

ANALYSIS AND ASSESSMENT OF THE PHYSICAL DEVELOPMENT AND THE SPECIFIC PREPAREDNESS OF 14 YEARS OLD GIRL BASKETBALL PLAYERS

Original scientific paper

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Abstract

The purpose of the present study is to make analysis and assessment of the physical development and the specific workability of "September 97" girls team from Sofia. The present study has been made during March-June 2015. Subject of the study is the physical development and the specific workability of 14 years old girl basketball players. Contingent of the study is 10 girl basketball players born in 2001-2003 from "Septemvri 97" basketball club – Sofia taking part in the State championship of the Bulgarian basketball federation. For the needs of the study a testing has been made of all competitors from the team according to 25 indicators bearing information about the basic signs for the physical development and the specific basketball workability. The results from the study have been subjected to mathematical-statistical processing by analysis of variance and sigma method of assessment. The totality we have studied is homogeneous in relation to the height, stretch, special speed for moving along the playground with and without a ball, the speed of the motive reaction, the explosive strength of the lower limbs under coordination, complicated movements in the space and the speed endurance. Great individual differences are observed in relation of the basketball players to work with the ball at site and at high speed.

Keywords: *motor test, development indicators, technical and tactical preparedness, training and teaching process, analysis of variance, sigma method of assessment, T valuations*

INTRODUCTION

The important structural changes effected in the contents of the basketball game cause objective order which has to be recon within the process of its development and perfection. The incessant activation of the game and the rising requirements to the functional abilities of the players (Gosheva, Tszrov, & Tszrova (Гъшева, Църов, & Tszrov), 1990; Dasheva (Дашева), 1991), are one of the characterizing signs of that development.

The skill of the coach to select, measure and assess the objective state of the future women basketball players, to prognosticate their development as well as to apply convenient means and methods of training, to use effective control on the preparedness of his/her competitors at the various steps of their development is particularly important about the successful management of the training and teaching process. The comparison of the results with the results of other teams of the same age and qualification allow to enter in time corrections in the training programs and to plan concrete measures for the optimization of the team preparation (Coysi & Power), (1983).

The development of women basketball shows regress during the last years both at national and international level. According to our view it is necessary to put efforts in the perfection of the training and teaching process for the growing up girl basketball players in order to change the status quo. We think that a part of the reasons for that situation is the insufficient effective teaching and training work with the growing up athletes.

The purpose of the present study is to make analysis and assessment of the physical development and the spe-

cific workability of "September 97" team – Sofia – girls (Църов (Tszrov), 2008).

METHODS

The present study has been made during March-June 2015.

Subject of the study is the physical development and the specific workability of 14 years old girl basketball players.

Object of the study is the basic signs of the physical and technical and tactical preparedness in basketball.

Contingent of the study is 10 girl basketball players born in 2001-2003 from "Septemvri 97" basketball club – Sofia taking part in the State championship of the Bulgarian basketball federation.

For the needs of the study a testing has been made of all competitors from the team according to 25 indicators bearing information about the basic signs for the physical development and the specific basketball workability.

The results from the study have been subjected to mathematical-statistical processing by a *variation analysis* and *sigma method of assessment*.

On the basis of the average level of the measured signs for the given age group (girls 14 years old) T valuations have been calculated which are standardized quantities presented in 50 mark point system which allows the comparison of the achievements according to the various measuring tests and indicators (number, time, %, etc.). The average level of the complete totality answers to 25 points.

The analysis of the present study shall support the perfection of the teaching and training processes and shall as well as increase the effectiveness control.

RESULTS AND DISCUSSION

The results of the analysis of variance of the indicators under study for the physical development and the physical, technical and tactical preparedness (*Table 1.*) show that the quantities have normal distribution, while the totality under study is homogeneous and relatively homogeneous in relation to the signs about which these indicators bear information. Non homogeneity is observed in relation to the skill of the players to work with the ball at site as well as to move along the playground by leading the ball at high speed.

In order to establish the level of each of the competitors according to each of the signs under study we have calculated the T valuation of each one of the indicators under study.

Table 2. presents the individual average valuations of the physical development indicators. Kristina – 33,09 p., Gergana – 31,61 p. and Alexandra – 30,75 p. have received the highest marks. Three of the girls have got marks under the average level. All other girls have marks

above the average level of 25 p. for the age group under the study. The highest average team valuations refer to the following indicators – “length of the lower limb” – 34,52 p., “length of the upper limb” – 29,88 p., “height” – 29,94 p. and “stretch” – 29,39 p. That is a sign for the good selection of the team which is confirmed as well by the average valuation for the group of 27,30 p.

Table 3. presents the individual average valuations for the physical preparedness indicators. Two of the competitors stand out with their highest marks – Gergana – 30,37 p. and Konstantina – 30,29 p. Two of the girls have marks above the average level and the rest are under the average level (25 p.). The highest team average valuations refer to the “Loop run” – 33,33 p. and “Long jump” – 27,24 indicators. The indicators related to the speed of moving along the playground without a ball and the explosive strength of the lower limbs upon vertical efforts has the worst marks. The average valuation of the team related to the physical preparedness indicators is under the average level of **24,18 p.**

Table 1. Average quantities and variation of the indicators under study

Indicators	R	Min.	Max.	X	S	As	Ex	V
Height	24,00	155,00	179,00	168,70	7,70	-0,972	0,249	4,57
Weight	40,00	37,00	77,00	59,40	12,50	-0,324	-0,468	21,06
BMI	10,03	15,40	25,43	20,70	3,29	0,114	-0,869	15,91
Lower limb	16,00	97,00	113,00	105,90	4,81	-0,467	-0,203	4,55
Upper limb	12,00	68,00	80,00	76,20	3,64	-1,49	2,057	4,78
Span	3,50	19,00	22,50	21,05	1,11	-0,455	-0,263	5,31
GO-pause	28,00	67,00	95,00	83,40	8,43	-0,739	0,109	10,11
GO-difference	5,00	4,00	9,00	7,30	1,63	-0,791	0,222	22,42
Stretch	29,00	150,00	179,00	168,90	8,91	-1,462	1,464	5,28
20 m run	0,62	3,50	4,12	3,77	0,20	0,394	-0,872	5,47
Run between stands	2,76	21,82	24,58	23,22	1,05	-0,31	-1,638	4,56
Shuttle run 112m	7,05	23,13	30,18	26,87	2,29	-0,413	-0,862	8,53
High jump	16,00	23,00	39,00	32,10	5,46	-0,466	-1,026	17,03
Long jump	50,00	150,00	200,00	181,70	17,41	-0,651	-0,563	9,59
Throwing comp. ball from sitting and looking forward	2,00	3,20	5,20	4,19	0,60	0,252	-0,198	14,51
Moving in defense	1,55	10,51	12,06	11,21	0,53	0,002	-1,407	4,80
Abdominal press	14	12	26	22,10	4,48	-1,58	1,912	20,29
Leading the ball b/n stands	3,34	22,70	26,04	24,56	1,09	-0,495	-0,568	4,45
Index of leading	2,01	0,29	2,30	1,35	0,53	-0,397	1,344	40,11
Loops by dribble	32	20	52	36,40	11,69	0,144	-1,499	32,12
Shot on the run – time	12,59	33,18	45,77	38,01	3,26	1,402	3,73	8,59
Shot on the run – number	2	4	6	5,30	0,67	-0,434	-0,283	12,73
Shot on the run – coefficient	5,91	5,53	11,44	7,35	1,65	1,779	4,314	22,51
Shot from position	8	14	22	18,10	2,68	-0,09	-1,292	14,84
Free throws	9	8	17	13,50	2,95	-1,035	0,063	21,88

Table 2. Individual valuations of the physical development indicators

Name	Height	Weight	BMI	Length. lower limb	Length. upper limb	Length of span	Chest measur. pause	Chest measur. - diff	Stretchr	Average valuation
Kristina	43,24	13,62	23,11	46,10	38,50	28,48	32,21	32,11	40,40	33,09
Gergana	35,49	27,45	33,66	33,05	31,70	28,48	30,93	32,11	31,66	31,61
Mina	32,91	16,58	19,77	41,21	31,70	24,82	36,04	2,95	33,84	26,65
Radina	27,75	17,57	17,38	28,15	29,43	17,51	30,93	14,62	31,66	23,89
Ivelina	32,91	7,69	9,55	36,31	33,96	17,51	42,42	20,45	32,75	25,95
Nikol	36,78	4,73	9,14	41,21	36,23	24,82	36,04	26,28	36,03	27,92
Konstantina	29,04	27,45	30,04	37,94	36,23	28,48	24,56	20,45	33,84	29,78
Borislava	12,26	44,24	42,43	19,99	11,30	10,19	6,69	26,28	8,71	20,23
Andrea	13,55	35,35	30,81	26,52	20,36	35,80	15,62	14,62	15,26	23,10
Alexandra	35,49	26,46	32,55	34,68	29,43	35,80	20,73	32,11	29,47	30,75
<i>Average valuation</i>	29,94	22,11	24,84	34,52	29,88	25,19	27,62	22,20	29,36	27,30

Table 3. Individual valuations of the physical preparedness indicators

Name	Sprint 20 m	Run b/n stands	Loop 112 m	High jump	Long jump	Throwing comp. ball	Moving in defense	Abdominal press	Average valuation
Kristina	19,88	22,54	22,93	28,53	16,63	39,85	14,64	23,63	23,58
Gergana	30,73	29,80	34,21	33,68	36,18	25,94	27,63	24,82	30,37
Mina	13,62	15,22	27,12	6,25	11,75	20,73	15,90	26,01	17,07
Radina	30,31	29,65	32,88	26,82	28,85	22,47	26,37	26,01	27,92
Ivelina	23,64	15,00	17,70	14,82	28,85	20,73	8,08	16,50	18,16
Nikol	33,65	12,06	29,31	18,25	36,18	43,32	24,85	24,82	27,81
Konstantina	35,32	28,94	27,74	31,96	36,18	30,29	25,86	26,01	30,29
Borislava	19,46	20,39	50,00	21,68	24,94	8,56	12,37	20,06	22,18
Andrea	25,72	14,14	47,11	26,82	31,29	15,51	16,28	10,55	23,43
Alexandra	9,45	9,98	44,35	9,68	21,52	29,42	16,66	27,20	21,03
<i>Average valuation</i>	24,18	19,77	33,33	21,85	27,24	25,68	18,86	22,56	24,18

Table 4. Individual valuations of the indicators for specific technical and tactical preparedness

Name	Leading the ball b/n stands	Index of leading	Loops by dribble	Shot in movement-t	Shot in movement Coeff.	Shot from position	Free throws	Average valuation
Kristina	23,25	24,98	16,59	15,00	30,05	22,33	33,00	23,60
Gergana	24,52	18,63	29,93	20,32	21,30	34,06	36,88	26,52
Mina	18,67	25,99	13,92	8,53	17,08	34,06	33,00	21,61
Radina	30,12	27,99	21,93	22,58	22,12	31,13	29,12	26,43
Ivelina	16,99	23,48	8,58	0,00	-11,48	25,26	33,00	13,69
Nikol	22,18	35,44	27,26	23,92	22,60	37,00	21,36	27,11
Konstantina	31,75	31,51	29,93	39,95	37,51	39,93	40,76	35,91
Borislava	23,05	27,16	13,92	15,28	19,50	19,40	9,71	18,29
Andrea	17,45	25,23	11,25	25,95	33,33	16,46	29,12	22,68
Alexandra	14,75	25,65	21,93	23,09	32,47	25,26	5,83	21,28
<i>Average valuation</i>	22,27	26,61	19,52	19,46	22,45	28,49	27,18	23,71

Table 3. presents the individual average valuations for the physical preparedness indicators. Two of the competitors stand out with their highest marks – Gergana – 30,37 p. and Konstantina – 30,29 p. Two of the girls have marks above the average level and the rest are under the average level (25 p.). The highest team average valuations refer to the “Loop run” – 33,33 p. and “Long jump” – 27,24 indicators. The indicators related to the speed of moving along the playground without a ball and the explosive strength of the lower limbs upon vertical efforts has the worst marks. The average valuation of the team related to the physical preparedness indicators is under the average level of **24,18 p.**

Table 4. presents the individual average valuations of the technique and tactic preparedness indicators. Konstantina has received the highest mark – 35,91 p. Two of the girls are a little above the average level (Gergana – 26,52 p. and Radina – 36,43), all other girls have marks under the average level for the country. The highest team average valuations are related to the realization qualities of the competitors – “shot from position” – 28,49 and “free throws” – 27,18 p. The lowest are the valuations related to the abilities of the girls to work with the ball at site and the speed of making a shot. The average team valuation is **23,71 p.**

The “Septemvri 97” competitors have higher level of physical development (27,30 p.) than their physical and technical and tactical preparedness. Having in mind the age

of the girls we think it normal and can be corrected within the future teaching and training process.

Fig. 5. presents the generalized individual average valuations. The highest marks are for Konstantina – 31,99 p. and Gergana – 29,50 p. There are five competitors with marks under the average level and the rest of the girls are around the average level in the country for the respective age group. The average valuation for the team is **25,06 p.**

Table 5. Generalized individual valuations

Name	Individual valuations
Kristina	26,76
Gergana	29,50
Mina	21,78
Radina	26,08
Ivelina	19,27
Nikol	27,61
Konstantina	31,99
Borislava	20,23
Andrea	23,07
Alexandra	24,35
<i>Average valuation</i>	25,06

CONCLUSIONS

The analysis and generalizations made up till now allow making the following more important **conclusions**:

1. The totality we have studied is homogeneous in relation to the height, stretch, special speed for moving along

the playground with and without a ball, the speed of the motive reaction, the explosive strength of the lower limbs under coordination complicated movements in the space and the speed endurance. Great individual differences are observed in relation of the basketball players to work with the ball at site and at high speed.

2. Greater part of the competitors have BMI index within the normal boundaries for the respective age.

3. The team we have studied has got lower level of development in relation to:

- ✓ specific speed for moving along the playground without a ball;
- ✓ moving in defense;
- ✓ explosive strength of the lower limbs under vertical efforts;
- ✓ and dynamics of the abdomen muscles.

4. Efforts should be put in the teaching-training process for:

- speed-strength endurance with the purpose of increasing the functional capacity of the thorax;
- leading the ball at high speed;
- speed in realizing a shot in the ring;
- improving the technique for working with the ball at site.

5. To increase the training sessions for individual work with the competitors while the efforts should be directed to those signs on which the competitors have got worst T-valuations.

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