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## *Considerations on technical-tactical preparation in sport*

### *Consideraciones sobre la preparación técnico-táctica en el deporte*

### *Considerações sobre a preparação técnico-táctica no esporte*

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## **ABSTRACT**

The issue of tactics in sport is controversial from the scientific and pedagogical points of view. In the research presented, a theoretical analysis of the main studies that addressed the term tactical action was carried out. Psychology, as a science applied to sport, has among its aims psychological preparation and within this the realization of psychological control of the athlete; in this direction, it was intended to know the manifestations of the psychological performance variables during the entire sports training process and to contribute, based on its various intervention methods, to the development of skills to face any objective or subjective obstacle during the competition. It was concluded that, for greater benefit in psychological interventions in the area of technical-tactical performance, the term tactical action must be taken into account, the approach to technical and tactical terms as an indissoluble unit, the identification of significant technical-tactical elements that are part of



the characteristics of the sport and the personological characteristics of the athlete; in addition to the theoretical approaches that served as support for the development of the study.

**Keywords:** Tactical action, approaches, perception, judo.

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## RESUMEN

El tema de la táctica en el deporte resulta polémico desde los puntos de vista científico y pedagógico. En la investigación presentada, se realizó un análisis teórico de los principales estudios que abordaron el término acción táctica. La psicología, como ciencia aplicada al deporte, tiene entre sus fines la preparación psicológica y dentro de esta la realización del control psicológico del deportista; en esta dirección, se pretendió conocer las manifestaciones de las variables psicológicas de rendimiento durante todo el proceso de entrenamiento deportivo y contribuir, a partir de sus métodos diversos de intervención, al desarrollo de habilidades para enfrentar cualquier obstáculo objetivo o subjetivo durante la competencia. Se concluyó que, para mayor beneficio en intervenciones psicológicas en el área del desempeño técnico-táctico, se debe tener en cuenta el término acción táctica, el abordaje de los términos técnicos y tácticos como unidad indisoluble, la identificación de los elementos técnico-tácticos significativos que forman parte de las características del deporte y las personológicas del deportista; además de, los enfoques teóricos que sirvieron de sustento para el desarrollo del estudio.

**Palabras clave:** acción táctica, enfoques, percepción, judo.

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## RESUMO

O tema das táticas no esporte é controverso do ponto de vista científico e pedagógico. Na pesquisa apresentada, foi feita uma análise teórica dos principais estudos que abordaram o termo ação táctica. A psicologia, como ciência aplicada ao esporte, tem entre seus objetivos a preparação psicológica e dentro dela a realização do controle psicológico do atleta; nesta direção, pretendeu-se conhecer as manifestações das variáveis psicológicas de desempenho durante todo o processo de treinamento esportivo e contribuir, a partir de seus diversos métodos de intervenção, para o desenvolvimento de habilidades para enfrentar qualquer obstáculo objetivo ou subjetivo durante a competição. Concluiu-se que, para maior benefício nas intervenções psicológicas na área de desempenho técnico-tático, o termo ação táctica, a abordagem dos termos técnicos e táticos como unidade indissolúvel, a identificação dos elementos técnico-táticos significativos que fazem parte das características do esporte e das características personológicas do atleta; além disso, as abordagens teóricas que serviram de suporte para o desenvolvimento do estudo devem ser levadas em conta.

**Palavras-chave:** Ação táctica, abordagens, percepção, judô.



## INTRODUCTION

Psychology, as a science applied to sport, has among its aims psychological preparation and within this the realization of psychological control of the athlete. In this direction, it was intended to know the manifestations of the psychological performance variables during the entire sports training process and to contribute, based on its various intervention methods, to the development of skills to face any objective or subjective obstacle during the competition. The key process within this purpose is called psychological control of training and is defined as:

(...) the system of procedures that allows evaluating the state of the psychological qualities that interact with the sports load, thus facilitating the comparison of the real results with the planned ones, which makes it possible to adopt corrective actions on time, either to modify the objectives of the activity or to overcome deviations (García and Martínez, 2014, p. 41).

When such control is carried out, the psychologist identifies difficulties in the preparation and contributes, in a balanced way, to the diagnosis of the level of development of the state of sports form; this puts him/her in a position to answer the questions: how to deal with the problem and design interventions that favor corrections in the shortest possible time? How to get the athlete to assume and learn to deal on their own if the problems reappear? these are key elements that are part of psychological work and have to be carried out under certain conditions of activity and, above all, time. In the daily exchange with sports teams, it is recognized that:

(...) a group of coaches values and takes advantage of the results of the psychological control of the training to the extent that the psychic variables are studied and communicated with investigative rigor, through methodological designs that are close to the real conditions of the activity and which results are relate to aspects of performance, which facilitates possible interventions to develop them before the competitions (Ordoqui, 2014 cited by Ordoqui *et al.*, 2021, p.2).

Here, again, the time factor is accentuated; because no trainer will wait months to obtain a solution and avoid tedium or rejections of the specialty. In these cases, psychologists must promote creativity and scientific judgment that favor the development of attractive intervention actions and achieve their ultimate goal: sporting success.

During the professional attention, thanks to the psychological control in the judo team, some inconveniences were detected that threatened the adequate technical-tactical performance in the combats. In this sense, the athletes showed incorrect answers characterized by the repetition of the same action without achieving effectiveness, selection of an action that had nothing to do with the situation that was happening and non-compliance with the strategic script planned for each opponent.

Scenarios like this are derived from the circumstances and the creative level of the athletes and are more complex in intense and difficult competitions, but when they are repeated over time, they are a concern. In the author's personal opinion, these competitive mistakes are related to the erroneous reading of the combat situation in conflict, because



if a judo athlete reads what is happening incorrectly, he/she can react wrongly and issue responses that may be effective at other times, but ineffective for the current specific situation. Hence the question arises: How to improve the technical-tactical performance (of the women judo athletes) through psychological actions?

Next, an analysis will be made of the main contributions of psychology to the area of technical-tactical work in sports that constitute theoretical bases for scientific intervention in this field.

## DEVELOPMENT

### *The relationship between technique and tactics*

In the literature it is usual to find in-depth analyzes that underline the relationship between technique and tactics (Vidaurreta, 2014). As in other theoretical aspects of science, sometimes the study of both elements is separated for further study, but at the author's personal criterion, it is not advisable to separate them, because:

From the methodological point of view, it is true that the technical and tactical aspects should not be separated as much as possible, since both are implicit in every game action, on the one hand, the technique is related to the way in which we execute the actions, and the tactic is related to decision-making, when choosing to carry out one action and not another depending on the performance of our teammates and adversaries. (García, 2013, development section, paragraph 3).

Correspondingly, one of the current controversies points out that it is not clear that one process is a continuation of the other, but that the technical-tactical preparation must be developed simultaneously. So that from the first learning of technical actions, activities that contribute to the development of tactical action must be included, from the pedagogical point of view (López, 2011 and López and Sargatal, 2014).

If the athlete has a high technical arsenal, his quality and tactical resources will be much better, in such a way:

The sporting action in the game is a tactical action, inexorably related to the quality of the arsenal of technical resources that is possessed and, as such, must be understood both from the individual level of each player and from the collective level of the team (Vidaurreta, 2014, p.10).

### *Study of technical-tactical actions in sport psychology*

Among the various theoretical approaches that refer to technical-tactical preparation are: pedagogical, cognitive, and ecological; they have been organized in this way to take into account its objectives and to achieve a better understanding throughout the dissertation.



From the pedagogical area, efforts are focused on the design and reproduction of sets of exercises according to Fonseca and Fonseca (2016), Pardo (2016), Espinosa-Mildestein, González-Pascual (2018), Corcho, González and Arrojo (2016) and Castillo, Gonzalo and Rodríguez (2016); these authors were taken as a reference because the sports psychologist must know in depth the ways in which coaches approach this type of work, to complement it with the appropriate psychological variables.

In most of these cases, the technical-tactical preparation activities during training require the reproduction of previously determined exercises, without leaving much space for the development of creativity. Sometimes, the athlete has not internalized the problem that he/she presents, so he/she simply follows the tasks and reproduces patterns, without making the pertinent analysis. It is precisely the spaces for analysis and creation that are key to an ideal performance in competitions, since this is where a weighty psychological variable intervenes: operational thinking or, as it is better known in sports, tactical thinking.

For their part, the cognitive and ecological approaches try to understand the process of technical-tactical performance, one from the internal processes of the athlete, while the other does so from the interaction established with the surrounding environment, López and Sargatal (2014) described that:

(...) On the one hand, there is the cognitivist perspective, whose origin is found in the perspective of information processing, and which considers that tactical action is fundamentally guided by knowledge and that, in some way, a large part of the tactical response is previously in the mind of the player. And, on the other hand, there is the dynamic-ecological systems perspective that understands that tactical action emerges from the athlete-context interaction and that the information should not be considered as knowledge that is previously in the athlete's mind (p.14).

One of the theorists with the greatest impact within the cognitive approach is Mahlo (1970) who was the first to distinguish the term tactical action, according to López and Sargatal (2014), and proposes three phases of analysis: perception, analysis of the situation, or that is, mental solution of the problem and motor solution; in addition, he proposes several methods for the study of tactical action: self-observation, external observation and the study of mental processes in the game and its qualities. He also affirms that the "(...) tactical action is not limited to choosing the best possible objective among many, but rather it improves itself while solving the problem" (Mahlo, 1970, p.27).

Some of the researches that are based on the theories of this author address the performance of athletes, based on declarative and procedural analysis; in this sense, Vidaurreta (2014) and Rojas, Vidaurreta and Jiménez (2016) treat it through images; meanwhile, Moreno *et al.* (2011) and Cañabate *et al.* (2016) to develop the ability to understand conflict situations in competitions. In this way, it is considered that the better one understands what is happening, the greater the technical-tactical arsenal the athlete shows in the competition. Another area is the offer of previous and relevant information to the basketball players about the opposing team in order to achieve control of the task during the game (Vidaurreta, 2014).



From the cognitive approach, instruments were designed for the diagnosis of psychological preparation for competitions (López and Lorenzo, 1999), as well as the characterization of sports from their technical-tactical particularities in fencing specialties (Rivero and Rodríguez, 2001) and youth basketball (Pensado and Russell, 2014); question that occupies one of the pioneering steps of the work of the psychologist.

Other authors have developed novel forms of diagnosis such as the observational methodology of Ortega, Giménez and Olmedilla (2008), Anguera and Hernández (2014) and Hernández *et al.* (2014) that has made it possible to recognize behavior patterns in tennis, basketball and judo teams to then intervene assertively.

Among the areas of study highlighted in this approach, there is decision-making in sport by Araujo (2011), López (2011), Moreno *et al.* (2011), Carvalho *et al.* (2011), Del Villar and García (2014) and Castro *et al.* (2019); in this space, relevant information and the variables reaction time and anticipation play a relevant role. Among the ways of approaching decision-making is the study of visual and temporal patterns "(...) that establish that the decisional act occurs prior to the action, and that it is carried out based on prior perceptual processing" (García *et al.*, 2011, p.646).

Prior perceptual processing consists of the study of perception in its broadest expression and is, in the author's opinion, the novel term of a process that Mahlo (1970) defined as significant tactical perception where "(...) it is not just about to see many things; it is also a question, from the perception of the whole, of deducing the essential, abstracting the accessory and doing all this in the shortest possible time" (p.51).

Perception here ceases to be the simplistic cognitive process where the individual only captures what he/she sees and becomes the search for signals loaded with senses about the right competitive moment, disdaining those unnecessary stimuli to be able to decide in the shortest possible time.

The most numerous references within prior perceptual processing address visual behavior that has to do with the number and duration of visual fixations (Castro *et al.*, 2019) and delves, through eye movements, into the parts of the body that are taken into account from the opponent's performance in conventional tennis sports (Del Campo *et al.*, 2012, 2015) and volleyball (Sáez-Gallego *et al.*, 2015 and Castro, *et al.*, 2019) to offer an answer tactic.

Anticipation and reaction time have been considered fundamental dependent variables in these studies, which helps to understand the importance of adequate decision-making based on the correct analysis of the situation. It is significant to highlight the distinction that is made about reaction, movement and response times in the literature, where authors such as Harbin (1989) cited by Moreno, *et al.*, (2003) allow us to obtain clarity in the design of the Experimental research on the use and definition of these variables.

Another of the contributions, from the cognitive perspective, has been the expert vs. novice paradigm, where the modes of action between both groups are compared (López, 2011) and it is emphasized that athletes with more sports experience have more and better resources to use. in competitive problem-solving situations (García *et al.*, 2003 and Del Campo and González, 2017).



The cognitive approach has dissimilar researches that attest to its use over time. However, the most severe critics of this approach emphasize that their experimental studies usually make use of simple stimuli (Ibáñez-Gijón, Travieso and Jacobs 2011), so staying within the laboratory makes it difficult to know the athlete's real performance in the competitive environment. Del Campo *et al.* (2015) obviates the athlete's relationship with the environment, which can condition him to act in various ways depending on the stimuli he receives, such as the characteristics of the opponent, the weather, the public against, etc.

This approach is based on the existence of relevant environmental information for the organism, its main exponents are Gibson (1979) and Peña (2004) and within the most outstanding lines of work, from its emergence to the present, are the ecological theory of perception and visual control of movement, perceptual and perceptual-motor learning, and attention education (Ibáñez-Gijón, Naughty and Jacobs, 2011).

In addition, it declares as a starting point the treatment of information, where perception studies are located. In this section, perception focuses on recognizing external stimuli that are abundant and that offer useful information, since "Perception is called direct if it consists of detecting environmental information" (Ibáñez-Gijón, Travieso and Jacobs, 2011 and Craigand and Watson, 2011, p. 669)

In perception studies, concepts such as high-order variables, intelligent perceptual systems, informational specificity, and restrictions are distinguished (Ibáñez-Gijón, Travieso & Jacobs, 2011). High-order variables consist of information offered by the environment that is well elaborated, so that the athlete attends to this type of information above other relevant stimuli. In other studies, they could be identified as second or third order conditional discrimination (Pérez and Estrada, 2018).

The capacity to observe these types of variables will depend on intelligent perceptual systems, understood as the quality that the subject has of capturing the key informational characteristics for subsequent decision-making (Ibáñez-Gijón, Naughty and Jacobs, 2011).

At this point, two terms known as informational specificity and restrictions (affordances and constraints translated into English) are introduced; the first has to do with the invariant properties of the environment and the second, with the laws and regularities that determine that a variable of high order exhibits an environmental property that is desired to be perceived (Pepping, Heijmerikx and de Poel, 2011 and Craigand and Watson, 2011). In other words, the analysis is not within the athlete or within the environmental properties, but in the interaction, in order to respond correctly to the competitive situation (Pérez and Estrada, 2018).

Researches on perceptual and perceptual-motor learning indicate that intention, attention, and calibration of perceptions must be educated in athletes (Ibáñez-Gijón, Travieso and Jacobs, 2011; Pérez and Estrada, 2018 and Pérez, 2013). The term probabilistic situational information is emphasized in this section, which constitutes a type of information present in the sports context that takes place early in the action of the game and before the adversary starts his movement, according to Del Campo (2015) and Del Campo and González (2017).





For its part, the education of attention theory attributes improvements in performance to changes in the informational basis of perception and action (Carlos et al., 2014). Studies on this topic highlight attentional education in soccer athletes (Estrada *et al.*, 2017). Likewise, the ecological approach emphasizes the theory of dynamic systems in which:

(...) conceives sport as a (dynamic) system made up of a set of quantitative variables that change continuously, simultaneously and interdependently over time, in accordance with dynamic laws described by a set of mathematical equations, with a behavior non-linear between subject and environment (Araújo, 2005 cited by García *et al.*, 2011, p.652).

Dynamic systems theory sees movement as emergent behavior arising from the collective dynamics of all subsystems of the organism that are involved in the task (Angulo, Busquet and Mauerberg, 2010).

The dynamic-ecological approach proposes not seeing the athlete from a schematic area with established limits, but taking into account the context in which they find themselves (López and Sargatal, 2014) and the internalizations they make of their experiences to study, from here, the way in which they solve situations in competition, so it could be said that this approach has dialectical-materialist seeds.

The neo-Gibsonian approach, as it is also known, has among its contributions the capacity to describe informational variables, the methodology to determine the use of these variables and, as a consequence, improve knowledge of attention education that allows designing the training conditions that facilitate the improvement in sports performance (Ibáñez-Gijón, Naughty and Jacobs, 2011).

So far, the essences of the theoretical approaches for the study of preparation and technical-tactical performance have been presented. It is considered that the internal representations of the athlete, as well as their relationship with the environment in the sporting context, are essential to achieve success. The use of one approach or another in an absolute way to understand the technical-tactical actions is, from the author's understanding, somewhat reductionist.

#### *Evaluations on the psychological intervention of the technical-tactical preparation in judo*

When returning to the question, how to improve the technical-tactical performance (of judo women athletes) through psychological actions? the following considerations can be reached.

The study of psychological preparation in the area of technical-tactical performance should focus on both spaces: the technical and the tactical; therefore, they should not be disconnected for their intervention. It is true that it has an active component on the part of the trainers, but it is the way in which the greatest benefit can be obtained for its stimulation. In this way, the interdisciplinarity of work in sports is reinforced (Rodríguez and Robaina, 2018 and Vidaurreta, 2019), which is so needed in these times to achieve the best use of all the areas that converge and contribute to sporting success.



The tactic should not be valued as a matter within the athlete or outside it, but should be analyzed as an action (Mahlo, 1970; del Villar and García, 2014) and Vidaurreta, 2014) and as a product of the interaction that has place during training or competitive performance.

The cognitive and ecological approaches are supported by numerous researches dedicated to collective ball game sports or collaboration-opposition sports and combat sports or adversary-opposition sports. The analysis of tactical action is more characterized by the study and training of visual cues than kinesthetic ones, it is inferred that this may be due to the complexity of studying the perceptual reactions of movement in both a laboratory and field environment.

These reactions should not be understood in a schematic way, since they are underlain by a set of psychological elements that must be taken into account to define the types of behavior of each athlete; these are the personological characteristics, among which the motivation for the activity, the temperament and the expression of subjectivity in the interaction with these specific sports situations, among others, play a fundamental role (Vidaurreta, 2019).

The sport of judo, classified as a technical-tactical sport by Del Monte (2016), differs from sports such as ball games, among other elements, because the latter is made up of teams, which players pursue a common goal. In this group of sports it is possible to see from the outside, even if only a fan, the strategies drawn up by the coach to pursue scoring a point, a basket, a goal, a run, etc. By observing the movement of the players on the field, it is possible to understand what is going to happen in the match.

In judo, despite the fact that from the displacements and types of grips it can be inferred that an action is going to occur, the exercise of strength that is printed in these grips cannot be observed with the naked eye. Only the judo athletes involved in the combat can feel it. Therefore, they come to play an important role: specialized perceptions, especially those of movement; not only those that are related to the movements within the combat, but those that have to do with the identification of the previous moment, where the opponent's intention to attack or evade his attacks is discovered and that finally translates into anticipation.

The approach to the specialized perceptions of the sport to which psychological attention is provided is preceded by in-depth knowledge of the technical-tactical characteristics. This is a fundamental step in determining the study variables during the psychological control process. In the case of the women's sport of judo, according to recent research, the significant technical-tactical elements are grouped into basic, complementary and psychological (González *et al.*, 2019).

The group of basic elements is made up of the kumi or grip and the movements and postures; within the complementary ones, there are offensive and defensive actions, weaknesses and strengths, the study of opponents and the nationality of the opponents; as part of the group of psychological elements, reaction time and anticipation (González *et al.*, 2019). The identification of these components helps to focus psychological work on areas of special interest when it comes to addressing the training and development of tactical thinking skills.



The coach can establish his proposals for technical actions to strengthen the motor system, however, if these actions are not internalized in the athlete's mind, it is very difficult for him/her to use them in competition. The psychologist is responsible, to a large extent, for the process of internalization of the athlete and for stimulating reflection by using levels of help in the first place and then, by their own means, achieving the creative level.

In the author's opinion, from the perspective of the cognitive approach, it is convenient to study the internal conditions of the athlete where representations, judgments, memories, experiences, etc. are discovered. that they possess about their technical and tactical executions; the evaluation of these aspects, within the laboratory, helps to know how they manifest themselves in each individual, in controlled situations.

As part of the ecological approach, the study of the exchange with environmental properties is essential and the identification of variables that offer accurate information is essential to adequately manage the inconveniences of competitions and avoid frustration due to insufficient control over them. In this highly controversial issue, within sport, theories that allow us to have a more complete explanation of the athlete's behavior should not be disdained.

While it is true that interventions that involve training can take place in the laboratory or in the field, despite increasingly looking for environments that are more similar to those of the competition, there are variables that still cannot be fully studied in the field and that are conveniently trained in laboratories.

Field work, a symbol par excellence of Cuban sports psychology García (2009), García and Martínez (2014) and González *et al.*, (2019) offers a better use of the previous aspect; because the manifestations of athletes for each activity they face are known and controlled firsthand. Given this, the most advisable thing is to promote the knowledge and modes of action of athletes so that they can later succeed, on their own, in situations that occur in their sports career.

## CONCLUSIONS

The study of technical-tactical preparation in sports constituted a complex issue, especially in reference to competitive performance in combat sports.

The cognitive and ecological theoretical approaches facilitated the understanding of the phenomenon, offered study variables and guided the way for the development of research both in the laboratory and in the field. None of the approaches was neglected in order to achieve a more complete understanding of the athlete's technical-tactical performance. Most of the research on both approaches focused their efforts on ball or team sports, which could be related to the complexity of the study of combat sports, whose key element is the study of movement perceptions.



For greater benefit in psychological interventions in the area of technical-tactical performance, it was appropriate to take into account the term tactical action, the approach to technical and tactical terms as an indissoluble unit, the identification of significant technical-tactical elements that are part of the characteristics of the sport and the personological characteristics of the athlete; in addition to the theoretical approaches that served as support for the development of the study.

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#### **Conflict of interests:**

The authors declare not to have any interest conflicts.

#### **Authors' contribution:**

The authors have participated in the writing of the work and analysis of the documents



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