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A Study of Counterattack Behavior of the Junior Male Handball Team in Villa Clara, Cuba

[A Study of Counterattack Behavior of the Junior Male Handball Team in Villa Clara, Cuba]

[Estudio del comportamiento del contraataque en el equipo escolar masculino de balonmano en Villa Clara]

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ABSTRACT

This research consisted of a study of the behavior of the counterattack actions in handball, and to diagnose the behavior of counterattack actions of the junior male handball team of Villa Clara during the competitions. A comparative analysis with the international state of the art in this category was conducted, which evidenced low efficacy in the execution of counterattacks by the team during the games. Different methods, like *bibliographic review*, were conducted to unveil the existing background about counterattacks in handball. *Scientific observation* was performed in 15 training



sessions and games to identify the treatment and efficacy of counterattack. Coaches and players were interviewed to check their preparedness for a counterattack. A *documentary review* of the handball training manuals was conducted as well. Consequently, several counterattack issues were found in the guidelines of the Comprehensive Program for Athlete Training, the training plan, and the methodological procedures of the course. Besides, low absolute and relative efficacy values were found in the different games observed. The study found the need for a change in the conception of the relative methodological procedures linked to counterattack teaching, in the junior male handball team of Villa Clara, Cuba.

Keywords: Behavior, counterattack, handball, efficacy.

RESUMEN

En la investigación, se realizó un estudio del comportamiento de las acciones de contraataque en el equipo de balonmano escolar masculino de Villa Clara. La investigación tuvo como objetivo diagnosticar el comportamiento de las acciones de contraataque realizados en los juegos de balonmano en la categoría escolar del equipo masculino de Villa Clara. Se estableció un análisis comparativo de los resultados internacionales en esa categoría con relación al estado actual del equipo objeto de estudio; se identificaron los valores bajos de eficacia en la ejecución de los contraataques durante los juegos. Se utilizaron diferentes métodos como la *revisión bibliográfica* en busca de antecedentes sobre el contraataque en balonmano. La *observación científica* se realizó a 15 entrenamientos y juegos con el objetivo de identificar el tratamiento y la eficacia de los contraataques. Se aplicaron las *encuestas* y *entrevistas* a entrenadores y jugadores para constatar su preparación con respecto al contraataque. Se realizó el *análisis de los documentos* que guían el proceso de entrenamiento del balonmano. Como resultado se detectaron limitaciones para el desarrollo del contraataque en las orientaciones del *Programa Integral de Preparación del Deportista*, en el plan de entrenamiento y los procedimientos metodológicos de las unidades de clase. Además, se presentaron bajos valores de eficacia absoluta y relativa en los contraataques realizados en los diferentes juegos observados. Existió la necesidad de modificar la concepción de los



procedimientos metodológicos relativos a la enseñanza del contraataque en el equipo escolar masculino de balonmano en Villa Clara.

Palabras clave: Comportamiento, contraataque, balonmano, eficacia.

RESUMO

Na pesquisa, foi realizado um estudo sobre o comportamento das ações de contra-ataque no time masculino de handebol escolar de Villa Clara. O objetivo da pesquisa era diagnosticar o comportamento das ações de contra-ataque realizadas nos jogos de handebol na categoria escolar da equipe masculina de handebol da Villa Clara. Uma análise comparativa dos resultados internacionais nessa categoria foi estabelecida em relação ao estado atual da equipe em estudo; foram identificados os baixos valores de eficiência na execução dos contra-ataques durante os jogos. Foram utilizados diferentes métodos, tais como a revisão bibliográfica em busca de informações de base sobre contra-ataques no handebol. A observação científica foi realizada em 15 sessões de treinamento e jogos com o objetivo de identificar o tratamento e a eficácia dos contra-ataques. Foram realizadas pesquisas e entrevistas com treinadores e jogadores a fim de verificar sua preparação em relação aos contra-ataques. Foi realizada uma análise dos documentos que orientam o processo de treinamento do handebol. Como resultado, foram detectadas limitações para o desenvolvimento do contra-ataque nas diretrizes do Programa Integral para a Preparação do Atleta, no plano de treinamento e nos procedimentos metodológicos das unidades de classe. Além disso, houve baixos valores de eficiência absoluta e relativa nos contra-ataques realizados nos diferentes jogos observados. Houve a necessidade de modificar a concepção dos procedimentos metodológicos relacionados ao ensino dos contra-ataques na equipe masculina de handebol escolar de Villa Clara.

Palavras-chave: Comportamento, contra-ataque, handebol, eficiência.



INTRODUCTION

Handball is one of the most dynamic indoor sports. It qualifies as a cooperative and/or opposition sport, by Hernández (2021), due to the physical and psychological demands of the sport. It offers favorable conditions for the acquisition and enhancement of particular motor skills for the sport, as part of the teaching process, according to Loyola, Mesa, and Peña (2022).

In handball, the players' actions are relevant depending on the three main moments of the game: attack, when the team has possession of the ball (Quiñones *et al.*, 2020); defense, when the opponent has possession of the ball; and transition, during the ball possession changes. Hence, depending on the possession of the ball or not, this game consists of three phases (Mendes *et al.* 2021). The positional game phases are positional attack and positional defense. The transition phase consists of defensive rearrangement from a defensive to an attack position (Jiménez *et al.*, 2020).

Positional defense phase (the opponent team has possession of the ball): the area is defended according to the different defensive systems, as described by Oliveira *et al.* (2022), whose main goals are, To try and recover the ball, stop the progression of the ball toward the goalkeeper, and protect the goalkeeper to avoid a goal (Guevara *et al.*, 2021).

Positional attack phase (the team has possession of the ball): the attack is staged according to the different attacking systems, whose main purpose is to maintain the possession of the ball, move toward the goalkeeper, mislead the defense line, and score, as described by Quiñones *et al.* (2019) and Menezes *et al.* (2020).

Defensive rearrangement phase (it starts upon losing possession of the ball with a quick return to the defensive area. It is structured and its main objectives are avoiding counterattacks and throwing, and recovering the ball by anticipating the opponent (Flores and Ramírez, 2021).



Counterattack phase (the ball is recovered and a surprise attack is launched). It is structured, and its main objectives are optimizing the defensive success by scoring counterattack goals, and responding to the goals permitted with goals originating from quick mid-field passes Ohnjec *et al.*, (2015).

In 2012, González made an analysis of the percentage of counterattack goals during the main competitions, in which he showed the dynamics of the game moving toward an increase in counterattack actions. These results match others from several authors who have claimed that the best teams in the world are those who can counterattack more and better (Rogulj, N., Srhoj, V., and Srhoj, L. 2004).

González (2012) found the international goal percentage values in the counterattack were 20% in the junior category. A comparison of these values with the results of observations made by the Provincial Commission, during the last two Moises Casales Cups (2018-2019), with the participation of the six best junior teams from Cuba, showed a 14.5% counterattack goal percentage. It corroborates the shortcomings observed in a counterattack in this age category, in which the team from Villa Clara was the worst.

This paper was developed thanks to the institutional research project *Physical Activity and Sports. Methodological and Technical Advances: A Permanent Update as a Change Agent in the Social Context*, which responds to the needs of the Cuban Handball Federation for new research projects associated with an assessment of the advantages of the counterattack-based game over the positional game. Accordingly, the new study demanded thorough research on counterattacks. The literature consulted refers to Jiménez (2020), who published a paper on the counterattack, which among others, deals with ball recovery. It stresses throwing errors, rebounds, interceptions, technical errors, and the goal from the opponent, all resulting from ball recovery. However, that study did not provide the ways for implementation.

Méndez, Greco, Ibáñez, and Vieira (2021), in their paper *Construction of a Game Model for Handball*, studied the phases of positional attack and positional defense, noting that the latter should be performed with high behavioral demands that permit in-depth



anticipation of the actions by the attacking players. However, they did not assess this stage of the game and therefore did not mention the advantages of counterattacking.

Loyola, Mesa, and Peña (2022) designed a didactic alternative to train to lose the mark. Their research shows complementation and optimization of the traditional methodologies and procedures. The elements presented are useful for a counterattack, but it is only limited to the action of losing the mark, so the study fell short in dealing with the current issue.

Vázquez (2019), Struzik (2020), Guerra (2021), and Vizcay (2022), on goalkeepers, suggested tools for the control and performance assessment, which included throwing defense and quick exits to seize the ball and starting counterattacks. The first case entailed beach handball goalkeepers, naturally, in a different setting. The other two were exclusive goalkeeper tests that did not include their interaction with the counterattacking players.

In addition to that, and due to the need for novel knowledge about the behavior of counterattacks in further interventions, the purpose of this paper is to diagnose the behavior of counterattack actions performed by the Villa Clara male junior handball team.

MATERIALS AND METHODS

Several methods were used to address the previous issue.

Bibliographic review: It was used to study the background of the problem and gather information about counterattacks in handball. Various scientific papers published in Cuba and internationally were reviewed.



Documentary review: It was used to gather primary information about the sports training process to enhance the counterattack in the Villa Clara handball team. Accordingly, the Comprehensive Handball Athlete Training Program (PIPD, 2021) was analyzed. A review of the sports training planning process of the male handball team from Villa Clara was also conducted, starting from the macrostructure through the training unit. Also, the competition reports, training tests, and evaluations were reviewed.

Surveys: The coaches were asked to fill out a questionnaire to learn about their preparedness to run the sports training process addressing counterattacks. The players were surveyed as well to check their abilities to cope with counterattack-related scenarios.

Interviews: The coaches and players were interviewed to check, improve, and complete all the information collected using the other methods. As in the surveys, the three coaches working for the local handball team were interviewed, along with the 12 players of the team, as intentional samples, since all will be part of the selection and taking part in the national tournament.

Scientific observation: It was performed to verify the utilization of methodological procedures to perform counterattacks in handball training units, through an observation protocol created *ad hoc*. It was also useful to measure counterattacks during the games, using an observation guide containing a system of field templates and different criteria including their category systems.

Overall, 15 training units (all the counterattack micro-cycle sessions) were included. A total of 15 games were observed. The game observations were performed during training matches against other teams participating in the national meeting.

The following indicators were used to measure the efficacy of the counterattack:

- *Absolute counterattack efficacy (EACA):* The counterattack goal percentage compared to the total of attacks performed. It is absolute because all of them end up with a positive result: the goal.



- *Relative counterattack efficacy (ERCA)*: The counterattack percentage ending in seven meters and/or exclusion compared to the total of attacks performed. It is relative because these actions provide an advantage for the team. First, player superiority, second, a seven-meter range shoot, though the goal will not depend on the counterattack.
- *Counterattack failure (FCA)*: The failed counterattack percentage compared to the total of attacks performed, including all the negative actions where the ball is lost.
- *Counterattack usefulness index (IUCA)*: The goal percentage scored by a team as a result of a counterattack compared to the total of goals scored in the game.

RESULTS AND DISCUSSION

The Comprehensive Sports Training Program (PIPD, 2021) of handball (compared with the previous program) constitutes a step forward in terms of counterattack. It includes concepts, objectives, phases, types of counterattacks, and tactical requirements and modalities.

In the junior age category, counterattacks are recommended between the two-line defense 5:1 and the three-line defense 3:2. 1. It also features the execution of the basic ratio structure in the counterattack phase during the three waves. However, it does not refer to player positions during the counterattack (quicks, lead, second lead, and support lines). No mention is made of the functions of players in these positions during every attack wave, including the goalkeeper functions. Then, a methodological guideline could be presented that helps the coach during this phase of the game.

The analysis of the *training plan* showed that during the previous macrocycle, the behavior of counterattack was not included. It contains the planning of instructive objectives of the macrocycle, and the general objectives of the stages and the attack and defense phases, but overlooks the counterattack phase.



It only appears in the game efficacy indicators, values for the efficacy of counterattack shoots, but no mention of its efficacy. Hence, teachers plan their objectives related to counterattack empirically, in the micro cycles, then implementation takes place in the training units.

Several reports of previous competitions and the evaluations of the team were reviewed, along with the briefing reports of training tests. All the documents reviewed share the same view on the difficulties of the team when performing counterattacks, which are basically linked to ball handling and the supporting lines (the absence of a second and third wave).

The following conclusions were drawn following a painstaking analysis of the coaches' opinions.

On the team's counterattack, 100% of the surveyed individuals provided negative responses, two of them considered that the mastery of counterattack techniques in the team is deficient, while one coach said it was average. The players showed technical and tactical issues in the counterattack. All the individuals surveyed argued they did not know about a manual for counterattack teaching, and added that they base their counterattack training sessions on their experience. During the games and training sessions, they come across the athletes' shortcomings and they plan their work accordingly.

Also, 100% of coaches coincided that the sports training process can help address their team's counterattack issues. Though it can be a long-term achievement, new methods must be implemented to deal with counterattacks. Concerning methodological preparedness, 100% replied that the issue of counterattack is not dealt with. They argue that it should be included, in keeping with the objectives to be assessed in the competitions of this age category.



All the subjects in the survey noted that they do not have all the methodological literature required to address the counterattack training issue. They stated that the related bibliography is scarce, and the documents reviewed only have a general overview of the topic.

The surveyed players expressed the following:

In the first question, 100 % of the subjects said that their team performs a few counterattacks during the games. As to the second question, 92 % of the subjects considered that the effectiveness of counterattack in their team was average, while only one player (7 %) said it was positive. They justified their responses with the fact that they do not always score.

Regarding the number of players that take part in the counterattacks, 100 % of the surveyed subjects provided negative responses, while 67 % said that some of them participate in the counterattacks, and 33 % claimed only one player engages in counterattacks. In the fourth question, only 17 % of the players provided a positive response, saying that the type of attack they think as the safest was counterattack, whereas the other 83% said it was the positional attack. They added their positional attack results are good, and need no counterattack to win games.

In relation to their training for counterattack, 33% of the subjects said that they receive individual tasks to perform counterattacks, while 63% noted that these activities are inappropriate for their development.

An analysis of the training units showed that in 100% of them, the technical-tactical objectives are duly informed; the second item, the evaluation of the exercises chosen was in accordance with the objectives of the training units. However, the absence of stage objectives leads to doubts in relation to the correspondence between the training unit's objectives and the stage. Hence, this aspect was evaluated as average in 100 % of the training units.



Regarding the inclusion of the counterattack phases, 33% of the training units qualified as good, whereas the other 67 % was considered average, as it does not include the ball recovery sub-phase in the selection of exercises. The exercises start with a pass from the player that performs the counterattack against the goalkeeper, instead of opening with a ball recovery as in the training units that qualified as good.

The greatest shortcomings were observed in the counterattack/defensive withdrawal ratio since the retreat phase exercises were not listed. Whenever a counterattack fails, the next step is to execute the defensive retreat phase, which was unmet during the exercises, and qualified as bad in all the training units.

No issues were observed in the other aspects evaluated, the exercises were clearly explained and demonstrated during the training units; the selection of forms and organizational procedures corresponds with the means available, and a correct method selection was corroborated. Error correction of the different activities was correctly performed, and the whole court area was used to perform the counterattack training sessions. The fulfillment of the objectives of the training was assessed at the end.

At game observation, one important aspect to be considered is ball recovery due to their relevance to starting a counterattack, including counterattacks with the predominant actions and efficacy indicators. After data processing, the results were described.

In the team, the prevailing ball recovery type was associated with handling errors (45.30 %). Therefore, in the counterattack start training, emphasis should be made on the lateral services and interceptions from different zones of the court, then continue with a quick counterattack. When a counterattack is staged, the first wave was predominant (89.22 %), with increased use of the pass from the goalkeeper in the counterattack actions. However, not all the players join the counterattack, only the fastest players engage, and the others stay aside from the action (Table 1).



Table 1. - Behavior of counterattack efficacy

Indexes	%
Absolute counterattack efficacy	19.61
Relative counterattack efficacy	8.82
Failed counterattack	52.94
Counterattack usefulness index	13.79

On analyzing the results of the indexes used to measure the behavior of the counterattack efficacy, it showed the highest failure values. There was a predominance of ball handling errors, affecting the pass and catch with frontal movements, especially with log passes. It was caused by the lack of counterattack support, which lessens the choices for proper execution of pass and the search for unmarked players ready for the counterattack. The absolute and relative efficacies showed low values, and the counterattack usefulness index was lower than the values reported for this age category internationally.

The analysis of the results based on the different methods used led to the following regularities (SWOT matrix):

Strengths:

- The lack of documents that rule the sports training process in the area of counterattacks was identified for further correction.
- The need for better coach preparedness to run this process was evidenced.
- Improvements should be made to correct the methodological procedures used to teach counterattacks.
- The observations recorded the predominant actions, as well as their efficacy in the games, and provide practical information to execute the counterattack as part of their team's strategy.



Weaknesses:

- A low absolute efficacy was observed in the games, with a poor counterattack usefulness index, being a failure the most significant indicator, in terms of ball handling errors.
- Several shortcomings to perform the counterattack were detected in the Comprehensive Athlete's Training Program used by the team in the study.
- The results of the surveys showed that the coaches lack the required preparedness to run the training process directed to tackle the counterattack since they lack a methodological and bibliographic guide to address this issue.
- The survey also showed that the players are not prepared to deal with situations they must face during the counterattacks.
- Several shortcomings were found in the training units, which hamper the need for teaching the counterattack, in terms of objectives, the recovery sub-phase, and the relation with the defensive withdrawal phase.
- Low absolute efficacy values were reported in the games observed, with a poor counterattack usefulness index, being ball handling errors the most recurring failure.

This paper allowed the researchers to understand that the methodological procedure used to teach the counterattack fails to meet the needs for proper ball handling needs, especially passing and catching during the frontal movements over long passes. Likewise, the training in counterattack does not tackle the technical-tactical actions, and quickness to score goals.

CONCLUSIONS

The results of this study upon the implementation of research methods show the absence of proper teaching of counterattacks in the junior male handball team from Villa Clara.



The information collected demonstrated the need for a change in the conception of counterattacks in the junior male handball team from Villa Clara, Cuba.

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Conflict of interest statement:

This paper does not whatsoever have any conflict in its contents and documents or authors in this field or similar. This study strictly aims to broaden research that favors the performance of counterattacks, as an underlying phenomenon in the contemporary handball game styles.



Author contribution statement:

The authors have taken part in the redaction of the manuscript and analysis of the documents.



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