Original Article (short paper)

Factors associated with basketball field goals made in the 2014 NBA finals

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Abstract — Aims: The main objective of this study was to analyze the factors that preceded field goals made in the 2014 NBA finals considering the number of passes per offense, shooting conditions, and offense type variables. **Methods:** We assessed field goals attempted by 27 professional players that participated in the 2014 NBA finals. Data were collected by three researchers through an adapted version of the Technical-Tactical Performance Evaluation Tool in Basketball to systematically analyze all five games of those finals. Descriptive analysis consisted in absolute and relative frequency and inferential statistics were applied through Chi-Square test, Cohen's D for effect size, and binary logistic regression test. Significance levels were set at 5% and all statistics were applied through SPSS 23.0. **Results:** Shooting efficacy was not associated with the number of passes made per offense. Regression statistics showed that shooting efficacy was highly associated with shooting condition rather than the offense type performed. However, fast breaks seem to lead to better shooting conditions (passively guarded and wide open) when compared to set and regained offenses. **Conclusion:** Evidence pointed to the importance of shooting condition as a determining factor in increasing the probability of field goals made throughout the games analyzed.

Keywords: notational analysis, playoffs, sports performance, binary logistic regression.

Introduction

In the last decades, the ongoing search for understanding and interpreting the complex actions present in basketball has led researchers and coaches to use game statistics techniques[1,2]. Among these methods, notational analysis is characterized by being used during or after games through video recordings or specialized software to investigate athletes' performance[3]. One of the applications of this technique in basketball is to quantify and analyze game indicators, such as field goals attempts (FGA) (i.e. that includes two and three point shots, dunks, layups, alley-oops, etc.), rebounds, steals, among others[4,5].

In the literature consulted, game indicators research through notational analysis technique has been used to identify the factors that differentiate winning teams from the losing teams[1,6,7]. Currently, high numbers of field goals made (FGM)[6-9], free throws made[1,7], defensive rebounds[1,8], and assists[6,7] have been pointed out as crucial factors to ensure winning in basketball. However, because game indicators represent basketball athletes' performance in a fragmented manner, sport scientists have sought methods of data collection and analysis that contextualize game indicators and enable a broader interpretation amongst the actions present in the game[2,10].

Considering that scoring in basketball comes mainly from FGM (free throws also contribute), the search for understanding factors that are associated with this skill's efficacy is constant[11,12]. In this sense, it has been noted that longer distances between the shooter and the defender[11-13], FGA after fast breaks[2,14], and making at least three passes before shooting[15] may contribute to better chances of a FGM. In addition, it is important to emphasize that the tournament phase (i.e. regular season or playoffs) has been highlighted as a factor that can influence the variables related to the success of basketball teams[16,17].

Through an analysis of 32 variables related to FGA using a multinomial logistic regression, the study of Ibáñez, García, Feu, Parejo, Cañadas[11] identified that some types of FGA (i.e. layups and dunks), low defensive pressure by the shooter's defender (i.e. wide open and low pressure), and shooting from specific areas provide better chances of FGM. However, it is important to highlight that Ibáñez, García, Feu, Parejo, Cañadas[11] only considered NBA games of the regular season. Thus, recognizing the foregoing conditions to FGM in a tournament final can help coaches and researchers guide athletes to victory in these crucial moments. Therefore, the main purpose of this study was to analyze the factors that preceded FGM in the 2014 NBA finals. The objective is delimited in three: I) to examine the association between shooting efficacy and the number of passes made on front court during set offenses; II) to detect the offense type that provides better shooting conditions for a FGA; and III) to relate shooting condition and offense type with FGM.

Methods

Design and Participants

Due to the systematized observation of real game situations, this is an observational research of notational analysis type[3]. Thus, we analyzed all the FGA taken by professional basketball athletes (N = 27) from the 2014 NBA finals between the San Antonio Spurs (n = 13) and the Miami Heat (n = 14). The sample totaled 718 game units, which represent the five games of those finals. It should be noted that this sample is part of a bigger project that comprises a total of 3737 game units.

Variables

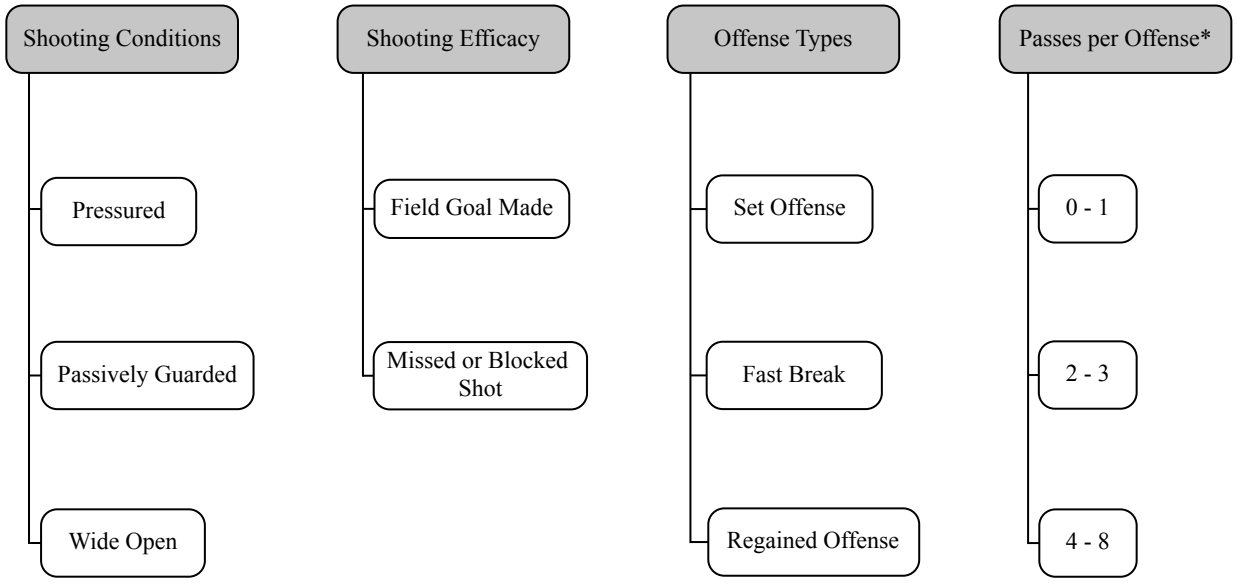
Although we understand that the term 'shooting' normally refers to jump shots or other type of shots in which the ball makes a parabola to the basket, we decided to adopt the term 'shooting conditions' to all the FGA analyzed in this study (that includes dunks, layups, alley-oops, etc.). The definitions and variables related to this term can be found in Chart 1. Furthermore, 'shooting efficacy' refers to the outcome observed after a FGA, which can result in a FGM or a missed/blocked shot.

That said, the independent variables comprised the categories created for: number of passes made per offense (from zero to one, from two to three, and from four to eight passes), offense type (set, fast break, and regained), and shooting condition (pressured, passively guarded, and wide open); the dependent variable was shooting efficacy.

In order to analyze the relationship between offense type and shooting efficacy, only offenses that finished with a FGA were included in this study. Considering the first objective of this study (i.e. number of passes made vs. shooting efficacy), we wanted to include in our analysis only passes made that help supported destabilizing the opponent's defense. Although during the data collection process we covered all the passes made throughout the games, in order not to have a bias effect on the results, we opted to analyze only those made on frontcourt during set offenses. The reason behind this choice is that fast breaks normally involve a small number of passes[18], regained offenses include those with less than 24 seconds of possession (i.e. players would not have the same time to run the offense), and most of the passes observed on backcourt did not impact the opponent's defense organization. In order to facilitate the reader understanding the variables analyzed in this study, Figure 1 represents the classification adopted by the authors.

* Only passes made on frontcourt during set offenses were analyzed (see variables section).

Figure 1. Variables analyzed in the study and how they are classified.
Source: The authors



Instrument

For collecting data we used an adapted version of the Technical-Tactical Performance Evaluation Tool in Basketball (IAD-BB)[19], suggested by Ciampolini et al.[20]. Using the version of Ciampolini et al.[20] is justified due to the need to evaluate group actions throughout the game (i.e. not individually, as indicated by the original instrument) considering the components of shooting condition (called decision making in the original instrument) and shooting efficacy. In addition, Ciampolini et al.[20] added an analysis of the offense type run by both teams, namely: set offense, fast break, and regained offense (see chart 1).

Chart 1. Proposed definition for the offense types and shooting conditions in the IAD-BB adaptation.

Offense Types	Set Offense	Characterized by all offensive players present on frontcourt and the opposing team being completely established on their backcourt[21]. Were considered set offenses those where the team had 24 seconds of ball possession and started the offense from the backcourt.
	Fast Break	A speed-based offense in which the team in possession of the ball shoots quickly before the opposing team can establish its defense after a defensive transition[21].
	Regained Offense	All other offense situations that did not characterize as set offense nor fast break were considered as regained offense.

Shooting Conditions	Pressured	Field goal taken with a close and pressured defense during the jump and landing of the shooter, or field goal taken in which the defender has conditions (or great possibilities) to block it.
	Passively Guarded	Field goal taken when the defender "passively" guarded and offered poor coverage of the shooter; in this situation the defender is less likely to hinder the shooting motion and to block the offensive player.
	Wide Open	Wide open field goal taken by the offensive player without any defensive pressure, which permits him or her to perform a field goal attempt without difficulty during the jump and landing phases.

Source: Translated from Ciampolini et al.[20].

In order to provide validity to the established criteria for the offense types and the shooting conditions, Ciampolini et al.[20] adopted the consensus method between specialists with basketball expertise[22]. Moreover, due to the changes applied on the definitions proposed by the original instrument regarding shooting conditions, as well as the addition of the offense type analysis, Ciampolini et al.[20] applied Cohen's kappa coefficient[23] for these variables.

The scores obtained through the analysis of the offense types generated a score of 1.00 for both intra-rater and inter-rater agreement[20]. On the other hand, the intra-rater and inter-rater analysis of the shooting conditions presented kappa scores of 0.90 and 0.71, respectively[20]. According to the index parameters suggested by Landis, Koch[24] (< 0.00 = poor; 0.00 to 0.20 = slight; 0.21 to 0.40 = fair; 0.41 to 0.60 = moderate; 0.61 to 0.80 = substantial; 0.81 to 1.00 = almost perfect), kappa intra-rater scores for both variables investigated and the inter-rater scores for the offense types are in the "almost perfect" range. While the inter-rater kappa scores for the shooting condition are in the "substantial" range[24]; this fact supported the use of the IAD-BB adaptation suggested by Ciampolini et al.[20].

Data Collection

Data collection was performed through a systematic observation of the official NBA video transmission for television of all five games of the 2014 NBA finals between the San Antonio Spurs and the Miami Heat. To ensure greater accuracy in data collection, "play-by-play" description presented on the official NBA box-scores was used to align data obtained by the instrument to the NBA official data. This procedure was carried out by three researchers to assist in the resolution of the complex situations encountered throughout this process, as well as to obtain consensus when disagreement emerged between two of them during the evaluation process. Data were tabulated through Microsoft Office Excel software for Windows (version 2010).

Data Analysis

Absolute and relative frequency values were used for the descriptive analysis between number of passes made and shooting efficacy, as well as offense type and shooting condition. To verify the association between these variables, Chi-Square test was used with a level of significance set at 5%. We calculated the effect size for the Chi-Square tests according to Cohen[23].

Binary logistic regression test was used to analyze the relationship of two independent variables (offense type and shooting condition) with the dependent variable through applying both crude and adjusted analyzes. While in the crude analysis, the significance level of 20% ($\alpha = 0.20$) was adopted as the inclusion criterion. The Wald test was used for the adjusted analysis with a significance level of 5%. Statistics were performed through the Statistical Package for Social Science (SPSS) software, version 23.0.

Results

Regarding the relationship between the number of passes and shooting efficacy (see table 1), it is noteworthy that although the category with the higher number of passes (from 4 to 8) had the highest percentage of field goals made (51.9%), the detailed analysis indicates that there is no significant association (p = 0.874) as well as a small effect size (0.023).

Table 1. Relationship between number of passes and shooting efficacy.

Shooting Efficacy	Number of Passes						Total	p-value[a]	Effect Size
	0 to 1 Pass		2 to 3 Passes		4 to 8 Passes				
	n	%	n	%	n	%	n		
Missed/Blocked	91	48.7	104	50.7	65	48.1	260		
Made	96	51.3	101	49.3	70	51.9	266	0.874	0.023
Total	187	100	205	100	135	100	527		

[a]Chi-Square test.

The analysis between offense type and shooting condition (see table 2) indicated that regardless of the offense type, the pressured condition was the most frequent in the games investigated; passively guarded and wide open condition

followed this finding, respectively. When compared to the other offense types, the detailed analysis showed that fast breaks provided smaller percentages of FGA under pressured conditions, while presenting a higher percentage of FGA under passively guarded and wide open conditions. The statistical treatment adopted displayed a significant association between these variables (p = 0.006); However, a small effect was also identified (0.141).

Table 2. Relationship between offense type and shooting condition.

Offense Type	Shooting Condition						Total	p-value[a]	Effect Size
	Pressured		Passively Guarded		Wide Open				
	n	%	n	%	n	%	n		
Set Offense	342	64.9	116	22.0	69	13.1	527	0.006	0.141
Fast Break	23	41.8	17	30.9	15	27.3	55		
Regained Offense	87	64.0	34	25.0	15	11.0	136		
Total	452	62.9	167	23.3	99	13.8	718		

[a]Chi-Square test.

Regarding the crude analysis for the binary logistic regression of the variables (see table 3), we found significant relationship with the offense type (p = 0.049) and the shooting condition (p < 0.001). By pointing out the regained offense as reference, we observed that fast breaks presented the highest rates of success [2.18 (CI95%: 1.15-4.13)]. On the other hand, the set offense did not present significant differences in relation to regained offenses [1.38 (CI95%: 0.94-2.02)]. With respect to shooting condition, after indicating the pressured condition as reference, both variables showed a significant difference, either for the passively guarded [1.75 (CI95%: 1.22-2.50)] or for the wide open conditions [2.11 (CI95%: 1.35-3.30)].

The adjusted analysis (see table 3) indicated that when both variables are analyzed together, shooting efficacy is more related to shooting condition rather than the offense types (p = 0.001). Furthermore, in the adjusted analysis the passively guarded [1.73 (CI95%: 1.21-2.48)] and the wide open conditions [2.02 (CI95%: 1.29-3.19)] kept a significant difference in relation to the pressure condition.

Table 3. Relationship of the investigated variables with shooting efficacy.

Variables	Crude Analysis		Adjusted Analysis	
	OR (CI95%)	p-value	OR (CI95%)	p-value
Offense Type		0.049		0.103
Set	1.38 (0.94 ; 2.02)		1.39 (0.95 ; 2.04)	
Fast Break	2.18 (1.15 ; 4.13)		1.91 (0.99 ; 3.66)	
Regained	1		1	
Shooting Condition		< 0.001		0.001
Pressured	1		1	
Passively Guarded	1.75 (1.22 ; 2.50)		1.73 (1.21 ; 2.48)	
Wide Open	2.11 (1.35 ; 3.30)		2.02 (1.29 ; 3.19)	

Discussion

Basketball practice features an unpredictable and random context, where athletes use technical-tactical actions to respond to the problem situations occurred throughout the game[25-27]. Such characteristics make it difficult to determine the best way for a team to play in order to guarantee winning; especially when considering the variety of game actions present in basketball, as well as the dynamic transitions between offense and defense which require constant adaptations by the players[27]. Therefore, a key factor in this sport that may differ between teams and support better chances of winning is the ability to "manage the disorder resulting from constraints arising from goal clashes"[27(p52)].

Considering FGA as a final action to make points in basketball and in order to analyze the factors that preceded FGM in the 2014 NBA finals, we first identified that the number of passes investigated did not indicate a significant association with shooting efficacy. In other words, passing the ball by itself does not guarantee better possibilities of FGM. This result contrasts the findings of Gómez, López, Toro[15], which suggest that during unbalanced games (over 10 points of difference) shooting efficacy was significantly higher for the teams observed after making three or four passes, in comparison to one to two passes or more than five passes. However, it is important to highlight that Gómez, López, Toro[15] did not specify whether fast breaks and passes made on backcourt were considered. In this study, we controlled those variables because we understand they may cause a bias effect on the results; the number of passes used in fast breaks is usually only one or two[18] and we suggest that passes made on backcourt usually have the intention of finding the person who will run the offense (i.e. normally the point guard).

When confronting data from this study with the work of Gómez, López, Toro[15], it seems that it is still unclear whether passing can support better chances of shooting efficacy. In a general manner, we understand that this is due to the decontextualized manner in which passing is normally analyzed, that is, only considering its number per offense. Therefore, further studies should investigate the importance of passing in basketball together with other variables carried out in offense such as pick and rolls, screens, crossovers, give-and-go's, backdoor passes, and others, which might lead to a better understanding of its importance to shooting efficacy.

The evidence on the relationship between offense type and shooting condition, as well as the relation between these variables with shooting efficacy allow us to affirm that successful offenses in the 2014 NBA finals were mainly related to players' shooting conditions (i.e. passively guarded or wide open) rather than pressured condition or using any of the offense types analyzed. This finding corroborates previous studies[11-13], in the sense of the closer the shooter's defender is, the greater the chance of an error. Thus, we add that besides this fact takes place in regular season games, the investigated finals seemed to present the same occurrence. This reinforces the importance of destabilizing the opponent's defense, either by combining group offensive actions or by using individual actions, in order to provide favorable shooting conditions. Finally, we suggest that fast breaks may fit as one of these options due to the disorganized characteristic of the opposing defense and possible numerical superiority of the offense[14,28].

Although offense type did not present significant relation with shooting efficacy in adjusted analysis, results of previous investigations in other professional basketball leagues, as well as youth leagues, indicate that fast break situations can be a determining factor for winning[2,14,29,30]. In investigating the relation between offense type and shooting condition, the present study identified that fast breaks provided a higher relative frequency of passively guarded and wide open shooting conditions when compared to the other offense types. Therefore, even though fast breaks were not decisive for a better shooting efficacy, we suggest that the common numerical superiority of offensive players, finishing the play before the opponent's defense organization[28], and a frequent FGA by the center of the court and close to the basket[2], exert an important role in providing better shooting conditions.

With regards to the importance of fast breaks for basketball teams' success, most studies that point out its importance did not relate it to other offensive actions[2,14]; in other words, they performed a data analysis similar to the crude and the chi-square analysis applied in this study. Thus, their results are similar to our preliminary findings: fast breaks provide better shooting conditions and they are associated with basketball shooting efficacy. However, due to our search for investigating the relationship between offense type and shooting condition in an integrated manner for its efficacy (i.e. adjusted analysis), shooting condition was highlighted.

Although we analyzed all five games of a professional basketball championship's final, only 55 fast breaks composed this study. Thus, the number of fast breaks is much lower compared to other studies that pointed out its importance, which analyzed 172[14], 294[30], and 398[2] fast breaks. Therefore, although our evidence points to the relevance of a favorable shooting condition rather than an offense type, it is important that future studies are conducted with a bigger number of fast breaks. In addition, they should analyze other factors that may influence the possibilities of a FGM, such as crossovers, mismatches, type of shot taken, moment of the game, as well as the individual or group technical-tactical skills.

Conclusion

The evidence from this study points to the importance of shooting condition (specifically passively guarded and wide open situations) as a determining factor in predicting FGM in basketball. Although the offense type did not present significant relationship with shooting efficacy, we found that fast breaks provided better shooting conditions (i.e. passively guarded and wide open situations) when compared to set and regained offenses. Finally, the number of passes investigated from set offenses was not significantly associated with shooting efficacy for two and three point FGA.

Considering the small number of fast breaks investigated in this study, we emphasize the need for future studies to investigate a large amount of this offense type in an integrated manner with other game actions present in basketball. Besides that, further studies should add other factors in the model of predicting shooting efficacy, such as technical-tactical (e.g. individual and/or team actions and skills), biological (e.g. height and weight between offensive player and defender) or spatial-temporal (e.g. shooting zone and moment of the game). Lastly, considering that this study only analyzed the 2014 NBA finals, the results could be little expanded to basketball tournament finals in general, which supports the importance of conducting further research with other finals included.

References

1. Almas SP. Análise das estatísticas relacionadas ao jogo que discriminam as equipes vencedoras das perdedoras no basquetebol profissional brasileiro [Analysis of game-related statistics which discriminate between winning and losing in Brazilian professional basketball]. Rev Bras Educ Fís Esporte. 2015;29(4):551-8.
2. Conte D, Favero TG, Niederhausen M, Capranica L, Tessitore A. Determinants of the effectiveness of fast break actions in elite and sub-elite Italian men's basketball games. Biol Sport. 2017;34(2):177-83.
3. O'Donoghue P, editor. Research methods for sports performance analysis. Abingdon, OX, Routledge, 2010.
4. Gómez MA, Lorenzo A, Ibañez SJ, Sampaio J. Ball possession effectiveness in men's and women's elite basketball according to situational variables in different game periods. J Sport Sci. 2013;31(14):1578-87.
5. Canan F, Mendes JC, Silva RV. Análise estatística no basquetebol de base: perfil do Campeonato Paranaense de Basquetebol masculino Sub-17 [Statistical analysis of base basketball: Under-17 Parana men basketball championship profile]. Rev Bras Educ Fís Esporte. 2015;29(2):289-302.
6. García J, Ibáñez SJ, Gómez MA, Sampaio J. Basketball game-related statistics discriminating ACB league teams according to game location, game outcome and final score differences. Int J Perform Anal Sport. 2014;14(2):443-52.
7. Parejo I, García Á, Antúnez A, Ibáñez SJ. Differences in performance indicators among winners and losers of group a of the spanish basketball amateur league (EBA). Rev Psicol Deporte. 2013;22(1):257-61.
8. García J, Ibáñez SJ, Martinez De Santos R, Leite N, Sampaio J. Identifying basketball performance indicators in regular season and playoff games. J Hum Kin. 2013;36(1):161-8.
9. Milanović D, Štefan L, Sporiš G, Vuleta D, Selmanović A. Effects of situational efficiency indicadors on final outcome among male basketball teams on the olympic games in London 2012. Acta Kinesiol. 2016;10(1):78-84.
10. García J, Gómez MÁ, Cañadas M, Ibáñez SJ. Offensive rating-time coordination dynamics in basketball. Complex systems theory applied to basketball. Int J Perform Anal Sport. 2015;15(2):513-26.
11. Ibáñez SJ, García J, Feu S, Parejo I, Cañadas M. La eficacia del lanzamiento a canasta en la NBA: Análisis multifactorial [Shot efficacy in the NBA: A multifactorial analysis]. Cult Cienc Deporte. 2009;5(10):39-47.
12. Suárez-Cadenas E, Courel-Ibáñez J, Cárdenas D, Perales JC. Towards a decision quality model for shot selection in basketball: An exploratory study. Span J Psychol. 2016;19:1-10.
13. Csataljay G, James N, Hughes M, Dancs H. Effects of defensive pressure on basketball shooting performance. Int J Perform Anal Sport. 2013;13(3):594-601.
14. Cárdenas D, Ortega E, Llorca J, Courel J, Sánchez-Delgado G, Piñar MI. Motor characteristics of fast break in high level basketball. Kinesiol. 2015;47(2):208-14.
15. Gómez MÁ, López FA, Toro EO. Analysis of shooting effectiveness in elite basketball according to match status. Rev Psicol Deporte. 2015;24(3):37-41.
16. Teramoto M, Cross CL. Relative importance of performance factors in winning NBA games in regular season versus playoffs. J Quant Anal Sports. 2010;6(3):1-17.
17. Gomes JH, Mendes RR, Almeida MB, Zanetti MC, Leite GdS, Ferreira Júnior AJ. Relationship between physical fitness and game-related statistics in elite professional basketball players: Regular season vs. playoffs. Motriz. 2017;23(2):1-6.
18. Refoyo I, Romaris IU, Sampedro J. Analysis of men's and women's basketball fast-breaks. Rev Psicol Deporte. 2009;18(Suppl):439-44.
19. Folle A, Quinaud RT, Barroso MLC, Rocha JCS, Ramos V, Nascimento JV. Construção e validação preliminar de instrumento de avaliação do desempenho técnico-tático individual no Basquetebol [Preliminary development and validation of an assessment instrument of basketball individual technical-tactical performance]. Rev Educ Fís UEM. 2014;25(3):405-18.
20. Ciampolini V, Nascimento JV, Ibáñez SJ, Nicolazzi LO, Camaroto M, Rocha JCS, et al. Análise técnico-tática ofensiva de equipes finalistas da NBA: Um estudo de caso [Offensive technical-tactical analysis on NBA finalist teams: A case study]. J Phys Educ. Forthcoming.
21. De Rose Junior D. Modalidades esportivas coletivas: o Basquetebol [Team sports: Basketball]. In: De Rose Junior D, editor. Modalidades Esportivas Coletivas [Team Sports]. Rio de Janeiro, Guanabara Koogan; 2006. p. 113-27.
22. Barroso JM, Cabero J. La utilización del juicio de experto para la evaluación de TIC: El coeficiente de competencia experta [The use of expert judgment for assessing ICT: The coefficient of expert competence]. Bordón Rev Pedagog. 2013;65(2):25-38.
23. Cohen J. A coefficient of agreement for nominal scales. Educ Psychol Meas. 1960;20(1):37-46.
24. Landis JR, Koch GG. The measurement of observer agreement for categorical data. Biometrics. 1977;33(1):159-74.
25. Menezes RP. Contribuições da concepção dos fenômenos complexos para o ensino dos esportes coletivos [Contributions of the complex phenomena conception to the teaching of team sports]. Motriz. 2012;18(1):34-41.
26. Fylaktakidou A, Tsamourtzis E, Zaggelidis G. The turnovers analysis to the women's national league basketball games. Sport Sci Rev. 2011;20(3-4):69-83.
27. Reverdito RS, Scaglia AJ. A gestão do processo organizacional do jogo: uma proposta metodológica para o ensino dos jogos coletivos [The administration of the organizational process of the game: a proposal for the teaching of the collective games]. Motriz. 2007;13(1):51-63.
28. Krause J, Meyer D, Meyer J, editors. Basketball skills and drills. Champaign, IL, Human Kinetics, 2008.
29. Toro EO, Victoria S. Características del contraataque en baloncesto de formación [Characteristics of fast-breaks in basketball training]. Educ Fís Deporte. 2015;34(2):429-65.
30. Román IR, Romaris IU, Sampedro J. Analysis of men's and women's basketball fast-breaks. Rev Psicol Deporte. 2009;18(3):439-44.

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