




## Additional court player: possibilities for tactical variations and their implications for the handball training process

*Jugador de campo adicional: posibilidades de variaciones tácticas y sus implicaciones en el proceso de entrenamiento del balonmano*

*Jogador adicional de quadra: possibilidades de variações táticas e suas implicações no processo de treinamento do handebol*

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### Abstract

Handball game passed by normative changes in 2016, and some influenced the use of the additional court player (ACP), both related to organizational, strategic, tactical, and technical issues. This study aimed to analyze, from the speeches of Brazilian handball coaches, the influence of ACP on handball training process after 2016. Seven coaches were interviewed, who have already been classified among the top four clubs in the Brazilian national men and women leagues and/or who participated in the technical staff of the Brazilian national teams (men and/or women). Data were thematically analyzed. The 2016 normative change raised new handball tactical landscapes, as the coaches developed changings on offensive and defensive actions using and playing against ACP.

**Keywords:** Team Sport; Sports Training; Strategy; Tactics.

### Resumen

El balonmano tuvo cambios regulatorios en 2016, y algunos cambios promovieron implicaciones en el uso del jugador de campo adicional (ACP) en aspectos organizacionales, estratégicos, tácticos y técnicos. Este estudio analizó, en los discursos de entrenadores brasileños, las implicaciones que el uso de ACP ofrece al juego y entrenamiento del balonmano. Siete entrenadores que clasificaron a sus equipos entre los cuatro primeros de las ligas nacionales masculina y femenina y/o que participaron del cuerpo técnico de las selecciones brasileñas fueron entrevistados. Los datos fueron analizados temáticamente. El cambio normativo de 2016 planteó nuevas posibilidades organizativas en el balonmano, ya que se identificó que los entrenadores recurrieron a adaptaciones en los comportamientos específicos ofensivos y defensivos con y contra el ACP.

**Palabras clave:** Deporte de Equipo; Entrenamiento Deportivo; Estrategia; Táctica.

### Resumo

O handebol teve mudanças regulatórias em 2016 e algumas dessas promoveram implicações na utilização do jogador adicional de quadra (ACP), em aspectos organizacionais, estratégicos, tácticos e técnicos. Este estudo analisou, a partir dos discursos de treinadores brasileiros, as implicações da utilização do ACP ao jogo e ao treinamento do handebol. Sete treinadores que classificaram suas equipes entre as quatro primeiras nas ligas nacionais masculina e feminina e/ou que participaram da comissão técnica das seleções nacionais foram entrevistados. Os discursos foram analisados tematicamente. A alteração regulamentar de 2016 trouxe novas possibilidades organizacionais no handebol, pois identificou-se que os treinadores recorreram a adaptações nos comportamentos específicos ofensivos e defensivos com e contra o ACP.

**Palavras-chave:** Esporte coletivo; Treinamento esportivo; Estratégia; Tática.

## Introduction

Team sports have a common structure composed of five invariants (a disputed ball/implement, a game space, a goal, teammates, and opponents) and can be differentiated according to their rules and structures (Bayer, 1994). The organizational actions of the game depend on the interaction between its elements respecting their specific rules, therefore the organizational process cannot be understood as automatic and free from the intervention of players (McGarry, Anderson, Wallace, Hughes et al., 2002; Passos, Araújo & Davids, 2013).

The emergence of new patterns in the regulation of a game system can be achieved through variations in the relationship between the system and its structure or from within that system (Morato, Gomes & Almeida, 2012; Passos et al., 2013). The specific rules of each sport can relate the game structures to the functionalities of the system. Changes in rules can lead to structural and functional changes in the game, and interfere with players' behavior, as identified in other sports, such as futsal, volleyball, and goalball (Morato et al., 2012; Musa et al., 2023).

Handball is an invasion team sport sustained by an logic based on structural (teammates, opponents, ball, target, space, and rules) and functional (the principles of action and the rules of action) principles. These elements make up a complex and unpredictable system in which the game is organized according to its phases (attack, offensive transition, defense, and defensive transition), determined according to the ball possession. The game's internal logic does not manifest itself in a rigid and restricted way, however, it is the result of the coherent chain of events linked to specific rules, action rules, and action principles. Thus, one team must try to score points when the ball is in possession and make it difficult to the opponents when the own team does not have the ball possession (Gréhaigne & Godbout, 1995).

Handball had recent changes in its rules (IHF, 2016a), specifically in the rule 4, that allowed new perspectives in the use of the Additional Court Player (ACP) (IHF, 2016a; Krahenbühl, Menezes & Leonardo, 2019). The amended rule (IHF, 2016b) stipulated that it is not mandatory to have a player in a goalkeeper's sport jersey at all times. Whoever replaces him/her can wear a jersey with the same color than the other players on the court, and any player can reverse the substitution (IHF, 2016a).

The use of ACP, a strategy noted since the 1980s, is seen by Brazilian coaches as a good strategic-tactical possibility for moments of numerical inferiority after players' suspension (e.g. 5+ACP vs. 6) or to generate partial numerical superiority into the court (e.g. 6+ACP vs. 6) (Krahenbühl, Souza, Leonardo, Galatti et al., 2019). Using the ACP during moments of offensive numerical disadvantage (in situations where a player is suspended or disqualified and his team plays without a player for two minutes) allows the attacking team to equal the number of players on the court with the opponent. The two possibilities for using that strategy have been widely investigated in the scientific field, especially after the regulatory changes in 2016 (Krahenbühl, Menezes & Leonardo, 2019; Krahenbühl, Souza, Leonardo, Galatti et al., 2019; Maroja, Silva, Oliveira & Filho, 2020; Prudente, Cardoso, Rodrigues & Sousa, 2019).

The regulatory change resulted in a significant increasement in the use of the ACP in the 2017 handball men's world championship, both in situations to equalize the number of players in attack and to provide offensive numerical superiority (Prudente, Cardoso, Rodrigues & Sousa, 2019). For elite Brazilian coaches, the use of the ACP demands attention to technical, tactical, and strategic aspects, as it demands from players the need to reduce technical errors, to identify tactical alternatives, and to understand the appropriate moments to use it (Krahenbühl, Menezes & Leonardo, 2019).

Studies involving the ACP in competitions have demonstrated the effectiveness of its use in situations of numerical disadvantage (Beiztegui-Casado, Oliver-Coronado & Sosa-González, 2019; Maroja, Silva, Oliveira & Filho, 2020), as well as different gameplay strategies for the center back depending on the numerical relationship (Prudente, Cardoso, Rodrigues & Sousa, 2019). On the other hand, qualitative research has been adopted with emphasis on discourse analysis of coaches on how to use the ACP, and that were no significant strategic changes (Krahenbühl, Menezes &

Leonardo, 2019). However, although there are studies related to ACP applications in competitive situations, no studies were found that investigate the training processes of this strategic-tactical alternative.

Coaches highlighted that before the changing of the rule, defensive players started to disturb the goalkeeper's return after an offensive action and facilitate a shot to the goal that is momentarily unprotected. As seen above, the modifications to rule 4 make it impossible to identify a specific player as ACP, so any offensive player could redo the substitution with the goalkeeper (IHF, 2016a, 2016b). The regulatory change implied new offensive and defensive organizations, whereas all offensive players can submit without worrying about delaying their return, and from there, defenders assume their specific roles in the game system.

In a recent review of literature on handball coaches, it was suggested that investigations be expanded to peripheral contexts outside Europe and related to young teams (Musa & Menezes, 2021). Understanding the Brazilian adult handball context is relevant, as the country has been standing out in the international competitive scenario. In this sense, it is relevant to understand how specific strategy in the use of ACP is being addressed by coaches during training sessions. The intention is providing theoretical subsidies for coaches' reflections in diverse contexts. The 2016 ACP rule is still recent, and Brazilian coaches are experimenting and developing efficient ways of training in this new tactical context (Krahenbühl, Menezes & Leonardo, 2019). For this, we aimed to identify and discuss the possibilities of training and using the ACP during the matches after the regulatory changes in 2016.

This study is structured by the following sections: 1. Theoretical framework: description of the changes in rule 4 (in 2016), and the possibilities for the team organization; 2. Methods: descriptions of the production and discussion of qualitative data; 3. Results and Discussion: the theme (Relevant elements for the ACP training and game process) was discussed according to its two sub-themes ("The ACP as a possibility in the handball game" and "The ACP training process"), the first one explored the possibilities of using the ACP as a strategic resource in the handball game, and the second one discussed relevant aspects for the ACP training process; 4. Conclusions: in which the main findings and contributions of the study were gathered.

## Methods

This study is part of a larger qualitative research project on the additional court player entitled "The additional court player in handball: Brazilian coaches' perspectives about strategy". This larger project was developed to identify how Brazilian coaches understand the use of the ACP, from the regulatory changes of 2016, culminating in the training process and the use of the ACP during the matches (in its different phases - offensive and defensive).

### ***Participants and ethical aspects***

Seven elite Brazilian coaches were selected based on the following criteria: 1) coaches of men and women clubs who ranked among the top four in the adult national league between 2016 and 2018; and/or 2) coaches from the technical staff of the adult men and/or women Brazilian national teams between 2016 and 2018. The period between 2016 and 2018 was chosen because of the proximity to the date of the rule changing (IHF, 2016a). All coaches who fit the criteria were contacted, and the group of participants is 70% of the total number. All ethical procedures were taken, being this study approved by a Research Ethics Committee. All participants were named with acronyms (M or W) that indicate the gender of the teams they were part of (four men and three women teams), and with a random numeric symbol to preserve their identities. Table 1 presents the characteristics of the interviewed coaches.

**Table 1.** Coaches' characteristic.

Coach:	Age on interview date	Time since graduated in physical education (in years)	Post-graduation (MS – Master degree e FC – Further education courses*)	Years of experience as handball coach	Has coached athletes from different ages?	Has coached Brazilian national teams?
C1M	34	15	FC	14	Yes	Yes
C2F	37	17	FC	16	Yes	Yes
C3F	50	29	FC	33	Yes	Yes
C4F	53	32	FC	32	Yes	Yes
C5M	55	35	MS e FC	35	Yes	Yes
C6M	40	15	FC	12	No	Yes
C7M	57	38	FC	40	Yes	Yes
<b>Percentage, average and standard deviation:</b>	<b>46,6 ± 9,4</b>	<b>25,9 ± 9,9</b>	<b>85,7% - FC 14,3% - MS</b>	<b>26 ± 11,6</b>	<b>85,7% - Yes 14,3% - No</b>	<b>100% - Yes</b>

\*Continuing education includes coaches who have completed further education courses and/or courses organized by federations, confederations, and leagues.

### Data production

This is a qualitative approach study. Data production occurred through semi-structured interviews (Marconi & Lakatos, 2011; Purdy, 2014). The choice was justified by the autonomy given to the researcher to intervene during the interview with questions that aimed to investigate relevant themes that were not addressed or that were mentioned superficially (Marconi & Lakatos, 2011; Purdy, 2014).

The first author of this study conducted the interviews – with previous experience in other similar studies – according to the availability of the participants through video/audio remote calls. The interviews were originally in Portuguese language, being transcribed, analyzed and the participants' quotations translated to English. The interview guide was composed by open-ended questions, related to 1) the context of the coaches' career development and professional performance; 2) the regulatory changes and implications for the use of ACP; and 3) the ACP training process. The three authors participated on the developing of the interview guide, with new questions being created during the interviews.

### Thematic analysis

For data analysis, thematic analysis (TA) (Braun & Clarke, 2006; 2019; Braun, Clarke & Rance, 2014) was used, which allows the identification, organization, and systematization of significant patterns in a wide set of data, producing relevant themes (Braun & Clarke, 2006; Braun, Clarke & Rance, 2014). The choice of TA is justified by its suitability to analyze qualitative data from interviews with a focus on sport (Braun, Clarke & Weate, 2016) providing flexibility and accessibility to the researcher (Braun & Clarke, 2006; 2019; Braun, Clarke & Rance, 2014). The analyses emphasized specific aspects of the data using a theoretical-deductive, latent and constructionist approach.

The broader research project was characterized by three themes: "Possibilities of the ACP applications during the game and the training process"; "The defensive and defensive return phase"; and "The offensive phase" (Figure 1). In a second moment, the analysis process was limited to important data in solving the problems addressed by this article with the theme "Relevant elements for the ACP training and game process".

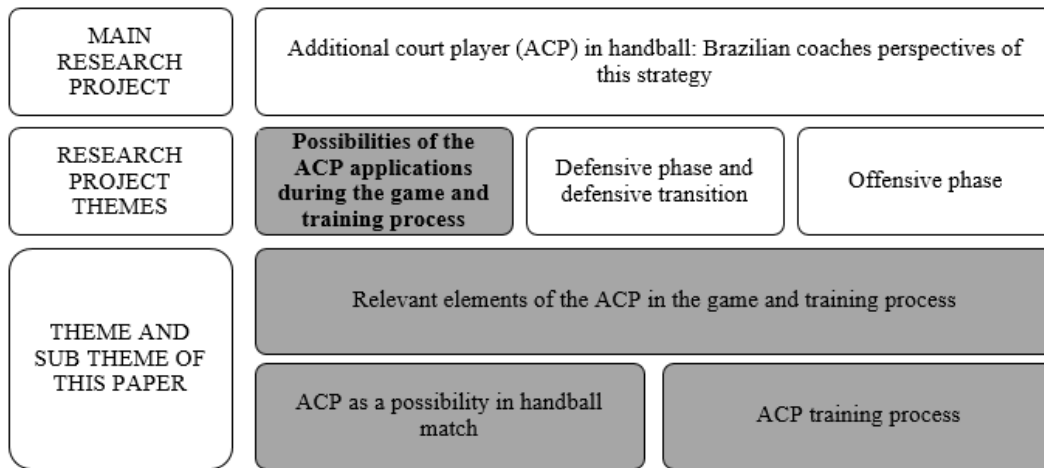


Figure 1. Thematic map with theme and sub-themes.

## Results and discussion

This study aimed to identify and discuss the possibilities of training and using the ACP during the matches after the regulatory changes in 2016 and on the speech of coaches who participated in the technical staffs of the Brazilian national team and/or top-ranked coaches in the national league of handball between 2016 and 2018. One theme (“Strategy, tactics, and technique: relevant elements in the ACP training process and in-game situations”) and two sub-themes (“The ACP as a possibility in the handball game” and “The ACP training process”) were constructed throughout the TA process of the interviews. The first sub-theme analysed and presented the strategic, tactical, and technical alternatives that the rule changes in 2016 offered to the game of handball with ACP. The second sub-theme is related to the ACP training process.

### ***Subtheme 1. ACP as a tactical possibility in the handball game***

This section presents possibilities related to organizational changes of strategic-tactical-technical scope that the modifications in rule 4 in 2016 provided to the handball game with ACP. The speeches allowed us to discuss the strategic changes raised and the possibilities of using the ACP strategy.

According to all interviewed coaches, the rule change in 2016 (IHF, 2016a) optimized the use of the ACP and influenced new strategic structures for teams. The speeches of the coaches C3F and C7M represent the general opinion of the participants:

“[Before the new regulation] if there was someone ready to shot it should be the ACP because this player will be substituted. From the moment the new rule was implemented, any player can be substituted by the goalkeeper, and made it easier to attack with ACP” (C3F).

“ACP’s ease of use ‘standardizes’ the game, everyone has to play 6:0 and 5:1, you’re hardly going to play 3:3 or 5:1 by pressing high. You can play 5:1 lower. You will hardly change that” (C7M).

One of the possible consequences of using the ACP to have numerical superiority is the difficulty of the opponent to implement open defences (defensive systems organized in two or more lines), as seen in the C7M speech. Numerical asymmetry results in a momentarily offensive player free to shot and an open defence may have difficulties covering spaces due to the greater spacing of the offensive players (Krahenbühl et al. 2019b). Therefore, the handball game with

ACP provides an environment that requires a training process that includes the strategic-tactical adaptations necessary for a good performance during its use, that is, in situations of numerical asymmetry.

It is noticed that the regulatory changes of 2016 suggested that each coach is allowed to decide its exploitation or not. The option for the use of ACP may require specific forms of offensive and defensive organization, as seen in the C3F and C7M speeches. The interaction between players is influenced by the rules of the game, which constitutes one of the aspects linked to their internal logic (Gréhaigne & Godbout, 1995). The 2016 changes (IHF, 2016a) implied the ways Brazilian coaches systematized their teams in defence, attack, and defensive return (Krahenbühl, Menezes, et al., 2019), so the results showed the change in regulation as a constraint on the game task that interferes with how the game is organized.

Three coaches (C2F, C4F, and C7M) highlighted possible implications for the physical demands of goalkeepers from the 2016 regulatory changes:

“It changed a lot the goalkeeper’s life before he just had to defend. Today he has to defend after running” (C2F).

“If you don’t prepare the goalkeeper, in the third 20m sprint he is tired and loses the cognitive part of anticipating the shot. Sometimes you exhaust your goalkeeper and he starts taking easy goals because he’s tired” (C4F).

“If we think about the goalkeeper, the goalkeeper was a player who basically worked within his space, today he shoots in games” (C7M).

No specific data were found that analysed the physical demands of goalkeepers after 2016, so there is no way to discuss possible changes in this area. However, the strategic, tactical, and physical changes highlighted by the coaches show how the systemic understanding of the environment-task-player relationship in handball favours reflection on the new possibilities of organizing the game after regulatory changes (Morato et al., 2012; Passos et al., 2013). Thus, the training process must be concerned with offering an enabling environment for players to meet the objectives of each of its phases (Morato et al., 2012).

The changes in-game behaviour caused by the 2016 regulatory change (IHF, 2016a) prompt new investigations to broaden the discussion and provide new knowledge to the area, which can be based on the reflections highlighted by the coaches:

“[The use of ACP] depends on the profile of the players you have, the game profile of your team, the characteristics of the opponent” (C2F).

“These strategies can be adapted according to the team strategy so that you can train: do I want them as two centre-backs or do I play with two pivots? Do I want two pivots fixed or moving?” (C7M).

“[It depends] on the moment, how much your team can yield, what situations they can produce, the moments of the game, the game score...” (C3F).

To use the ACP, the coaches weighed the established strategy and chose directions for each phase of the game, going through the stages of anticipating and planning. The tactic is highlighted in the need to adapt the use of ACP to the

moment of the game, the constraints imposed by the opponents, and its characteristics. Coaches C2F, C3F, and C7M highlighted important characteristics of the game with ACP for the development of the game model for teams that intend to use this strategy, such as the characteristics of players and opponents, the possibilities of offensive systematization, and some specific behaviours.

The game model must enhance the characteristics of the players, allowing their development, and at the same time, that relevant strategy is also developed to reach performance levels that allow for positive results in the games of the season (Mendes et al., 2020). Thus, it was understood that the alternatives for systematizing the game with ACP and the offensive organization with one or two pivots (for example), should be provided for in the game model, in the same way as the circumstances that can trigger specific behaviours, such as a fluctuation or dissuasion.

### ***Subtheme 2. The ACP training process***

Sub-theme 2 presented coaches' speeches about aspects relevant to the process of training specific behaviours in the use of the ACP. The results present the possibilities of how to deal with ACP in the training process, according coaches' perspectives.

The coaches highlighted that the ACP should be treated as one of the contents to be developed throughout the season, as seen in the C7M interview excerpt:

“ACP cannot be approached isolated, it has to be the subject of a training block. You have to train throughout the year and, within the planning, you have to include the numerical superiority situations (7vs6, 6vs5, 6vs4). Defensively it has to work 4vs6, 5vs6, 6vs7” (C7M).

The coaches highlighted the need for a training process that involves defensive and offensive aspects related to the use of the ACP. The different approaches to teaching team sports, such as handball, are supported by different learning theories. The coach's speeches make it evident that training in numerical asymmetry is important, both in terms of the complete defensive system (with 6 players) and in situations involving possible exclusions (with 4 or 5 players). This perspective is convergent with the different possibilities that the game can offer, putting light on specific tactical behaviors for each situation.

On the other hand, the concern for offensive actions also takes a prominent position in ACP strategy training, as there is a pursuit of greater efficiency during this phase of the game. The results situate the ACP strategy and the specific behaviors triggered by its use as the relevant content for the adult category handball training process. Coaches C4F and C7M point out the importance of developing a training process based on technical and decision-making elements associated with the tactical context:

“You must have a very good level of passing, technique, because if you lose the ball, you suffer the goal” (C4F).

“Players need to be able to throw with precision at long distances without a goalkeeper, whether over-blocking, in different situations. You have to work on this [...], throwing the ball into the empty goal; a goalkeeper in the goal that only defends and one outside that keeps throwing the ball in the other goal every time there is a throw, then the pass to the kick-off while the other goalkeeper enters” (C7M).

The later coach's quote reveals that there is no concern with the repetition of specialized sports techniques (efficiency) but with the accuracy of the throw-in situations that may occur during the match. The ability to adapt the technique to the context (effectiveness) is a decisive factor in situations of temporal and spatial pressure in team sports

(Aquino et al., 2017). There is a large literature that supports the teaching of technical elements in a contextualized way to the other elements of team sports (Bunker & Thorpe, 1986; Kinnerk et al., 2018; Light & Harvey, 2017). Adult athletes are passing by the period of maintenance of sports performance, thus the work of technique and tactics through a challenging environment that promotes sport specialization is indispensable (Durand-Bush & Salmela, 2002).

The coaches highlighted the need to train the use of the ACP through situations that refer to the handball game, whether from the partial game form or the basic game form (Machado et al., 2019). In addition, the coaches also pointed out that it is necessary to emphasize different phases of the game during these activities:

“You have to work from 2vs1 to 7vs6” (C4F).

“I do about five minutes of attack and defense [positioned], but I quickly change the exercise and add the transition phase” (C3F).

“You have to train the transition phase because when you attack 7vs6 and you lose the ball, you have to have a quick return” (C5M).

The game-based approaches (GBA) offers a dynamic, complex, and fruitful environment for the strategic-tactical-technical and decision-making development in an authentic context of the game (Kinnerk et al., 2018; Light & Harvey, 2017), so there is a need for training to present a construction that starts in situations with the involvement of fewer players (e.g. 2vs1, 3vs2...) (Machado et al., 2019; Yntsan et al., 2019). Furthermore, the coaches endorsed the need to overcome difficulties encountered to connect the game phases, such as attack and defensive return. This positioning meets the main requirements involving compliance with the game logic and its self-organization (Musa et al., 2023).

Research that investigated the training sessions of U-18 and U-20 women’s national teams (Mendes et al., 2018) and U-21 and adult teams from the State of São Paulo (Menezes et al., 2020) identified the trend toward the option of approaches which emphasized specific game situations. These activities propose problem situations structured from specific numerical relationships (e.g. 1vs1, 2vs2, 3vs2...) and are important within the consolidation of ACP strategy. The modification in the rules, space limitation, and/or modulation in the number and action of players, might be introduced in game situations with different numbers of players, with tasks designed according to the training objectives and expected behaviours during the game (Machado et al., 2019; Yntsan et al., 2019). Thus, it is clear that the results evidenced in the speeches of coaches C4F and C5M corroborate the preferences for this approach in adult teams.

However, two coaches (C7M and C2F) reinforced that in adult teams, the ACP training sessions must present situations close to the formal context, in which the main activities of the training include all its structures. Thus, the game-related activities should only appear in the transitional moments between exercises or during the warm-up:

“With adult players, these games are always important, but always at the beginning of training with a warm-up that already is convergent to the training contents” (C7M).

“I can’t train 7vs6 starting from 2vs1; 2vs1 you have to practice because you have to develop the athlete. But in 7v6 it doesn’t have much to do with it, because 7vs6 is 13 players in a court space that isn’t that big. It’s very different from 6vs5, which is two players less. Two players less in the same space makes a lot of difference” (C2F).



C7M's speech suggests an organization of the training session similar to the technique approach, as the game is used only in the warm-up. On the other hand, C2F did not present a progression of games until 7vs6, and compared the specific demand of court spaces in 6vs5 and 7vs6 situations, which does not suggest a progression through games but addresses specific problems.

Recent research with U-18, U-21, and adult teams reinforces that coaches prioritize approaches similar to basic forms of play (Dallegrave et al., 2018). A recent review of the GBA (Kinnerk et al. 2018) has indicated that it is difficult for sports coaches to design and plan activities according to the GBA principles. In this way, activities similar to those recommended by the GBA are developed and could help coaches in the construction of knowledge relevant to the players and the situations being worked on (Kinnerk et al. 2018).

Diversification in offering games as a form to emphasize the specific contents during handball training sessions has been used in different contexts (Dechechi et al., 2023), and allows players to understand their actions. Moreover, this preference can help in solving problems inherent to competitive practice and in developing decision-making. Tasks based on games situations allow the player to take offensive and defensive actions more often and build their knowledge about the specific contents (Machado et al., 2019; Yntsan et al., 2019), which must be regulated by coaches to enrich the decision-making process that involves errors and self-control of players (Soto-García & Oliver, 2022).

Tasks that advocate the teaching of specific behaviors from the use of games of different complexities, and that are similar to the formal context of handball (as the game situations presented by the coaches), provide a fertile environment for tactical development and consolidation of strategies for the use of ACP. The discussion revealed the need to understand in-depth to what extent the diversification of positions in the last stages of the sports training process could contribute to or hinder the understanding of others' behaviors that aid in specific performance. This aspect can directly influence the choices made by coaches regarding the use of the ACP strategy.

Coaches mentioned the importance of specific game situations to emphasize behaviors relevant to the use of the ACP strategy, through its potential for teaching strategic-tactical-technical elements aligned with its game model, the principles of action, and the rules of action recommended for solving specific game problems. The results corroborate recent research on the main teaching approaches used in adult teams in Brazil (Menezes et al., 2020) and indicate that coaches' preferences for teaching ACP have not changed even with the new organizational possibilities offered by the changed regulations of 2016.

## Conclusion

This study analysed the Brazilian handball elite coaches' perceptions about the training process of adult teams after the regulatory changes that occurred in handball in 2016, mainly related to ACP. In this way, the objectives were met by identifying and discussing aspects related to the ACP training process and the organizational changes that the change in rule 4 brought to the handball game.

The coaches highlighted changes in the offensive organizational patterns (all offensive players can undo the substitution with the goalkeeper) and defensive (difficulty in maintaining open defensive systems using the ACP to generate numerical superiority) after the regulatory changes in 2016. Pertinent aspects were noted for the use or not of the ACP and that can be used by coaches in the development of their game models.

The results showed that coaches support the process of training ACP in specific situations, such as numerical asymmetry and considering the link between game phases (i.e. positioned attack and defensive return), through activities that explore problems identified in the game. All coaches highlighted a training process concerned with offering the game situations as the main strategy.

Overall, the results indicated that coaches' preferences for building specific behaviours in the use of the ACP did not differ from what had already been observed in previous research with adult teams, and specific situations are used

frequently. From the results discussed, new research perspectives are suggested: 1. Deepen the specific behaviours of the ACP to be developed for each game phase; 2. Check whether there has been a change in the physical demands of handball goalkeepers after the 2016 regulatory change; and 3. Identify differences and similarities in the process of sport specialization in adult teams from the use of game-based approaches similar to the formal context and basic game forms.

## Practical applications

The findings contribute to the identification of situations which can be applied in the training sessions, with different problems related to the numerical relationship between offensive and defensive players.

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