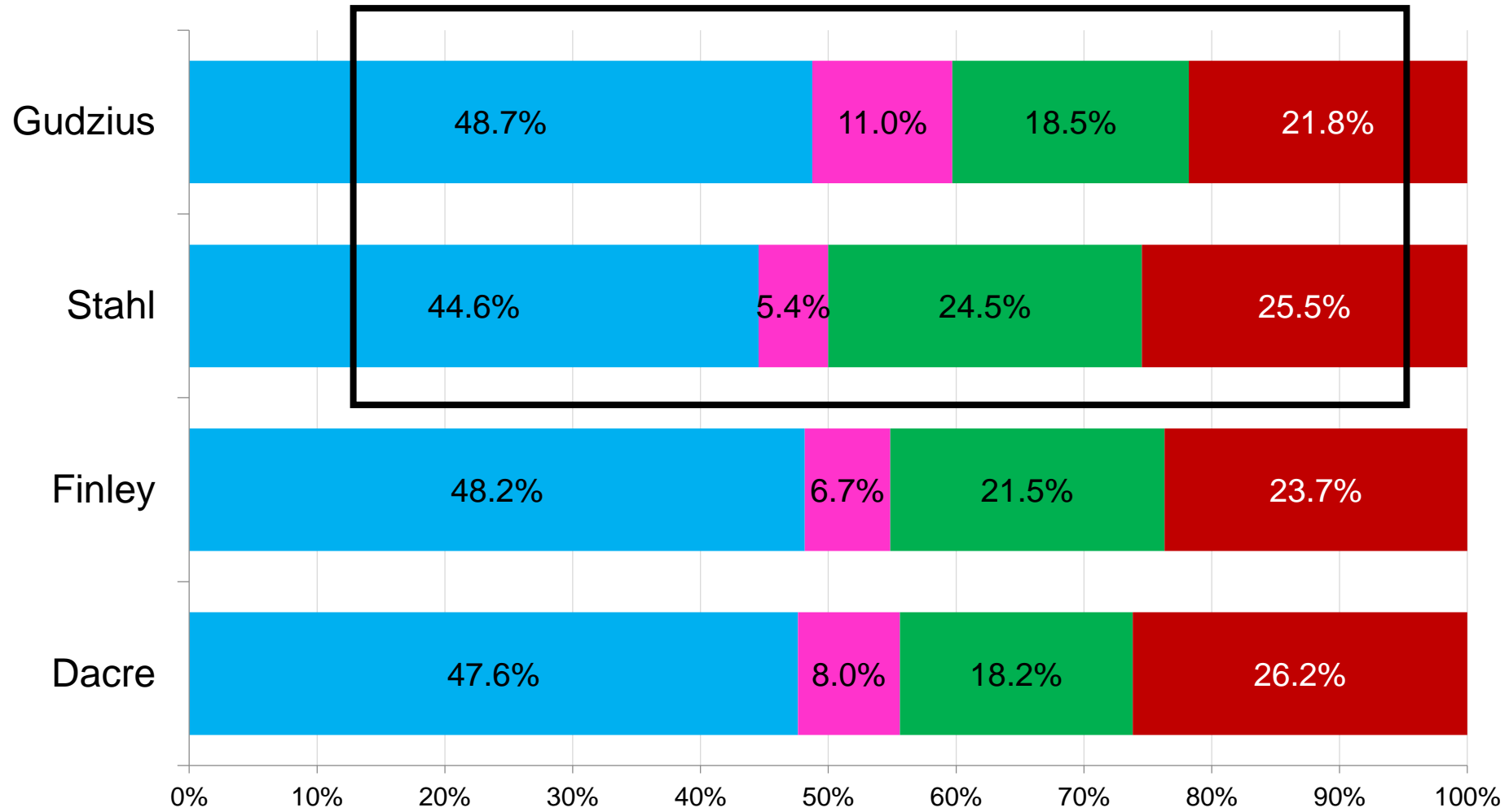
	Throw Distance (m)	Release Velocity (m/s)	Angle of Release (°)	Release Height (m)	Aero (%)
Andrius Gudzius	69.21	24.07	38.08	1.73	14.1

Phase Analysis



	Entry (ms)	Airborne (ms)	Transition (ms)	Delivery (ms)
Gudzius	387	87	147	173
Stahl	327	40	180	187
Finley	433	60	193	213
Dacre	400	67	153	220

Relative Phase Analysis



Release Parameters

	Release Velocity (m/s)	Angle of Release (°)	Release Height (m)	Aero (%)
Gudzius	24.07	38.08	1.73	14.1
Stahl	23.97	38.90	1.65	14.4
Finley	23.59	37.74	1.63	16.3
Dacre	23.40	37.17	1.68	15.1

*Aero (%): Aerodynamic quality – *difference between measured distance and theoretical distance according to the parabolic equation* [Badura (2010) NSA, IAAF, 25:3/4; pp. 23-35].

Coaching Implications

- Despite a longer airborne phase and shorter delivery phase for Gudzius, these data highlight that different techniques (Gudzius vs. Stahl) produce similar performance outcomes.
- However, the total duration of the throw for both gold and silver medallists was noticeably shorter (<800ms) than the other two athletes included within the report. This indicates the paramount importance of the explosiveness required to perform a successful throw.
- The importance of release velocity is highlighted by its alignment to the distances thrown. Therefore, its development should remain central to any discus training intervention.