



Original Contribution

ASSESSMENT OF THE PHYSICAL CAPABILITY OF STUDENTS PARTICIPATING IN BASKETBALL TRAINING ACTIVITIES IN THE CONDITIONS OF COVID-19

P. Mavrudiev^{1*}, I. Hristov²

¹Department of Theory and Methodology of Physical Education, National Sports Academy „Vassil Levski“, Sofia, Bulgaria

²“Elisaveta Bagryana” Primary School, Sliven, Bulgaria

ABSTRACT

The subject of research is the physical capacity of students who participate systematically in extracurricular basketball training sessions. A total of 19 girls from the 7th grade of “Elisaveta Bagryana” Primary School in Sliven were studied. Sports and pedagogical testing of 5 indicators were conducted to establish the level of physical capacity of the studied population. The results of the research are subjected to mathematical and statistical processing by - variation analysis, and sigma method for evaluation. The individual academic grades for physical capacity are calculated using the calculator for automatic calculation of grades. It was found that in general, the studied population has a very good level of physical capacity.

Key words: basketball, girls, physical ability, assessment

INTRODUCTION

In the modern way of life, the problem of preserving and strengthening the physical and mental health of the younger generation stands out with special urgency. The entry of modern technologies in all spheres of life has led to minimal physical activity in everyday life. Immobilization, combined with unhealthy eating, has led to lasting negative physiological changes in the growing Bulgarian population.

Entering the third decade of the new millennium, humanity was facing a serious test - a global Covid pandemic, which intensified the process of applying modern technology, but faced humanity with serious health and financial problems. All these circumstances and facts have significantly reduced people's physical activity and have had a negative impact on their health status (1).

Measures against the virus have affected and changed the way of life in many areas, including education, which has inevitably affected the

effectiveness and opportunities for training in physical education and sports. There were great difficulties in the training of sport, testing the physical capacity of students, conducting sports days, sports competitions, training process in various sports, opportunities for live contact and group activities with exercise and sports (5). Restrictions imposed by the pandemic reduced the physical activity of people to a minimum, often leaving the possibility for competitors registered with the respective federations to continue the training process.

The listed facts, as well as the number of publications on the topic in the last two years, have provoked our interest in the topic.

The aim of the present study is to establish the impact of extracurricular basketball classes on the capacity of 7-th grade students (14 years old) at “Elisaveta Bagryana” Primary School in Sliven during the conditions of COVID-19.

METHODOLOGY

The current study was conducted in the period July - August 2021.

The subject of research is the physical capacity of students who participate systematically in extracurricular basketball training sessions.

**Correspondence to: Petko Mavrudiev, National Sports Academy „Vassil Levski“, Faculty of Pedagogy, 1700, Sofia, Studentski grad, Email: petkomavrudiev@gmail.com, mobile:0893058125*

The object of research are the signs of the physical capacity of 7-th grade students (14 years old).

A contingent of research are a total of 19 girls from 7-th grade at "Elisaveta Bagryana" Primary School (Sliven), included in regular basketball classes at BC "Toni-7".

For the needs of the research, a sports-pedagogical test was conducted on 5 indicators

to establish the level of physical capacity of the studied population.

Research methods:

1. Research and theoretical analysis of literature sources

2. Sports and pedagogical testing - to establish the level of physical capacity (**Table 1**).

Table 1. List of indicators

№	Indicators	Measuring units	Measurement accuracy	Direction of growth
1.	<i>Running 30 m</i>	sec	0,01	-
2.	<i>Long jump</i>	cm	1,0	+
3.	<i>Throwing a solid ball</i>	cm	1,0	+
4.	<i>Running 200 m (shuttle)</i>	sec	0,01	-
5.	<i>Agility test (T-test)</i>	sec	0,01	-

The used test battery is borrowed from the System for assessment of the physical capacity of the students from I to XII grade, developed by the staff of NSA "V. Levski", under the general editorship of Prof. O. Miladinov (4).

The results of the research are subjected to mathematical and statistical processing by:

- ✓ variation analysis - to determine the average level and variability of the studied signs of physical capacity.
- ✓ sigma method of assessment - to assess the level of development of the observed signs of physical capacity in each of the studied girls. On the basis of the System for assessment of the physical capacity of the students from I to XII grade, sigma marks T have been calculated for each of the

indicators included in the test battery.

- ✓ the individual academic grades for physical capacity of the studied population are calculated using the calculator for automatic calculation of grades (4).

RESULTS AND ANALYSIS

The results of the variational data processing are presented in **Table 2**.

The analysis of the results in Table 2 shows that the group of 7-th grade girls who are the subject of our study is homogeneous in terms of (5):

- ✓ girls' speed - indicator 1 ($V_1 = 5.52\%$);
- ✓ speed endurance - indicator 4 ($V_4 = 5.58\%$) and
- ✓ agility - indicator 5 ($V_5 = 6.27\%$).

Table 2. Mean values and variability of indicators

№	Indicators	Mean	S	V	min	max
1.	<i>Running 30 m</i>	6,08	0,34	5,52	6,58	5,4
2.	<i>Long jump</i>	1,67	0,19	11,40	1,4	2
3.	<i>Throwing a solid ball</i>	4,91	0,93	19,00	3,1	6,2
4.	<i>Running 200 m (shuttle)</i>	43,10	2,40	5,58	49,57	39,27
5.	<i>Agility test (T-test)</i>	12,23	0,77	6,27	13,2	11

For the other two indicators, the coefficient of variation is between 10% and 30%, which means that the group is relatively homogeneous in terms of the level of development of the explosive force of both the lower and upper

limbs and the shoulder girdle (indicators 3 and 4 - $V_3 = 11.40\%$ and $V_4 = 19.00\%$).

On the basis of the System for assessment of the physical capacity of the students from I to XII grade, the sigma grades T for each of the

indicators included in the test battery are calculated. The 20-point scoring system was used. Average summary assessments of each of the signs of physical capacity were calculated,

as an average sum of the assessments of all students participating in the study, as well as a summary assessment of the physical capacity of the entire observed population.

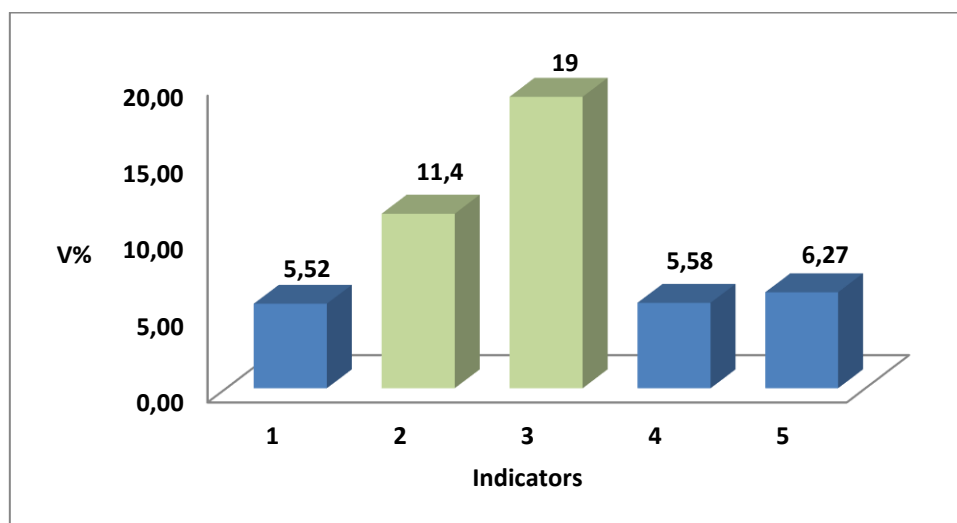


Figure 1. Scattering of individual cases around the average levels of the studied traits

The analysis of **Figure 2** shows that the highest group score (20 points – the maximum for the studied age group) girls received for the level of

development of their speed of movement with change of direction and motor agility.

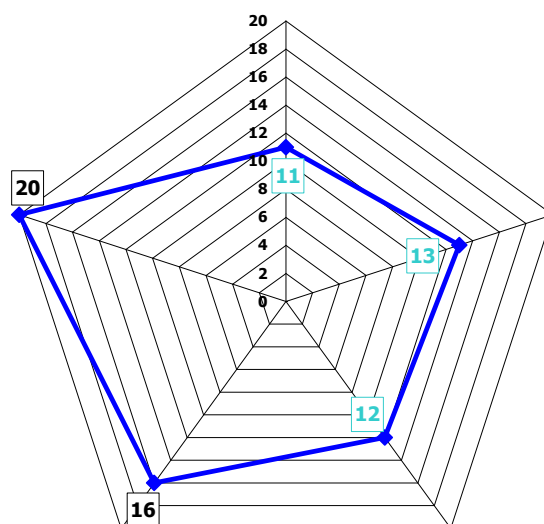


Figure 2. Assessment of signs of physical capacity

Very high (16 points) is the assessment characterizing the level of development of speed endurance (200m shuttle running) in total for the studied population.

The other grades are in the range between 11 and 13 points and are actually slightly higher than the average for Bulgaria level of development in seventh-grade students of:

- ✓ the linear speed (indicator 1) - 11 points;
- ✓ the explosive force of the upper limbs and the shoulder girdle (indicator 3 - 12 points);

- ✓ the explosive force of the lower limbs during muscular efforts in the horizontal plane (indicator 2 - 13 points).

In order to obtain the individual academic grades for physical capacity, we used the calculator for the automatic calculation of grades (Miladinov, O. et al., 2019).

As can be seen from the results presented in **Table 3**, the final grade of all surveyed girls participating systematically in basketball training sessions is very good 5.

Table 3. Individual evaluations of the results of the tests for physical capacity – 14 years old girls from Elementary school “Elisaveta Bagryana”- Sliven

№	Name	Running 30m	Jump static place	Throwing ball 3kg	Running 200m	T-test	Final mark
1	S N	Good 4	Exc. 6	V good 5	V good 5	Exc. 6	V good 5
2	P I	Good 4	Exc. 6	V good 5	V good 5	Exc. 6	V good 5
3	T S	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5
4	N S	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5
5	H H	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5
6	M A	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5
7	A V	Good 4	Exc. 6	Good 4	Good 4	Exc. 6	V good 5
8	V I	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5
9	B N	Good 4	Exc. 6	Average 3	Good 4	Exc. 6	V good 5
10	N Y	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5
11	N A	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5
12	M S	Good 4	Exc. 6	V good 5	Good 4	Exc. 6	V good 5
13	V S	Good 4	Exc. 6	V good 5	Good 4	Exc. 6	V good 5
14	H V	Good 4	Exc. 6	Good 4	Good 4	Exc. 6	V good 5
15	K K	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5
16	M V	Good 4	Exc. 6	Good 4	Good 4	Exc. 6	V good 5
17	D K	Good 4	Exc. 6	V good 5	V good 5	Exc. 6	V good 5
18	T R	Good 4	Exc. 6	V good 5	V good 5	Exc. 6	V good 5
19	K I	Good 4	Exc. 6	Good 4	V good 5	Exc. 6	V good 5

In the analysis of the table, it is noticeable that all studied girls have excellent grades in terms of explosive power of the lower limbs (long jump from a place) and speed of movement with change of direction and motor agility (T-test).

In terms of linear speed (running 30 m), the explosive power of the upper limbs (throwing a solid ball 3 kg), and endurance (running 200 m) the results range between a good 4 and a very good 5. This shows that as in training on physical education and sports, and in the training process in the future should be focused on improving the level of these 3 motor skills.

DISCUSSION

Following the logic that the greatest increase in the general level of physical capacity can be achieved if in the future we work mainly on the development of those signs for which the T scores are the lowest (6), we believe that the emphasis in dealing with the girls surveyed during the new school year should be focused on developing the speed and explosive power of both the upper limbs and the shoulder girdle, as well as the lower limbs.

The calculated generalized point assessment (average total assessment) for the level of development of the physical capacity of the studied group of girls from VII grade of “Elisaveta Bagryana” Primary School - Sliven,

included in extracurricular basketball classes, is 14.4 points. This gives grounds to summarize that, in general, the studied population has a very good level of physical capacity.

We can also note that despite the participation of girls in regular basketball training sessions, there are no extremely excellent grades, which we assume is a consequence of impaired motor and training regimen in general imposed by Covid restrictions.

CONCLUSION

The analyzes and summaries made in the above allow us to recommend in the future training work to focus on the development of those motor qualities that generally show a lower level of development, and according to the individual assessments of the studied girls additional funds are planned and individual work to improve them.

REFERENCES

1. Mavrudiev, P., Physical development and capacity of students with different professional orientation, NSA PRESS, Sofia, 2021, ISBN 978-954-718-670-5
2. Uzunova, D., Survey of the opinion of 4th grade students on the teaching of physical

- education and sports in the electronic environment, DR, Master, NSA, Sofia, 2021
3. Hristov, J., Physical development and physical capacity of students participating in extracurricular activities in basketball, DR, Bachelor, NSA, S., 2020
 4. Miladinov et all. System for assessing the physical capacity of students from I to XII grade. NSA Pres, Sofia, ISBN 978-954-718-570-8. pp. 14, 2019.
 5. Gigova, V., Statistical processing and analysis of data. Practical Guide for Master's Students. NSA, S., 1999.
 6. Gyosheva, K., Tsarov, K., Tsarova, R. Basketball - system for control, evaluation and optimization of sports training (boys and girls - junior age). NSA - Publishing and Printing Base, Sofia, 1990.

MAVRUDIEV P., et al

