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Experiences in the evaluation of collective offensive tactical actions in basketball

Experiencias en la evaluación de las acciones tácticas ofensivas colectivas en el baloncesto

Experiências na avaliação de ações tácticas ofensivas coletivas no basquetebol

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ABSTRACT

The work presented addresses the issue related to possessions in basketball, which play a decisive role in the evaluation of collective offensive tactical actions, and is inserted within



the new trends that seek to take the largest amount of data from the competitive environment. The objective of this research was to develop a pedagogical tool for the evaluation of the collective offensive tactical actions of the team, resulting from ball possession, through the method of direct and non-inclusive observation that made possible the collection of tactical actions such as ball possession, defensive rebound, balls won, lateral and baseline throw-ins and the evaluation of their final results, as well as field goals against the main types of defenses used by the opponent; the team's offensive game dynamics and the associated tactical evaluation were considered, based on the analysis of ball possession. The results made it possible to establish evaluation criteria on the subject addressed in the two main phases of play, the counterattack and the positional offense. It is concluded that the relationship between the indicators made it possible to draw up objective intervention strategies in basketball games, eliminate improvisations in the athletes' tactical instructions and design post-game training sessions.

Keywords: collective offensive tactical evaluation, phases of the game, possessions in basketball

RESUMEN

El trabajo presentado aborda la temática relacionada con las posesiones en el baloncesto que juegan un papel determinante en la evaluación de las acciones tácticas ofensivas colectivas, y se inserta dentro de las nuevas tendencias que buscan tomar la mayor cantidad de datos del entorno competitivo. El objetivo de esta investigación fue elaborar una herramienta pedagógica para la evaluación de las acciones tácticas ofensivas colectivas del equipo, resultantes de las posesiones del balón, a través del método de observación directa y no incluida que posibilitó la recogida de acciones tácticas como posesiones del balón, rebote defensivo, bolas ganadas, saque lateral y de fondo y la valoración de sus resultantes finales, así como la anotación de campo contra los principales tipos de defensas empleadas por el contrario; se consideró la dinámica de juego ofensivo de equipo y la evaluación táctica asociada, a partir del análisis de las posesiones del balón. Los resultados posibilitaron establecer criterios de evaluación sobre la temática abordada en las dos principales fases de



juego, el contraataque y la ofensiva posicional. Se concluye que la relación entre los indicadores permitió trazar estrategias de intervención objetiva en los partidos de baloncesto, eliminar las improvisaciones en las indicaciones tácticas de los atletas y diseñar los entrenamientos posteriores a los partidos.

Palabras Clave: evaluación táctica ofensiva colectiva, fases del juego, posesiones en el baloncesto

RESUMO

O trabalho apresentado aborda o tema das posses de bola no basquete, que desempenham um papel decisivo na avaliação de ações táticas ofensivas coletivas. Ele faz parte das novas tendências que buscam reunir a maior quantidade de dados do ambiente competitivo. O objetivo desta pesquisa foi desenvolver uma ferramenta pedagógica para avaliação das ações táticas ofensivas coletivas da equipe, decorrentes da posse de bola, por meio do método de observação direta e não incluída que possibilitasse a coleta de ações táticas como posse de bola, rebote defensivo, bolas ganhas, lançamentos laterais e laterais e a avaliação de seus resultados finais, bem como o field goal frente aos principais tipos de defesas utilizadas pelo adversário; Foi considerada a dinâmica de jogo ofensivo da equipe e a avaliação tática associada, com base na análise das posses de bola. Os resultados permitiram estabelecer critérios de avaliação para os temas abordados nas duas principais fases do jogo: contra-ataque e ataque posicional. Conclui-se que a relação entre os indicadores permitiu desenvolver estratégias objetivas de intervenção em jogos de basquetebol, eliminar a improvisação nas instruções táticas dos atletas e elaborar sessões de treinamento pós-jogo.

Palavras-chave: avaliação táctica ofensiva colectiva, fases do jogo, posses de bola no basquete

INTRODUCTION

Sports training as an organized pedagogical process requires evaluation for objective knowledge of the adaptation processes from the initiation or selection of the athlete to



his/her performance in high performance; evaluation is a component or category of the process directly linked to the objective and offers a measure of its fulfillment.

Basketball is one of the team sports that has traditionally used game statistics as a reference to evaluate the performance of the competition and consequently improve the teaching process of training, both at an individual and collective level; therefore, it is considered a very useful tool when it comes to planning and improving it.

In this context, it is worth reflecting on the criteria analyzed that consider the existence of a decontextualized and unreliable vision, which generalizes the evaluation of the collective offensive tactical effectiveness, based on ball possession and offensive finishes in school basketball, category 13-15 years.

In general terms, the evaluation of the effectiveness of each component of performance is essential to control and adjust the training process. Since the regulated appearance of sports competitions until today, emphasis has been placed on the development of each aspect linked to sports training, therefore, in recent decades greater importance has been given not only to evaluating the final result, but to the process itself.

Frías (2018) is assumed when considering the evaluation of the effectiveness of sports performance as a compass that directs and improves the processes of sports training, at the same time the data and results offered by the tactical evaluation of the components involved in the competition are obtained as a reference. Rodríguez (2020) states "(...) the tactical component in the training of the athlete is essential to prepare him in situations that merit individual and collective development in each game action" (p. 5).

In reference to the evaluation of the effectiveness of tactics in basketball, it is pertinent to analyze the criteria expressed by Courel et al, (2018); Hobbs et al, (2018) who state that the result of evaluating the tactical aspects of game situations allows for data to be available to estimate, through predictions, the comparative analysis of performance between the specific differences in the winning and losing teams.



When referring to evaluation in the field of basketball, it is pertinent the analysis of the criteria expressed by Hernández et al, (2015) and Valero et al, (2020), who consider that it is first about measuring and then interpreting what is intended to be taught and trained. The aim is to find out the degree of acquisition and development achieved, to approach the evaluation criteria, the instruments and the moment of the evaluation: what, how and when to evaluate, in relation to the objectives and content.

In the study of the evaluation of the effectiveness of collective offensive tactics, it cannot be overlooked, as well as how ball possession is obtained in basketball, manifested through the balls won, the defensive rebound, the lateral and baseline throw-in, which together enable different types of offensive scores, through free throws and two- and three-point throws, as a result of the different tactical situations in the game.

Offensive endings of ball possessions are decisive in the outcome of the tactic; these have been addressed by various researchers and different approaches. From a technical perspective, the analysis focuses on the types of shots (Camirra and Gutiérrez, 2021; Hernández, et al., 2022; Praca, et al., 2021), which determine the value of the offensive tactical evaluation, and include the finishing zones and the percentages of effectiveness of the shots executed. In other team sports, such as soccer and handball, similar studies have been carried out on ball possessions to evaluate the effectiveness of offensive collective tactics, such as those by Carvalho et al. (2022); Santana et al. (2023); Seiru-lo, 2017).

Currently, in school basketball for 13-15 year-old, deficiencies persist, as a result of controls on the training sections, related to how to evaluate the effectiveness of tactical action, this situation facilitates improvisation by coaches in assessing the tactical level of basketball players and the team, which is a common element in reports from the sports commissions of the territory and the country.

The previously analyzed aspect limits the objective and quality in the evaluation of the collective offensive tactical effectiveness in school basketball for 13-15-year-old and points out the need to relate the variables chosen to carry out this process in the competition. Gutiérrez (2016) defines it as "(...) the systematized and continuous process that provides



us with information on the suitability of the use of our tactical resources and the tactical behavior of the opponent" (p.5).

The fundamental objective in the evaluation of the collective offensive tactical effectiveness in team sports under competitive conditions is to assess the collective game in the different phases, which is why it is considered important for the technical group to have information on the evaluation of the expected performance, and that offered in critical situations during matches and the interaction of the systems used.

From this, the objective was to develop a pedagogical tool for the evaluation of the team's collective offensive tactical actions, resulting from ball possession, through the method of direct and non-inclusive observation that made it possible to collect tactical actions such as ball possession, defensive rebound, balls won, side and baseline throw-ins and the assessment of their final results, as well as field goals against the main types of defenses used by the opponent.

MATERIALS AND METHODS

From a population of 80 players from the Santiago de Cuba men's basketball team, during the 2022 national school games, an intentional sample consisting of 10 basketball players was taken. The following characteristics were determined: the existence of two athletes with an immediate perspective, seven players with experience of having gone through the previous category, which represented 70 % of the sample, with an average of five years in the systematic practice of basketball.

The scientific methods proposed were analysis-synthesis, used throughout the research process to theoretically substantiate the essential aspects related to the tactical evaluation of basketball. Analysis of documentary sources favored the assessment of various documents (Díaz, et al., 2020; Valero, et al., 2020) and the Comprehensive Athlete Preparation Program (2020-2024) with relevant information on the subject discussed. In the mathematical statistical method, the procedure for calculating the percentage value of the different actions



conceived in the collective offensive tactic was used, as a consequence of ball possessions in school basketball for 13-15-year-old.

Direct observation not included was used to collect data on actions corresponding to ball possession and offensive finishes. An observation protocol was used as a tool in the matches analyzed, with the aim of collecting data on the game. Ball possession and offensive ends were considered decisive in each phase of the game, with emphasis on the degree of reliability of the same, based on the criteria and the observer's own perception, and the following tactical actions were taken:

Balls won (BG in Spanish): result of individual or collective action by the team on defense, which allowed them to take possession of the ball and create a phase of offensive tactical play, through counterattack or positional offense.

Throw-in (SF in Spanish): moment in the game when the team took possession of the ball, after the opponent has scored or due to a violation of the game rule.

Defensive rebound (DR): determined from possession of the ball, after a shot not scored by the opponent, in any of its variants.

Side throw-in (SL in Spanish): performed as a result of a loss of the ball by the opposing team that committed a rule violation or personal foul, made effective on the offensive or defensive court.

The number of ball possessions was determined by quantifying the number of offensive attacks carried out in the match in general. The actions generated as a result of the possessions were evaluated as follows:

- If the action corresponding to a possession of the ball ended with a score, it was given a value of +1.
- If the action did not end with a score, it was given a value of -1.
- The value of 0, for neutral actions.



Concept of game phases

In the temporal development of a match, a 1v1 game situation could be assumed, in a space close to the hoop, as unrelated to the actions of the rest of the teammates in the more distant space and in the previous moments of the evolution of the game.

Similarly, in the macroscopic observation of the development of a match, the individual performance of the players could be conceived: winning/losing, attack/defense, possession/or not of the ball, which were considered in the following ways:

Positional Offense (PO): A balanced situation, in a five-on-five situation, with an organized defense, in which the team with the ball tried to generate an allowable advantage, in order to have a finishing option in the best possible conditions.

Fast break (FBR): the attack where the ball was moved quickly towards the opposing basket. Its objective was to try to surprise the opposing team during the balancing and defensive adjustments.

Symbols for statistical recording of collective tactical evaluation:

PB: ball possessions; **NT:** ball possession, with a rule violation or personal foul.

OP: positional offensive; **CA:** rapid offensive, counterattack .

AT2: Two-point score; **SaT2:** No score two-point shot.

AT3: three-point scoring; **SaT3:** no three-point scoring.

T. de Def: type of defense of the opponent.

TL: free throws; **Obs x 4th:** tactical observations per quarter of the game.

The survey was conducted to find out the users' criteria regarding the relevance of the proposed pedagogical tool. To determine the validity of the content of the indicators implicit in the observation guide, the users' criteria were used. To do this, a survey was conducted



for the 12 basketball coaches who participated in the 2022 National School Games, to determine if there was correspondence between the selected indicators and the expected results as the purpose of the research, in accordance with the purpose of developing a pedagogical tool for evaluating the effectiveness of offensive tactics, through an observation guide.

RESULTS

As a result of the survey, it was confirmed that from the structural point of view, 91.7% stated that the pedagogical tool was pertinent, with essential elements for offensive tactics; only one, representing 8.3% of respondents, considered the guide's indicators as not pertinent.

Regarding the indicators that were determined, 33.3% considered them quite adequate and 67% evaluated them as very adequate. The proposed indicators were subjected to the evaluation of the users again, and other indicators proposed by them were included, which resulted in an evaluation of very adequate, and the final consideration regarding the evaluation of offensive tactical effectiveness.

In the assessment of the relevance of the indications of the Athlete Preparation Program, in relation to the offensive tactical evaluation in the 13-15-year-old school category, 58% expressed that the clarifications in this regard were not very valid, 25% that the indications and tests proposed were, to some extent, feasible, and only 17%, as appropriate.

The analysis of the data obtained showed that a total of 174 possessions of the ball were obtained globally in the match, a result of a high value, due to the extra time being played. It was expressed in a tendency to end the possessions of the ball, through the positional offensive where 121 were obtained and of them 53 ended through counterattack.

In the collective tactical evaluation, the positional offense represented 69% of the effectiveness of all ball possessions. In this specific case, the predominance of ball possession and throw-in was observed. As a final result, the expressed trend was valued, where the



effectiveness of two-point shots behaved superiorly to that of three-point shots, in all the games analyzed.

In relation to two-point shots, a total of 44 and 56 were obtained with and without scoring, which represented 68% of the total ball possessions, and 20% for three-point shots, a significant difference was found between these parameters evaluated. In offensive completions, through free throws, 47% of effectiveness was required, an aspect to be considered as a problem for carrying out an adequate collective offensive tactical evaluation, considered essential to aspire to victory in a basketball game.

Table 1. Evaluation of the effectiveness of collective offensive tactics, through the results of ball possessions and offensive finishes in the game

	PS	OP	AC	AT2	SAT2	AT3	SAT3	TL		%	T 40 min.
								I	A		
SF	72	56	16	16	20	5	11	20	9		
SL	46	32	14	12	20	1	6	7	2		
RD	36	25	11	10	8	6	7	3	2		
BG	20	8	12	6	8	-	-	6	4		
To	174	121	53	44	56	12	24	36	17	47%	
x					68 %		20%				

In the data obtained in the second match, the predominance of possession was confirmed as a fundamental feature, with a total of 53 throw-ins, which represented 39% of all possessions achieved, an aspect considered a regularity in the competition that generated a greater number of positional offensives in the collective confrontation; this same orientation was observed in the first match, with 85 positional offensives carried out, which generated two-point shots as the final result, with 49% effectiveness.

In general, similar values were found in relation to ball possession in both games. Offensive finishing, through free throws with 47% effectiveness, was evaluated by specialists and coaches as a negative aspect, given the importance of this technical element in contemporary concepts of offensive tactics, since in the current context of basketball a high probability of obtaining positive results is determined by the effectiveness of free throws in games.



Table 2. Evaluation of collective offensive tactical effectiveness through the results of ball possessions and offensive finishes in the game

	PS	OP	AC	AT2	SAT2	AT3	SAT3	TL		%
								I	A	
SF	53	36	17	12	12	2	3	7	4	
SL	36	15	21	16	12	1	3	4	2	
RD	28	20	8	8	12	1	3	3	1	
BG	20	14	6	6	8	1	4	1	0	
T. o	137	85	52	42	44	5	13	15	7	47%
X	39%			49%		28%				

Analysis of the result of ball possessions and their relationship with offensive finishes in the game (Match No. 3)

A similar trend to previous matches was observed, which led to a greater number of offensive positional phases of play being played, with a total of 85 possessions of the ball. Table III showed that 42.8% of the offensive completions from two-point shots were effective. 34.7% of the three-point shots were considered insufficient by specialists.

Table 3. Evaluation of collective offensive tactical effectiveness through the results of ball possessions and offensive finishes in the game. (Match No. 3)

	PS	OP	AC	AT2	SAT2	AT3	SAT3	TL		%
								I	A	
SF	62	41	21	12	28	3	6	13	5	
SL	27	18	9	12	6	2	5	3	2	
RD	32	20	12	10	16	1	2	3	3	
BG	17	6	11	8	6	2	1	-		
To	138	85	53	42	56	8	15	19	10	52.6%
		61.6%	38.4%	42.8%		34.7 %				

Table 4. General values of ball possessions and offensive finishes.

	PS	OP	AC	AT2	SAT2	AT3	SAT3	TL		%
								I	A	
X	149	97	53	43	52	8	17	23	11	32 %
%		65%	36%	29%		32%				



DISCUSSION

The study aimed to develop a pedagogical tool for evaluating the effectiveness of the team's collective tactical offensive actions, resulting from ball possession, through an observation guide; in this regard, Caicedo (cited by Ramos, et al., 2022) states "(...) the dynamics of the game need an instrument that allows to synthesize and interpret the interactions in progress" (p. 12), a position assumed in the current study.

Considering the structural and functional logic of basketball, victory is achieved through the effectiveness of the use of ball possessions in the regulated time of the game. The background analyzed, in the different ways of recording offensive statistics in basketball games, made it possible to verify the inadequacies related to the evaluation of the collective offensive tactical effectiveness in the 13-15 years' category, which had the following regularities:

- The parameters for evaluating offensive tactical effectiveness did not reflect the essential aspects to be examined in the collective order.
- The evaluation of the effectiveness of the collective offensive tactical aspect focused on the analysis of the final result and not the process as a whole.
- Over-emphasis on collective tactics analysis, based on the individual results of each player and not on the structured dynamics of game situations and their final result.

It was estimated that if the specialists did not objectively plan and design the aspects to be evaluated and the tools for data collection, coherence in the tactical evaluation was lost.

In general terms, the statistics used in the evaluation of collective offensive tactical effectiveness in team sports used individual success percentages or the sum of specific actions such as two-point shots, goals scored on the counterattack, ball losses, passes made correctly, and others.

This study differs from other similar research by not considering the ball possessions per quarter of play, an aspect analyzed to estimate in the next research studies related to the subject in question, with the objective of being able to express the dynamics of the tactical



game of the team based on time; also as a determining factor due to its influence on the final results of the matches.

In this sense, as a consequence of the complexity and variability of offensive tactical actions in basketball, the same results were not obtained with long ball possessions of between 20 and 24 seconds, in relation to short possessions of only three or four seconds, an aspect that is directly related to the stipulations of the official rules of the game, the playing time and the score achieved by the participating teams. It was considered that the situation expressed allowed for a differentiation in the interpretation of the results in their evaluation.

The evidence shown by statistical studies in basketball allowed to confirm the existence of a wide variety of approaches and methodologies for the evaluation of the effectiveness of offensive tactics; fundamentally, these were manifested in the research of Dinner (2018); Martínez (2019); Zhang et al. (2020) who validated the evaluation of their effectiveness, with measurable indicators in competition situations such as point statistics, the duration of possessions and the efficiency criterion of the scoring game actions.

Other indicators, from the same perspective, were assessed based on the technological possibilities of the observers, among which the following stood out: positions, roles, opposition, condition of interactions, criteria of effectiveness of offensive contextual tactical actions, and in the phases of play the attack or defense, with the types of attack, the number of passes, the number of possessions of the ball, the total duration of the possession, the temporal moment of the game and the level of opposition.

The relevance of considering the evaluations of the effectiveness of the tactical-offensive strategy was expressed, based on the perspective provided by the most recurrent and significant criteria during the competition. These allowed planning the offensive strategy, considered by Gómez et al. (2020) as the main decision that a basketball team faces, to optimally achieve its attempts in the different offensive options.

However, currently in the province of Santiago de Cuba, in the analyses carried out by the teams at the different competitive levels, the use of traditional evaluation methodologies



persisted, and an epistemic gap was evident in the way of implementing the evaluation of collective offensive tactical effectiveness.

Traditionally, according to Gutiérrez (2016), the statistical factors determining the final results of basketball games were declared in the indicators assists, blocks, interceptions, fouls committed, ball steals with the percentages: 0.1; 0.2 and 0.3; offensive rebound, defensive rebound and ball recoveries; the previous indicators did not make it possible by themselves to understand the complex sequence of collective offensive tactical actions and their consequent effectiveness.

In contrast to the previous postulate, it was noted in the presented study that the final results of basketball games are a consequence of the contribution between the percentages of efficiency in two-point shots and defensive rebounds; three-point shots contributed significantly to unbalancing the result of the games; and in normal games, the fouls committed by the teams allowed to significantly distinguish the winning team.

It was assumed that the percentages of free throw effectiveness contributed to deciding the final result of the games in balanced games; the partial analysis of assists, blocks and interceptions of shots and ball steals did not express a significant discriminatory capacity to assess the final result of a basketball game.

The shot at the basket, as the supreme gesture of basketball, was the final point of a series of motor actions, individual and/or collective, almost always aimed at achieving its realization under the best possible conditions. This aspect was assumed to be decisive, and it was considered that the values associated with possession of the ball in basketball expressed the dynamics of the game and its final result.

In the games analyzed, a novel aspect was observed in the different tendencies related to ball possessions, and the positional offense prevailed in relation to the fast offense or counterattack; the study confirmed that the two- and three-point shots and the free throws were decisive in the final result of the game, which demonstrated that the fundamental objective of tactics and strategy is to achieve the greatest number of points possible.



CONCLUSIONS

In the current stage of basketball, it was crucial to direct the evaluation of the collective offensive tactical effectiveness on those indicators that were regulated in the internal logic of the game. The data provided by the competition were considered as the ideal scenario to be able to draw up the determined offensive tactical strategy of the team, in the collective; the possessions of the ball and its final result expressed the real dynamics of the game and connoted its most accurate tactical assessment.

The result of the diagnosis carried out through the survey to find out the criteria of the users allowed to corroborate the relevance of the selected offensive indicators, and to carry out the observation of the games and to know the evaluation of the collective offensive tactical effectiveness of the Santiago de Cuba men's basketball team, category 13-15 years.

The pedagogical tool for the evaluation of the collective offensive tactical effectiveness allowed the analysis of ball possessions: balls won, defensive rebound, lateral and baseline throw-ins and their final result, through the different types of finishes and types of shots made. The relationship between these indicators made it possible to draw up objective intervention strategies in basketball games, eliminate improvisations in tactical instructions to athletes and design post-game training sessions.

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Author's contribution:

The author is responsible for writing the work and analyzing the documents.



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