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Original article

STUDY ON THE HIGH PERFORMANCES ATHLETES AT 800 m DISCIPLINE

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Abstract*

Aim: Study bibliography; The collection and tabulation of the following parameters: performances, date of the result, date of birth, citizenship, place of competition, and the place of the first 100 athletes outdoor all time; Processing statistical and mathematical data specified above, regarding the following indicators: number of cases, maximum value, minimum value, amplitude, mode, median, average, quartile 1, 3, quartile difference, dispersion, average of absolute deviation, standard deviation, coefficient of variation and percentage; Evaluation of the results and their interpretation.

Methods: As a research method we have used the case study, observation, statistics and graphics.

Results: After data processing have resulted 9 summary tables and 4 graphs.

Conclusions: The competition is significantly higher in women than in men. To get good results in international competitions men must obtain less than 1: 43.01 and women 1: 56.20. Women are well represented in the top 100 by 5 athletes, while men have no athlete.

Keywords: athletes, middle race, high performance, statistics

Introduction

Athletics has been defined in terms of poetry, but also physics and mathematics, as a confrontation with yourself, with space and time. Interesting, however, that off all athletic disciplines, middle and long run, seem to illustrate more clearly this confrontation. Psychic structure of middle and long runners is totally different from that of sprinters, throwers or jumpers. He is introverted, less communicative, manifest an extremely strong will, because otherwise he could not overcome any difficulties distances and through which passes when expect less. (Puică, 1993)

Physiological characterization of effort, in particular of the resistance - especially at the distance of 800 m is related to the phenomenon of adaptation of the organism to the specific effort. Alongside this essential rule in athletic training we take into consideration other factors, such as anthropometric indicators, and indicators of physical preparation. (Barbu, 1988)

Knowing by the coach of the somatic physiological and psychic runner portrait, it is a requirement without which it can fail gravely in the process of training. Finding the most suitable method to achieve the intended purpose adapted to the different situations that arise at the beginning of, or during it, it is an issue preoccupying heavily on specialists. Is why when making training plans for middle and long runners, must be taken into consideration a series of data motor skills, moral and the will and morphologic development of each runner. (Alexandrescu, Rugină, 1971)

For elite-level athleticism, the race by 800 m requires about 70% of anaerobic resistance - 30% aerobic. This idea is particularly useful for the optimal distribution of workload to develop these capabilities and their limitations in the ability to be trained. (A.N.S-I.N.C.S, 2005)

Methods

As objectives we have proposed:

- Study bibliography.

- The collection and tabulation of the following parameters: performances (www.iaaf.org), date of the result, date of birth (www.sports-reference.com), citizenship, place of competition, and the place of the first 100 athletes outdoor all time.

- Processing statistical and mathematical data specified above, regarding the following indicators: number of cases, maximum value, minimum value, amplitude, mode, median, average, quartile 1, 3, quartile difference, dispersion, average of absolute deviation, standard deviation, coefficient of variation and percentage. (Cărbunaru, 2009)

- Evaluation of the results and their interpretation.

As research methods we used the case study, observation, statistics and graphics.

Results

After data processing have resulted 9 summary tables and 4 graphs.

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Table 1. Statistical indicators of performance athletes 800 m top 100 all time outdoors

Indicators	Women*	Men*
N	165	244
N.max.	117,52	103,86
N.min.	113,28	100,91
Amplitude	4,24	2,95
Mode	116	103,38
Median	116,21	103,13
Average	116,2038	103,018
Quartile 1	115,78	102,79
Quartile 3	116,7	103,34
Quartile difference	0,92	0,55
Dispersion	0,617262	0,3082
Average absolute deviation	0,598841	0,409911
Standard deviation	0,78566	0,555158
Coefficient of variation	0,676106	0,538894

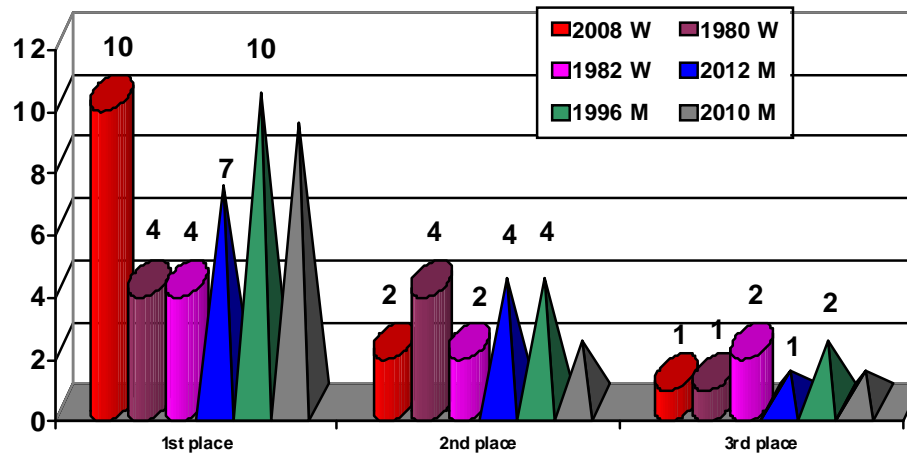
* The results are expressed in seconds

Table 2 Top 10 years of recording results from 800 m women top 100 all time outdoors

Year competition	Place 1	Place 2	Place 3	Place 4-8	Place 9-14	Place > 14	Total
2008	10	2	1	0	0	1	14
1980	4	4	1	2	0	1	12
1982	4	2	2	2	1	0	11
1988	8	1	1	0	0	0	10
1993	3	2	0	0	0	3	8
1984	3	1	1	1	0	2	8
1983	5	3	0	0	0	0	8
1976	3	1	1	3	0	0	8
1987	3	1	1	1	0	1	7
1985	4	1	0	0	0	2	7
Total	47	18	8	9	1	10	93

Table 3. Top 10 years of recording results from 800 m men top 100 all time outdoors

Year competition	Place 1	Place 2	Place 3	Place 4-8	Place 9-14	Place > 14	Total
2012	7	4	1	6	0	3	21
1996	10	4	2	2	0	2	20
2010	9	2	1	2	0	2	16
1999	3	3	2	3	0	4	15
1997	8	1	1	0	0	3	13
2001	3	2	1	0	0	6	12
2015	2	1	1	2	0	4	10
1985	3	2	1	1	0	3	10
1984	4	3	2	0	0	1	10
2009	2	3	1	0	0	3	9
2002	3	2	1	2	0	1	9
1998	1	1	0	0	0	7	9
Total	55	28	14	18	0	39	154



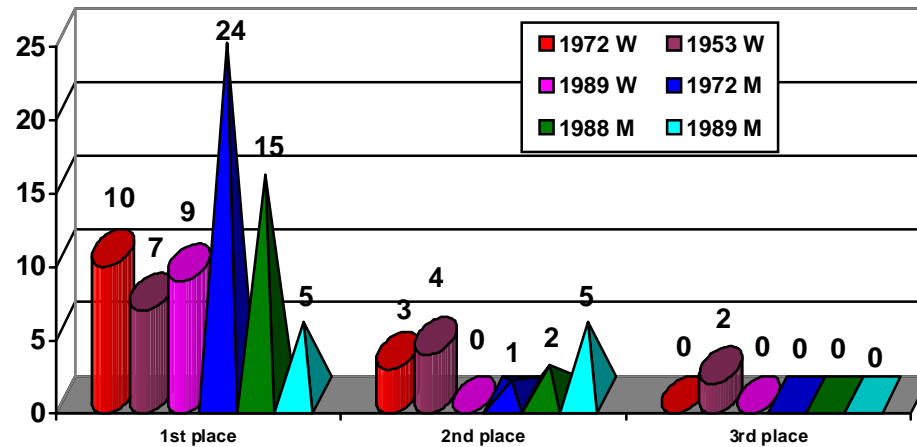
Graph 1. Top 3 years of recording the results

Table 4. Top 10 years of women athletes birth to 800 m top 100 all time outdoors

Year competition	Place 1	Place 2	Place 3	Place 4-8	Place 9-14	Place > 14	Total
1972	10	3	0	0	0	2	15
1953	7	4	2	1	0	1	15
1989	9	0	0	0	0	0	9
1963	7	1	0	1	0	0	9
1965	5	3	0	0	0	0	8
1952	4	1	2	1	0	0	8
1956	5	0	0	0	1	1	7
1951	6	1	0	0	0	0	7
1979	5	0	0	0	0	0	5
1973	1	3	0	0	0	1	5
1966	3	0	1	0	0	1	5
1964	3	1	1	0	0	0	5
1959	1	0	1	3	0	0	5
1955	2	1	0	1	0	1	5
Total	68	18	7	7	1	7	108

Table 5. Top 10 years of men athletes birth to 800 m top 100 all time outdoors

Year competition	Place 1	Place 2	Place 3	Place 4-8	Place 9-14	Place > 14	Total
1972	24	1	0	3	0	8	36
1988	15	2	0	2	0	5	24
1989	5	5	0	3	0	3	16
1994	4	4	2	1	0	4	15
1980	2	2	2	0	0	9	15
1974	1	4	5	0	0	2	12
1960	7	1	2	0	0	2	12
1978	1	1	1	2	0	6	11
1976	2	1	0	1	0	4	8
1963	6	1	0	0	0	1	8
Total	67	22	12	12	0	44	157



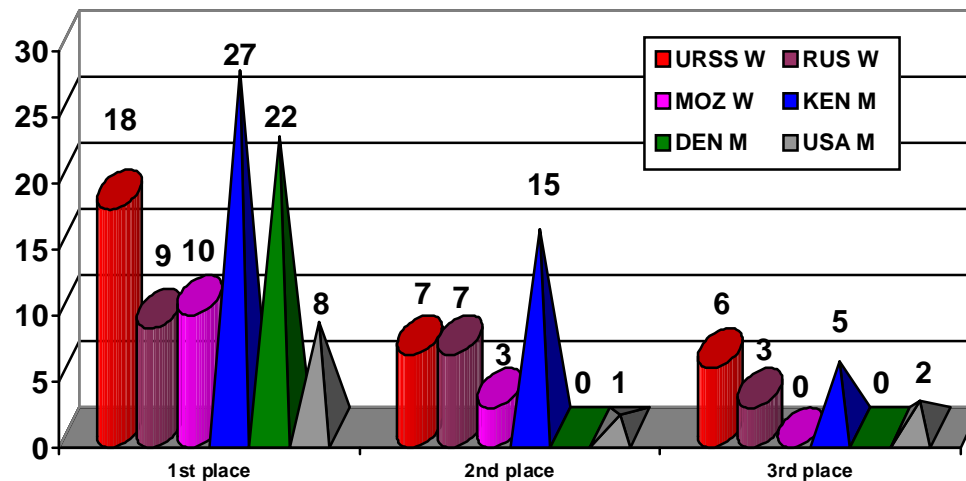
Graph 2. Top 3 years of athletes birth

Table 6. Top 10 citizens with results from 800 m women top 100 all time outdoors

Citizen	Place 1	Place 2	Place 3	Place 4-8	Place 9-14	Place > 14	Total
URS	18	7	6	4	1	2	38
RUS	9	7	3	1	0	6	26
MOZ	10	3	0	0	0	2	15
KEN	11	1	0	0	0	2	14
GDR	3	1	1	3	0	2	10
CUB	6	0	0	1	0	0	7
TCH	6	1	0	0	0	0	7
ROU	5	1	0	0	0	0	6
GER	2	2	1	0	0	0	5
USA	3	0	2	0	0	0	5
Total	73	23	13	9	1	14	133

Table 7. Top 10 citizens with results from 800 m men top 100 all time outdoors

Citizen	Place 1	Place 2	Place 3	Place 4-8	Place 9-14	Place > 14	Total
KEN	27	15	5	8	0	27	82
DEN	22	0	0	1	0	7	30
USA	8	1	2	3	8		22
RSA	0	4	5	0	0	4	13
BRA	7	1	1	0	0	3	12
GBR	7	1	0	1	0	1	10
SUD	4	3	0	1	0	0	8
ETH	2	0	1	1	0	3	7
SUI	2	1	0	1	0	3	7
BOT	3	2	0	0	0	1	6
Total	82	28	14	16	8	49	197



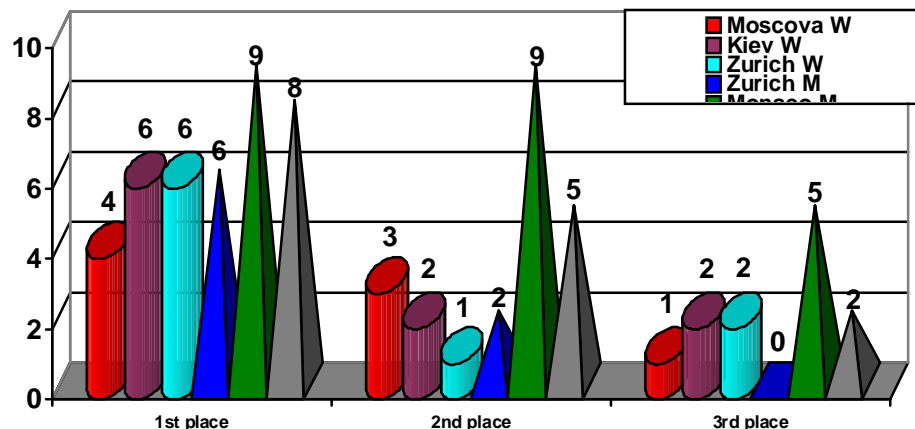
Graph 3. Top 3 citizens with results

Table 8. Top 10 cities with results from 800 m women top 100 all time outdoors

The City	Place 1	Place 2	Place 3	Place 4-8	Place 9-14	Place > 14	Total
Moscow	4	3	1	2	0	4	14
Kiev	6	2	2	1	0	1	12
Zurich	6	1	2	1	0	1	11
Tula	4	3	1	1	0	0	9
Beijing	1	2	0	0	0	4	7
Monaco	4	2	1	0	0	0	7
Podolsk	2	1	1	2	1	0	7
Montreal	1	1	1	3	0	0	6
Athens	2	2	1	0	0	0	5
Roma	2	1	1	1	0	0	5
Total	32	18	11	11	1	10	83

Table 9. Top 10 cities with results from 800 m men top 100 all time outdoors

The City	Place 1	Place 2	Place 3	Place 4-8	Place 9-14	Place > 14	Total
Zurich	6	2	0	2	0	26	36
Monaco	9	9	5	8	0	0	31
Rieti	8	5	2	3	0	12	30
Brussels	7	5	3	4	0	6	25
London	3	2	1	5	0	0	11
Koln	3	3	3	1	0	0	10
Oslo	6	2	0	0	0	1	9
Koblenz	2	1	1	0	0	3	7
Berlin	5	1	0	0	0	0	6
Doha	2	1	1	0	0	2	6
Roma	3	1	0	0	0	2	6
Total	54	32	16	23	0	52	177



Graph 4. Top 3 cities with results

Discussion

Statistical indicators of results (table 1):

- Compared with the 1993 data, the best performance of study is less so in women (0.22 sec) and men (2.09 sec). (A.N.E.F.S., 1993)

- The number of cases in men (244) is greater than the female (165). The rivalry is significantly higher in women than in men.

- The amplitude of results for women (4.24 sec) is greater than that of men (2.95 sec).

- The mode of performances to the men is 1:43.38 and for women 1:56.00.

- The median of performances to the men is 1:43.13 and for women 1:56.21.

- The average of performances to the men is 1:43.01 and for women 1:56.20.

- The middle interval (half of cases) for men is lower than that of women, as follows: 0.55 sec between 1:42.79 and 1:43.34 at the men and 0.92 sec between 1:55.78 and 1:56.70 at the women.

- We have a very good homogeneity both men (0.53%) and women (0.67%).

Years of recording the results (tables 2 and 3):

- For first place to men we have 94 entries and for women 85. In top 10 years of recording the results for men we have 58.51% and for women 55.29%.

- For second place to men we have 38 entries and for women 33. In top 10 years of recording the results for men we have 73.68% and for women 54.54%.

- For third place to men we have 18 entries and for women 14. In top 10 years of recording the results for men we have 77.77% and for women 57.14%.

- For places 4-8 to men we have 24 entries and for women 11. In top 10 years of recording the results for men we have 75% and for women 81.81%.

- For places 9-14 to men we have no registration

and for women 1. In top 10 years of recording the results we have 100% both men and women.

- For places > 14 to men we have 70 entries and for women 21. In top 10 years of recording the results for men we have 55.71% and for women 47.61%.

Years of athletes birth (tables 4 and 5):

- For first place, in top 10 years of athlete birth, we have for men 71.27% and for women 81.80%.

- For second place, in top 10 years of athlete birth, we have for men 57.89% and for women 54.54%.

- For third place, in top 10 years of athlete birth, we have for men 66.66% and for women 50%.

- For places 4-8, in top 10 years of athlete birth, we have for men 50% and for women 63.63%.

- For places 9-14, in top 10 years of athlete birth, we have 100% both men and women.

- For places > 14, in top 10 years of athlete birth, we have for men 62.85% and for women 33.33%.

Citizens of athletes (tables 6 and 7):

- For first place, in top 10 citizens of athletes, we have for men 87.23% and for women 85.88%.

- For second place, in top 10 citizens of athletes, we have for men 73.68% and for women 69.69%.

- For third place, in top 10 citizens of athletes, we have for men 77.77% and for women 92.85%.

- For places 4-8, in top 10 citizens of athletes, we have for men 66.66% and for women 81.81%.

- For places 9-14, in top 10 citizens of athletes, we have 100% both men and women.

- For places > 14, in top 10 citizens of athletes, we have for men 81.42% and for women 66.66%.

Cities of recording the results (tables 8 and 9):

- For first place, in top 10 cities of recording the results, we have for men 57.44% and for women 37.64%.

- For second place, in top 10 cities of recording the results, we have for men 84.21% and for



women 54.54%.

- For third place, in top 10 cities of recording the results, we have for men 88.88% and for women 78.57%.

- For places 4-8, in top 10 cities of recording the results, we have for men 95.83% and for women 100%.

- For places 9-14, in top 10 cities of recording the results, we have 100% both men and women.

- For places > 14, in top 10 cities of recording the results, we have for men 74.28% and for women 47.61%.

Conclusions

- The competition is significantly higher in women than in men.

- To get good results in international competitions men must obtain less than 1: 43.01 and women 1: 56.20

- Women are well represented in the top 100 by 5 athletes, while men have no athlete.

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