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**Original article**

## **Combat sports, towards a tactical purpose model of talent selection**

### **Deportes de combate, hacia un modelo de finalidad táctica de selección de talentos**

### **Desportos de combate rumo a um modelo de seleção táctica de talentos**

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## **ABSTRACT**

For more than half a century, the countries that dominate the Olympic medal standings have focused their efforts not only on optimizing athletic training but also on finding that superhuman subject that can endure and assimilate the rigors of sports training for an increasingly demanding competition. In this sense, the scientific models for the selection of potentially talented athletes take the lead, offering, through predictive performance tests, a more accurate vision of how an athlete could correspond to a particular sport activity. The objective of the present investigation is to design a tactical purpose model that contributes to selecting potentially talented athletes to perform in combat sports. For this purpose, we developed a tool that facilitates the methodological process for preparing the selection model in correspondence with the demands of the competition. Empirical methods such as document review, survey, criteria of specialists and users were mainly used, taking

into account that in sport and especially combat sports due to its tactical purpose, the path to success is an integrated process.

**Keywords:** Model; Talent selection; Combat sports; Tactical purpose.

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## RESUMEN

Desde hace más de medio siglo, los países que dominan el medallero olímpico han dirigido sus esfuerzos no solo a la optimización de la preparación atlética, sino a encontrar ese sujeto sobrehumano que pueda soportar y asimilar los rigores del entrenamiento deportivo para una competición cada vez más exigente. En este sentido, los modelos científicos de selección de atletas, potencialmente talentosos, toman la delantera pues ofrecen, a través de pruebas predictivas del rendimiento, una visión más exacta de cómo podría corresponderse un atleta con una actividad deportiva en particular. El objetivo de la presente investigación es diseñar un modelo de finalidad táctica que contribuya a seleccionar atletas potencialmente talentosos para desempeñarse en los deportes de combate. Con este propósito, elaboramos se elaboró una herramienta que facilita el proceso metodológico para la elaboración del modelo de selección en correspondencia con las exigencias de la competición. Se utilizaron fundamentalmente los métodos empíricos como revisión de documentos, encuesta, criterios de especialistas y usuarios, tomando en cuenta que, en el deporte, y especialmente en los deportes de combate por su finalidad táctica, el camino al éxito es un proceso multifactorial.

**Palabras clave:** Modelo; Selección de talentos; Deportes de combate; Finalidad táctica.

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## RESUMO

Durante mais de meio século, os países que dominam a medalha olímpica orientaram os seus esforços não só para a optimização da preparação atlética, mas também para encontrar aquele sujeito sobre-humano que possa resistir e assimilar os rigores do treino desportivo para uma competição cada vez mais exigente. Neste sentido, os modelos científicos de seleção de atletas potencialmente talentosos assumem a liderança, uma vez que oferecem, através de testes de desempenho preditivos, uma visão mais precisa de como um atleta pode corresponder a uma determinada atividade desportiva. O objectivo desta investigação é conceber um modelo de orientação táctica que ajude a seleccionar atletas potencialmente talentosos para se realizarem em desportos de combate. Para este fim, foi desenvolvida uma ferramenta para facilitar o processo metodológico de desenvolvimento do modelo de seleção de acordo com os requisitos do concurso. Métodos empíricos como a revisão de documentos, inquérito, critérios de especialista e de utilizador foram utilizados principalmente, tendo em conta que no desporto, e especialmente nos desportos de combate devido à sua finalidade táctica, o caminho para o sucesso é um processo multifactorial.

**Palavras-chave:** Modelo; Seleção de talentos; Desportos de combate; Objectivo táctico.

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## INTRODUCTION

The monitoring of the Cuban sport substitutes of combat sports is a priority of the Directorate of Science, Technology and Innovation of the National Institute of Sports, Physical Education and Recreation (INDER in Spanish), since these sports have contributed notoriously to guarantee a place at the top of the Olympic medal table.

The fact that we have had relevant results in combat sports for more than 30 years means that our system of selection and development of sports talent has been prosperous, but taking into account that the context is more complex as the countries with results have diversified, that there is a constant change in regulations to make competitions more spectacular and the impetuous global technological development, lead us to continue improving our selection system to make it more sustainable.

"The continuous development of sport is linked to a growing development of the technology on which today not only most sports disciplines depend, but also all the practice of physical activity" Jiménez, J. B. (2018). Both the processes of sports preparation and control are dependent on applied sciences. The means and instruments of preparation and measurement of results, as well as the competition facilities, are increasingly demanding in the introduction of new equipment with the aim of protecting the athletes, implanting new records, facilitating the practice and contributing to the achievement of the sport form.

In this maelstrom of development applied to sport, the methods for obtaining the athlete who shows the greatest attitude and aptitude for the assimilation of the high training loads demanded by today's competition could not be left behind. That individual who reaches the highest achievements in one and rarely in several sports is what we define as sports talent (Bompa, 1987; Leiva, 2010). Kozek, J. (1998) considers that his condition "is an extremely complex attribute, genetically determined, complicated in its structure and subject to environmental conditions.

A more profound analysis is made by Passow & Rudnitski (1993) when they state that:

"Gifted and talented children are those who, by virtue of their outstanding abilities, are capable of high performance. Highly capable children include those who have demonstrated achievement and/or potential skills in any of the following areas, either alone or in combination: 1) general intellectual ability, 2) specific academic skills, 3) creative or productive thinking, 4) leadership ability, 5) visual and performing arts, 6) psychomotor skills. Perez, Furlan, & Heredia, (2015) agree that several authors define talent as "individual potential for exceptional achievement in one or more domains".

García Manso, Campos, Lizaur, & Pablos, (2003) not only refer to the potential of the athletes, but to their disposition and define sports talent as the athlete with the ability and desire to perform at a high level in the field of sport.

In order to support the efforts demanded by today's sport and the difficulties of detecting this athletic potential early, the research or search for talent worldwide has become one of the most important and emblematic issues to be solved in the field of sciences applied to sport. In this sense, the processes of sports recruitment and selection are governed by actions, often aggressive, as defined in some contemporary literature (Calero-Morales, 2019; Calero., 2012; Morales. & Taboada, 2011).

For tactical sports such as combat sports, where the technical elements and the physical, psychological and theoretical preparation are resources to impose the game and solve situations in opposition conditions (Córdova, Rodríguez, Madrigal, & Cazco, 2020), the natural selection or pyramidal models are very efficient if you have the wide resources they demand to support them, which are nothing more than infrastructure and means for competitive volumes from a wide base to the elite. If these pyramidal models are complemented in their structure, with predictive tests of

development, from early ages according to the demands of the given competitive activity, the selection process is optimized since only athletes with potential to fight.

Based on the studies evaluated, we plan to detect athletes who are potentially talented in combat and who possess above-average cognitive development, psychomotor skills, creative thinking, high motivation, willingness and disposition to train, compete and win. All this from a tactical purpose that is the essential component in the preparation of athletes for combat sports. In this sense, the purpose of the research is to systematize, from a tactical approach, the essential components for the selection of potentially talented athletes for combat sports, from the demands of competition.

## **MATERIALS AND METHODS**

To carry out this research, methods of the theoretical and empirical level were used, such as the review of official documents that allowed the study of the state of talent selection in general and particularly for combat sports. Several samples were used in correspondence with the objectives of the task to be carried out. In order to diagnose the current state of the talent selection process of combat sports athletes who move from the base link to the School Sports Initiation School (Eide), 36 specialists were interviewed who are part of the group that selects the registrations. They were made up of two national directors (Commissioner and Methodologist), a provincial director (Commissioner) and three coaches per combat sport. All the interviewees are graduates in Physical Culture, with more than six years of experience as trainers.

For these 36 specialists, a seven-question interview guide was used, covering all the content that was desired to be known and allowing to check the knowledge of the members of the selection group to carry out their work, their knowledge about the selection of talents of combat athletes and the importance they give to it to make up the Eide's roster, as well as the tests applied to measure these selection indicators. The interviews were carried out in depth since they were recorded during the technical or combat tests that are carried out to evaluate the athletes in selection.

The interviews with the Provincial Commissioners, who are the main users, allowed to know the development of the athletes who had been selected for Eide in previous years, their stability, main results, levels reached in other categories, etc. It was also possible to verify how the selection of talents from the base level to Eide is carried out, according to the Integral Program of Preparation of the Sportsman of Fencing (Pipd), which constitutes the official methodological document of combat sports in Cuba.

The systemic-structural-functional method allowed relating the elements of the proposed methodological tool, according to the expected results.

## **RESULTS**

For sports with a tactical purpose (sports games and combat (judo, wrestling, fencing, taekwondo, boxing, karate,)) the scientific solutions have not been so plausible because the selection has been framed in the natural process, having a wide base of practitioners, in the performance pyramid and as competitive results are obtained, athletes move to higher levels.

Sporting preparation in combat sports is primarily aimed at achieving tactical performance, taking into account its purpose [Córdova, Rodríguez, Madrigal, & Cazco, \(2020\)](#) expose that:

"A definition of tactics, which satisfies the way in which we understand how successful combats are conducted, is framed in the intelligent and efficient use of the resources that we possess (physical, technical, behavioral and knowledge resources, etc.) to impose and solve situations".

He emphasizes on imposing because in several studies made to combat sports it is established that the athletes who impose their game win more points and rounds or fights, it is important to take the initiative.

"It is a reality the need to be proactive in combat sports, it is not about being offensive or defensive, you can combine both, but what it is about is making the opponent do what you want him to do, take the priority, lead the combat. Not waiting for the perfect moment, but generating the moment...to win (Cordova, Rodriguez, Madrigal, & Cazco, 2020).

If it is wanted to identify the potentially talented athletes to fight, any model or methodological design or system, it cannot be ignored the tactical purpose of combat sports.

Avelar-Rosa, Gomes, Figueiredo, & López-Ros, (2015), in figure 1, explain what "Knowing How to Fight" consists of and the invariants of technical and tactical knowledge that are common to combat sports. They make evident the internal structures that support the combative activity of these sports and the tactical similarity between them. Beyond "knowing how to touch", "knowing how to project", "knowing how to immobilize", "knowing how to strangle" or "knowing how to dislocate", which are the general skills that guarantee points to these combat sports, the authors agree that it is necessary to manage these practices based on the strategies that are drawn up to win where the tactical dimension is a priority in this management (Figure 1).



**Fig. 1** "Technical-tactical structure of fighting knowledge"  
Avelar-Rosa, Gomes, Figueiredo, & López-Ros, (2015)

The authors cited above represent the "know how to fight", Figure 1., as the domain and relationship of the transitional actions, determinants of the actions of completion, in articulation with the elements of tactical management. In consonance with the

development and intensity of this interrelationship, the "tactical intention" is constructed, a manifestation of a quality "knowing how to fight."

The authors of this work agree with the above-mentioned authors, when they explain that: "The tactical intention represents the contextualized, intentional and spontaneous use of the technical-tactical resources, demonstrating not only the mastery of "knowing how to fight", but also the manifestation of this knowledge with a high practical and dialectic level". For this reason, it is understood that the tactical intention or the tactical skills, associated to being proactive, taking the initiative, being creative, having visual perception, sense of time, of the moment and the distance and others to be studied, will allow reducing the uncertainty associated to the infinite manifestations of actions in opposition that arise in the combats and guarantee a more favorable scenario to make the decisions, to obtain scores and to win. The selection of potentially talented athletes in these and other tactical skills will be the ones we are looking for to predictively evaluate, if they could obtain relevant results in combat sports.

Cuba has experience in natural selection since it granted the massive practice of sports, allocating important budgets to develop them, which allowed reaching performance levels similar to those of the so-called first world countries. It is recognized the pyramid through which the sportsmen go from the base link to the elite, where the first phase, base of the pyramid, is solid, with a wide volume of practitioners and it is refined according to the quality of the athletes until reaching those of greater fighting skill and consequently better results. The transit through this pyramid is not homogeneous, although in its majority the biological maturations are respected and, above all, the development of the potentialities for the tactical performance.

According to [Lorenzo \(2001\)](#), at each stage of the pyramid, the abilities and capacities that will guarantee subsequent sporting success must be gradually developed. The first phase of foundations can begin where the familiarization with the combat sports is developed, although the fundamental objective is the motor learning, with the purpose of improving the coordination qualities.

The second phase of sports initiation where it is proposed to start in several sports disciplines at the same time, so that children could be linked to more than one combat sport, although it is advisable to combine individual sports and collective sports. The third phase is of specialization and begins with a systematic training for a single sport or also a combat sport in more than one modality, for example foil and sabre fencing. In this phase, it is necessary to compete and demonstrate, to evaluate, the tactical performance. The fourth and final phase of maximum performance where the objective is the optimization of the sport form to obtain the highest tactical performance and results in the competition.

In this search for the methodological procedure for the scientific selection of talents for combat sports, one cannot fail to mention the phases established by [Bloom & Sosniak \(1985\)](#) for the evolution of sports mastery, skill or expertise to reach expertise or perfection (Table 1).



**Table. 1** - Characterization of the Men's Basketball Substitute Team of Havana

Individual	Phases in the evolution of expertise		
	Beginning	Development	Perfection
<b>Athlete</b>	Cheerfulness	Commitment	Obsession
	Enjoy	Dedication	Professionalism
	Special Talent	Practice	
	Responsibility	Deliberate	
	They innovate, they bring	Promise	
<b>Coach/ Professor</b>	Kind,	Strong	Success
	Loving	Respectful	Respected, Feared
	Focused on	Competent	Emotionally
	learn	Demanding	involved
	They support		
<b>Parents</b>	They share the	They sacrifice	
	excitation	Adapt their life	
	They support	Restrict their	
	They look for technicians	activities	

Ruiz Pérez, (1999) refers that there are several studies that try to analyze how expert athletes or those with a high level of sports expertise have reached their results, investigating the life itineraries developed, but, in short, the interest in studying the development of sports expertise has resided in 4 fundamental aspects that, seen from the perspective of combat sports, would be: Knowing how basic knowledge, technical skills and situations in combat interact, analyzing the type of cognitive processes involved in different combat sports, elucidating the relationships between knowledge and competence to combat and finding possible pedagogical applications, that is, how to prepare and train to win in combat sports.

Lorenzo (2001), explaining the long-term sports preparation, superimposes this theory from Bloom's Phases of Expertise (2005) with the already known high performance pyramid, highlighting how it is important to take into account this simultaneity of contents, if one wants to train for the achievement of the highest sports results (Figure 2).



**Fig. 2** - The process of developing talent as responsible for the development of the athlete Lorenzo (2001).

For the detection and selection of the sport base level in combat sports, which is the subject of this study, it is interesting to observe the parallelism shown in figure 2. How Bloom's Start phase coincides with the first two phases of the pyramid for high performance. According to [Lorenzo \(2001\)](#):

"during childhood, in addition to the need to establish a broad and multilateral psychomotor training, through diverse and varied means, we must include as necessary to promote the development of the sportsman, the support of the family and the coaches and propose significant and fun learning to the child".

The proposal derived from this research concentrates on the first selective phase, from the basic link to high school performance, and establishes its design based on what [Godik \(1989\)](#) proposed about the fundamentals of the integral control of sports training. This author considers it as:

"the multilateral verification of the level of preparation of the sportsman or woman, carried out during deep integral investigations or by stages, the registration of the indicators of the physical and psychic states of the technical-tactical level and of the particularities of the competitive activity".

From this, we ask ourselves then, what elements should contain the process of selection and development of potentially talented athletes for combat sports. In the sources studied, we distinguish two methodologies, well differentiated, which are contained in our proposal to follow up on talent because not everything is in the genes, there are also social factors that are decisive in selecting a talent. But the distinctive thing is that the studies will be promoted from a vision of tactical purpose that is the demand that guarantees to impose itself in the combat, to create scenarios and to solve situations to win. Indicators will be measured that evaluate the potential for making and executing decisions to create, etc., ([Tipán & Morales, 2018](#); [Flores Abad, Arancibia Cid, & Calero Morales, 2014](#); [Flores, Calero, Arancibia, & García, 2014](#)), that is, those that guarantee tactical development and those that determine the tactical performance of athletes in combat sports.

Therefore, work is being done to develop a Talent Selection Model with a vision of Tactical Purpose for Combat Sports, from the perspective of health sciences and quantitative methodology, which includes batteries of tests to assess athletes and from the perspective of social sciences and qualitative methodology where we find, among other issues, the analysis of the life trajectories of elite athletes.

An approach to the methodological order was described by [Madrigal, \(2020\) et al.](#), collaborators in the 1st Bulletin of the Cuban Sports Research Center (CIDC vs Covid-19), but in discussions to enrich theory from what is carried out in a practical way in research, these aspects were clarified. Therefore, a tool, which will be part of the model of talent selection with tactical purpose for combat sports, is concentrated in the following methodological steps:

1. Determination of the demand profiles of combat sports from the systemic analysis of the competitive activity.
2. Identification and weighting of the factors that determine sports performance.
3. The selection or creation of suitable tests to evaluate the indicators of the factors that determine performance.
4. The organization of the evaluation process and the standardization of the test batteries.



5. The elaboration of the methodology for the application of the test batteries.
6. The controlled application of the test batteries.
7. Predictive study of performance, in correspondence with the demands of the competitive exercise from the mathematical-statistical analysis of the results of the application of the tests.
8. Identification of the best athletes with potential to fight.

Some aspects of the content defined for the methodological steps, stated above, are:

### Determination of the requirement profiles of combat sports from the systemic analysis of the competitive activity

Several authors have determined the parameters to efficiently characterize the competition. For combat sports Copello, (2007), proposes the following indicators from table 2. A simplified example for fencing of this characterization is made clear in the article by Madrigal, Córdova, & Heredia (2017) (Table 2).

**Table 2.** - Indicators and synthesis of the characterization of fencing

Indicators	Copello, M. (2007)	Fencing	Córdova, B. S. (2013)
1	Criteria for effectiveness of actions	Tactical, Performance Effectiveness	
2	Functional structure of the actions	Joints involved in competitive exercise	
3	Actions classification	Acyclicals varied	
4	Energy cost and character of efforts	Fast and explosive force resistance of lower extremities and armed hand	
5	Predominant perception	Visual and Tactile	
6	Calculation of space and time limitation	Delimitation of the fencing track (14 m) and set time	
7	Actual and total duration of the fights (work and rest)	Poule: 3 min, Direct Disposal: 9 min (3 rounds of 3 min x 1 intermediate rest)	
8	Approximate duration of the competition	3 days. 2 days Individual and 1 day team	
9	Density of loads in the competitive exercise	Volume of actions in the 12 individual rounds plus those of the team, which are fought throughout the competition	
10	Number of fights to be among the first	12 Individual Combats. Between 9 and 12 per team	
11	Regulatory time between presentation and presentation	Minimum 10 minutes	

From this meticulous characterization of the competitive activity, taking into account modality, sex, weight division, for which one wants to make the model, germinates the profile of demands of the sport and, consequently, the profile of reference that the sportsmen demand for this competitive activity of combat.

### Identification and weighting of factors that determine sports performance

Taking into account the demands of combat, it is necessary to identify the factors that determine performance, order them or weigh them based on their importance for obtaining results. This reference profile, demanded by combat sports, will be essential to determine the talented athletes, of course taking into account the real possibilities of the athletes in the selection ages.

This step is significant because it makes a difference in what selection models traditionally establish. Some authors have obviously exposed the need for the selection model to be similar to the sport for which we are going to select the talent, but they have not been specific as to what, in combat sports, of tactical purpose, variables and indicators are needed that allow the evaluation of the tactical demands that they demand (tactical thinking, creativity, initiative, proactivity, solution, intelligence, etc.). Sporting success in combat sports depends on physical preparation (training) and technique (actions and skills), but fundamentally on tactics or intelligent use of these and all the resources that one has, in addition to a high disposition to win.

The fighting sports that compete at the Olympic level, say: Boxing, Taekwondo and Karate, turn out to be highly complex combinations of techniques and skills. The bouts take place in variable conditions with great speed and continuous changes of the interrelation of the distance of all the body segments, which determine the tactical time to perform the action, which are constantly evaluated by the opponents to determine the execution of the attack and defense actions. Also, in the case of fencing, they include the handling of the weapon, which demands the use of fine skills totally acquired, product of the handling of the foil, the sword or the saber, which validate the effectiveness. The remaining combat sports, Judo and Wrestling, which begin with actions of the grips, depend on a high degree of development of the sensoperceptions, balance, specific physical capacities among others, so it is required to dominate many technical-tactical elements and the athlete must be constantly focused on the movements of the opposite and those elements that are significant to maintain the balance of the center of gravity.

In general, all combat sports depend on good concentration, anticipation, stability of attention and expertise to perceive and respond to the actions of the opponent, without being fooled by feints or non-significant elements and the need to develop highly specialized tactical perceptions is magnified. The sports that correspond to this group present a complex performance structure. The combat demands effectiveness of performance, which depends on the perception of the stimuli, the elaboration by the central nervous system (CNS) of the solution and the rational use of the abilities and capacities that support the motor responses. In these combat sports, of tactical purpose, contrasting the indicators that characterize the competition with the demands that it demands, we can conclude that the factors of the personality of the athlete, tending to the development of tactical abilities, are those that we need to evaluate to contribute to obtaining high results.

These indicators that determine the performance to fight converge indistinctly, combined in the combat, but they have a specific weight within the competition to deliver blows, touches, strangles, etc. and obtain points in the combat, so it is necessary to weigh them to determine their incidence and importance for performance and thus reach the reference profile of the ideal athlete for combat sports. Specialists and experts in combat sports will be needed to determine performance indicators and their level of involvement in obtaining results. It is a highly specialized assessment that requires not only knowledgeable combat sports practitioners and researchers, but also high performance.

### **The selection or creation of suitable tests to evaluate the indicators of the factors that determine performance**

Once the reference profile of the ideal athlete for combat sports has been identified, the ideal tests will be selected or created to guarantee the measurement of these requirements, respecting the sensitive periods of development and the reliability of the results for a prognostic study. This will allow to know in a multifactorial way the potentialities that the athlete has to reach important levels in combat competitions. The integral evaluation of their potentialities and of the combination of these for obtaining results is what will allow selecting the athletes from the base link to the performance school, with conditions to obtain possible results.

In this step, it is where the vision of tactical purpose will prevail in order to determine the tests and indicators that are capable of evaluating tactical performance. This will be done from the simple to the complex as explained above, taking into account the biological maturity of children, but will allow some assessment of behavior to make and execute decisions, cognitive-motor performance, understanding and

development of games and everything related to tactical development in the initiation.

The design or selection and evaluation of the tests, with a vision of tactical purpose, become the fundamental means of obtaining potentially talented athletes to compete in combat sports. These tests must be reliable (internal consistency and stability) and must have predictive validity, taking into account contemporary theories of intelligence and cognitive skills and the development of tactical thinking.

Taking into account these general aspects, the ideal and contextualized tests can be assigned to measure what the activity demands. For a better understanding and analysis of them, this research proposes to group them by dimensions; say conditional-coordinative, technical-tactical, medical-biological, psychological and social. Some aspects are reflected in Figure 3 below.



**Fig. 3** - Some fields where tests and performance indicators of combat sports will be evaluated

Within the psychological assessments, priority will be given to those that evaluate the tactical thinking that should prevail in combat sports because it is the fundamental premise for the development of tactics. Its indicators will have to do with its particularities of operability, speed, flexibility, foresight and everything that guarantees the effectiveness that characterizes this type of thinking. An important indicator will be creativity, as well as proactivity and initiative, among others.

Águila, Cantero, & García, (2006) left clarification about the conceptual aspect of tactics as a preferably mental skill. It is considered the fighting skill manifested, not only in knowing how to do (positions, movements and actions) and in knowing how to use (the technical element), but in knowing how to create (procedures, routes, scenarios and conditions) and in knowing how to decide (the right moment, distance, type of action and behavior) to achieve points in the fight and win.

In this sense, tests have been identified to measure: problem-solving ability, abstract thinking, ability to modify incorrect strategies, flexibility and inhibition of incorrect responses, logic, motor memory, strategy change, neuromotor preference and use of feedback from experience.

## **The organization of the evaluation process and the standardization of the test batteries**

The other logical step would be to group them into batteries according to the requirements, demands and characteristics of the tests and the age-specific characteristics of the athletes to be measured to ensure maximum performance of the individuals.

1. Feasibility of implementation (grouping of tests that do not distort the result of another, work-rest relationship)
2. Checking of the measurement means (equipment that gives reliable results)
3. Selection of the measurement team (combat specialists and experts, with specialized knowledge in this activity, previously trained to perform and measure the tests)
4. Similar conditions of realization. (Evaluation of athletes in each event under similar conditions)
5. This would provide the reliability required for contracting the results.

## **The development of the methodology for the application of the test batteries**

The methodology is in charge of managing and shaping the process in an orderly manner. It establishes the control of the procedures and techniques that are applied in a systemic way and records the results. For its preparation, we propose an adaptation to the most used to implement a system of continuous improvement: PDCA Cycle (or Deming's circle). This management method is broken down into the four phases: planning, execution, verification and improvement; directly interrelated and schematized in a circular manner since the last phase always gives way to the first phase of the successive process. These characteristics aim, as its objective, to standardize and consolidate effective methodologies through self-assessment of the method itself created.

This system of continuous improvement gives great weight to the feedback and improvement, through corrective and preventive actions, making it flexible and changing from the consolidation of strengths and the development of areas for improvement. These characteristics correspond proportionally to the versatile demands of contemporary sport and, in particular, to those of combat. The rules, training and performance expectations have moved at a dizzying rate over the last 15 years for combat sports, so this planning variant allows the process to be readapted as soon as the competitive conditions change. Monitoring protocols must be prepared in order to consolidate, capture and evidence all the information, by phases, of the process of application of the test batteries for the selection of potential athletes and simultaneously apply the protocols for evaluating the efficiency of the tool designed. The analysis of the results guarantees the diagnosis and feedback of future processes.

## **The controlled application of the test batteries**

Talent selection methods reflect, fundamentally, two evaluative modalities: census test and controlled test. The census test consists of applying certain tests to almost the entire population with similar characteristics; this generates qualification ranges, called percentiles, which are established as comparison references. In order to know the athlete's level of development, the pre-established percentiles are contrasted with the individual result of the person being evaluated, and their location in the range is evidence of their current development. This variant is generally to be applied

to large samples since there is a greater probability that there are one or more individuals in the 90th percentile range.

For an efficient application of this variant, these percentiles need to be updated and appropriate to the population being evaluated. In the other variant, the controlled tests are applied to a given sample where the evaluation depends on the location of the individual result in correspondence with that of the group. In the case of having a small sample, these are the most objective tests for selection since the subject is evaluated within his own population, which is the only one existing.

### **Predictive study of performance in correspondence with the demands of the competitive exercise, from the mathematical-statistical analysis of the results of the applied tests**

This analysis will be done by contrasting the data from the tests that were done on each of the subjects who are starting out in combat sports. It is important to separate the data by sex, weight (in case of sport by weight) and biological age, so that the evaluation is reliable to the functional development of the child in the early selection. Each of these data will be taken to a pre-established scale, according to the weighting (incidence and weight in obtaining results) of the factors that determine performance that will define the evaluation of the test according to the importance of the indicator for the practice of combat sports. The results are compared according to the biological age of the individuals, grouped in a range of one year.

### **Identification of the best athletes with potential to fight**

The best indexes will be designated by dimensions: (conditional-coordinative, technical-tactical, medical-biological, psychological and social) and in general the ones with the greatest integral potential will come out. The data will be recorded and used as a comparison for the next selective processes in higher categories, as a diagnosis of the individual development and to enlarge the references of the selection data base of the next years.

In summary, in the eight previous points, the competitive activity of combat sports is characterized in order to know exactly the demands of that competition and the capacities that are conditioning and determining to reach a high performance, and the indicators that we should measure in the athletes to determine the potentialities that they have to compete in combat sports are determined. A process of elucidation of the factors that guarantee performance is carried out and by expert criteria they will determine the hierarchy of these, either alone or combined, that will guarantee the results in combat sports.

Figure 4, which can be seen below, is a tool that integrates the methodological steps explained above, and details the multifactorial relationship that is evident in the selection of potentially talented athletes for combat sports where, taking the environment as a model of the subject, the demands of competitive activity, the demands of effort, the biological and energetic supports that sustain them, and the capacities necessary to cover the requirements of competitive activity act. These requirements will give the indicators that will support the selection process to predict the athlete with the greatest potential to assimilate the loads to fight (Figure 4).



**Fig. 4** - Multifactorial relationship scheme for the selection of potentially talented athletes for combat sports

Source: (Lastres, 2017)

The surveys and interviews carried out confirmed that the selection of talents with a tactical purpose complements the natural pyramid of talent selection carried out in Cuba and will allow optimizing this process for all combat sports. Likewise, they agree that it is necessary to work among all the factors involved in the process so that the selection comes out with the required integrality. In relation to the proposed methodological order that will integrate the selection model, the 36 interviewed consider that it is pertinent.

These evaluations, in the case of early selection, should be in correspondence with the age of the children, their level of biological maturity and the sensitive phases of development to rule out requirements that do not generate reliable information. The tests will be applied to the children and their evaluation compared in the population or against percentiles; it will throw in a predictive way an athlete that is in correspondence with the totality or most of the characteristics that the given competitive activity demands.

Subsequently, their follow-up in higher categories would demand a process that would be managed with similar methods, but that would include more specific evaluations of their technical-tactical and cognitive development and their results in competences. It will also take into account the ability to manage emotions, stress situations and the pressure of competitions, as well as the permanent willingness to succeed.

It will be necessary to assume a map of development of tactical knowledge that will depend on the potentialities that the combat sportsman has to, in a tactical context, impose his game, select the correct answer with respect to the tactical situation that is presented and adapt the answer taking into account, also, the evolution of the opponent in the tactical situation in which he is.

In conclusion, it is proposed that talent is a psychological configuration of personality with a very complex and multidimensional structure, where not only intellectual aspects such as general and specific skills, intelligence and expertise are enhanced, but also motivation, will, creativity and the ability to innovate.



In the management of talent for combat sports, the tactical dimension is decisive to reach the luctatory expertise, so it is reiterated the need that the evaluation has a tactical purpose because we need an athlete with potentialities to respond spontaneously in the precise tactical moment, because it is an athlete who fights in conditions of tactical opposition because he is limited in time, space and time. The tactical sense defines the quality and speed of proaction and reaction of a combat athlete. It involves the ability to perceive, analyze, decide and execute an action chosen from his memory and psychomotor repertoire to create scenarios and impose his winning game or adjust it to the conditions imposed by the opponent and respond accordingly. The tactical sense translates the intelligence to fight judoka, fencer, fighter, taekwondin, karateca or boxer.

The methodological order and the multifactorial tool, which will be part of the model, systematize the content from the competition, passing through the efforts that will be generated, determining the capacities that correspond to it and its biological supports, so it is relevant for any combat sport that is previously characterized.

The selective and formative process of an athlete is absolutely specific to each sport, specialty, biological maturation and culture. Based on these investigated conditions, further longitudinal and international studies will be needed to further contextualize the processes.

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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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