

## COMPARATIVE ANALYSIS OF THE SPORTS PREPAREDNESS OF PUPILS PRACTICING BASKETBALL AT “SAINT NAUM” SECONDARY SCHOOL IN THE CITY OF SOFIA AND “GEORGY BENKOVSKI” SECONDARY SCHOOL IN THE CITY OF VARNA

*(Preliminary communication)*

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### **Abstract**

*The object of the study is some basic signs of the specific physical and specific technique-tactic preparedness and their development under the effect of specific motive activity (by means of basketball). Sample of the study consists of 12 girl pupils (6<sup>th</sup> – 7<sup>th</sup> grade) from the sports school in Varna, competing at “Odessos” sport club and 12 girl pupils from the “Saint Naum” sports school in Sofia, born in 1998-1999. For the needs of the study a battery test is applied covering 10 indicators. The following **methods of research** have been applied for implementing the objective and tasks set up in the study: review study of specific literature; expert evaluation; sports-pedagogical tests. The results from the comparative analysis of the preparedness of the 14 years old pupils from the sports schools in Varna and Sofia provide the reason for making the following **conclusions**: The pupils from Varna considerably outdo their peers from Sofia in relation to the development of the specific swiftness of moving along the terrain without a ball, the speed endurance and the quickness of shooting a basket; The pupils from Sofia do not considerable outdo their coevals from Varna in relation to the explosive strength of the lower limbs at vertical efforts, dynamics of the abdominal muscles and the execution of free throws. These differences might be explained by random reasons.*

**Keywords:** *physical preparedness, sports-pedagogical tests, sports schools, specific workability, expert evaluation, t-criterion of student, physical and technique-tactic preparedness*

### **INTRODUCTION**

Modern basketball requires high level mastering of the basic technique-tactic methods of the game, basketball athleticism and psychic stability. The capable combination of these important components of the competitors' preparation since early childish age allows overcoming the difficulties within the continuously changing game situations. The permanent follow up of the physical development, the specific preparation of the growing up basketball players provides the possibility for the sports experts as well as for the competitors themselves to get information about the moment status of the basic signs of the physical development and the technique-tactic preparedness. On that base and through comparative analysis and evaluation they have the possibility to take rational solutions for the optimization of the school-training process.

Practice has indisputably proven that sports schools create the best conditions for the school-training process of the sports talents of Bulgaria (Smochevski (Смочевски), 2001). Not long time ago they have been a center for finding and forming elite athletes. Their number has been reduced to a minimum as of today and their working conditions and respectively their contribution to the Bulgarian sport are not at the required level (Kurmulis (Курмулис), 2001). On the other side, the objective control is an important factor, guaranteeing the quality of the school-training process and the sports result, which defines the actuality and the importance of the theme of the study (Gyosheva, Tsarov, & Tsarova (Гьошева, Църов, & Църова), 1990). The new State Educational Requirements are setting up high requirements to the acceptance and preparation of the sports talents within the sports schools system. Their

education is directed towards achieving high sports results and personal perfection at the “sports mastership” level (Tsarova, & Borukova (Църова, & Борукова, 2011). With the purpose to guarantee achievements in sport, the Ministry of Physical Culture and Sport emphasizes on strengthening the current control at the Sports Schools by introducing a “System for evaluating the results of the sports preparation of the pupils at the sports schools” developed for 30 types of sports mainly by experts from “V. Levski” National Academy of Sport (Tsarova, & Miladinov (Църова, & Миладинов), 2012).

**The objective** of the present study is to make a comparative analysis and evaluation of the basic parameters of the specific workability of girl pupils practicing basketball from the 6<sup>th</sup> and 7<sup>th</sup> grade at “Georgi Benkovski” Secondary school – city of Varna and “Saint Naum” Secondary school – city of Sofia.

## METHODS

The present study has been made during the May-December 2012 period.

**Subject** of the study is the specific basketball workability within the 13-14 years of age (6<sup>th</sup> and 7<sup>th</sup> grade).

**Object** of the study is some basic signs of the specific physical and specific technique-tactic preparedness and their development under the effect of specific motive activity (by means of basketball).

**Sample** of the study is 12 girl pupils (6<sup>th</sup> and 7<sup>th</sup> grade) from the sports school in Varna, competing at “Odessos” sport club and 12 girl pupils from the “Saint Naum” sports school in Sofia, born in 1998-1999.

For the needs of the study a test battery is applied covering 10 indicators, which can be distributed in two groups:

- ✓ specific physical preparedness – 6 indicators (form 1<sup>st</sup> up to 6<sup>th</sup>);
- ✓ technique-tactic skills – 4 indicators (from 7<sup>th</sup> up to 10<sup>th</sup>).
- ✓ specific physical preparedness – 6 indicators (form 1<sup>st</sup> up to 6<sup>th</sup>);
- ✓ technique-tactic skills – 4 indicators (from 7<sup>th</sup> up to 10<sup>th</sup>).

*Remark:*

- ✓ *test 4.* practices from 5<sup>th</sup> up to 7<sup>th</sup> grade;
- ✓ *test 10.* practiced from 7<sup>th</sup> up to 12<sup>th</sup> grade.

The following *methods of research* have been applied for implementing the objective and tasks set up in the study:

- ✓ review study of specific literature;
- ✓ expert evaluation;
- ✓ sports-pedagogical tests.

The results of the study have been subjected to mathematical-statistical treatment by:

- ✓ *variation analysis;*
- ✓ *method of the indexes;*
- ✓ *sigma method for evaluation;*
- ✓ *comparative t-criterion of Student for independent extracts.*

## RESULTS

Toward solving the objective and the tasks of the study, the initial data have been evaluated by the sigma method evaluation. The evaluations are normalized magnitudes, presented by 16-mark system (from 2,25 to 6,00 – through 0,25 p.), allowing to compare the achievements by variously measuring tests and indicators (measured in s, sm, kg, pcs., etc.).

The battery test we have applied covers 10 basic signs of the physical and technique-tactic preparedness, which are offered in the new normative system for evaluating the results from the “Sport preparation” subject of the pupils from V up to 12<sup>th</sup> grade at the sports schools in Bulgaria. The normative tables have been developed for the needs of the Ministry of Education and Science and the Ministry of the Physical Education and Sport by Tsarova & Borukova (Църова, & Борукова) (2012).

The normative base applied allows acquiring an idea about the level of the girl pupils under study in comparison with the average level of preparedness for the same age group at the sports schools in Bulgaria. That provides the possibility that the work during the future school-training process will be directed towards correction and perfection of the problems arisen.

The first direction of our analysis allows to compare the average levels of the physical preparedness signs of

Table 1. List of indicators

№	Indicators \ Parameters	Units	Exactness of measurement	Direction of increase
1.	<i>20 m sprint</i>	S	0,01	-
2.	<i>Running between stands</i>	S	0,01	-
3.	<i>Height rebound</i>	sm	1,0	+
4.	<i>Long jump</i>	sm	1,0	+
5.	<i>Abdominal presses</i>	pcs	1,0	+
6.	<i>“Shuttle” running</i>	S	0,01	-
7.	<i>Loops made by dribble</i>	pcs	1,0	+
8.	<i>Leading the ball index</i>	S	0,01	-
9.	<i>Shooting while moving – coefficient</i>	S	0,01	-
10.	<i>Free throws</i>	pcs	1,0	+

the aggregate under study (girl pupils from “Saint Naum” Secondary school – Sofia) and the girl basketball players of the same age (girl pupils at “Georgi Benkovski” Secondary school – Varna) who are champions for the respective 2011/2012 year. It can be seen (Tabl. 2.) that in relation to the greater part of the indicators for both groups compared there exist differences for the average values of the evaluations of the separate signs. The analysis of the table shows that in relation to the specific swiftness, speed endurance and explosive strength of the lower limbs at horizontal efforts as well as for the coordination like complicated movements in space, the girl pupils from Varna have the advantage.

The advantage of the girl pupils from Sofia is only in relation to the explosive strength of the lower limbs at vertical efforts which is very important for the basketball game. As far as the abdominal muscles dynamic is concerned, both aggregates have close values. The availability of differences anyhow does not allow making serious conclusions prior the importance of these differences has been checked as we did by the help of the Student’s t-criterion.

The analysis of the average values of the technique-tactic preparedness signs presented in Table 3. show that in relation to the ability of playing the ball at site, the specific swiftness of moving along the terrain with

Table 2. Comparative analysis of the physical preparedness signs

№	Indicators	Average level	
		Varna	Sofia
1.	20 m sprint	3,96	3,75
2.	Running between stands	5,58	3,96
3.	Height rebound	3,50	4,06
4.	Long jump	4,38	3,77
5.	Abdominal presses	4,25	4,27
6.	“Shuttle” running	4,90	3,53

Table 3. Comparative analysis of the technique-tactic preparedness signs

№	Indicators	Average level	
		Varna	Sofia
7.	Loops made by dribble	4,69	4,06
8.	Leading the ball index	4,50	3,83
9.	Shoot. while mov-coeff.	5,00	4,10
10.	Free throws	4,00	4,88

Table 4. Importance of the differences between the average values of the marks for both aggregates under study ( $t_{critical} = 2,07$ )

Importance of the differences between the average values of the marks			
Sofia	№	Indicators	Varna
	1.	20 m sprint	0,44
	2.	Running between stands	
-1,01	3.	Height rebound	4,24
	4.	Long jump	1,15
-0,05	5.	Abdominal presses	
	6.	“Shuttle” running	3,22
	7.	Loops made by dribble	1,40
	8.	Leading the ball index	1,84
	9.	Shooting while moving – coefficient	2,09
-1,65	10.	Free throws	

the ball and the quickness of shooting a basket, the girl pupils from Varna have the advantage. The girl pupils from Sofia have better results for the free throws only.

The availability of differences between the average levels of the signs under study anyhow does not allow to make serious conclusions; in order to solve the tasks of the study we have applied the Student's comparative t-criterion for independent extracts with high guaranteed probability of  $P > 95\%$ , where  $t_{critical} = 2,07$ .

The results of the comparative analysis between both groups are presented in Table 4. The analysis of the table shows that in relation to the greater part of the signs under study, the pupils from Varna have advantage before their coevals from Sofia. The analysis of the right side of Table 4. shows that for three of the seven indicators about which the pupils from Varna have advantage, the calculated values of the t-criterion are higher than the critical value. That is indicator No. 2 (running between stands) where  $t_3 = 4,24$ , indicator No. 6 ("shuttle" running) where  $t_6 = 3,22$  and indicator No. 9 (shooting while moving – coefficient) where  $t_9 = 2,09$ . That provides us with the reason to claim that the pupils from Varna have considerably high level of development of the specific swiftness of moving along the terrain without a ball, speed endurance and quickness of shooting a basket. As far as the rest signs of the specific workability about which the pupils from Varna outdo their peers from Sofia, the Student's t-criterion values are lower than those in the table ( $t_{critical} = 2,07$ ), consequently, the differences existing between the groups in relation to the signs about which these indicators bear information are of 95% guarantee probability and may be explained by random reasons. The left side of the table presents the values (t-criterion) of the indicators about which the group from Sofia has advantage as compared to the pupils from Varna. The analysis show that for the three indicators mentioned here, the values of the t-criterion are lower than the critical one (2,07).

Consequently, we could say that the differences between the average arithmetic values of both aggregates for the respective signs under study are not sufficiently big and can not be considered as important. That gives us the reason, with high guarantee probability ( $P \geq 95\%$ ) to claim that the pupils from Sofia do not considerably outdo their coevals from Varna in respect to the explosive strength of the lower limbs at vertical efforts, dynamics of the abdominal muscles and the executing of free throws.

## CONCLUSIONS

The results from the comparative analysis of the preparedness of the 14 years old pupils from the sports schools in Varna and Sofia provide the reason for making the following **conclusions**:

1. The pupils from Varna considerably outdo their coevals from Sofia in relation to the development of the specific swiftness of moving along the terrain without a ball, the speed endurance and the quickness of

shooting a basket.

2. The pupils from Sofia do not considerably outdo their coevals from Varna in relation to the explosive strength of the lower limbs at vertical efforts, dynamics of the abdominal muscles and the execution of free throws. These differences might be explained by random reasons.

3. The use of both evaluation systems (50 marks and 16 marks) and the comparison of the average values for both groups provide identical results.

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