PHYSICAL CONDITION AND DEVELOPMENT OF STUDENTS PRACTICING FOOTBALL AT THE TODOR KABLESHKOV UNIVERSITY OF TRANSPORT

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ABSTRACT

The paper presents information on the state-of-the-art of physical development and opportunities of students practicing football at the Todor Kableshkov University of Transport. The aim is to obtain information about the physical condition, development and fitness of students. The testing methodologies applied are standard and the examinations have been carried out with wearing sport suits. For the purpose of the study a test battery including 13 tests has been applied: 5 with anthropometric parameters and 8 to measure physical capability. The data have been subjected to statistical processing. As a result of the study, growth of most indicators has been observed. The progress established has proved that the approach in selection of methods for development of physical qualities in physical education and sport classes is correct.

Key words: physical capability, test battery, anthropometric indicators, methodology, descriptive statistics

INTRODUCTION

The paper presents data about the current level of physical condition, development and physical capability of students practicing football in the Physical Education and Sport classes. The study was carried out at the Todor Kableshkov University of Transport at the beginning and end of one and the same academic year.

Football is the most popular sport among students. It is part of the subject syllabus in Physical Education and Sport.

The aim was to obtain information about the physical condition, development and physical capability of the students practicing football at the Todor Kableshkov University of Transport.

METHODS

The tasks of the study were:
1. Measuring and data acquisition.
2. Statistical data processing and analysis of results.

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The study included 25 students at the Todor Kableshkov University of Transport.

The object of research was to find out the effect of football training in classes.

The participants were students in different years of their university education – from the first to the fourth year, at different ages within the range from 19 to 23, and all of them did not train football regularly but only in Physical Education and Sport classes.

The testing methods applied were standard (2, 3). The examinations were conducted with wearing sport suits and in the sport facilities available for classes in Physical Education and Sport at the Todor Kableshkov University of Transport.

The classes were conducted according to uniform methodology consistent with the methodological requirements, the physical level and development of students.

RESULTS AND DISCUSSION

The test battery applied to measure the physical condition, development and dynamics of physical capability (modified according to (1) consisted of 13 tests - 5 with anthropometric indicators and 8 for physical capability measuring **(Table 1).**

Table 1. *Test battery*

	Indicators	Unit of measurement (UM)	Accuracy of measurement	Direction of increasing
I. ANTHROPOMETRIC INDICATORS				
1	Height	cm	1	+
2	Weight	kg	1	+
3	Chest	cm	1	+
4	Waist	cm	1	-
5	BMI		0,1	-
II. TESTS TO MEASURE PHYSICAL CONDITION				
1	Running – 60 m	sec	0.1	-
2	Beep test	level	0,1	+
3	Throwing ball – 3 kg	m	1	+
4	Hand strength	kg	1	+
5	Squatting (number for 30 sec)	number	1	+
6	Jump length with two legs out of place	cm	1	+
7	Rebound height	cm	1	+
8	Flexibility	cm	1	+

At the beginning of study, the entry level on the anthropometry and physical capability of students involved in football was measured using selected tests from the test battery. The mean values of each indicator are presented in **Table 2.**

Table 2. *Data by input examination indicators*

No	Indicators	UM	X_1	S_1
1	Height	cm	182	3,2
2	Weight	kg	74,5	4,1
3	Chest	cm	103,6	5,8
4	Waist	cm	89,4	3,3
5	BMI		22,5	1,2
6	Running – 60 m	sec	9,71	1,5
7	Beep test	level	3,8	0,7
8	Throwing ball – 3 kg	m	10,1	9,6
9	Hand strength	kg	137	10,1
10	Squatting (30 sec)	number	18,2	3,2
11	Jump length with two legs out of place	cm	208	15,3
12	Rebound height	cm	41,6	5,1
13	Flexibility	cm	6,5	7,6

Note: X_1, S_1 – mean value and dispersion at the beginning of experiment, N = 25

After regular presence in Physical Education and Sports classes during the first and second semesters, a second test was conducted for the students training football. The mean values of each indicator at the end of the school year are presented in **Table 3.**

Table 3. *Data by output examination indicators*

No	Indicators	UM	X₁	S₁
1	Height	cm	182	3,2
2	Weight	kg	76,1	3,7
3	Chest	cm	104,3	5,2
4	Waist	cm	90,5	3,8
5	BMI		23	1,1
6	Running – 60 m	sec	9,53	1,6
7	Beep test	level	4,5	1,1
8	Throwing ball – 3 kg	m	12,2	10,3
9	Hand strength	kg	139	8,3
10	Squatting (30 sec)	number	21,1	4,2
11	Jump length with two legs out of place	cm	216	12,9
12	Rebound height	cm	43,2	4,3
13	Flexibility	cm	7,3	6,4

Note : X_2, S_2 – mean value and dispersion at the end of experiment, N = 25

Table 4 shows the increase of each indicator of examinations at the beginning and end of academic year as well as the difference between them (in %).

Table 4. *Increase in anthropometry and physical capability of students (%)*

No	Indicators	Input	Output	Difference
1	Height	100	100	-
2	Weight	100	102,1	2,1
3	Chest	100	100,6	0,6
4	Waist	100	101,2	1,2
5	BMI	100	102,2	2,2
6	Running – 60 m	100	101,8	1,8
7	Beep test	100	118,4	18,4
8	Throwing ball – 3 kg	100	120,8	20,8
9	Hand strength	100	101,5	1,5
10	Squatting (30 sec)	100	115,9	15,9
11	Jump length with two legs out of place	100	103,8	3,8
12	Rebound height	100	103,8	3,8
13	Flexibility	100	112,3	12,3

As it is known, the anthropometrical indicators are too conservative and most of them would not have changed significantly and reliably within the range of the statistical error of measurement within the experiment during one academic year. The only exceptions are the weight and BMI indicators, which are connected to each other direct proportionally – when one of the indicators increases, the other also increases with the constant state of height. The tests of high achievements are with a relative difference ≥ 10%. This is a beep test that certifies the increased aerobic endurance of student's body while throwing a ball

weighing 3 kg, which determines the higher explosive force of the upper limbs; squatting that show the improved resistance endurance of the lower limbs and flexibility associated with the abilities to carry out movements of great amplitude.

CONCLUSIONS

The following conclusions can be drawn from these results:

1. Considering the case of students playing football, a positive increase of physical capability indicators has been noted but it has been differentiated depending on the test. It has been larger with the specific requirements of load in the sport chosen by students.

2. Along with effectiveness of activities, it has been taken into account that the participation in them leads to constructive physical loading and improvement of physical development and capability.

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