



## STUDY ON THE HIGH PERFORMANCE ATHLETES AT ONE MILE DISCIPLINE OUTDOOR ALL TIME

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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 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 men than in women. To get good results in international competitions men must obtain less than 3:49.36 and women 4:19.16. Women are well represented in the top by 6 athletes, while men have no athlete

*Keywords:* athletes, middle race, high performance, statistics.

### Introduction

The need for performance appraisal, position and social affirmation, plus direct and indirect offered rewarding day doing activity, rewarding which require repeated, sustained and strengthened, constitute strong reasons for stimulation of practicing sports (Epuran, Horghidan, 1995).

Middle and long runs, are among the most spectacular disciplines of athletics.

The fast pace of the races, runners suppleness, spectacular finisher have contributed more as these disciplines to gain increasingly more followers.

The considerable increase athletic performance in this group of disciplines its explanation in training methods, which have continually improved over the years, due to their experience of coaches and athletes and new conquests of science in training (Puică, 2008).

The effort that we provide middle runners fall in mixed type. In this exercise duration is between 1-3/5 minutes, so it than is necessary for anaerobic biochemical processes to provide energy for themselves, but it is shorter than the adaptation requirements of cardiac and respiratory functions, after which it can provide O<sub>2</sub> needed just about aerobic energy release (Nicu, 1993).

Factors favoring the sports performance in these disciplines are: aerobic capacity, anaerobic capacity, running technique and volition.

As a general definition, we can say that the performance is "the result of human action superior to known results" (Țifrea, 2002). In evaluating athletes we must always take into account two

fundamental components of human performance in general: the biological and psychological.

Many times in the sport's practice, while coaches respected the specific training method's guideline, worked with athletes selected by the constitutional model, they did not achieved the expected performance, because they neglected psychological component.

The goal of mental preparation for competitions consists in forming for athletes, of a system of attitudes and behavior, with operational and regulative character through which it is flexible and adapts to contest's situations and opponents actions (Holdevici, Epuran, Tonița, 2008).

It is obvious that the main objectives of the training are participating in competitions, challenge other athletes in the competition for a place in the hierarchy of sports and achieve high performance.

However, the importance of the competitions passing of these purposes, because they are the most important and specific methods of estimation the progress of athlete (Bompa, 2001).

### 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 athletes outdoor all time.

- Processing statistical and mathematical data specified above, regarding the following indicators:

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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.

**Table 1. Statistical indicators of performance athletes from one mile all time outdoors**

Indicators	Women*	Men*
N	45	243
N.max.	261,92	231,05
N.min.	252,56	223,13
Amplitude	9,36	7,92
Mode	255,71	229,49
Median	259,50	229,75
Average	259,16778	229,36350
Quartile 1	257,75	228,885
Quartile 3	260,93	230,295
Quartile difference	3,18	1,41
Dispersion	4,97211	1,88056
Average absolute deviation	1,84657	0,99202
Standard deviation	2,22982	1,37133
Coefficient of variation	0,86038	0,59789

\* The results are expressed in seconds

**Table 2 Top 10 years of recording results from one mile women all time outdoors**

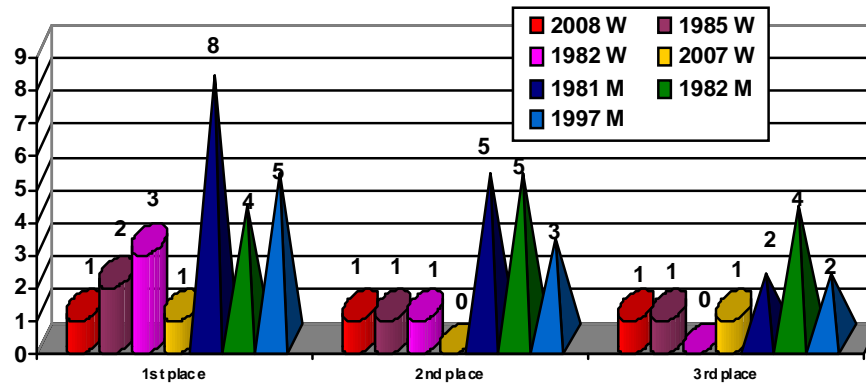
Year competition	Place 1	Place 2	Place 3	Place 4	Place 5	Place 6-8	Total
2008	1	1	1	1	1	1	6
1985	2	1	1	1	0	0	5
1982	3	1	0	0	0	0	4
2007	1	0	1	1	1	0	4
1991	2	1	0	0	0	0	3
1998	2	1	0	0	0	0	3
2016	2	1	0	0	0	0	3
1981	1	1	0	0	0	0	2
1984	2	0	0	0	0	0	2
1986	2	0	0	0	0	0	2
1989	1	1	0	0	0	0	2
2015	1	1	0	0	0	0	2
Total	20	9	3	3	2	1	38

**Table 3. Top 10 years of recording results from one mile men top 100 all time outdoors**

Year competition	Place 1	Place 2	Place 3	Place 4	Place 5	Place 6-8	Total
1981	8	5	2	2	0	1	18
1982	4	5	4	3	1	1	18
1997	5	3	2	2	2	2	16
2000	3	3	2	2	2	1	13
2001	4	2	2	1	1	2	12
1983	4	2	1	2	0	0	9
1991	3	2	1	1	1	1	9
2005	2	1	1	0	1	3	8



<b>1986</b>	3	1	1	1	1	0	<b>7</b>
<b>1995</b>	5	1	1	0	0	0	<b>7</b>
<b>2003</b>	4	2	1	0	0	0	<b>7</b>
<b>2008</b>	2	1	1	1	1	1	<b>7</b>
<b>Total</b>	<b>47</b>	<b>28</b>	<b>19</b>	<b>15</b>	<b>10</b>	<b>12</b>	<b>131</b>



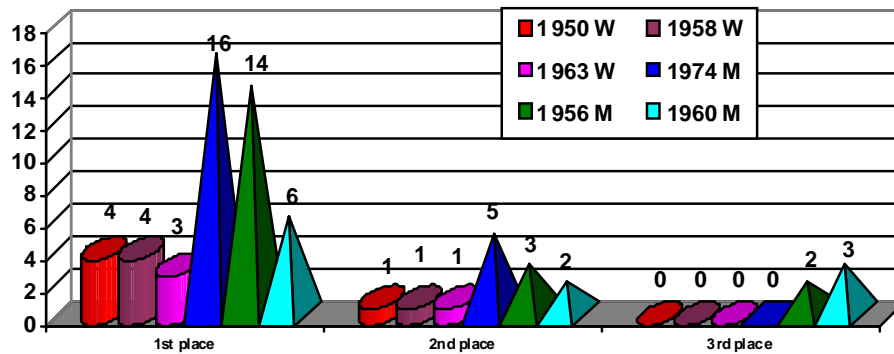
Graph 1. Top 3 years of recording the results

Table 4. Top 10 years of women athletes birth to one mile all time outdoors

Year competition	Place 1	Place 2	Place 3	Place 4	Place 5	Place 6-8	Total
1950	4	1	0	0	0	0	5
1958	4	1	0	0	0	0	5
1963	3	1	0	0	0	0	4
1968	3	0	0	0	0	0	3
1984	1	1	1	0	0	0	3
1951	1	1	0	0	0	0	2
1956	1	1	0	0	0	0	2
1966	1	0	1	0	0	0	2
1993	0	2	0	0	0	0	2
1994	2	0	0	0	0	0	2
<b>Total</b>	<b>20</b>	<b>8</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>30</b>

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

Year competition	Place 1	Place 2	Place 3	Place 4	Place 5	Place 6-8	Total
1974	16	5	0	2	0	1	24
1956	14	3	2	2	1	0	22
1960	6	2	3	2	0	2	15
1970	11	1	1	0	1	0	14
1952	2	5	3	3	0	0	13
1969	1	4	3	2	2	1	13
1955	6	1	0	0	0	1	8
1959	7	0	0	0	1	0	8
1978	2	3	2	0	1	0	8
1983	3	4	0	0	0	0	7
1984	3	1	3	0	0	0	7
<b>Total</b>	<b>71</b>	<b>29</b>	<b>17</b>	<b>11</b>	<b>6</b>	<b>5</b>	<b>139</b>



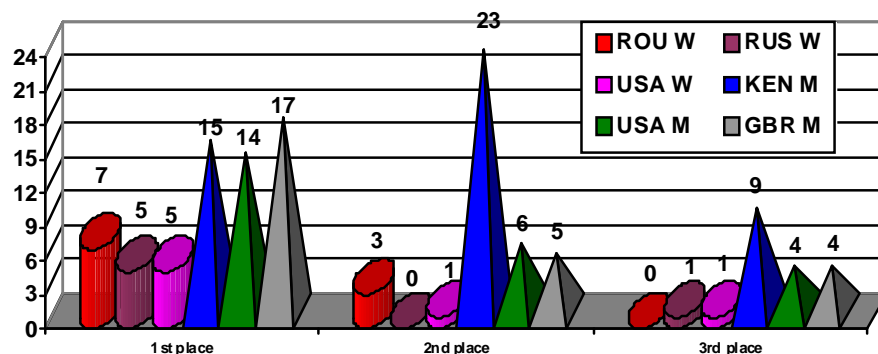
Graph 2. Top 3 years of athletes birth

Table 6. Top 10 citizens with results from one mile women all time outdoors

Citizen	Place 1	Place 2	Place 3	Place 4	Place 5	Place 6-8	Total
ROU	7	3	0	0	0	0	10
RUS	5	0	1	1	1	0	8
USA	5	1	1	0	0	0	7
GBR	0	2	1	1	0	0	4
KEN	2	0	0	0	0	0	2
ETH	2	0	0	0	0	0	2
ESP	0	0	0	0	1	1	2
BUL	1	1	0	0	0	0	2
BRN	1	1	0	0	0	0	2
<b>Total</b>	<b>23</b>	<b>8</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>39</b>

Table 7. Top 10 citizens with results from one mile men top 100 all time outdoors

Citizen	Place 1	Place 2	Place 3	Place 4	Place 5	Place 6-8	Total
KEN	15	23	9	4	4	3	58
USA	14	6	4	2	3	2	31
GBR	17	5	4	1	0	1	28
MAR	21	1	0	1	1	0	24
ALG	12	1	0	0	0	1	14
NZE	2	5	1	3	0	0	11
ESP	0	4	1	1	0	0	6
IRL	0	0	1	1	2	1	5
ETH	1	2	2	0	0	0	5
BUR	2	0	1	1	0	0	4
<b>Total</b>	<b>84</b>	<b>47</b>	<b>23</b>	<b>14</b>	<b>10</b>	<b>8</b>	<b>186</b>



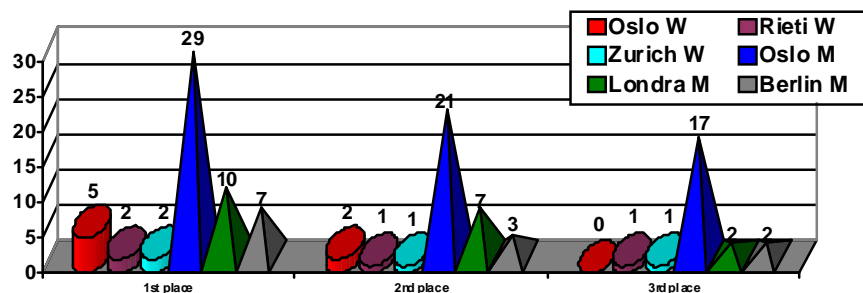
Graph 3. Top 3 citizens with results

Table 8. Top 10 cities with results from one mile women all time outdoors

The City	Place 1	Place 2	Place 3	Place 4	Place 5	Place 6-8	Total
Oslo	5	2	0	0	0	0	7
Rieti	2	1	1	1	1	1	7
Zurich	2	1	1	1	0	0	5
Bruxelles	2	1	0	0	0	0	3
Moscova	0	0	1	1	1	0	3
Nice	2	1	0	0	0	0	3
Bologna	1	1	0	0	0	0	2
Budapesta	1	1	0	0	0	0	2
Londra	2	0	0	0	0	0	2
New York	1	1	0	0	0	0	2
Paris	2	0	0	0	0	0	2
<b>Total</b>	<b>20</b>	<b>9</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>38</b>

Table 9. Top 10 cities with results from one mile men top 100 all time outdoors

The City	Place 1	Place 2	Place 3	Place 4	Place 5	Place 6-8	Total
Oslo	29	21	17	11	9	9	96
Londra	10	7	2	0	0	0	19
Berlin	7	3	2	2	1	2	17
Roma	4	4	2	3	1	2	16
Zurich	4	4	2	1	0	0	11
Koblentz	4	3	1	1	1	1	11
Bruxelles	5	2	1	1	1	0	10
Rieti	4	2	1	0	0	0	7
Eugene	5	2	0	0	0	0	7
Nice	3	1	0	0	0	0	4
Cork	1	1	1	1	0	0	4
<b>Total</b>	<b>76</b>	<b>50</b>	<b>29</b>	<b>20</b>	<b>13</b>	<b>14</b>	<b>202</b>



Graph 4. Top 3 cities with results

**Discussion**

Statistical indicators of results (table 1):

- Compared with the 2006 data, the best performance of study is superior so in women (15.40 sec) and men (7.19 sec). (www.iaaf.org)
- The number of cases in men (243) is greater than the female (45).
- The amplitude of results for women (9.36 sec) is greater than that of men (7.92 sec).
- The mode of performances to the men is 3:49.49 and for women 4:15.71.
- The median of performances to the men is 3:49.75

and for women 4:19.50.

- The average of performances to the men is 3:49.36 and for women 4:19.16.
- The middle interval (half of cases) for men is lower than that of women, as follows: 1.41 sec between 3:48.88 and 3:50.29 at the men and 3.18 sec between 4:17.75 and 4:20.93 at the women.
- We have a very good homogeneity both men (0.59%) and women (0.86%).
- Years of recording the results (tables 2 and 3):
- For first place to men we have 47 entries and for women 20. In top 10 years of recording the results for



men we have 35.87% and for women 52.63%.

- For second place to men we have 28 entries and for women 9. In top 10 years of recording the results for men we have 21.37% and for women 23.68%.

- For third place to men we have 19 entries and for women 3. In top 10 years of recording the results for men we have 14.50% and for women 7.89%.

Years of athletes birth (tables 4 and 5):

- For first place to men we have 71 entries and for women 20. In top 10 years of recording the results for men we have 51.07% and for women 66.66%.

- For second place to men we have 29 entries and for women 8. In top 10 years of recording the results for men we have 20.86% and for women 26.66%.

- For third place to men we have 17 entries and for women 2. In top 10 years of recording the results for men we have 12.23% and for women 6.66%.

Citizens of athletes (tables 6 and 7):

- For first place to men we have 84 entries and for women 23. In top 10 years of recording the results for men we have 45.16% and for women 58.97%.

- For second place to men we have 47 entries and for women 8. In top 10 years of recording the results for men we have 25.26% and for women 20.51%.

- For third place to men we have 23 entries and for women 3. In top 10 years of recording the results for men we have 12.36% and for women 7.69%.

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

- For first place to men we have 76 entries and for women 20. In top 10 years of recording the results for men we have 37.62% and for women 52.63%.

- For second place to men we have 50 entries and for women 9. In top 10 years of recording the results for men we have 24.75% and for women 23.68%.

- For third place to men we have 29 entries and for

women 3. In top 10 years of recording the results for men we have 14.35% and for women 7.89%.

### Conclusions

- The competition is significantly higher in men than in women

- To get good results in international competitions men must obtain less than 3:49.36 and women 4:19.16

- Women are well represented in the top by 6 athletes, while men have no athlete

### Acknowledgements

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