Sports **2015**, *3*, 103-115; doi:10.3390/sports3020103

OPEN ACCESS

sports

ISSN 2075-4663

www.mdpi.com/journal/sports

Article

An Overview of the Running Performance of Athletes with Lower-Limb Amputation at the Paralympic Games 2004–2012

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Academic Editor: Eling Douwe de Bruin

Received: 16 February 2015 / Accepted: 3 June 2015 / Published: 16 June 2015

Abstract: This paper analyses the performances of lower-limb amputees in the 100, 200 and 400 m running events from the 2004, 2008 and 2012 Paralympic Games. In this paper, four hypotheses are pursued. In the first, it investigates whether the running performance of lower-limb amputees over three consecutive Paralympic Games has changed. In the second, it asks whether a bi-lateral amputee has a competitive advantage over a uni-lateral amputee. In the third, the effect of blade classification has been considered and we attempt to see whether amputees in various classifications have different level of performance. Finally, it is considered whether the final round of competition obtains different levels of performance in comparison to the qualification heats. Based on the outcomes of these investigations, it is proposed that future amputee-based running events should be undertaken with separate and not combined events for the T42, T43 and T44 classifications at the Paralympic Games.

Keywords: running; paralympic games; bi-lateral amputee; athletes

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1. Introduction

Athletes who possess some level of disability have participated in competitive sports for over a century. However it was not until after the Second World War that the first formalised sports event for the disabled people took place. This was initially based in Stoke Mandeville in the UK and eventually directly influenced what has subsequently become known as the Paralympic Games from 1960 [1]. These games currently take place every four years [2] at the same venue as the Olympic Games. Athletics forms a key part of the Paralympic Games programme and attracts the largest number of spectators [3]. Structured competition involving running with a lower-limb amputation has taken place consistently since 1976 [4].

If an amputee with a lower-limb amputation wishes to compete in running competition within the Paralympic Games, they are assessed for their physical functionality [5] and then typically allocated into one of three race classifications [6]. These event classifications are defined as:

T42: a single (uni-lateral) above knee (trans-femoral) amputee or athlete with other impairments that is comparable to a single above knee amputation.

T43: double (bi-lateral) below knee (trans-tibial) amputees and other athletes with impairments that are comparable to a double below knee amputation.

T44: an athlete with a below knee lower limb impairment/s that meets minimum disability criteria for: lower limb deficiency; impaired lower limb; impaired lower limb muscle power; or leg length difference.

It should be noted that during the Paralympic Games that have been analysed in this study, the T43 category has been combined with the T44 category in the male running events. This has been mainly been due to the low participation numbers in the T43 category. The governing body has traditionally decided to combine this classification with the T44 category. This combined category is still referred to as 'T44' as it comprises more of these types of athletes.

Competing when using running specific lower-limb prostheses has not been without some level of controversy. For example, in 2008 it was proposed that a lower-limb bi-lateral amputee could have a performance advantage when compared to their able-bodied equivalent due to some level of performance enhancement from their prostheses [7]. Additionally, due to fundamental functional differences, it was proposed that the T43 and T44 should be separated in competition—despite this not currently being the case [4]. As a result, the aim of this paper is to address and reinforce some of the issues that may surround the diversity of athletes that will compete in the typical classifications at the Paralympic Games in recent editions. Four hypotheses are posed:

(1) The performance of athletes with an amputation within the current format of athlete classification has changed from 2004 to 2012.
(2) The number of prosthetic limbs being used by an athlete has an impact on race results when running specific prostheses are used.
(3) The athletes in different classifications will have the same level of performance.
(4) The final round of running competition at the Paralympic Games in each classification has the same level of performance as their qualification rounds.

2. Methodology

The race results from the 100, 200 and 400 m form the basis of a statistical analysis of the 2012 (London), 2008 (Beijing) and the 2004 (Athens) Paralympics Games. These results are located within the public domain and are extracted from the official website of the sport's governing body [8]. This data includes the name, ranking and country of representation, as well as the performance of each athlete. The number of prosthetic lower-limbs that each athlete may have used was derived from the athlete's biography and/or online photographic evidence [8]. The raw data is included in Appendix 1 and 2. While Appendix 1, gives some detailed information for 2012 results, the Appendix 2, represents the information for 2004 and 2008 Paralympic Games in the running event.

As the main purpose of this report is about identifying the differences between two or more groups, the ANOVA test was used as the best statistical tool to address the four hypotheses. The homogeneity test (whether different groups have the same level of variation between them or not) and normality are the two key assumptions when using the ANOVA test [9]. After creating the data sets for each research question, both the normality and homogeneity tests were undertaken. If both of these two key assumptions were satisfied *within* and *between* groups, the ANOVA test was then used in order to address each research hypotheses. If any of these assumptions were not then satisfied, the Kruskal-Wallis test was used instead of ANOVA. The Kruska-Wallis test is a non-parametric test which is not sensitive to normality [10].

3. Analysis

3.1. Hypothesis 1: The Performance of Athletes with an Amputation within the Current Format of Athlete Classification Has Changed from 2004 to 2012.

The answer to this question is primarily addressed in Table 1. In Table 1, the first column ("category") clarifies which specific category analysis was undertaken. The second column ("N") represents the whole sample size and the numbers in parentheses represent the sample size in each year (2004, 2008 and 2012). The third and fourth columns illustrate the *p* value of homogeneity and normality tests in each group. The fifth and sixed columns represent the results of *p* value for ANOVA or Kruskal-Wallis test (where relevant).

Table 1. A comparison on the performance of amputees in 100 m in 2004, 2008, and 2012.

Category	N	Homogeneity	Normality	ANOVA	Kruskal-Wallis
100 m-T42	31(20,5,6)	0.97	1.18×10^{-5}	-	0.46
100 m-T44	67(28,19,20)	0.21	0.04	-	0.36
100 m-all	98(48,24,26)	0.05, 0.05, 0.24	0.74	0.49	-
200 m-T44	64(26,18,20)	0.48	0.21, 0.01	-	0.69
200 m-all	80(35,18,27)	0.24	0.01	-	0.18
400 m-T44	41(19,6,16)	0.04	0.96, 0.64, 0.43	-	0.08

In Table 1, the *p* value of the ANOVA and Kruskal-Wallis tests are all above 5%. Therefore, we can conclude that with adopting a 95% confidence interval, no statistical difference was identified between these three groups (2004, 2008 and 2012). This means that the posed hypothesis was incorrect and based upon the statistical analysis here, it is proposed that the running performance of the amputees from 2004 till 2012 did not change significantly.

3.2. Hypothesis 2: The Number of Prosthetic Limbs Being Used by an Athlete Has an Impact on Race Results

The race-based data was categorized in three different groups. The first group comprises amputees who use just one prosthetic limb. The second group contains amputees who use two prosthetic limbs and the third comprises those who run without prosthetic limbs at all (but due to their functionality, compete in the same classification). In order to detect any differences in the mean completion time of the event, either the ANOVA or the Kruskal-Wallis Test were then applied as appropriate.

In Table 2, the Kruskal-Wallis test did not identify any significant difference regarding the effect of the number of blades with a 5% significance level in either the 100 or 200 m. However, in the 400 and 200 m T44 event, the test identified a significant difference between three groups at a 5% significance level. Alternatively, this finding could also be interpreted as when the distance of the competition gets longer (400 m), the number of prostheses used ultimately affects the results of the event. In order to answer which group in particular has any advantage when compared to other groups, further analysis is required. In order to address this issue, the Tukey *post hoc* test was applied. Tables 3 and 4 represents the results of this test for 400 m and 200 m-T44.

Table 2. The effect of number of blades.

Category	*N*	Homogeneity	Normality	Kruskal-Wallis
100 m-T42-All	31(3,25,3)	0.19	1.88×10^{-5}	0.48
100 m-T44-All	66(13,49,4)	0.28	0.01, 0.25	0.06
200 m-T42-All	15(2,11,2)	0.06	0.66	0.79
200 m-T44-All	64(14,47,3)	0.63	0.03, 0.00	0.01
400 m-T44-all	41(11,27,3)	0.70	0.80, 0.41	0.00

Table 3. Tukey *post hoc* test for 200 m-T44.

Category		Mean Difference	Std. Error	Sig.
1 blade	2 blade	1.57 *	0.38	0.00
	0 blade	−0.03	0.74	0.99
2 blade	1 blade	−1.57 *	0.38	0.00
	0 blade	−1.60	0.80	0.12
0 blade	1 blade	0.03	0.74	0.99
	2 blade	1.60	0.80	0.12

* indicates 5% significance level.

As the sample size in the group possessing no prosthetic limbs is so small (2), we cannot make any robust conclusions from it and instead focus on the results of the other groups. In Table 5 it is demonstrated that there is a statistically significant difference between the results of people who run with 1 blade or 2 blades ($p = 0.00$). Based on the descriptive data for these two groups (22.7 s for 2 blade and 24.27 s for 1 blades), it is proposed that those who are bi-lateral lower-limb amputees have a competitive advantage compared to those who are uni-lateral. It is worth noting that although the normality test in this category was calculated as negative (and that we cannot use *post hoc* test in this case), at least applying that test gives an indication as to where any difference is. Table 4 represents the results of Tukey Post Hoc Test for 400 m competition.

Table 4. Tukey *post hoc* test for 400 m.

Category		Mean difference	Std. error	Sig.
0 blade	1 blade	−0.38	1.35	0.96
	2 blade	3.28	1.45	0.07
1 blade	0 blade	0.38	1.35	0.96
	2 blade	3.65 *	0.80	0.00
2 blade	0 blade	−3.28	1.45	0.07
	1 blade	−3.65 *	0.80	0.00

* indicates 5% significance level.

Table 5. Effect of classification.

Category	*N*	Homogeneity	Normality	Kruskal-Wallis
100 m				
T42/Final-T44/Final	41(18,23)	0.44	0.26, 0.04	6.06×10^{-7}
T42/All-T44/All	99(32,67)	0.36	0.00, 0.02	6.06×10^{-7}
200 m				
T42/Final-T44/Final	37(15,22)	0.17	0.85, 0.11	0.00
T42/all-T44/all	79(15,64)	0.18	0.85, 0.01	2.52×10^{-7}

The results of the Tukey *post hoc* Test indicate a statistically significant difference between the groups who use two blades when compared to the two other groups. By considering the mean time of the race completion by these groups (50.86 s for 2 prostheses, 54.51 s for 1 prostheses and 54.14 s for no prostheses) it is proposed that historically, when racing over 400 m, runners who have used two prosthetic lower-limbs may have had an advantage compared to other groups who had only one (or none).

The results of this analysis supports the posed hypotheses and indicates that, from a statistical perspective, bi-lateral amputees participating in the T44 events in either the 200 m and the 400 m distances, demonstrate better running performance when compared to other types of T44 participants (such as the T43 classification). This finding is supported by published research when evaluating such athletes *physiologically* [11] or as a *mechanical system* [12]. In a study commissioned by the sport's governing body (the IAAF), a bilateral amputee world record holder utilized 25% less energy compared to able-bodied athletes when running at the same speed over the 400 m distance [11]. It was also proposed that when a sinusoidal input is matched to an energy storage and return prostheses, it can make the prostheses susceptible to resonance. Theoretically, if this impulse could be synchronised with the frequency of a humans running effort, it could result in the storage (and then recovery) of a substantial amount of energy in the system therefore offering a degree of performance enhancement [13].

3.3. Hypothesis 3: Athletes Racing in Different Classifications Will Have the Same Level of Performance

The length of any amputated residual limb (such as above-knee or below-knee) could be considered as a factor which could affect the results of competition in running exercise. As it was mentioned earlier, in order to have a fair competition in Paralympic games, athletes are placed in different classifications based upon their functionality. This section of the paper compares the results of athletes who participate in the T42 category with those who participate in the T44 classification. The results are illustrated in Tables 5 and 6.

As in all cases *p* value is below 5%, there is a statistically significant difference between the T42 and T44 classifications. The descriptive analysis related to these two classifications is shown in Table 6.

Table 6. Descriptive data for T42 and T44.

Category	T42 mean (s)	T44 mean (s)
100 m		
T42/Final-T44/Final	13.05	11.52
T42/All-T44/All	13.15	11.84
200 m		
T42/Final-T44/Final	26.58	23.30
T42/all-T44/all	26.58	23.93

It is proposed that the posed hypothesis was correct and that the T44 category may have had an advantage in running-based competition when compared to T42.

3.4. Hypothesis 4: The Final Round of Running Competition at the Paralympic Games in Each Classification Has the Same Level of Performance as Their Qualification Rounds

During each Paralympic Games, athletes qualify for a final round based upon successful qualification from a heat or semi-final which had preceded it. However, it is not known how much effort an athlete applies in their heat to ensure qualification for the final. The data of each race classification type is separated into two groups. The first group is the data related to the qualification round and the second group is related to the final round. After the normality and homogeneity tests have been calculated, the *p* value of Kruskal-Wallis or ANOVA are then also calculated to see whether any difference exists between these rounds. The results of this are shown in Table 7.

Table 7. Effect of final round.

Category	*N*	Homogeneity	Normality	Kruskal-Wallis test
100 m-T42	20(12,8)	0.026	0.001	0.231
100 m-T44	28(20,8)	0.103	0.023	0.001
100 m-all	48(31,17)	0.411	0.000	0.216
200 m-T42	26(18,8)	0.468	0.484, 0.023	0.133
200 m-all	35(18,7)	0.048	0.484, 0.294	0.176
400 m-T44	19(11,8)	0.839	0.978, 0.833	0.247

In all six categories (except the 100 m-T44), the P value of the Kruskal-Wallis test or ANOVA is above 5%. As a result it is proposed that when adopting a 95% confidence interval, the posed hypothesis was correct as these two tests did not identify any significant difference between the qualification rounds and the final rounds performances. This means that although the result in the final is paramount, there is generally no different in the relative result of the same athletes in the qualification rounds. However, due to the limitations of the design of current athletics tracks comprising typically 8–12 lanes, the existing process of qualification is warranted (despite the end result being similar) if overall participation levels of each qualification in the sport are intended to be maximised by the sport's governing body.

4. Conclusions

A statistical analysis of the results from three consecutive Paralympic Games from 2004 to 2012 do not show any significant change in the general performance of athletes. It was identified that the performance of athletes in the qualification heat did not change substantially when the same athletes ran again in the final. The statistical analyses in this research suggested that athletes with below-knee amputation consistently outperformed those with above-knee amputation. Finally, the results in this study demonstrate that in long running competition, bi-lateral lower-limb amputees have an advantage compared to uni-lateral lower-limb amputees. On the basis of the statistical analyses in this study, it is proposed that future Paralympic Games should be undertaken with separate events for the T42, T43 and T44 classifications and not hold combined events as they have done in the past.

Acknowledgments

The authors thank the reviewers for their thorough review and highly appreciate the comments and suggestions, which significantly contributed to improving the quality of the paper.

Conflicts of Interest

The authors declare no conflict of interest.

Appendix

Appendix 1

Table A1-1. 100 m/First Round/Heat 1/T42/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Popow, Heinrich	GER	12.43	1 leg
2	Reardon, Scott	AUS	12.45	1 leg
3	Whitehead, Richard	GBR	12.97	2 leg
4	Vance, Shaquille	USA	13.17	1 leg
5	Sveinsson, Helgi	ISL	15.64	1 leg
6	Pilgrim, Jamol Allan	ANT	15.76	1 leg

Table A1-2. 100 m/First Round/Heat 2/T42/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Czyz, Wojtek	GER	12.53	1leg
2	Connor, Earle	CAN	12.56	1 leg
3	Kayitare, Clavel	FRA	12.59	0 leg
4	Yamamoto, Atsushi	JPN	12.87	1 leg
5	Jorgensen, Daniel	DEN	13.21	1 leg
6	Garcia-Tolson, Rudy	USA	13.77	2 leg

Table A1-3. 100 m/Final round/T42/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Popow, Heinrich	GER	12.4	1 leg
2	Reardon, Scott	AUS	12.43	1 leg
3	Czyz, Wojtek	GER	12.52	1 leg
4	Connor, Earle	CAN	12.65	1 leg
5	Kayitare, Clavel	FRA	12.73	0 leg
6	Yamamoto, Atsushi	JPN	12.92	1 leg
7	Whitehead, Richard	GBR	12.99	2 leg
8	Vance, Shaquille	USA	13.03	1 leg

Table A1-4. 100 m/First Round/Heat 1/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Peacock, Jonnie	GBR	11.08	1 leg
2	Singleton, Jerome	USA	11.46	1 leg
3	Oliveira, Alan Fonteles Cardoso	BRA	11.56	2 leg
4	Fernandes, Marcio Miguel Da Costa	CPV	12.16	1 leg
5	Behre, David	GER	12.27	2 leg
6	Scendoni, Riccardo	ITA	12.45	1 leg
7	Jia, Tianlei	CHN	12.49	1 leg

Table A1-5. 100 m/First Round/Heat 2/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Pistorius, Oscar	RSA	11.18	2 leg
2	Leeper, Blake	USA	11.34	2 leg
3	Liu, Zhiming	CHN	11.84	0 leg
4	Rehm, Markus	GER	11.92	1 leg
5	Alaize, Jean-Baptiste	FRA	12.11	1 leg
6	Prokopyev, Ivan	RUS	12.21	2 leg
7	Mayer, Robert	AUT	12.61	1 leg

Table A1-6. 100 m/First Round/Heat 3/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Fourie, Arnu	RSA	11.29	1 leg
2	Browne, Richard	USA	11.33	1 leg
3	McQueen, Alister	CAN	12.02	1 leg
4	Bausch, Christoph	SUI	12.09	1 leg
5	Oliveira, Andre	BRA	12.35	2 leg
6	Haruta, Jun	JPN	12.69	1 leg

Table A1-7. 100 m/Final round/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Peacock, Jonnie	GBR	10.9	1 leg
2	Browne, Richard	USA	11.03	1 leg
3	Fourie, Arnu	RSA	11.08	1 leg
4	Pistorius, Oscar	RSA	11.17	2 leg
5	Leeper, Blake	USA	11.21	2 leg
6	Singleton, Jerome	USA	11.25	1 leg
7	Oliveira, Alan Fonteles Cardoso	BRA	11.33	2 leg
8	Liu, Zhiming	CHN	11.97	0 leg

Table A1-8. 200 m/T42/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Whitehead, Richard	GBR	24.38	2 leg
2	Vance, Shaquille	USA	25.55	1 leg
3	Popow, Heinrich	GER	25.9	1 leg
4	Reardon, Scott	AUS	26.03	1 leg
5	Czyz, Wojtek	GER	26.07	1 leg
6	Kayitare, Clavel	FRA	26.22	0 leg
7	Jorgensen, Daniel	DEN	26.46	1 leg
8	Yamamoto, Atsushi	JPN	26.76	1 leg
9	Garcia-Tolson, Rudy	USA	26.97	2 leg

Table A1-9. 200 m/First Round/Heat 1/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Oliveira, Alan Fonteles Cardoso	BRA	21.88	2 leg
2	Singleton, Jerome	USA	23.23	1 leg
3	McQueen, Alister	CAN	24.25	1 leg
4	Prokopyev, Ivan	RUS	24.26	2 leg
5	Alaize, Jean-Baptiste	FRA	24.42	2 leg
6	Swift, Jack	AUS	24.88	1 leg

Table A1-10. 200 m/First Round/Heat 2/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Leeper, Blake	USA	22.23	2 leg
2	Fourie, Arnu	RSA	22.57	1 leg
3	Behre, David	GER	23.65	1 leg
4	Bausch, Christoph	SUR	24.22	1 leg
5	Mayer, Robert	AUT	24.67	1 leg
6	Jia, Tianlei	CHN	25.62	1 leg

Table A1-11. 200 m/First Round/Heat 3/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Pistorius, Oscar	RSA	21.3	2 leg
2	Bizzell, Jim Bob	USA	23.64	1 leg
3	Sato, Keita	JPN	24.34	1 leg
4	Scendoni, Riccardo	ITA	24.51	1 leg
5	Fernandes, Marcio Miguel Da Costa	CPV	24.84	1 leg
6	Pituwala Kankanange, Dumeera Maduranga Alwis	SRI	26.23	0 leg

Table A1-12. 200 m/Final Round/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Oliveira, Alan Fonteles Cardoso	BRA	21.45	2 leg
2	Pistorius, Oscar	RSA	21.52	2 leg
3	Leeper, Blake	USA	22.46	2 leg
4	Fourie, Arnu	RSA	22.49	1 leg
5	Singleton, Jerome	USA	23.58	1 leg
6	Bausch, Christoph	SUI	23.7	1 leg
7	Behre, David	GER	23.71	1 leg
8	Bizzell, Jim Bob	USA	28.19	1 leg

Table A1-13. 400 m/First Round/Heat 1/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Leeper, Blake	USA	50.63	2 leg
2	Oliveira, Alan Fonteles Cardoso	BRA	53.02	2 leg
3	Liu, Zhiming	CHN	54.82	0 leg
4	Scendoni, Riccardo	ITA	55.88	1 leg
5	Swift, Jack	AUS	55.94	1 leg
6	Benitez Sandoval, Josue	MEX	59.79	1 leg

Table A1-14. 400 m/First Round/Heat 2/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Pistorius, Oscar	RSA	48.31	2 leg
2	Behre, David	GER	51.37	2 leg
3	Prince, David	USA	52.29	1 leg
4	Wallace, Jarryd	USA	53.51	1 leg
5	Prokopyev, Ivan Sato, Keita	RUS	53.86	2 leg

Table A1-15. 400 m/Final Round/T44/London 2012.

Rank	Athlete(s)	Country	Results (s)	Specification
1	Pistorius, Oscar	RSA	46.68	2 leg
2	Leeper, Blake	USA	50.14	2 leg
3	Prince, David	USA	50.61	1 leg
4	Oliveira, Alan Fonteles Cardoso	BRA	51.59	2 leg
5	Behre, David	GER	51.65	2 leg
6	Wallace, Jarryd	USA	53.9	1 leg
7	Prokopyev, Ivan	RUS	54.74	2 leg
8	Liu, Zhiming	CHN	55.91	0 leg

Appendix 2

The numbers in parenthesis in second column, indicates the number of bilateral, unilateral, and those who run on natural leg (but considered as an amputee).

Table A2-1. 100 m Descriptive data for 2008 Beijing.

Category	N	Mean	Median	s.d	Min	Max	S-W
T42/Final	6(0,6,0)	13.11	13.08	0.53	12.32	13.68	0.717
T44/Heat 1	6(0,5,1)	11.9	11.96	0.25	11.49	12.12	0.299
T44/Heat 2	6(1,4,1)	12.15	12.04	0.83	11.16	13.45	0.801
T44/Final	8(1,7,0)	11.64	11.56	0.41	11.17	12.25	0.676

Table A2-2. 200 m Descriptive data for 2008 Beijing.

Category	N	Mean	Median	s.d	Min	Max	S-W
T44/Heat 1	5(1,4,0)	24.81	24.17	2.01	23.22	28.32	0.025
T44/Heat 2	5(1,3,1)	24.09	24.22	0.93	22.71	24.95	0.495
T44/Final	8(2,5,1)	23.36	23.47	0.93	21.67	24.61	0.939

Table A2-3. 400 m Descriptive data for 2008 Beijing.

Category	N	Mean	Median	s.d	Min	Max	S-W
T44/Final	6(1,4,1)	52.43	52.42	3.099	47.49	55.76	0.644

Table A2-4. 100 m Descriptive data for 2004 Athens.

Category	N	Mean	Median	s.d	Min	Max	S-W
T42/Final	6(0,5,1)	13.41	13.04	1.085	12.51	15.5	0.052
T44/Heat 1	5(0,5,0)	12.41	12.57	0.73	11.23	12.95	0.115
T44/Heat 2	6(1,5,0)	11.88	11.93	0.515	11.2	12.52	0.74
T44/Final	8(1,7,0)	11.7	11.695	0.561	11.08	12.58	0.36

Table A2-5. 200 m Descriptive data for 2004 Athens.

Category	N	Mean	Median	s.d	Min	Max	S-W
T42/Final	6(0,5,1)	27.12	27.1	0.677	26.18	28.1	0.959
T44/Heat 1	6(1,5,0)	24.71	24.51	1.079	23.42	26.55	0.759
T44/Heat 2	6(0,6,0)	24.81	24.48	1.053	23.5	26.18	0.427
T44/Final	8(1,7,0)	23.15	23.2	0.659	21.97	23.87	0.427

Table A2-6. 400 m Descriptive data for 2004 Athens.

Category	N	Mean	Median	s.d	Min	Max	S-W
T44/Heat 1	5(0,5,0)	55.38	55.67	1.236	53.58	56.7	0.794
T44/Heat 2	4(0,4,0)	55.36	54.31	2.229	54.12	58.7	0.006
T44/Final	7(0,7,0)	53.76	53.98	1.295	51.24	55.02	0.268

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