STUDY ON TOP 100 ATHLETES IN 800 M DISCIPLINE OUTDOOR ALL TIME

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Abstract: Introduction. The work is part of the study sports performance, measurement and evaluation. The study is transverse type because the results obtained were collected until 31 December 2015.

Material and methods

This study analyzes the results, age, height and weight of first 100 athletes in the discipline of 800 m outdoor all time. Data were processed on the following statistical indicators: number of cases, the maximum value, minimum value, amplitude, mode, median, average, quartile 1, 3, quartile difference, dispersion, average of absolute deviation, standard deviation, coefficient of variation and correlation. As a research method we had used the case study, observation, statistics and graphics.

Results

After data processing had resulted 2 summary tables and 4 graphs.

Discussions and conclusions

The results were analyzed based on the above parameters. This resulted in the following conclusions:

- The average age is 24.33 years for men and 25.96 years for women.
- The average height is 181.02 cm for men and 168.43 cm for women.
- The average weight is 65.52 kg for men and 57.21 kg for women.

Key words: athletes, performance, statistics

Introduction

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 [1].

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 O2 needed just about aerobic energy release [2].

In evaluating athletes we must always take into account two fundamental components of human performance in general: the biological and psychological. In this way the body composition corresponds to the structural components of the human body composed of elements of very different nature and density (bone, fat, water, protein), maintained in constant proportion and functionally integrated [3]. In this way the precise knowledge of the athlete's height and weight and is welcome framing it in a test pattern.

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 [4].

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 [5].

Material and methods

This study analyzes the results [6], age, height and weight of first 100 athletes in the discipline of 800 m outdoor all time [7]. Data were processed on the following statistical indicators: number of cases, the maximum value, minimum value, amplitude, mode, median, average, quartile 1, 3, quartile difference, dispersion, average of absolute deviation, standard deviation, coefficient of variation and correlation. As a research method we had used the case study, observation, statistics and graphics.

Results

In what follows, we present the 2 tables and 4 graphs representative undertaken research.

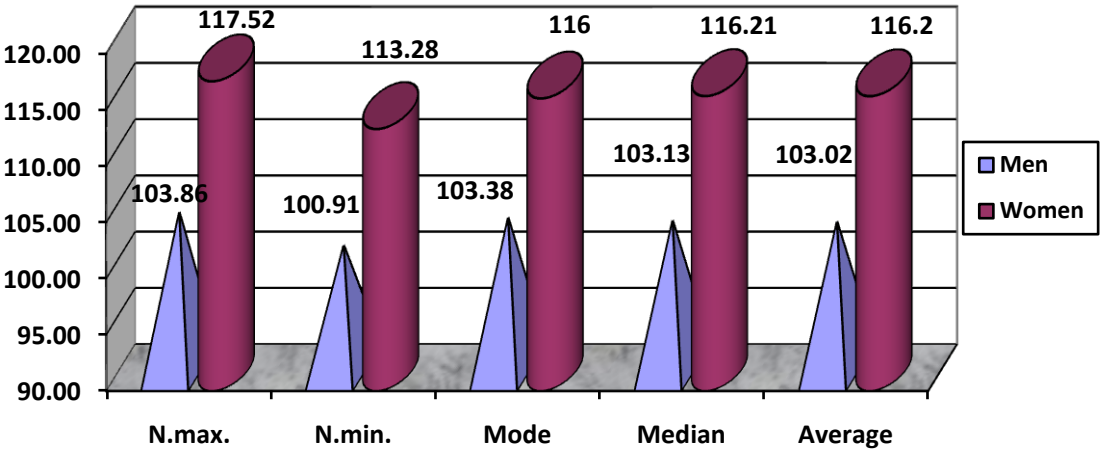
Table 1. Statistical indicators of women athletes in the discipline 800 m

Indicators	Performance (sec)	Age	Height (cm)	Weight (kg)
N	165	164	101	101
N max	117.52	360.0	182.00	73.00
N min	11328	17.00	159.00	46.00
Amplitude	4,2.4	19.00	23.00	27.00
Mode	116	25	165	63
Median	116.21	26.00	167.00	57,00
Average	116.20	25.96	168.43	57.21
Quartile 1	115.78	23	165	54
Quartile 3	116.7	29	172	60
Quartile difference	0.92	6.00	7.00	6.00
Dispersion	0.617262	17.89452	20.58112	28.34291
Average absolute deviation	0.598841	3.482228	3.719243	4.134889
Standard deviation	0.78566	4.230191	4.536642	5.323806
Coefficient of variation	0.676106	16.29672	2.693556	9.306064
Correlation*	0.04005	-0.31318	-0.03779	-0.1182343

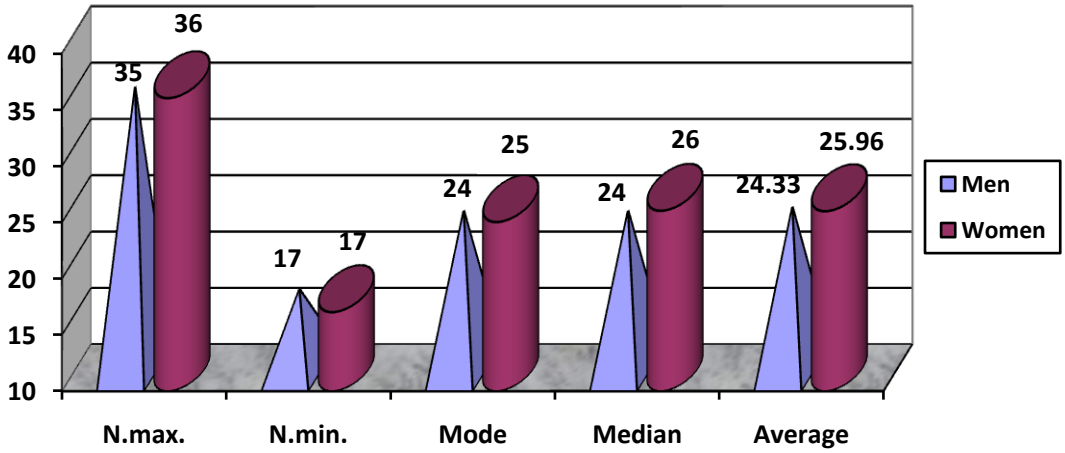
Table 2. Statistical indicators of men athletes in the discipline 800 m

Indicators	Performance (sec)	Age	Height (cm)	Weight (kg)
N	244	244	152	152
N max	103.86	35.00	193.00	84.00
N min	100.91	17.00	163.00	45.00
Amplitude	2.95	18.00	30.00	39,00
Mode	103.38	24	182	63
Median	103.13	24.00	182.00	63.00
Average	103.02	24.33	181.02	65.52
Quartile 1	102.79	22	175	60
Quartile 3	103.34	27	186.25	71
Quartile difference	0.55	5.00	11.25	11.00
Dispersion	0.3082	10.56603	41.26935	46.48645
Average absolute deviation	0.409911	2.605046	5.424775	5.851801
Standard deviation	0.555158	3.250543	6.424122	6.818097
Coefficient of variation	0.538894	13.35914	3.548852	10.40617
Correlation*	0.188175	0.14015	0.029018	0.17355304

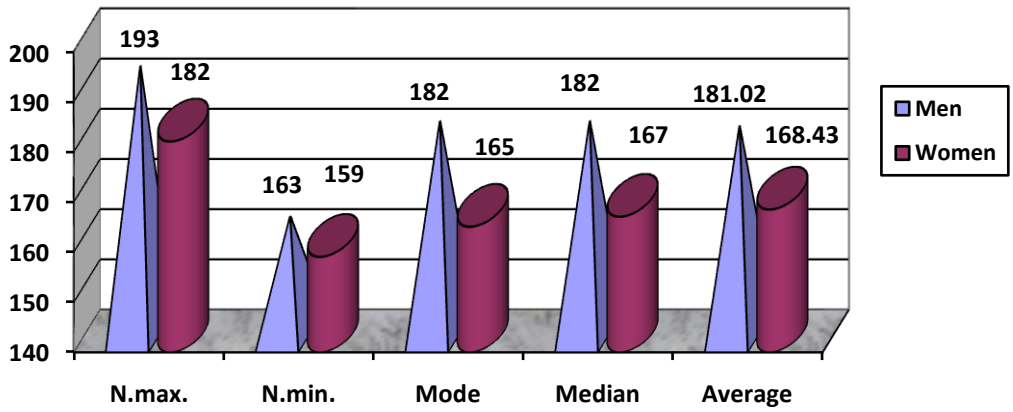
* - In order from left to right: correlation between performance and age, the correlation between age and height, the correlation between performance an height, the correlation between performances and weight.



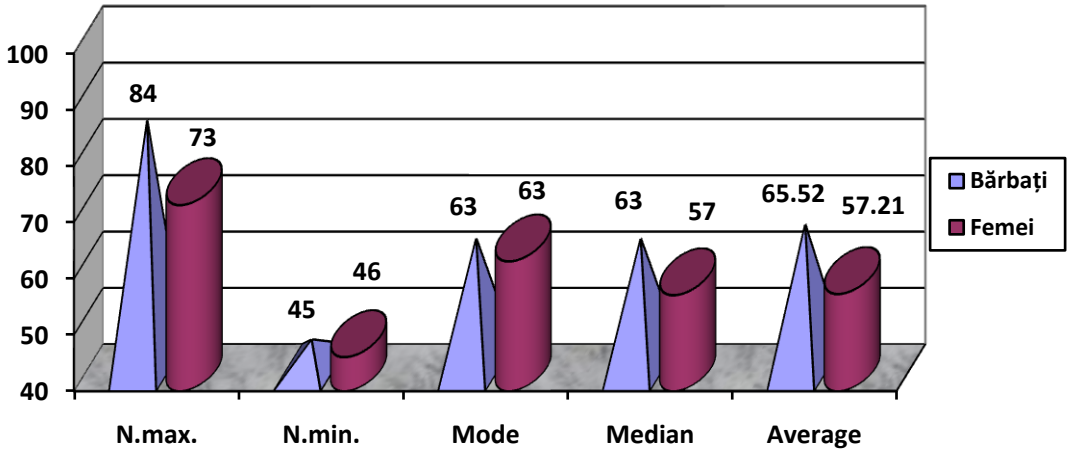
Graph 1 Statistics indicators of performances in the 800 m discipline



Graph 2: Statistics indicators of age in the 800 m discipline



Graph 3: Statistics indicators of height in the 800 m discipline



Graph 4: Statistics indicators of weight in the 800 m discipline

Discussions and conclusions

Statistical indicators of results (table 1 and 2; graph 1):

- Compared with older data [8], for best performance, in our study is lower with 0.22 s in women and 2.09 s in men.
- The number of cases for women (165) is lower than that of men (244) with 79. Competition is significantly higher in women than in men.
- The best performance for women is 1:53.28 and for men is 1:40.91.
- The worst performance for women is 1:57.52 and for men is 1:43.86.
- The amplitude of results for women (4.24 s) is greater than that of men (2.95 s) with 1.29 s.
- The mode of performances for women is 1:56.00 and for men 1:43.38.
- The median of performances for women is 1:56.21 and for men 1:43.13.
- The average of performances for women is 1:56.20 and for men 1:43.02.
- The middle interval (half of cases) for women is bigger than that of men, as follows: 0.92 s between 1:55.78 and 1:56.70 at the women and 0.55 s between 1:42.79 and 1:43.34 at the men.
- We have a very good homogeneity both women (0.67%) and men (0.53%).
- Is there a lack of correlation between results and other parameters investigated.

Statistical indicators of age (table 1 and 2; graph 2):

- Compared with older data [8], for best performance, age of women in study is 5.2 years higher (32 years as compared to 26.8 years), and in men is 2.5 years higher (24 years as compared to 21.5 years).
- The number of cases for women (164) is lower than that of men (244) with 80.
- Maximum age for women (36 years) is greater than that for men (35 years) with 1 year.
- Minimum age for women and men is 17 years.
- The amplitude of age for women (19 years) is greater than that for men (18 years) with 1 year.
- The mode of age for women (25 years) is greater than that for men (24 years) with 1 year.
- The median of age for women (26 years) is greater than that for men (24 years) with 2 years.
- The average of age for women (25.96 years) is greater than that for men (24.33 years) with 1.63 years.
- The middle interval (half of cases) for women is bigger than that of men, as follows: 6 years between 23 and 29 years at the women and 5 years between 22 and 27 years at the men.
- We have a low homogeneity both women (16.29%) and men (13.35%).
- Is there a lack of correlation between age and other parameters investigated.

Statistical indicators of height (table 1 and 2; graph 3):

- Compared with older data [8], for best performance, height of women in study is 7 cm higher (171 cm as compared to 164 cm), and in men is 1 cm higher (188 cm as compared to 187 cm).
- The number of cases for women (101) is lower than that of men (152) with 51.
- The amplitude for women (23 cm) is lower

than that for men (30 cm) with 7 cm.
- The mode of height for women is 165 cm and for men 182 cm.
- The median of height for women is 167 cm and for men 182 cm.
- The average of height for women is 168.43 cm and for men 181.02 cm.
- The middle interval (half of cases) for women is lower than that of men, as follows: 7 cm between 165 cm and 172 cm at the women and 11.25 cm between 175 cm and 186.25 cm at the men.
- We have a very good homogeneity both women (2.69%) and men (3.54%).
- Is there a lack of correlation between height and other parameters investigated.

Statistical indicators of weight (table 1 and 2; graph 4):
- Compared with older data [8], for the best female performance, the weight of women in our study is higher with 14 kg (68 kg compared to 54 kg), and in men is lower with 2 kg (71 kg compared to 73 kg).
- The amplitude of weight for women (27 kg) is lower than that for men (39 kg) with 12 kg.
- The mode of weight for women and men is 63 kg.
- The median of weight for women is 57 kg and for men 63 kg.
- The average of weight for women is 57.21 kg and for men 65.52 kg.
- The middle interval (half of cases) for women is lower than that of men, as follows: 6 kg between 54 kg and 60 kg at the women and 11 kg between 60 kg and 71 kg at the men.
- We have a good homogeneity both women (9.30%) and men (10.40%).

This resulted in the following conclusions:
- The average age is 24.33 years for men and 25.96 years for women.
- The average height is 181.02 cm for men and 168.43 cm for women.
- The average weight is 65.52 kg for men and 57.21 kg for women.

References

[1].Puică, I., 2008, Antrenamentul de semifond şi fond la fete, Reeditat de F.R.A. şi Editura Palestra, Bucureşti, p. 4-5
[2]. Nicu Al., 1993, Antrenamentul sportiv modern, Editis Bucureşti p. 203
[3]. CORDUN, M., 2011, Bioenergetică şi Ergometrie în Sport, Editura CD Press, Bucureşti, p. 87-110
[4]. HOLDEVICI, I., EPURAN M., TONIȚA F., 2008, Psihologia sportului de performanță. Teorie şi practică, Editura FEST, Bucureşti, p. 244-270.
[5]. BOMPA, T.O., 2001, Teoria şi metodologia antrenamentului sportiv. Periodizarea, C.N.F.P.A.,Bucureşti, p. 258
[6]. www.iaaf.org 19.11.2015, 12:40
[7]. www.sports-reference.com 25.10.2015, 17:30
[8]. A.N.E.F.S. Catedra de atletism, F.R.A, 1993, Date statistice privind ultimele 8 ediții ale Jocurilor Olimpice, f.e., Bucureşti, 42 p.