Specific exercises to structure the counter-attack of Handball in the Cuban women's national team

Pedro Andrés Contreras Alfonso1*, Jorge Coll Arencibia 2, Jorge Abundio González Pascual 3
1 Central University "Marta Abreu" of Las Villas. Faculty of Physical Culture,pcontreras@uclv.cu Orcid:https://orcid.org/0000-0001-6757-48752 Higher School for the Training of High-Performance Athletes "Cerro Pelado", Havana. Orcid:https://orcid.org/0000-0001-5940-60383 Central University "Marta Abreu" of Las Villas. Faculty of Physical Culture. Orcid:https://orcid.org/0000-0003-3357-074X
*Corresponding author: pcontreras@uclv.cu

Abstract
As the culmination of studies in the High-Performance Handball Specialization, this research aims to structure the counterattack in the Cuban Women's National Handball Team, given its international importance. Based on deficiencies identified during observations of the 2017 Caribbean Cup and the 2021 Cali Pan American Youth Games, the objective is to propose position-specific exercises to structure the team's counterattack. To diagnose the team's current state of the counterattack, methods such as scientific observation, interviews, and surveys were used. Brainstorming was employed to gather the coaches' key ideas for developing the exercises that fulfill the objective. Through expert review, positive results were obtained, with the proposal being deemed necessary, relevant, and innovative in its approach to tactical preparation for the counterattack, distributed across different positions to structure it within the women's national team and achieve improved results.

Keywords: Handball, counterattack, drills.

Introduction

Indoor handball is categorized, for several reasons, as one of the most dynamic sports, classified as a sport of cooperation and opposition where possession of the ball determines the execution of coordinated actions with teammates to achieve the objective of scoring a goal, overcoming the defensive actions of the opposing team that tries to prevent it (Hernández et al., 2021).

In indoor handball, experts identify three fundamental actions: possession of the ball (attack), possession of the ball by the opponent (defense), and the change of possession (transition). Depending on whether or not the ball is in play, the four phases of handball can be observed, as described by various authors such as Román (2016), Jiménez et al. (2020), and Alvarado (2021). These are positional attack, positional defense, defensive retreat, and the counterattack, which is the focus of this research.

> The counterattack is an attacking phase characterized by high speed of execution that begins with defensive and continuous actions to recover the ball, move it into attacking zones, and achieve an advantageous shooting position before the opposing team can organize its defense. All of this occurs in a short period of time, where the coordinated actions of the team members guarantee the optimal use of the counterattack's sub-phases to achieve the positive result of scoring a goal. (Contreras, 2024, p. 88).

Several authors, such as Salvat (2016), Román (2016), and Ruiz et al. (2017), define the sub-phases of the counter-attack: ball recovery, first wave, second wave, and third wave. In Oliver's (2004) Olympic Solidarity Course, in topic XII entitled "The Counter-Attack," the positions of the players during a counter-attack are defined: the goalkeeper, the fast players, the playmaker, the second playmaker, and the supporting players. The distribution of responsibilities for each of these positions in each sub-phase of the counter-attack is also defined. Thus, the counter-attack is structured in an organized manner. This structure is the most widely used today, which contributes to its current development.

A study by Oliver (2003), based on a comparative analysis of the 2000 Sydney Olympic Games and the 2003 Men's World Championship in Portugal, demonstrates that the dynamics of handball play are evolving towards an increase in counter-attack actions. In line with this, research by Rogulj et al. (2004) indicates that teams worldwide are using counter-attacks more frequently and effectively.

However, the Cuban women's national team struggles with counterattacks. This has resulted in less than satisfactory performances, as evidenced by their results in several international events, such as the 2017 Caribbean Cup and the 2021 Pan American Youth Games in Cali. These events demonstrate a lack of mastery of the counterattack phase, where the players' counterattacks appear unstructured.

In the search for information on this topic, a literature review was conducted, analyzing authors such as Jiménez (2001) in his study "The Structuring of the Collective Counterattack, One Step Further." Jiménez presents a historical analysis of the counterattack, noting the contributions of other sports to its development. He then proposes a structured counterattack, offering methodological alternatives for its implementation. However, this proposal is based on the counterattack strategy employed by

the USSR team in the late 1980s, adapting the system's configuration to a specific team with characteristics different from those of the team under study.

Jiménez et al. (2020), in their research, focus on key categories related to ball recovery, ball movement, and the completion of the counterattack. This study provided valuable data but did not offer a solution to the problem. Similarly, Cordovés et al. (2020) conducted a study on tactical learning in handball, providing percentages of effectiveness for counterattacks compared to positional play in learning the action. However, their system of actions does not consider the sub-phases for teaching the counterattack, revealing a gap in the actions and positions necessary for structuring the counterattack.

In the case of Bailes (2022), he presents a methodology for teaching handball with the aim of demonstrating its superiority over the traditional methodology, as it engages handball players more, allowing them to learn while having fun. However, his system of actions for teaching counterattacks does not offer guidance on working through the sub-phases or the individual actions required for their structure.

Taking into account all the elements expressed above, the objective of the research is to: propose specific exercises by position to structure the counterattack of Handball in the Cuban Women's National Team.

Materials and methods

For this study, a population of 3 handball coaches from the Women's National Team was used, as they are the ones who work directly with the team under study. A second population of 20 players from this team, who are part of the national team preparing to participate in various international events, was also included.

The exercises were developed with a third group of six coaches from the "Cerro Pelado" High-Performance Athlete Training School and the researchers. A sample of five handball specialists was

also consulted; their years of experience, academic level, and workplace were sufficient to provide conclusive assessments of the problem and offer recommendations.

The following requirements were taken into account for the selection of specialists:

- Have more than 15 years of experience in Handball.
- To have mastery in the use of the methodology for the development of the sports training process.
- Having held team management positions in national events.
- Participation in research.
- Currently working in Handball.

The following methods were used in the development of the investigation:

Analytical-synthetic: made it possible to conduct an evaluative study of the bibliography that addresses the topic and in particular that directly related to counterattacks in Handball.

Inductive-deductive: it facilitated delving deeper into the theory and making inferences and generalizations from the research by expressing coincidences or divergences in relation to the studies of other authors or as a result of the application of other research methods.

Brainstorming: This allowed us to obtain the fundamental ideas from the coaches participating in the workshops, in the development of the exercises for structuring the counterattack.

Scientific observation allowed for the assessment of the subjects' performance in carrying out their duties. To measure the effectiveness variable in the team under study, the observation protocol used by Contreras and González (2023) was employed.

The survey was administered to coaches to assess their preparedness to lead the sports training process focused on structuring the counter-attack in modern handball. It was also administered to players to assess their knowledge of the counter-attack.

The interview: these were applied to coaches and players to compare or enrich the information obtained through other tools.
Expert opinion: It provided the opportunity to learn the critical opinion and evaluation of the proposal for its future practical application.

Methodology for the development of the exercises

A working group was formed to develop the exercises, comprised of the six coaches from the "Cerro Pelado" High-Performance Athlete Training School and the researchers. The group met in a workshop to characterize the treatment of the content for different positions during a counterattack and to determine the characteristics of the exercises, thus enabling the organization of the content for these positions during the counterattack.

The workshop began with brainstorming, where participants shared all their proposed solutions. This was followed by a list reduction technique to identify the most effective ideas and achieve the objective. Finally, exercises were developed to structure the counterattack strategy for the Cuban Women's National Handball Team.

Results and discussion

In conducting the diagnostic study, surveys were administered to coaches and handball players of the team under study to determine the current state of the team's counterattack, the fundamental methodological aspects applied during the sports training process, and the potential of the training process itself. Interviews were also conducted to enrich the information obtained from the surveys. Through scientific observation, the researchers analyzed five training games to assess the players' performance and measure the absolute effectiveness of the counterattack within the team under study.

The diagnosis performed on the equipment under study found that:

- Coaches face difficulties in their preparation to lead the sports training process aimed at structuring the counter-attack in modern handball due to the lack of a methodological guide to orient them.
- The athletes are unaware of the specific positions or roles they must fulfill during the execution of counterattacks.
- The absolute effectiveness of the counterattack is rated at 28.87% as regular, with a prevalence of errors in ball handling and little use of the 2nd Wave.

To develop the exercises, the six handball coaches meet under the guidance of the researchers, who act as facilitator and recorder. The facilitator presents the scenario, encourages, and guides the group to contribute ideas. Any number of ideas are allowed, whether opposing, complementary, or improved, while allowing for critique or evaluation. The recorder writes the ideas on a whiteboard.
List reduction is established by the following steps:

1. Clarify: The recorder lists all the options sequentially. The facilitator guides the clarification process with the help of the rest of the group.
2. Elimination: the facilitator proposes to analyze whether there are repeated points or points that can be combined with others without altering the essence of the content.
3. Voting: This is done based on the preferences of the group members and may require several rounds. The least favored options are not discarded, but marked as not selected, so that they can be revisited if necessary.

Finally, a set of position-specific exercises was developed to structure the counterattack for the team under study. The structure adopted for the exercises is that used by Contreras (2024), which includes the exercise name, the objective, the exercise description, the work method, the execution variations, the exercise diagram, and the methodological guidelines for implementation.

The classification provided by Navelo et al. (2025) is also used, which employs modeled development exercises using the variable modeling method. Furthermore, methodological guidelines are provided to coaches for future implementation. The following exercises were ultimately proposed.

Specific exercises by position to structure the counter-attack of Handball in the Cuban women's national team

Goalkeeper exercise (development modeling).

Name: goalkeepers to goal.

Objective: to shoot at the goal with a parabola to avoid the intervention of the opposing goalkeeper.

Starting position: Goalkeeper of team A with the ball in their goal area. Goalkeeper of team B in their defensive half outside the 9-meter line.

Description: Goalkeeper A shoots a parabolic shot towards the opposing goal. Only after the ball leaves goalkeeper A's hand can goalkeeper B cross the 9-meter line to defend their goal. Then the roles are reversed.

Method: variable modeling.

Key point: the serve or throw must have the correct speed and trajectory to beat the opposing goalkeeper.

Variant: the defending goalkeeper positions himself closer to his goal because this time he does not use the 9-meter line, instead he uses the 6-meter line.

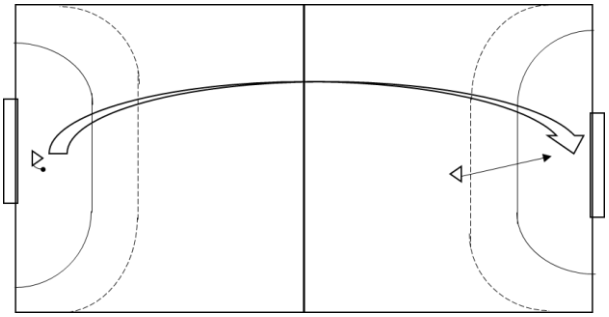

Figure 1. Graphic and symbology of the goalkeepers to goal exercise

Methodological instructions: the exercise can be carried out inside or outside the training unit, always in the form of a game the goalkeepers compete to see who scores the most goals.

Exercise for goalkeepers and fast players (development modeling).

Name: Anticipation and Pass.

Objectives: To make quick and accurate passes to initiate a counter-attack (Goalkeepers). To anticipate the shot with forward movement to initiate a counter-attack (Sprinters).
Starting position: goalkeeper in their defensive area. Two players acting as goalkeepers are positioned on the center line. Fast players in defensive positions, each marking a stationary pivot. Several attacking players circulate the ball at a height of 12 to 14 meters.

Description: One attacking player receives the ball while moving, takes three steps, and jumps, either shooting at the goalkeeper's chest or passing to a teammate. If the shot is taken at the goalkeeper, they stop the ball and quickly pass it to one of the goalposts. The faster players must move out of position before the jump shot to reach the post before the ball. If the ball is passed to a teammate, the faster players must quickly return to defense, as after a second pass, the pivots can receive the ball and shoot. After the counter-attack, the drill continues with a new ball and the addition of other faster players.
Method: variable modeling.
Key point: Goalkeepers must ensure the accuracy of the pass. Fast players must anticipate the passer's movement to make the necessary adjustments.

Variations: To increase the difficulty for fast players, the ball is thrown to the goalkeeper while jumping, using a single step for momentum. The goalkeeper then takes a running shot, using the support of the ball as quickly as possible. For the goalkeeper, shots are initially to the sides and then aimed at the goal. Finally, the goalposts are removed, and the goalkeeper's passes (medium and long distances) are incorporated to the fast players, who execute different finishing moves (1 vs 0; 1 vs 1; 2 vs 1; 2 vs 2). After each shot, regardless of the outcome, the players retreat to their initial defensive positions.

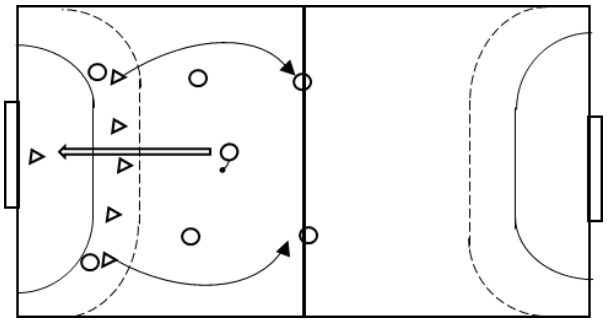

Figure 2. Graphic and symbology of the anticipation and pass exercise

Methodological guidelines: It is recommended that the coach determine the optimal shooting moments to manage work and rest periods for fast players. The distance between the posts can be adjusted depending on the team's characteristics, as long as anticipation is essential for fast players to reach the post in time. Fast players are allowed to intercept the ball before reaching the post without slowing down. For drills without a post and with various finishing techniques, it is necessary to define the objectives and other conditions to ensure the methodology required for these exercises is effective.

Exercise for directors and support staff (development modeling).

Name: ball control.

Objective: to safely control the ball through passes and receptions to facilitate the rapid arrival of the counter-attack to the shooting zones.

Starting position: Team A with 1 goalkeeper and 2 defenders. From Team B, 1 attacking player with the ball and another player in their defensive half.

Description: The player with the ball shoots at the goal, initiating a 2 vs 1 counter-attack with defenders in a confined space. The player who shot defends up to the center line, and their teammate defends from the center line to the 6-meter line. After the shot, regardless of the result, both teams retreat to their initial defensive positions.

Method: variable modeling.

Key emphasis: Passing and receiving should be prioritized for ball control, aided by different movements to create space. Dribbling should be used as a last resort.

Variations: Initiate the counter-attack with throw-ins or throw-ins from different areas of the playing field, simulating fouls. 3 vs 2 counter-attack with defenders in tight spaces, 2 defenders on each side of the court. And 4 vs 3 counter-attack with defenders in tight spaces, 3 defenders on each side of the court.

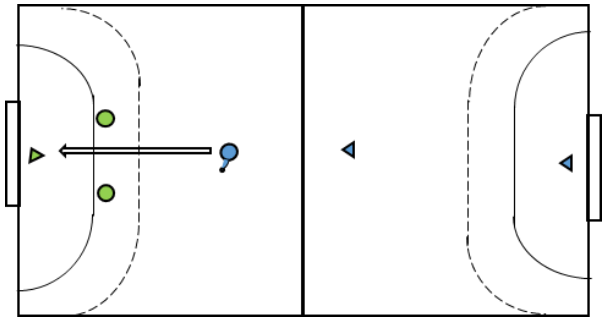

Figure 3. Graphic and symbology of the ball dribbling exercise

Methodological guidelines: ensure the correct use of passes. When initiating a counter-attack with throw-ins or throw-ins from different areas of the playing field, the goalkeeper must leave their area to support their teammates; the throw-in is taken by whoever is closest to the ball.

Position-specific exercises were implemented during training sessions, which consisted of performing the exercises during the Special Preparation Phase. These exercises were applied over eight weeks, in forty training sessions where 30 minutes of each session were dedicated to their application.

This resulted in a total of 720 minutes spent on the exercises. It was important to achieve the objectives of each exercise in order to increase its complexity or move on to the next one. The measurement of the dependent variable (counterattack effectiveness) was taken before and after the implementation of the proposed strategy.

This measurement was carried out as follows: during five matches, as in the first phase. To ensure the reliability of the collected data, the observation was performed by the same group of specialists, and it was guaranteed that the matches in the first and second phases were played against the same opponents.

The organization and collection of data was carried out directly, supported by an observation guide. This entire process took place in real game situations with referees and applying the official rules of the National Handball Federation.

Since the population coincides with the sample, the same input and output instruments can be used. Comparing the results with the initial test (which was enriched as the specific exercises were applied) revealed a qualitative change in the criteria used.

Expert opinion

The proposal was evaluated using expert criteria. These experts were sent a copy of the results to be assessed and a survey to gather their feedback. Regarding the relevance of the exercise organization in relation to the stated objectives, 80% of the selected experts considered them highly relevant, and 20% considered them relevant. They also acknowledged the positive aspects of the proposed exercises, demonstrating the practical importance of addressing counterattacks from different positions.

The specialists surveyed (100%) expressed positive assessments of the need for its practical application in team training due to the formal quality of the exercises, highlighting the aspects related to the relationship between tactical demands and tactical content with tactical situations and the treatment by positions of the counterattack.

Furthermore, these criteria coincide (100%) with respect to the fact that the exercises contribute to the solution of the deficiencies present in the treatment of the tactical preparation of the handball player, given that fundamentally it allows the development of the tactical preparation of the counterattack taking into consideration the individual characteristics of the different positions which makes said process more objective.

When assessing the originality of the exercises, 100% of the specialists considered them highly original. This is based on their appreciation for the novel approach to tactical preparation for the counterattack, distributed across different positions for its structuring. As a final consideration, they recommend using the exercises for evaluating and classifying players when defining the positions they should assume in the counterattack.

Conclusions

The need for specific exercises by position in the team under study is confirmed due to the effects on the counterattack evaluated as regular with an absolute effectiveness of 28.87%.

The specific exercises for each position proposed were developed according to the criteria of Contreras (2024) and Navelo et al. (2025), giving preference to collective work in the manipulation of the ball in each of the positions.

The specialists provided positive feedback when assessing the proposal, considering it necessary, relevant, and innovative in its approach to tactical preparation for counterattacks, distributed across different positions for structuring the attack.

References

Alvarado Velázquez, MJ (2021). Handball. [Professional Proficiency Examination to obtain the Professional Title of Bachelor of Education. National University of Education, Faculty of Pedagogy and Physical Culture, Lima] https://repositorioslatinoamericanos.uchile.cl/handle/2250/6536267?show=full

Bailes Velasco, A. (2022). Teaching Handball through Gamification Methodology in Physical Education. [Bachelor's Degree in Primary Education: Specialization in Physical Education, Faculty of Education and Social Work, University of Valladolid]. https://uvadoc.uva.es/bitstream/handle/10324/56628/TFG-G5562.pdf?sequence=1&isAllowed=y

Contreras Alfonso, PA and González Pascual, JA (2023). Study of counterattack behavior in the male school handball team in Villa Clara. Digital Journal: Science and Sport. 8(2). 272-287. https://dx.doi.org/10.34982/2223.1773.2023.v8.no2.009.

Contreras Alfonso, PA (2024). Methodology to improve the use of counterattack during competitive activity in school handball players. [Doctoral Thesis, Department of Physical Culture, Faculty of Physical Culture, Central University “Marta Abreu” of Las Villas].

Cordovés Peinado, R., Baide Ordoñez, FR and Lao Cordero, M. (2020). Tactical learning control system in the Honduras handball team. Journal of Human Sport and Exercise, 15(4proc), 1500-1511.https://doi.org/10.14198/jhse.2020.15.Proc4.46

Hernández Moreno, J., Castro Nuñez, U., Gil Sánchez, G., Cruz Cabrera, H., Guerra Brito, G., Quiroga Escudero, M., & Rodríguez Ribas, J.P. (2021). Introduction to cooperative/oppositional

team sports from the structure and dynamics of game action: a new approach. EFDeportes, 6(33), 1-2. https://www.efdeportes.com/efd33/inicdep.htm

Jiménez Salas, J. (2001). The structured counterattack. One step further. [Conference] VIII Handball Coaches Update Conference. Málaga: IAD

Jiménez Salas, J., Morillo-Baro, JP, Reigal, RE, Morales-Sánchez, V., & Hernández-Mendo, A. (2020). Polar coordinate analysis to study counterattacks in senior and under-16 men's handball. Cuadernos de Psicología del Deporte, 20(1), 48-61. https://scielo.isciii.es/pdf/cpd/v20n1/1578-8423-cpd-20-1-0048.pdf

Navelo Cabello, R., Guillén Pereira, L. and de la Rosa, YA (2025) Modeled technical-tactical training, a look at success in sports games. Ecuador. Ed FUNGADE. 146p.

Oliver, JF (2003). Analysis of the Men's World Championship Portugal'2003: “Future trends”. Technical Notebooks. Handball Area, 25, 1-16.

Oliver, JF (2004). The counterattack. High-level course: Olympic solidarity. São Paulo (Brazil): Brazilian Olympic Committee and Brazilian Handball Confederation.

Rogulj, N.; Srhoj, V.; and Srhol, L. (2004). The contribution of collective attack tactics in differentiating handball score efficiency. Collegium anthropologicum, 28 (2), 739-746.

Román Seco, J, D. (2016). The evolution of attacking play in handball. Historical review: The beginnings of the 21st century. e-balonmano.com: Journal of Sports Sciences, 12 (3), 151-164. Available at https://www.researchgate.net/publication/43166448_La_evolucion_del_juego_de_ataque_en_balonmano_Revision_historica_Los_inicios_del_Siglo_XXI.pdf.

Ruiz Sánchez, V., Gómez-López, M., and Herrera Cuadrado, JL (2017). Observational analysis of the handball throw in the counter-attack phase of the finalist teams of the Qatar 2015 World Championship. Espiral. Cuadernos del Profesorado, 10(20), 73-

79.https://redined.educacion.gob.es/xmlui/bitstream/handle/11162/140188/Adjunto1.pdf?sequence=1

Salvat Sánchez, S. (2016). The duration of possession in high-performance handball. [Doctoral dissertation, University of Barcelona] https://www.tesisenred.net/handle/10803/401554#page=1