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ANTHROPOMETRIC CHARACTERISTICS AND FUNCTIONAL ABILITIES WITH SCHOOL CHILDREN ATHLETES AND NON-ATHLETES FROM PRIZREN

1. Introduction

Nowadays, physically educational activities are considered to be some of the greater factors that provide normal development of the human body as a whole. They are of invaluable importance for the optimal growing and development of a healthy person (Fundak, 1999).

This research is conducted in the municipality of Prizren, where different sports activities are regularly organized and held. Classes of physical education in schools are held under different working conditions in relation to the necessary equipment. Today, greater possibilities of organized educational training activities are provided but not all children are able to take part in them. This pleasure is only available to the children with parents on a high income. Thus many gifted children cannot afford to participate in organized sports activities.

This research aims at assessing the existence of statistically significant differences within some anthropometric and functional characteristics with high-school students from Prizren- students doing regular sports as against the ones not doing sports.

2. Research Methods

The research is conducted on a sample of 120 students at high school, at the age of 18. The sample consists of two sub-samples of 60 students each. The first sub-sample includes students doing regular sports (GS), the second sub-sample includes students not involved in sports activities (GK). All the entities are high-school students: “Luciano Motroni”, “Gani Chavdarbashi”, “Imer Prizreni” and “John Bouzuki” from Prizren. The entities are treated with standard tests for estimating the anthropologic status at the beginning of the school year 2009-2010. During the test all the students are recorded to have been in good health as well as to have attended regularly the class activities in physical education and to have been involved in the sports training. The following anthropometric characteristics for estimating the anthropologic status are applied: body height (ATB), body weight (ATM), maximum chest volume (AODG) and minimum chest volume (AOMG).

For estimating the functional abilities the following tests are applied:

- the number of inspirations within a minute before loading (FRB1);
- the number of inspiration within a minute after loading (ERB2);
- maximum lung capacity before loading (FCV1);

- maximum lung capacity after loading (FCV2).

With all applied variables the basic descriptive statistic parameters are calculated: arithmetic mean (AC), standard deviation (SD), minimal (IN) and maximal (MAX) results, S and K. Differences in the indicators of anthropometric characteristics and functional abilities between the students doing and those not doing sports are determined by a t-test of independent samples at the level of statistical worth $p < 0,05$.

3. Results

Comparing the results obtained from the measuring of some anthropologic characteristics of the students doing regular sports against the ones not doing sports with the average values of students in our and in neighbouring countries, it is noticeable that the anthropometric characteristics and the functional abilities, each estimated by eight (8) variables, have the worth of maximum similarity with the average values (Findak, 1996). The weak results obtained about the students doing sports are possible to be due to incompetent work of the educator and poor selection of children.

Table 1. presents the basic descriptive parameters of anthropometric characteristics and functional abilities of the students doing sports (GS) and those not doing sports (GK).

Table 1. Basic descriptive parameters of the students doing regularly sports (GS) and the students not doing sports (GK)

	Rmin.	Rmax.	MA	DS	Skewness	Kurtosis
ATVGS	161.00	190.50	175.80	5.96	-.02	.27
ATVGK	170.00	195.00	178.13	6.24	.56	-.08
ATMGS	45.00	91.00	67.86	8.05	.14	2.07
ATMGK	55.00	83.70	68.48	8.52	.17	-1.16
AODGS	79.00	100.00	92.84	4.37	-.65	1.19
AODGK	83.00	100.00	90.24	4.77	.03	-.86
AOMGS	74.00	94.00	87.91	4.35	-.87	1.29
AOMGK	75.00	95.50	84.33	5.09	-.21	-.68

Table 2. Determining the differences (t-test) between the students doing regularly sports (GS) and those not doing sports (GK)

		t-value	Sig.
1	ATV	-1.68	0.10
2	ATM	-.36	0.72
3	AODG	2.71	0.01
4	AOMG	3.67	0.00

Table 3. Basic descriptive parameters of the respiratory abilities of students

	Rmin.	Rmax.	MA	DS	Skewness	Kurtosis
FRB1GS	16	28	20.23	3.48	.97	.39
FRB1GK	24	32	24.90	1.78	-.27	.67
FRB2GS	30	52	39.65	4.96	.34	-.02
FRB2GK	40	48	44.15	2.49	.22	-.97
FCV1SP	3600	5800	4905.00	470.65	-.33	.51
FCV1KO	3000	5500	4222.50	620.79	.05	-.65
FCV2SP	3500	5900	4707.50	511.10	-.20	.14
FCV2KO	2500	5000	3837.50	619.63	-.27	-.49

Table 4. Determining the differences (t-test) between the students doing regularly sports (GS) and those not doing sports (GK)

		t-value	Sig.
1	FRBF1	-10.599	0.00
2	FRBF2	-5.666	0.00
3	FCV1	6.714	0.00
4	FCV2	6.702	0.00

Comparing the results of the anthropometric measures, it is noticeable that the students not doing sports are taller and heavier than those doing sports. This fact might involve the doubt that an incorrect and incompetent selection of the students is made. However, it is typical for the students at this age (for both athletes and non-athletes) to record distinctly big differences due to the biological maturity (Roland, 2005). Statistically significant differences (table 2) are determined with the anthropometric measures of maximum chest volume (AODG) and minimum chest volume (AOMG). This means that the chest volume is greater with the students engaged in regular sports activities. Comparing the obtained results about the functional abilities of students doing sports and those not doing sports, it is noticeable that the differences in the applied four tests are statistically significant in favour of the students doing sports.

4. Conclusions

According to the obtained results of this research, the following can be concluded:

- Out of the four anthropometric measures that are applied, those concerning body height (ATV) and body weight (ATM) appear to be in favour of the students not doing regular sports activities, but statistically significant difference between the two tested sub-samples is not determined. The measures of maximum chest volume (AODG) and minimum chest volume (AOMG) are in favour of the students doing regularly sports activities, and statistically significant difference is determined between the two sub-samples.

- Within the applied four tests statistically significant difference is determined in favour of the students doing sports.

The obtained results are a base for further appropriate planning, realization and monitoring the effects of the sports activities within the curriculum in the subject of physical education.

5. Literature

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The research is conducted on a sample of 120 male students at high school in Prizren. The sample consists of two sub-samples. The first one includes 60 athletes, and the second consists of 60 non-athletes. Four (4) anthropometric measures and four (4) functional tests are applied to them in order to determine if there is statistically significant difference within the anthropometric and functional characteristics between the two sub-samples. The obtained results point to the conclusion that significant differences can be determined in favour of the sub-sample of athletes with the following variables: maximum chest volume (AODG), minimum chest volume (AOMG), the number of inspirations within a minute before loading (FRB1), the number of inspirations within a minute after loading (FRB2), maximum lung capacity before loading (FCV1), and maximum lung capacity after loading (FCV2).

Key words: anthropometric measures, functional tests, athletes, non-athletes, t-test.