



ANALYSIS AND ASSESSMENT OF THE COMPETITIVE PERFORMANCE OF THE NATIONAL WOMEN'S BASKETBALL TEAM UNDER 16 YEARS OLD

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ABSTRACT

Conducting high-efficiency control over the competitive performance of basketball players is one way to identify key characteristics and assess their game efficiency. The aim of this study is to optimize the training process of female basketball players from the National Team under 16 years old by analysing and evaluating their competitive performance during the European Championship – Division B, held in Konya (Turkey) in the period August 15-24, 2024. To achieve the goals and objectives of this study, the following research methods were applied: review and analysis of specialized literature, observation and recording of competitive efficiency using 15 game indicators. The results obtained from the study were processed using alternative analysis, variance analysis, and sigma evaluation method. The analysis reveals that eight of the examined indicators have scores below average for teams of this age group. Basketball players face issues related to the following aspects of competitive efficiency: overall shooting success, three-point zone shooting, free throw line shooting, attempts for two-point zone shots and executed free throws, defensive rebounds, as well as steals and blocked shots. To improve competitive performance, future training processes for the Bulgarian team should include more diverse exercises for fighting under the basket, improving accuracy of close-range shooting and free throws, as well as enhancing the speed and coordination of upper and lower limb movements during defence play.

Keywords: efficiency, sport, European Championship, indicators.

INTRODUCTION

One of the main ways to establish the realization of basketball teams in competitive conditions involves determining the parameters of their game efficiency. In the constantly changing conditions of basketball games, these can be defined through the so-called game indicators that integrate all aspects of sports training – functional, motor, technical-tactical, and psychological.

In modern sports theory, there is an increasing consensus that achieving high and stable sports results can only be accomplished based on well-structured and long-term sports training [1]. At the core of analyzing this training is the

competitive performance of female basketball players during their participation in European Championships for the respective age group.

In basketball, for determining the competitive realization, it is of crucial importance assessing the game efficiency of each player and of the team as a whole.

The level of development of physical qualities has an impact on both sports training and game efficiency. Research on this issue has been conducted by various authors [2- 6].

Investigating the relationship between game efficiency and competitive realization at different levels of championships and ages has been the focus of numerous researchers [7-11].

A decisive condition for the effectiveness of basketball players' actions during a game is their ability to maintain stability in their accuracy,

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which can be disrupted due to fatigue during the competition [12].

Analyzing game activity in basketball historically has been carried out using various methodologies for observing and recording game actions [13-15].

MATERIALS AND METHODS

The aim of this study is to optimize the training process of female national basketball players under 16 years old through analysis and evaluation of their competitive realization. This research was conducted during the period August 15-24, 2024, during the European Basketball Championship for Women Under 16, Division B, in Konya, Turkey.

To achieve the set objective, we defined the following tasks:

1. Study specialized literature on the problem of competitive realization.
2. Expert assessment and observation and recording of competitive efficiency.
3. Revealing the average level and variability of indicators for competitive efficiency.
4. Assessing the state of the examined indicators of competitive realization.

For the purposes of the study, information about the game actions of the national team players was collected using 15 game indicators during all seven matches played. The unit of

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observation in this study is the individual match. The Team's competitive efficiency is a sum of the game actions of all players participating in the respective basketball match, regardless of the time they were in play.

The results obtained from the study were processed mathematically and statistically using alternative analysis, variance analysis, and sigma method for evaluation.

RESULTS

At the European Basketball Championship for Women Under 16, the Bulgarian national team finished in 15th place, with two wins and five losses. The basketball players scored an average of 57.57 points per game played.

The average number of shots per game in total attempts is 65.43, with an average of 43.86 two-point zone shot attempts and 21.57 three-point zone shot attempts.

The players have made an average of 18.28 free throw line attempts throughout the tournament. This result indicates that the basketball players have some reserves regarding this game indicator.

It is necessary to increase the activity of the game for overcoming defenders in one-on-one situations (**Figure 1**).

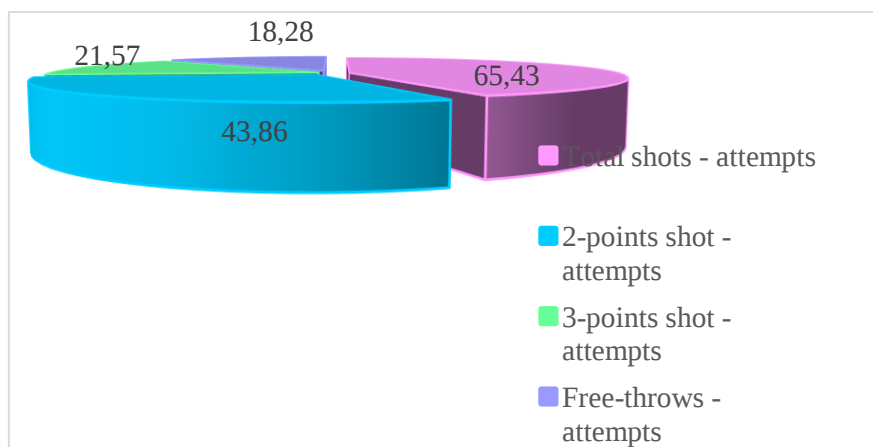


Figure 1. Relative shares of quantitative parameters for shooting at basket

In basketball, the effectiveness of shooting is particularly important for competitive success. During the European Championship, the team's overall shooting percentage was 33.20%, which we consider too low for such a forum. The shooting percentage from the two-point zone is 38.10%, while the shooting percentage from the three-point zone is 23.20%.

At the free throw line shooting, the efficiency is 56.30%. Here, it is necessary for the basketball players to demonstrate greater concentration and hard work to improve their results on this crucial aspect of basketball performance (**Figure 2**).

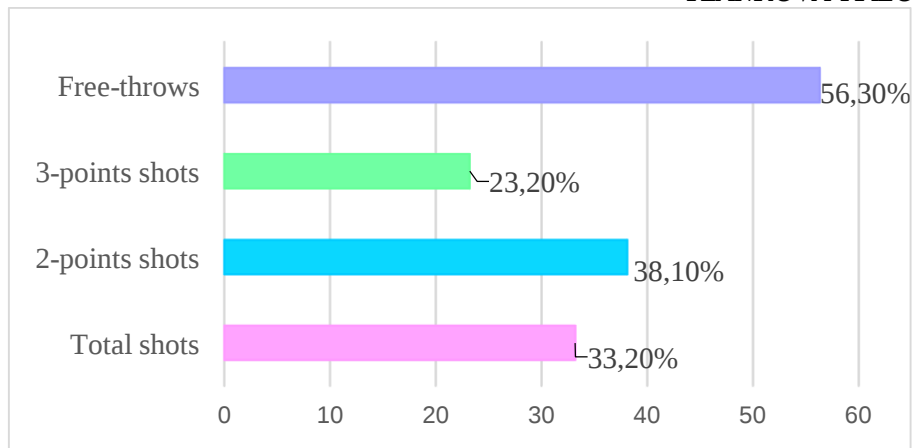


Figure 2. Efficiency of Shooting at the Basket

In the constantly changing conditions and dynamics of the game, the battle under both baskets (in offense and defense) is a very important indicator. Offensive rebounding gives the team another chance to attack and score points from second chances. Controlling

the rebound in defense allows players to organize a fast break, transition, or gradual attack. The basketball players have mastered an average of 39.41% offensive rebounds and 60.59% defensive rebounds (**Figure 3**).

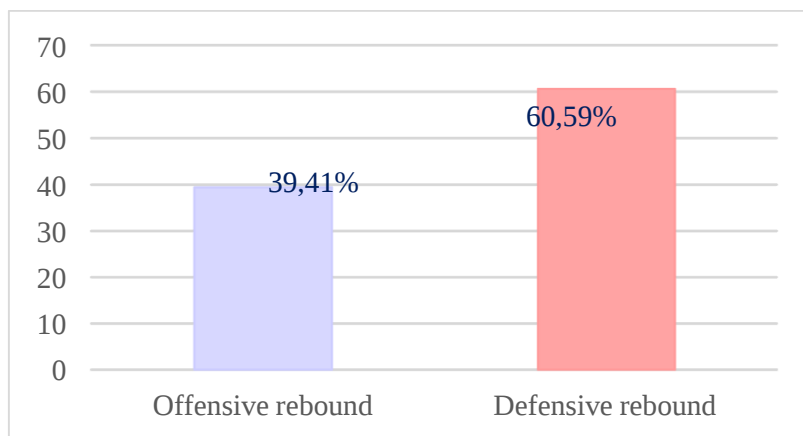


Figure 3. Battle Under the Basket in Percentages

On **Figure 4**, a group of additional indicators in basketball is presented. From the analysis conducted, we found that the national basketball

team players averaged 17.28 finishing passes per game, which is acceptable value for this age group.

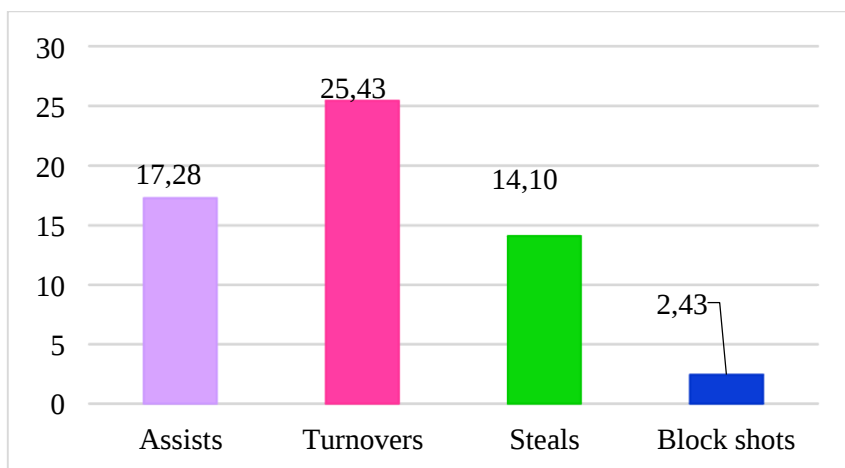


Figure 4. Average Levels of Additional Indicators

Regarding technical errors, the situation is not as favorable. The basketball players have committed an average of 25.43 technical errors (Turnovers) per game, which we consider to be quite high. In terms of steals in defense, their average number is 14.10. The value of blocked shots is also low, averaging 2.43 per game.

Table 1 provides us with an overview of the average values and variability of the indicators

we examined for the competitive effectiveness of the Bulgarian national women's basketball team players. The collected and processed information allows us to analyze the variability of the indicators. The coefficient of variation values ranges from 9.27% (indicator 9 - successful free throws) to 62.14% (indicator 15 - blocked shots).

Table 1. Average Values and Variability of Effectiveness Indicators

№	Indicators	X	S	V	min	max	As	Ex
1.	Points scored	57,57	12,50	21,71	45	82	1,31	2,18
2.	Shots – all attempts	61,43	6,42	10,45	54	71	0,30	-0,92
3.	Shots – total successful %	33,53	8,16	24,34	23,90	48,40	0,97	0,85
4.	2-points shots - attempts	43,86	9,06	20,66	33	61	1,11	1,74
5.	2-points shots - % success.	38,61	8,31	21,52	28,60	48,80	0,14	-1,77
6.	3-points shots - attempts	21,57	4,12	19,10	17	28	0,65	-0,96
7.	3-points shots - % success.	21,18	12,07	9,77	13,60	47,40	1,31	1,63
8.	Free throws - attempts	18,28	6,55	35,83	11	31	1,26	2,11
9.	Free throws - % success.	55,98	5,19	9,27	50	65	0,52	0,51
10.	Offensive rebound - %	40,16	15,34	38,20	26,00	69,23	1,30	1,26
11.	Defensive rebound - %	59,84	15,34	25,63	30,77	74,00	-1,30	1,26
12.	Assists	17,28	3,59	20,77	14	25	2,06	4,93
13.	Steals	14,14	5,05	35,71	8	22	0,24	-0,97
14.	Turnovers	25,43	5,13	20,17	17	32	-0,52	-0,17
15.	Block	2,43	1,51	62,14	1	5	0,59	-0,35

On **Figure 5**, it is seen that for nine of the indicators, the coefficient of variation has values between 10.45% and 25.63%, which

shows us that the sample is relatively homogeneous.

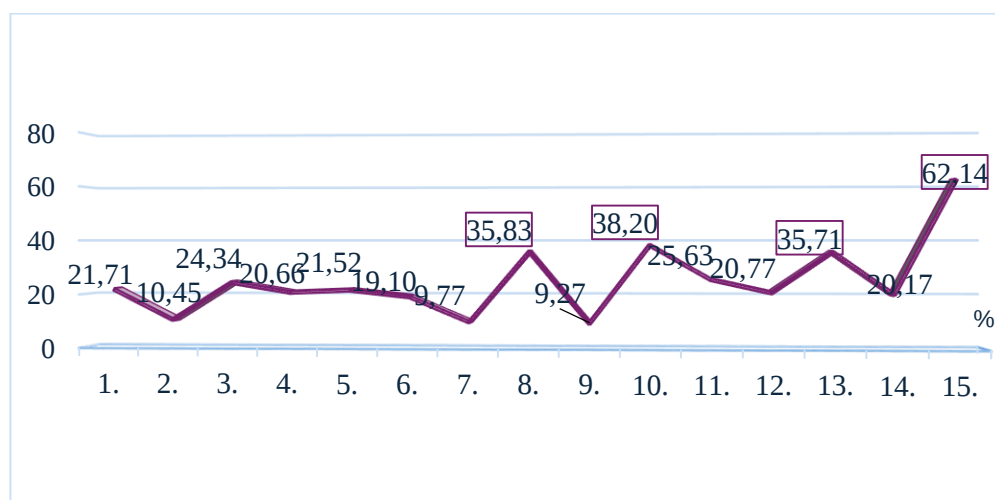


Figure 5. Variability of Competitive Effectiveness Indicators for the Women's National Team Basketball Players Under 16 Years Old

The basketball players are relatively stable in terms of effectiveness indicators: Points scored per game, Total shooting percentage, Two-point zone attempts and percentage successful, Three-point zone attempts, Free throws attempted, Defensive rebounds percentage,

Assists, and Technical errors (Turnovers). For four of the indicators, the variation value shows that the sample is highly heterogeneous. This means that the basketball players experience difficulties with these effectiveness indicators.

The highest coefficient of variation is for indicator 15 - blocked shots, $V = 62.14\%$.

To achieve the goal and the tasks set by our research, an evaluation of the results of the Bulgarian women's national team under 16 years old was carried out. On Figure 6. the assessments of the competitive effectiveness indicators (P%) are presented. They were measured using a 50-point rating system.

For six of the examined indicators, the T scores are higher than 25 ($P = 50\%$), ranging between 53.99% and 94.52%. It is observed that for eight of the examined indicators, the basketball players have achieved results where the T scores are below the average level for this age group (below 25 points). This means that the under-16 basketball players face difficulties with these competitive effectiveness indicators. The lowest value is for indicator 13 - Steals = 36.46%.

CONCLUSIONS

The analysis of the results of the conducted research allows us to summarize that during the European Championship, there is an unsatisfactory level of overall shooting effectiveness. Close-range shots, which have a higher probability of success, are fewer, while long-distance attempts dominate. The effectiveness of these distant shots is below the average level for this age group of basketball players. In basketball, executing free throws is one of the easiest ways to score points. Regarding this indicator, the basketball players have reserves – they have executed a small number of free throws, and their success rate is low. Utilizing free throws as a means of increasing the team's score requires skill and a high level of concentration from the players. There is also a need to increase aggression and proficiency in defense play to enhance the effectiveness of defensive rebounding. To reduce the number of technical errors - turnovers, the basketball players must pay attention to their tactical discipline.

To improve their competitive performance, in the future training process for the women's Bulgarian team under 16 y.o., a larger number and variety of exercises for battling under their own basket should be applied, along with improving the accuracy of long-distance shooting and free throws. In their preparation, it is also recommended to include exercises for operational thinking and training for speed and

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coordination of upper and lower limb movements during defense play.

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