Original Article (short paper)

Technical-tactical performance in basketball: evaluation of gaming actions according to specific positions

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Abstract - Aim: This study aimed to analyze the level of technical-tactical performance of female basketball base players, considering the association between the game actions and the specific positions performed by the players. **Methods:** Twenty-six players from a basketball club in the state of Santa Catarina (Brazil) participated. The performance was analyzed with the aid of the Individual Technical-Tactical Basketball Performance Assessment Instrument (IAD-BB). The statistical treatment involved the use of descriptive (simple and percentage frequency) and inferential (Pearson's Chi-square test, Cramer's V coefficients, adjusted residuals), adopting a 5% significance level for the interpretation of the results. **Results:** It was found a statistically significant association of the functions performed by the players with the actions of reception, dribble, throw, marking and rebound block. The guards performed better in the reception, dribble and clearing actions, the centers were better in rebound block, throw and clearing, while the forwards showed better performance in clearing and rebound block. **Conclusion:** It is concluded that the analysis of tactical-technical performance, considering the actions and specific positions of female players, is necessary for a better understanding of the factors that influence their performance in the game. Results are discussed with the literature and suggestions are made for future research in order to expand the quantity and quality of evidence in sports performance analysis.

Keywords: team sport, players, efficacy, decision making.

Introduction

The analysis of sports performance can be performed in different ways, depending on the focus of the area of study of Sport Sciences (Human Movement Biodynamics, Sport Pedagogy, Sport Psychology). Its complexity comes from the multiple factors that can be considered for its interpretation, among which stand out the internal factors (emotional, cognitive, energetic, biomechanical) and the external factors (physical, technical, tactical training) to the player[1,2]. The comprehensiveness of these factors has provided the professional and scientific community with technological evolution in material (instruments, equipment) and structural (equipped laboratories) terms, which has allowed the advance of the sporting phenomenon itself[3,4].

The sports performance indicators in the collective sport modalities range from the general aspects of sport to the technical and tactical actions that contribute to the understanding of the specific demands of each sport[5]. From this perspective, it is understood that during the practice of collective sports games, the player needs to respond to different and unpredictable game situations, essentially of a technical-tactical nature[6]. Consequently, it will not be enough for the player to have skills if he does not know how to apply them properly during the game[7].

Assessing players' performance in game situations may provide useful information for detecting aspects that require the coach to pay more attention to training sessions. In this sense, it is necessary to diagnose and monitor the teaching and learning processes, as well as the level of physical, psychological, technical and tactical development of the players, in order to analyze their performance in a different game and competition situations[8].

The components of the technical dimension of performance include the efficiency - quality of the technical gesture[3,5] and the effectiveness – the result of motor performance[9,10]. They are the most easily observed because they are related to motor actions and their respective results[5]. The components of the tactical dimension involve the adjustment - movement without the ball[3,5], the adaptation - movement adaptability, from observation and analysis of the game[9,10], and decision-making - choosing a particular action to solve the problem situation that you face[5,9,10]. The tactical components, in turn, present greater difficulty of evaluation because they involve subjective

interpretation and the presence of cognitive aspects by the player[5,9,10].

Particularly, basketball is a sport characterized by the complexity and dynamism of actions and movements, since during the game there are innumerable situations presented to the players in order to keep the ball possession and control the defensive actions. The evolution of the rules of the modality and the demands around the technical-tactical actions has resulted in greater physiological and anthropometric differentiation[11] and imposed demands that differ according to the position of each athlete's game[12].

In this context, depending on the playing position (guard, forward, center), players have different levels of physical fitness, body composition and morphological profiles that ultimately determine their role in court[13]. Guards, because they are the shortest players, are the fastest and most agile, end up making quick transitions, mastering ball-handling skills (control, dribble, pass, assistance),. The centers, being the taller players, stronger and heavier, play closer to the basket and aim to secure rebounds[12,13]. The forwards are usually of medium height in relation to guards and centers[14] and are responsible for mid and long-range throws, as well as assisting the centers in the rebound[12].

When considering these characteristics, it seems reasonable to understand that players' performance is related to the specific position they assume in the team[12]. In addition, the specific development of the qualities needed for better performance in each game position should be encouraged by coaches[15].

Despite the expansion of research on the subject, it is still observed, both in Brazilian and international reality, the predominance of studies developed on the analysis of the technical dimension through game statistics[16-18], the analysis of the tactical dimension only from the tactical-procedural knowledge[19-22], as well as the predominant observation of the technical and/or tactical performance in basketball of male players[23-27].

On the other hand, an investigative gap is identified with female basketball players[15,28], especially of training categories[29-31], which provide an integrative view of existing knowledge, focusing on the training process and analysis of women's basketball games. Despite gender differences (biological and physiological), most studies are developed from male data, which cannot be applied to female basketball[32], thus justifying conducting studies that provide data for greater understanding of the sport specificities of female players[28].

Another very important issue that has not yet been adequately investigated concerns the relationship between players' specific position and game-related performance[12]. Thus, to overcome the lack of studies conducted with Brazilian female players and the analysis of the game actions by specific position, this study aimed to analyze the level of technical-tactical performance of female basketball players, considering the association between the game actions and the specific positions (guard, forward, center) exercised by the players. The option of analyzing the three-game positions meets the trend of developed research on performance based on statistics and specific basketball game positions[12,31,33-37] and the specification provided by players and coaches researched in this study.

Materials and Methods

The present study is characterized as empirical, cross-sectional and descriptive in nature. The associative strategy was used for the analysis of collected data[38].

Participants

The sample consisted of 26 players from Under-16 (U16) (13 to 16 years old) and Under-18 (U18) (14 to 18 years old) categories from a Santa Catarina Basketball Club, who became unbeaten champion of both categories in the State Championship promoted by the Santa Catarina Basketball Federation (FCB) in the 2011 season. In the U16 category actions of 14 players (two guards, seven forwards, and five centers) were evaluated, while in the U18 category were analyzed actions of 12 players (two guards, seven forwards, and three centers).

The specific positions of the players were self-indicated by the players in characterization sheets, according to their roles in the team. Moreover, such functions were confirmed by the coaches and by observing the filming of the games.

Data collection procedures

Initially, preliminary contact was made with the Basketball Club managers and coaches to invite them to participate in the study, explaining the research objectives and data collection procedures. After authorization for the institution's involvement, the project was approved by the Ethics Committee on Research with Human Beings of the Federal University of Santa Catarina (opinion no. 1170/2010).

The structured observation of the tactical and technical performance of the players in the game situation was made through the recording of six official games of each category, being the first two matches of the year, the two intermediate matches and the last two matches that the teams played. The U16 state championship was held in turn and return games (all against all) during the qualifying phase, while the final phase was held in quadrangular. Similarly, the U18 championship was also held in turn and return games (all against all) during the qualifying round. However, the finals were held on a best-of-three games system (requiring only two matches) between the top two teams in the early stages.

The recordings were made with the aid of a portable digital camcorder, fixed on a tripod positioned in the stands of the sports gyms and aligned with the center of the court. According to the direction of the game, the camera was moved towards the game actions, along with the movement of the ball. The collected data were transcribed in a systematic observation form, elaborated based on the Individual Technical-Tactical Basketball Performance Assessment Instrument (IAD-BB), built and validated by Folle, Quinaud, Barroso, Rocha, Ramos, and Nascimento[10].

The purpose of the IAD-BB is to evaluate, in a formal game situation, the level of technical-tactical performance of basketball players, considering the game actions of this modality. The performance level is classified by the IAD-BB as inadequate (0 to 33.3%), intermediate (33.4% to 66.6%) or adequate (66.7% to 100%). In the validation process, the IAD-BB presented 92.4% consensus percentages among experts (content analysis) and reliability indixes of 0.84 (intra-rater) and 0.96 (inter-rater)[10].

Statistical analysis

The data obtained from the analysis of the games with the IAD-BB were organized and grouped in a spreadsheet of Excel® 2013 software and analyzed using the Pearson's Chi-square. The 12 games (six of each category) filmed were evaluated the game actions (pass, reception, dribble, throw, clearing, cut-off, throw, rebound blocking, marking and rebounds) performed by the players, totaling 14,872 actions, of which 3,084 pass, 3,083 receptions, 2,079 dribbles, 1,102 throws, 579 clearing, 132 cut-off, 739 rebound blocks, 3,366 markings, and 708 rebounds.

In the analysis process, descriptive (absolute and relative frequency) and inferential (hypothesis testing) statistical resources were used with the aid of IBM SPSS Statistics for Windows, Version 20.0 software. The association between the level of technical-tactical performance in game actions and the specific positions of the investigated players was analyzed through Pearson's Chi-square test and the adjusted residuals. The effect size was calculated through the Cramer's V coefficients. A significance level of 5% was adopted for the interpretation of the results from the inferential analysis.

Results

Table 1 presents the overall performance level in-game actions, considering the functions performed by the players. There was a statistically significant association between the reception, dribble, throw and rebound block

Table 1 - Overall performance level in game actions, considering the positions of the players.

Game actions	Position	Inappropriate n (%)	Intermediate n (%)	Appropriate N (%)	Total n	*p*	*V*
Pass	Guard	50 (4.5)	33 (3.0)	1027 (92.5)	1110	0.539	
	Forward	62 (4.8)	48 (3.7)	1188 (91.5)	1298		
	Center	23 (3.4)	22 (3.3)	631 (93.3)	676		
	Subtotal	135 (4.4)	103 (3.3)	2846 (92.3)	3084		
Reception	Guard	05 (0.5)$^{+}$	02 (0.2)	1031 (99.3)$^{++}$	1038	0.003	0.05
	Forward	16 (1.2)	04 (0.3)	1277 (98.5)	1297		
	Center	17 (2.3)$^{++}$	06 (0.8)$^{++}$	725 (96.9)$^{+}$	748		
	Subtotal	59 (1.9)	12 (0.4)	3012 (97.7)	3083		
Dribble	Guard	16 (2.0)$^{+}$	5 (0.6)$^{+}$	774 (97.4)$^{++}$	795	<0.001	0.10
	Forward	48 (5.5)$^{++}$	8 (0.9)	815 (93.6)	871		
	Center	28 (6.8)$^{++}$	15 (3.6)$^{++}$	370 (89.6)$^{+}$	413		
	Subtotal	92 (4.4)	28 (1.3)	1959 (94.2)	2079		
Throw	Guard	97 (30.0)	101 (31.3)	125 (38.7)	323	0.037	0.07
	Forward	100 (25.7)$^{++}$	119 (30.6)	170 (43.7)	389		
	Center	132 (33.8)$^{++}$	92 (23.6)$^{+}$	166 (42.6)	390		
	Subtotal	329 (29.9)	312 (28.3)	461 (41.8)	1102		
Cut-off	Guard	2 (15.4)	1 (7.7)	10 (76.9)	13	0.807	
	Forward	3 (7.9)	7 (18.4)	28 (73.7)	38		
	Center	11 (13.6)	13 (16.0)	57 (70.4)	81		
	Subtotal	16 (12.1)	21 (15.9)	95 (72.0)	132		
Marking	Guard	304 (33.1)	119 (12.9)	496 (54.0)	919	0.249	
	Forward	475 (33.7)	210 (14.9)	725 (51.4)	1410		
	Center	356 (34.3)	167 (16.1)	514 (49.6)	1037		

(*continued*)

Table 1 - continued

Game actions	Position	Inappropriate n (%)	Intermediate n (%)	Appropriate N (%)	Total n	*p*	*V*
	Subtotal	1135 (33.7)	496 (14.7)	1735 (51.5)	3366		
Clearing	Guard	16 (12.3)	10 (7.7)	104 (80.0)	130	0.566	
	Forward	25 (11.1)	21 (9.3)	180 (79.6)	226		
	Center	35 (15.7)	15 (6.7)	173 (77.6)	223		
	Subtotal	76 (13.1)	46 (7.9)	457 (78.9)	579		
Rebound	Guard	31 (24.4)	22 (17.3)	74 (58.3)	127	0.681	
	Forward	40 (20.3)	29 (14.7)	128 (65.0)	197		
	Center	95 (24.7)	56 (14.6)	233 (60.7)	384		
	Subtotal	176 (23.4)	107 (15.1)	435 (61.4)	708		
Rebound block	Guard	47 (52.2)	10 (11.1)	33 (36.7)	90	0.025	0.09
	Forward	95 (44.2)	40 (18.6)$^{+}$	80 (37.2)	215		
	Center	193 (44.5)	46 (10.6)$^{+}$	195 (44.9)$^{++}$	434		
	Subtotal	335 (45.3)	96 (13.0)	308 (41.7)	739		

Note: $^{+}$adjusted residual lower than -1.96; $^{++}$adjusted residual higher than +1.96.
Source: study data.

actions and the positions that the players acted. The guards presented the highest percentage of appropriate actions in the reception and dribble and the centers in the rebound block. In contrast, the forwards presented a higher percentage of inappropriate actions in dribble and throw, similarly to the centers that besides these actions, also presented a higher percentage of inappropriate actions in reception.

In the adaptation component (Table 2), no statistically significant associations were observed between the performance and the specific functions of the players.

Table 3 presents the associations between game actions in the decision-making component and the specific functions of the investigated players. A significant association was found between dribble, throw and marking actions with the functions performed by the players. Specifically, the guards had a higher percentage of appropriate actions in dribble and clearing, while centers exhibited a higher percentage of adequate actions in throws and inappropriate actions in dribble.

The relationship between specific positions and performance in the efficacy component can be seen in

Table 2 - Adaptation level in game actions, considering the players' positions.

Game actions	Position	Inappropriate n (%)	Intermediate n (%)	Appropriate n (%)	Total n	*p*
Cut-off	Guard	1 (7.7)	5 (38.5)	7 (53.8)	13	0.766
	Forward	2 (5.3)	13 (34.2)	23 (60.5)	38	
	Center	10 (12.3)	24 (29.6)	47 (58.0)	81	
	Subtotal	13 (9.8)	42 (31.8)	77 (58.3)	132	
Marking	Guard	230 (25.0)	226 (24.6)	463 (50.4)	919	0.167
	Forward	337 (23.9)	395 (28.0)	678 (48.1)	1410	
	Center	251 (24.2)	306 (29.5)	480 (46.3)	1037	
	Subtotal	818 (24.3)	927 (27.5)	1621 (48.2)	3366	
Clearing	Guard	16 (12.3)	53 (40.8)	61 (46.9)	130	0.095
	Forward	26 (11.5)	89 (39.4)	111 (49.1)	226	
	Center	36 (16.1)	105 (47.1)	82 (36.8)	223	
	Subtotal	78 (13.5)	247 (42.7)	254 (43.9)	579	
Rebound block	Guard	43 (47.8)	22 (24.4)	25 (27.8)	90	0.055
	Forward	82 (38.1)	68 (31.6)	65 (30.2)	215	
	Center	153 (35.3)	114 (26.3)	167 (38.5)	439	
	Subtotal	278 (37.6)	204 (27.6)	257 (34.8)	739	

Source: study data.

Table 3 - Decision making level in game actions, considering the players' positions.

Game actions	Position	Inappropriate n (%)	Intermediate n (%)	Appropriate n (%)	Total n	*p*	*V*
Pass	Guard	58 (5.2)	304 (27.4)	748 (67.4)	1110	0.101	
	Forward	71 (5.5)	407 (31.4)	820 (63.2)	1298		
	Center	27 (4.0)	215 (31.8)	434 (64.2)	676		
	Subtotal	156 (5.1)	926 (30.0)	2002 (64.9)	3084		
Dribble	Guard	17 (2.1)$^{+}$	287 (36.1)	491 (61.8)$^{++}$	795	<0.001	0.09
	Forward	47 (5.4)	345 (39.6)	479 (55.0)	871		
	Center	36 (8.7)$^{++}$	158 (38.3)	219 (53.0)	413		
	Subtotal	100 (4.8)	790 (38.0)	1189 (57.2)	2079		
Throw	Guard	30 (9.3)	91 (28.2)	202 (62.5)	323	0.013	0.08
	Forward	37 (9.5)	96 (24.7)	256 (65.8)	389		
	Center	49 (12.6)	131 (33.6)$^{+}$	210 (53.8)$^{++}$	390		
	Subtotal	116 (10.5)	318 (28.9)	668 (60.6)	1102		
Marking	Guard	196 (21.3)	392 (42.7)	331 (36.0)	919	<0.001	0.07
	Forward	284 (20.1)	652 (46.2)	474 (33.6)	1410		
	Center	171 (16.5)	575 (55.4)	291 (28.1)	1037		
	Subtotal	818 (24.3)$^{+}$	927 (27.5)$^{++}$	1621 (48.2)$^{+}$	3366		
Clearing	Guard	11 (8.5)	44 (33.8)	75 (57.7)	130	0.657	
	Forward	17 (7.5)	77 (34.1)	132 (58.4)	226		
	Center	25 (11.2)	67 (30.0)	131 (58.7)	223		
	Subtotal	78 (13.5)	247 (42.7)	254 (43.9)	579		

Note: $^{+}$adjusted residual lower than -1.96; $^{++}$adjusted residual higher than +1.96.
Source: study data.

Table 4. A significant association was observed in the reception, dribble, throw and rebound block actions. The highest percentages of appropriate actions were obtained by the guards at the reception and dribble, as well as by the centers in the rebound block. The forwards showed the highest percentage of inappropriate actions in the dribble and intermediate in the rebound block, while the centers presented the highest percentage of inappropriate actions in two actions (reception and dribble).

Table 4 - Effectiveness level in game actions considering the players' positions.

Game actions	Position	Inappropriate n (%)	Intermediate n (%)	Appropriate n (%)	Total n	*p*	*V*
Pass	Guard	37 (3.3)	55 (5.0)	1018 (91.7)	1110	0.492	
	Forward	55 (4.2)	69 (5.3)	1174 (90.4)	1298		
	Center	23 (3.4)	27 (4.0)	626 (92.6)	676		
	Subtotal	115 (3.7)	151 (4.9)	2818 (91.4)	3084		
Reception	Guard	05 (0.5)$^{+}$	02 (0.2)	1031 (99.3)$^{++}$	1038	0.003	0.05
	Forward	16 (1.2)	04 (0.3)	1277 (98.5)	1297		
	Center	17 (2.3)$^{++}$	06 (0.8)$^{++}$	725 (96.9)$^{+}$	748		
	Subtotal	38 (1.2)	12 (0.4)	3033 (98.4)	3083		
Dribble	Guard	11 (1.4)$^{+}$	11 (1.4)	773 (97.2)$^{++}$	795	0.001	0.07
	Forward	38 (4.4)$^{++}$	21 (2.4)	812 (93.2)$^{+}$	871		
	Center	21 (5.1)$^{++}$	11 (2.7)	381 (92.3)$^{+}$	413		
	Subtotal	70 (3.4)	43 (2.1)	1966 (94.6)	2079		
Throw	Guard	191 (59.1)$^{++}$	5 (1.5)$^{+}$	127 (39.3)	323	0.051	0.07
	Forward	199 (51.2)	17 (4.4)	173 (44.5)	389		
	Center	204 (52.3)	19 (4.9)	167 (42.8)	390		

(*continued*)

Table 4 - continued

Game actions	Position	Inappropriate n (%)	Intermediate n (%)	Appropriate n (%)	Total n	*p*	*V*
	Subtotal	594 (53.9)	41 (3.7)	467 (42.4)	1102		
Cut-off	Guard	02 (15.4)	02 (15.4)	09 (69.2)	13	0.916	
	Forward	03 (7.9)	09 (23.7)	26 (68.4)	38		
	Center	07 (8.6)	18 (22.2)	56 (69.1)	81		
	Subtotal	12 (9.1)	29 (22.0)	91 (68.9)	132		
Marking	Guard	319 (34.7)	366 (39.8)	234 (25.5)	919	0.901	
	Forward	465 (33.0)	566 (40.1)	379 (26.9)	1410		
	Center	352 (33.9)	418 (40.3)	267 (25.7)	1037		
	Subtotal	1136 (33.7)	1350 (40.1)	880 (26.1)	3366		
Clearing	Guard	13 (10.0)	31 (23.8)	86 (66.2)	130	0.589	
	Forward	17 (7.5)	48 (21.2)	161 (71.2)	226		
	Center	26 (11.7)	50 (22.4)	147 (65.9)	223		
	Subtotal	56 (9.7)	129 (22.3)	394 (68.0)	579		
Rebound	Guard	31 (24.4)	22 (17.3)	74 (58.3)	127	0.681	
	Forward	40 (20.3)	29 (14.7)	128 (65.0)	197		
	Center	95 (24.7)	56 (14.6)	233 (60.7)	384		
	Subtotal	166 (23.4)	107 (15.1)	435 (61.4)	708		
Rebound block	Guard	46 (51.1)	17 (18.9)	27 (30.0)	90	0.015	0.09
	Forward	88 (40.9)	62 (28.8)$^{++}$	65 (30.2)	215		
	Center	178 (41.0)	85 (19.6)$^{+}$	171 (39.4)$^{++}$	434		
	Subtotal	312 (42.2)	164 (22.2)	263 (35.6)	739		

Note: $^{+}$adjusted residual lower than -1.96; $^{++}$adjusted residual higher than +1.96.
Source: study data.

Discussion

This study aimed to analyze the level of tactical-technical performance, considering the association between game actions and the specific positions of female basketball players. In general, the results revealed significant associations between the actions reception, dribble, throw, marking and rebound block and the specific positions that the players performed.

In overall performance, the guards excelled in the reception and dribble actions, while the centers outperformed the rebound block. The forwards, in turn, obtained the highest percentage of inappropriate actions in dribble and throw, while the centers were inadequate in reception. These results corroborate with the indication that game action performance matches the characteristics of certain specific roles performed by players during a basketball game[4,37].

The guards, for example, are responsible for organizing and setting the pace of the game, which requires the discernment to properly perform certain actions[4,39], such as reception and dribble. In fact, these responsibilities reflect the need for higher performance levels in these actions, as, in addition to having longer possession of the ball, the guards play a dominant role in the team's performance on court[32].

The rebound block, action dominated by the centers in this study, reinforces the finding that it requires a strategic and specific position on the court so that if a basket is not converted, the player is in an appropriate position to gain possession of the ball[40]. Thus, it is essential for players of this position to perform well in this action, as this feature requires a better posture of the athlete in moments preceding and/or following the action of the ball towards the basket[41] and prevent the action of the opposing team.

In fact, centers are oriented to use their size (height and body mass) to benefit the team in terms of rebounds, defensive blocks and close-range throws as these players act closer to the basket and therefore are more specialized in these types of foundations[12,42]. Therefore, it seems that the anthropometric status of the players investigated may also have influenced these results, since in basketball some body sizes are better suited to the demands of some playing positions[42], ie, it is more logical to select taller players to act closer to the basket[14,12], in the center position.

The forwards, in turn, have the responsibility of throw from medium and long distance[4], besides performing infiltration actions, dribble and assisting in rebounds[43]. In this study, the forwards presented higher percentage of inappropriate actions in dribble and throw, which may be reflecting the high number of attempts made in a match by the players with this profile. Given that it is a prominent position in the average of team points, the players in this position are also the most targeted by the opposing defense.

The evaluation of the dimension revealed no association between the game actions and the positions of the basketball players, since the percentages were distributed between the levels. In turn, the performance in the actions of clearing and rebound block were more adequate by the forwards and centers, while the guards showed higher percentages of inadequate actions when securing the rebound.

Adaptation is characterized by the ability of players to adapt to situations and movements of the game, which are performed without possession of the ball and require positioning and agility of the player and may cover movements that occur before or after contact with the player the ball[10]. More experienced players often interpret information better because they have more attention and selection processes, which means they are better able to anticipate the game compared to their less experienced opponents, leading them to adapt more favorably to the actions.

The evidence found reinforces the idea that the demands imposed on players differ according to their playing position. In the case of guards, whose task is to prepare offensive situations so that forwards and centers have better finishing opportunities[12], rebound actions are not expected, given their position within the game, as well as their physical profile in relation to the characteristics of the other positions, which may have led the players in this study not to perform well in this action.

About decision making, the guards stood out in dribble and clearing, while the centers obtained a higher percentage of inappropriate actions in dribbling but stood out in throwing actions. These results reinforce the fact that the guards must have a satisfactory control of the ball possession, as well as better select the game actions, in order to solve their team's problem situation[4,10]. The opposite of the centers, which are responsible for the actions near the basket, and because it is a very congested area, little need to use the dribble.

Distinct characteristics were observed in a study with Portuguese league players, in which the guards and the centers played more defensive roles, through rebounding and defensive block actions, in addition to the players standing out in assists and three-point throws. However, in the American league these positions were characterized by offensive rebounds, mainly by the centers[12].

The guards investigated revealed high levels of adequate performance in the reception and dribble actions, the opposite presented by the centers in these actions in the effectiveness component. The forwards, however, stood out with high levels of inadequate dribble performance and intermediate levels in rebound block, action in which the centers demonstrated more adequate performance. The results corroborate the indications of De Rose Junior, Tavares and Gitti[4], Ruano, Calvo, Toro and Zafra[39] and Carvalho and Folle[44], who state that the fact that the centers play near the basket facilitates effective rebound block.

Effectiveness can be characterized as the consequence of the execution of game fundamentals, which is why this component is directly related to the other components of tactical-technical performance[9]. In this sense, effectiveness is defined by the consequence of an individual or opponent's error or success in the execution of the fundamental skills of the game[10,45].

Based on the results obtained, it can be reflected that due to the responsibility of the forwards to score for their team, a situation that, in most cases, attracts the defensive effort of the opposing team, makes their performance in dribble and throw, especially, requires greater experience and willingness in terms of effectiveness to predict the actions of the opponent and the moment of play itself. In addition, it is possible to predict that players from basic categories, still in the sports training phase, do not show great performance in all game actions, being necessary the coaches' attention in the actions most performed by the players due to their specific position within of court.

Although the present study provides relevant information about the level of technical-tactical performance, considering the association between game actions and the functions performed by female basketball players, some limitations should be addressed, such as not observing other playing actions (assistances, turnovers, fouls) and positions held by players (e.g. forward-guard, forward-center) of basketball base categories. In addition, this study did not consider the momentary situation of the scoreboard when analyzing the players performance, a situation that could help in contextualizing the performance scores presented by the players.

Conclusion

The evidence found revealed a statistically significant association of the functions performed by the players with the actions of reception, dribble, throw, marking and rebound block. The guards performed better in the reception, dribble and clearing actions, the centers were better in rebound block, throw and clearing, while the forwards showed better performance in clearing and rebound block.

The results obtained can be used by coaches to make training programs more specific, aiming at higher performance of their players in line with their role on court in competitions. For example, it is seen that the guards need to spend more time improving their performance in throw actions and rebound block, actions in which the investigated players obtained the lowest indexes. Considering their important defining role, forwards should focus their training on throw and dribble, while centers need to specialize in dribble and reception as well as throw.

We believe that this study provided important information to basketball coaches that can encourage them to identify the potential and technical-tactical needs of their

players during the training and competition. This diagnosis enables practitioners to structure training sessions to enhance the continued development of basketball players throughout their development in sport, contributing to the training of players increasingly aware of their possibilities and responsibilities on the court.

Given the limitations observed in the present study, it is suggested that future investigations broaden the contextualization of the analysis of the performance of young basketball players from the identification of the specific moments of the game (eg quarter of the game, score difference between teams involved) in which the actions were performed, which could deepen the understanding about the other factors that are associated with the sportive performance of young players of this modality.

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