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RESEARCH ON THE COMPETITIVE PERFORMANCE OF THE BULGARIAN NATIONAL TEAM OF UNDER – 16 FEMALE PLAYERS IN THE EUROPEAN CHAMPIONSHIP, DIVISION B IN 2012

Introduction

In today's basketball, the opinion that achieving high and stable sports results can be realized only by science-based long-term preparation is gaining more and more popularity. A major part of this preparation is the participation of adolescent female players in European Championships for the respective age group.

The *purpose* of this study is to analyze the competitive performance of the Bulgarian National basketball team, consisting of female players up to 16 years of age, who took part in the European Championship, Division B, held in Tallinn, Estonia from 12 to 22 July 2012.

Methods

For the purpose of the study information was gathered on the gaming performance of the players of the national team in all 9 played matches, comparing them by 16 indicators. The unit of observation of this study was the single game. The team competitive efficiency is a combination of the gaming performance of all players involved in the basketball game, regardless of the time that they were actually playing in the match.

The results of the study were subjected to *mathematical and statistical* processing by: variation analysis, percentage, comparative Student's t-test.

Results and discussion

After a few years of non-participation, the Bulgarian National team was ranked second in the European Championship and won promotion to Division A for next year. The subject of our research is the results of the team at the time of this particular event.

It is well-known that monitoring and recording of the performance indicators provide extensive information on the various gaming performance of the separate players and of the team as a whole.

The processing of this information with the help of the variability analysis reveals the mean value of each of the studied indicators of the team effective performance. The mean values and the variability of the studied indicators of the researched team in the EC-2011 and EC-2012 are presented in *tabl. 1*.

Табл. 1. Mean values and variability of the indicators of gaming performance

№	Indicators / Parameters	NT 2011			NT 2012		
		X	S	V	X	S	V
1.	<i>Scored points</i>	62.00	6.60	10.64	63.44	9.62	15.16
2.	<i>Total shootings - attempts</i>	59.33	8.19	13.80	63.56	6.19	9.73
3.	<i>Total shootings - % successful</i>	36.22	5.73	15.81	36.92	6.45	17.48
4.	<i>Total two-point shots - attempts</i>	47.44	6.50	13.70	50.44	5.88	11.65
5.	<i>Total two-point shots - % successful</i>	40.44	8.32	20.57	39.67	6.76	17.04
6.	<i>Total three-point shots - attempts</i>	11.89	4.65	39.10	13.11	3.18	24.25
7.	<i>Total three-point shots - % successful</i>	20.27	11.70	57.72	28.03	11.12	39.65
8.	<i>Free throws - executed</i>	25.33	6.60	26.03	22.67	6.46	28.51
9.	<i>Free throws - % successful</i>	66.32	8.32	12.55	58.43	15.84	27.10
10.	<i>Offensive challenge - % successful</i>	56.46	9.03	15.99	56.86	5.56	9.78
11.	<i>Defensive challenge - % successful</i>	31.70	7.36	23.23	42.94	6.52	15.18
12.	<i>Assists</i>	9.22	5.17	56.02	6.33	3.64	57.47
13.	<i>Steals</i>	11.00	4.27	38.84	10.89	3.02	27.72
14.	<i>Technical errors/ fouls</i>	21.89	7.61	34.75	21.00	6.40	30.49
15.	<i>Personal fouls</i>	23.56	5.81	24.67	20.00	3.94	19.69
16.	<i>Blocked shots</i>	2.67	2.00	75.00	4.11	1.62	39.31

The results of the analysis of the performance indicators of the national team players at the European Championship in 2012 are illustrated in the graphs in **fig. 1 to 5**.

The analysis in Fig.1 gives a clear idea of the quantitative indicators of the shooting. Averagely, the female players at the Championship made 63 attempts to shoot for goal in the opponent's basket, of which 50 were shot from the 2- point line and 13 from the 3-point line. As a result of the aggressive individual actions of the players in the offense, the team received the right to execute an average of 22 free throws.

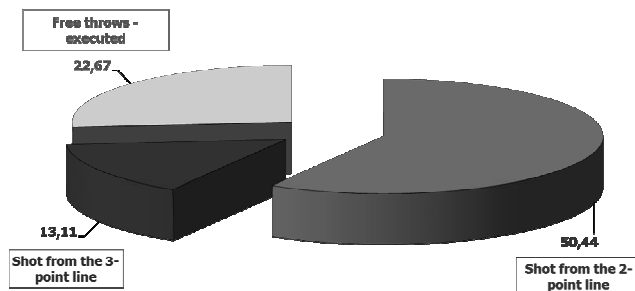


Fig. 1 Quantitative indicators of shooting

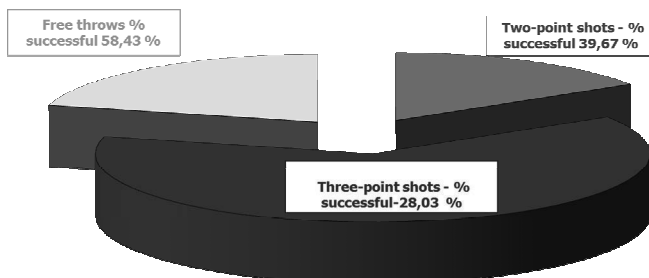


Fig. 2 Qualitative indicators of shooting

The qualitative indicators of the shooting are shown in *fig. 2*. The values of the three indicators are much lower. The lowest value is the success rate in implementing free throws (58.43%), where the rate is assumed to be more than 70% successful. The other two quality indicators show similar results. The team fall behind on improving the success rate in shooting for 2 and 3 points, but this can largely be explained by the age of the players. In future their training process should focus on the increased demand for concentration in the final stage of the offense and strict requirements for a fixed number of successful shooting should be set.

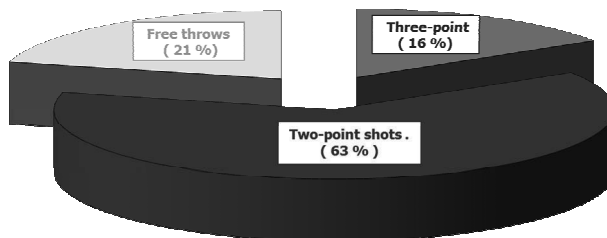


Fig. 3 Zone contribution to the overall score performance of the team

The graph in Figure 3 shows that the largest contribution to the overall score performance of the team is the shooting from the 2- point line - 63% of shootings completed in this area, which means averagely 40 points per game, achieved from close and medium shooting distances. Second in contribution to the overall performance are the free throws - 21% (13 pts). Meanwhile, only 16% (10 pts.) contribute to the shooting from a long distance (3-point line).

The ability of the players to participate successfully in the struggle to win bounced balls under the basket, both in offense and in defense is one of the key factors determining the effectiveness of their game. Good and timely approach, proper execution of blocking, larger number of players involved in the challenge, as well as the level of the explosive power of both lower and upper limbs, are major prerequisites for successful action in the challenge under the basket in offense and in defense.

The results in Fig. 4 give a clear picture of the effectiveness of the researched team in the fight under the baskets. The analysis shows that the percentage of rebounds under its own basket (56.89%) is not high enough and there is a lot to be done in the future training work with the girls of the national team. The percentage of rebounds in offense (42.94%), in turn, can be considered sufficiently high and leads to the conclusion that due to the desire for successful implementation of technical and tactical skills for successful actions under the opponent's basket, the team was allowed to do repeated attacks on the opponent's basket. This in turn has contributed to the successful ranking of our national team.

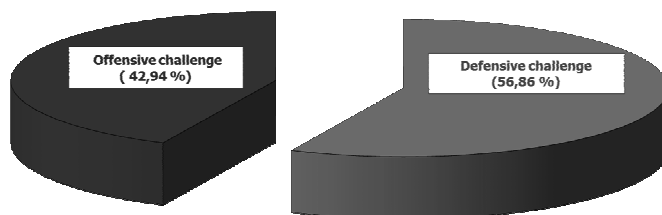


Fig.4 Effectiveness of the challenge under the basket

Additional game indicators (assists, steals, technical errors/fouls, personal fouls and blocked shots - Figure 5) have a significant impact on the final score of the match. The analysis of the indicators shows that the average percentage of 6.33 assists per match is low. This is not a good indicator of the capabilities of the players and of the team as a whole. Future work needs to improve the number of rapid breakthroughs.

The figure shows that an average of 21 times per match the team lost possession of the ball because of technical errors/fouls committed by its players and even more - only in 10.89 of the times the team managed to recover possession of the ball through effective action in taking it away from the opponent. This is an indication of an imbalance between the offensive and defensive skills of the female players and shows the need to improve possession and mastering of techniques in the offense as well as increasing the aggressiveness in defense. The number of personal fouls committed by the players of the team (averagely 20 per match) can be considered optimal, and is, of course a result of their not too aggressive play in the offense. The number of blocked shots (4.11 per match) is a good indicator of the above conclusion.

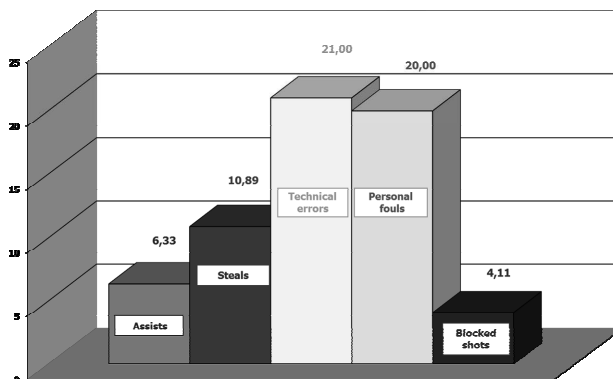


Fig.5 Average values of the additional indicators

To check the reliability of the differences between the average values of the studied indicators of the national team under-16 players, participants in the European Championship in 2012 and the national team under-16 which took part in the European Championship in 2011, the Student's comparative t-test for independent sections was used.

The results of the comparative analysis between the two teams are presented in Figure 6. The analysis shows that in 10 of the studied indicators the team EC-2012 has better gaming performance values, while in 4 of the indicators it has lower values. Only the value of indicator No 11 (Challenge in defense - % of rebounds) is higher than the critical value (2.03). According to this indicator with a value of $t(3,41)$, we can conclude that the performance of the Bulgarian national team EC - 2012 surpasses that of the one in EC-2011.

The remaining indicators of effective performance in which the team of 2012 surpasses that of 2011 and the existing differences between the two teams can be explained by random reasons.

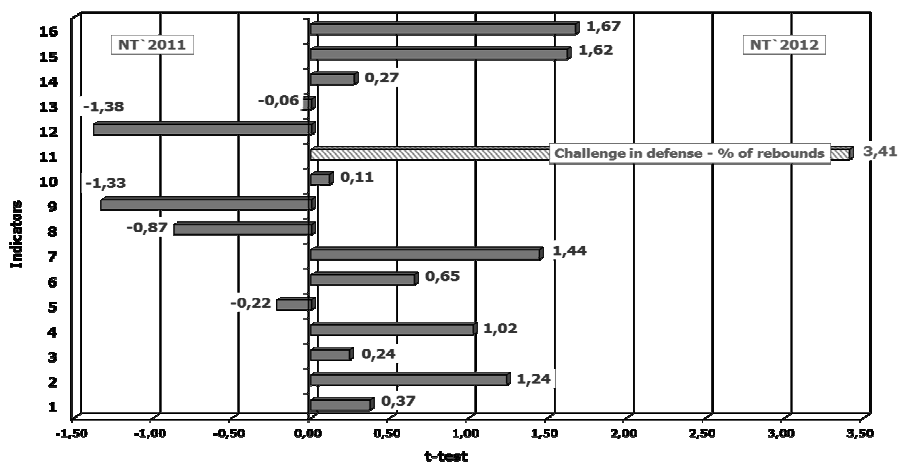


Fig. 6 Significance of the differences between the average values of the Indicators of competitive performance

Conclusions and recommendations

The analysis of the results of our study allows for the formulation of the following *conclusions*:

1. During the European Championship under study, the game performance of the Bulgarian team is characterized by:

- high efficiency in the challenge under the basket in offense;
- relatively high activity in the two-point line;
- good performance in blocked shootings;
- relatively good for this age group efficiency in the three-point line;

2. The team, however, falls behind in the following indicators:

- fight for rebounds in defense;
- low success in the implementation of free throws;
- small number of achieved assists;
- a great number of the team's technical errors/fouls.

In conclusion, the focus of the future educational and training work should be directed to:

- increased activity in shooting from the two-point and three-point lines;
- increasing the effectiveness of the shooting from the two-point line and the free throws;
- improved ability to pass accurate (in space, time and effort) assists;
- improving the technique of blocking in defense and offense;
- improving the quality and the aggressiveness in defense play, which would increase the number of steals, but not at the expense of increased number of fouls.

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involved in the basketball game, regardless of the time that they were actually playing in the match.

After analyzing the surveyed indicators, the following conclusions were made and those need to be the ground for the future education and training program of the researched national team, namely: increased activity in shooting from the two-point and three-point lines; increasing the effectiveness of the shooting from the two-point line and the free throws; improved ability to pass accurate (in space, time and effort) assists; improving the technique of blocking in defense and offense; improving the quality and the aggressiveness in defense play, which would increase the number of steals, but not at the expense of increased number of fouls.

„Dan“, 24. mart 2013.

У СУСРЕТ НАУЧНИМ СКУПОВИМА ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ

Научници из 15 земаља

На јубиларном, 10. међународном научном скупу Црногорске спортске академије, који ће се одржати од 4. до 6. априла у Подгорици очекује се учешће преко 200 стручњака са 26 универзитета, 38 факултета, десет академија и 28 установа из 15 земаља. На списку учесника и радова на тему „Трансформациони процеси у спорту“ од броја 111 до 120 налазе се: 111. Доц. др Бећир Шаботић (Црногорска спортска академија): „Каноничке релације између базично-моторичких и ситуационо-моторичких способности у спортским играма“; 112. Монем Јемни (Факултет наука, Универзитет у Гринвичу, Лондон): „Како наука постиже шампионе: помјерање људских граница“; 113. Зулфо Аруковић, Салко Хускић, Мидхат Мекић (Факултет

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