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Original article

Validation of the tactical purpose model for talent selection in combat sports

Validación del modelo de finalidad táctica para la selección de talentos en deportes de combate

Validação do modelo de propósito tático para seleção de talentos em esportes de combate

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ABSTRACT

Introduction: the results obtained by combat athletes in Cuba have shown the strength of the pyramidal model for the selection and preparation of high-performance sports, but every process is likely to be improved, and constant improvement of the sports selection process is necessary.

Objective: in this sense, the present research aimed to theoretically validate a model of tactical purpose for the selection of talents in combat sports.

Materials and methods: the research is based on the application of a documentary review and a survey of 38 experts, being descriptive-explanatory.

Results: this model is based on three phases, a proposal for a talent selection model with a tactical purpose for combat sports; emphasis is placed on the theoretical evaluation of the model. Five indicators and five components are assumed and the theoretical contribution of the studied model is recognized; it focuses on the possibilities of optimization that it generates in the sports selection process; the pyramidal system is complemented and the management of potentially talented combat athletes is endorsed in their entry into high performance. The questionnaires determined that all the experts agree on very adequate and quite adequate, where the concordance coefficient obtained was $W = 0.798$.

Conclusions: the tactical purpose model for talent selection in combat sports constitutes a theoretical contribution and solves a specific problem in practice by allowing the optimization of the talent selection process with a scientific nature, thus complementing the pyramid system.

Keywords: High performance; Combat Sports; tactical purpose; Model; Selection of talents.

RESUMEN

Introducción: Los resultados obtenidos por los atletas de combate en Cuba han demostrado la fortaleza del modelo piramidal para la selección y preparación del alto rendimiento deportivo, pero todo proceso es proclive a ser mejorado, siendo necesario el perfeccionamiento constante del proceso de selección deportiva.

Objetivo: En tal sentido, la presente investigación tuvo por objetivo validar teóricamente un modelo de finalidad táctica para la selección de talentos en deportes de combate.

Materiales y métodos: La investigación se apoya en la aplicación de una revisión documental y de una encuesta a 38 expertos, siendo de tipo descriptiva-explicativa.

Resultados: Este modelo se basa en tres fases, una propuesta de modelo de selección de talentos de finalidad táctica para deportes de combate, se enfatiza en la evaluación teórica del modelo. Se asumen cinco indicadores y cinco componentes y se reconoce el aporte teórico del modelo estudiado; se enfoca en las posibilidades de optimización que le genera al proceso de selección deportiva; se complementa el sistema piramidal y se avala la gestión de deportistas de combate potencialmente talentosos en su ingreso al alto rendimiento. Los cuestionarios determinaron que todos los expertos concuerdan en muy adecuado y bastante adecuado, donde el coeficiente de concordancia obtenido fue $W = 0,798$.

Conclusiones: El modelo de finalidad táctica para selección de talentos en deportes de combate constituye un aporte teórico y resuelve un problema concreto de la práctica al permitir la optimización del proceso de selección de talentos con carácter científico complementando así el sistema piramidal.



Palabras clave: Alto rendimiento; Deportes de Combate; Finalidad táctica; Modelo; Selección de talentos.

SÍNTESE

Introdução: Os resultados obtidos pelos atletas de combate em Cuba têm demonstrado a força do modelo piramidal para a seleção e preparação de esportes de alto rendimento, mas todo processo tende a ser melhorado, sendo necessária a constante melhoria do processo de seleção esportiva.

Objetivo: Neste sentido, o objetivo desta pesquisa era validar teoricamente um modelo de propósito tático para a seleção de talentos nos esportes de combate.

Materiais e métodos: A pesquisa é baseada na aplicação de uma revisão documental e uma pesquisa com 38 especialistas, sendo de tipo descritivo-explicativo.

Resultados: Este modelo é baseado em três fases, uma proposta de modelo de seleção tática de talentos para esportes de combate, com ênfase na avaliação teórica do modelo. Cinco indicadores e cinco componentes são assumidos e a contribuição teórica do modelo estudado é reconhecida; ele se concentra nas possibilidades de otimização que gera para o processo de seleção esportiva; o sistema piramidal é complementado e a gestão de atletas de combate potencialmente talentosos em sua entrada para o alto desempenho é endossada. Os questionários determinaram que todos os especialistas concordam em ser muito adequados e bastante adequados, onde o coeficiente de concordância obtido foi $W = 0,798$.

Conclusões: O modelo de propósito tático para seleção de talentos em esportes de combate constitui uma contribuição teórica e resolve um problema concreto de prática ao permitir a otimização do processo de seleção de talentos com caráter científico, complementando assim o sistema piramidal.

Palavras-chave: Alto desempenho; Combate aos esportes; Objetivo tático; Modelo; Seleção de talentos.

INTRODUCTION

Selecting the best exponents who can withstand the efforts demanded by high-performance training and competition continues to be a priority for sports organizations that work to increase their Olympic, world and regional medal tally. Sanchez' article. *et. to the.* (2020), "Combat sports. Towards a model of tactical purpose in talent selection" precedes the results of this research, since it characterizes the competition and demands of combat sports, presents the variables and indicators that certify the factors that determine performance and indicates the methodological steps to take into account to model a selection process for potentially talented athletes. It shows that if you want to manage a competitor for combat sports, you cannot ignore the tactical purpose of these sports and the need to find intelligent, proactive and creative athletes (Platonov & Nikitenko, 2019; Youn and *et al.*, 2021) with qualities to develop a high combative skill.

Cuba has been at the forefront in the preparation of combat athletes and its results surpass what any country with its level of development and number of inhabitants has achieved, comparing itself with the greatest sports powers in the world. To date, the Olympic results alone show 73 medals in boxing, 22 in wrestling, 36 in judo, 16 in fencing and five in taekwondo.



These results demonstrate the strength of the pyramidal model for the selection and preparation of high performance sports that guaranteed reaching the top, (Morales., 2021) but to maintain and exceed what has been done so far, considering that it is not currently counted with the funding required to sustain a broad base of practitioners, their development and natural decanting for complex and costly competitive systems; it is necessary to perfect the selection system from the base to the elite, considering theoretical-methodological alternatives are sought (Morales & Taboada, 2011; Calero., 2012).

Scientific selection systems today have come to complement this pyramidal or natural selection, to lower costs and optimize the process (Espinal & Medina, 2021). They allow budgets to be reduced in the selection process, which guarantees to detect, with predictive development tests, a practitioner more adjusted to the specificities of the competitive activity, and to monitor the process, in the short, medium and long term (Morales., 2021). This allows resources to be invested in a lower enrollment, but scientifically endorsed for combat competition.

Based on this exposed situation, the research focuses on perfecting the talent selection process in a way that complements the pyramid system and this contributes to guaranteeing the sustainability of the results in combat sports. To do this, a scientific model of talent selection for combat sports is designed, which becomes the objective of this work.

Talent management has become a priority to achieve excellence in organizations. Lorenzo (2006), presents an achievement of how the conceptualization of this topic has evolved and systematizes the existing fundamental theories, coming to declare a model of its own for talent selection, where it integrates the fundamental indicators of the authors studied.

His proposal assumes the recognition of the dialectical combination of social, biological and psychological factors that are taken into account to define that man is a biopsychosocial unit, where each factor has its relative independence (Shulze *et al.*, 2021; Brown *et al.*, 2020).

As can be seen in figure 1, the authors consider that talent is made up of cognitive and affective elements that develop on the basis of certain biological and social conditions. It is not a stable trait for life, it can manifest itself in the early ages and stop expressing itself later or vice versa. This depends on the cognitive resources, the characteristics of the personality or the environmental conditions that surround the subject (Figure 1).





Fig. 1. - Model of Raquel Lorenzo
Source: (Lorenzo, 2006).

According to [Lorenzo \(2006\)](#), what is decisive for performance is having a productive position of the subject, expressed by the motivational and volitional components. Also, the talents must have slightly above average cognitive resources and a minimum of social conditions. The successful combination of these components, in an evolutionary process of learning, training and practice, increases the subject's expertise in a *specific domain* and allows him/her to obtain relevant achievements.

The authors of this research also make distinctions for potential and talent according to the moment of selection. According to [Lorenzo, \(2006\)](#) "Potential talent becomes crystallized talent when it can be measured in concrete work results". These terms are assumed in this research, where potentially talented is used, for selection at early ages, and possible talent and talent, as they approach confirmation.

From a methodological point of view, some authors declare a general classification based on four fundamental models: definitions based on individual traits; cognitive component models; achievement-oriented models and socio-cultural/psychosocial-oriented models. ([Barrero & Lazarraga, 2019](#); [Ibáñez et al., 2021](#)) The first two with the reference in the psychological field, the third focused on achievement and success, and the last raised with the reference of the environment from an environmental perspective.

[Gagné's differential model \(1993\)](#) is precisely in this last line of socio-cultural/psychosocial model. It maintains some differences with other theories on key concepts such as creativity. In this model, creativity is not considered an essential ingredient to achieve certain achievements, in clear opposition to other theories that they consider it an essential component, the most outstanding success of Gagné's Differential Model lies in its ability to differentiate both concepts and at the same time establish a relationship of continuity and mutual dependence. Figure 2 shows the model schematically (Figure 2).



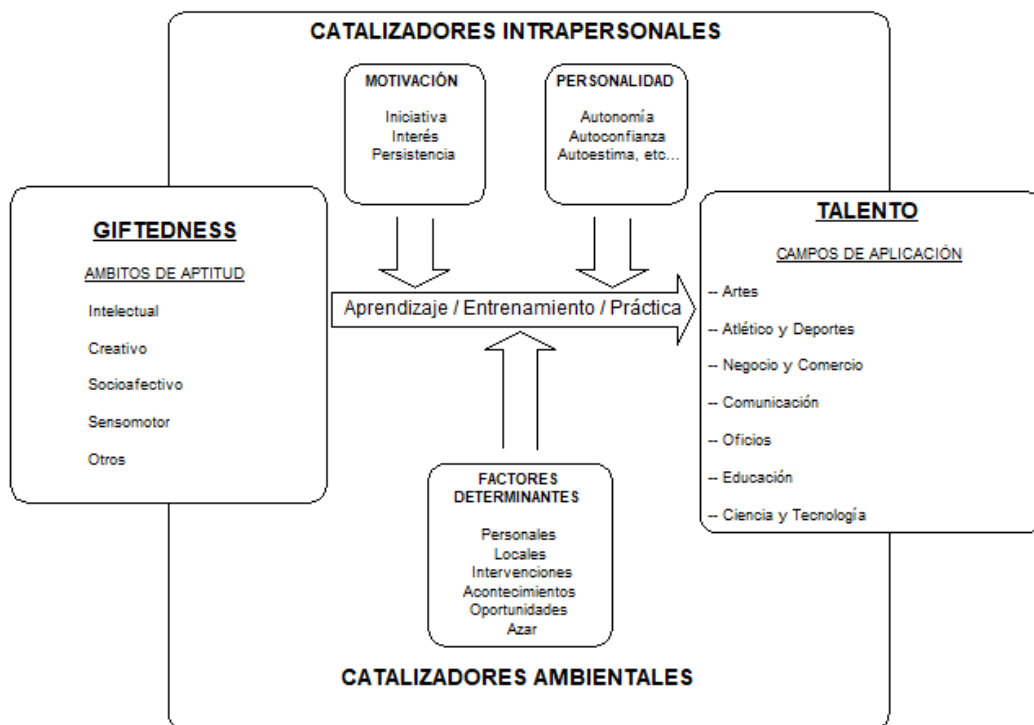


Fig. 2. - Model in schematic form
Adapted from (Gagné, 1993).

These models that require a social context with minimum favorable conditions that act as environmental catalysts, reinforce the idea of recognizing the participation of the environment in the confirmation or refutation of talent.

In the management of sports talents and their path to excellence, there are new criteria of efficacy and control that revalue the role of social factors for the development of performance sports. The classifications of talent are varied in correspondence with the categories declared by the authors. Approaching the activity of sport, Manso (2003) refers that Vernon's classification is interesting, since in addition to defining the content of each of the categories, aspects related to the characteristics of the exceptionality they represent are included, specific examples of productive achievements and forms of evaluation/observation of the process (Figure 4) and (Figure 3).



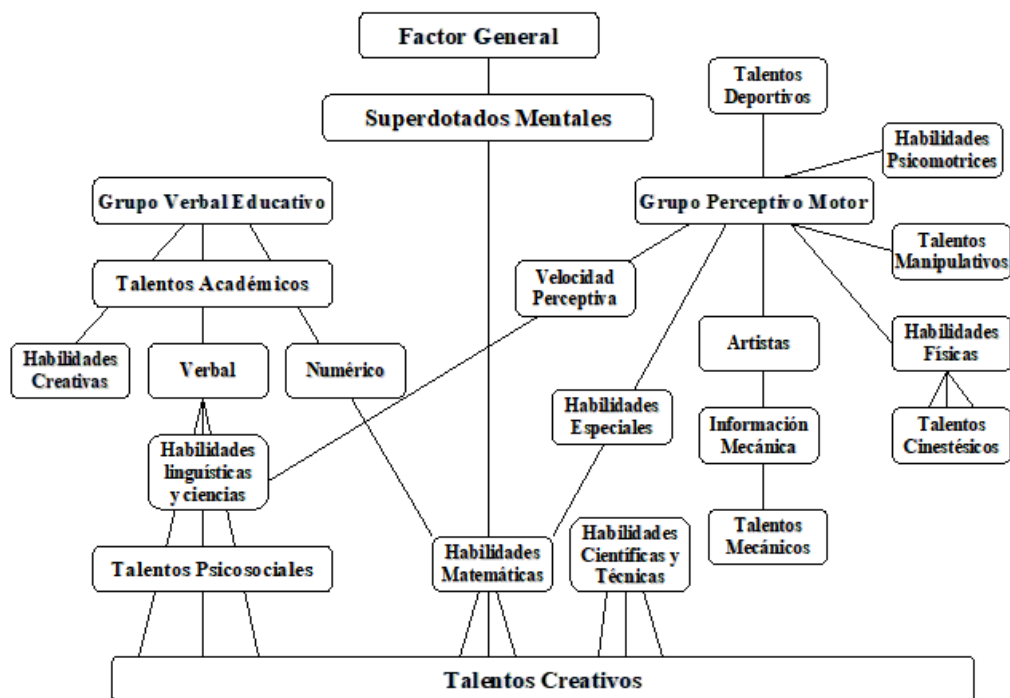


Fig 3. - Structure of human skills

Source: (Manso, 2003).

Despite the strategic need to obtain talents to obtain high sports results, the interpretations of theoreticians, technicians and specialists have generated conflicting positions that *have not allowed us to accurately understand the process that athletes with potential follow until their confirmation of talent.*

From a conceptual point of view, and always in generic terms, some authors express that sports talent shares some common characteristics with respect to other manifestations of talent, such as the case of the kinesthetic, manipulative, mechanical and performing arts subcategories (Moon, 2022). However, in the practical field, the singularity that defines the framework in which sports relationships and benefits are established seems to advise that the study of the problems surrounding the detection and training of sports talents should be carried out in a differentiated, specific and referred to a specific social context.

They tend to agree on a series of fundamental aspects that must be considered when selecting subjects that can reach the highest levels of performance. In this sense, the criteria that should guide the recruitment of sports talents cannot be universal, but must vary for each sport modality, (Morales., 2021). However, it is feasible to accept that these indicators can be grouped into generic blocks common to all disciplines and that the main criteria to be considered in order to correctly select a future champion are the following: genetic and hereditary aspects, state of biological maturation, state of health, morphological and anthropometric aspects, potential for development of physical and coordinative qualities, and psycho-social and cognitive characteristics.



García et al. (2018) manage to accurately describe the theory that is addressed, related to the Models for the selection of sports talents, where they exemplify the differences between the Models based on personality traits and abilities, the Models oriented on achievement and performance, the Models oriented in the socio-cultural and psychosocial fields and the Model corresponding to the Pyramidal System (*García et al., 2018*).

Cuba has obtained multiple sports results in combat sports and has supported high performance by having a broad base of practitioners who opted for natural selection, taking into account competitive results. The authors *Sánchez et al. (2020 p. 25)* value that:

For sports with a tactical purpose such as combat, 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 and Madrigal, 2020*), the models of natural selection or pyramidal are very efficient if it is had the extensive resources that are required to support them, which are nothing more than infrastructure and means, for competitive volumes from a broad base to the elite. If these pyramidal models are complemented in their structure with predictive tests of development from an early age based on the demands of the given competitive activity, the selection process is optimized, since we would only consider athletes with the potential to fight.

In this sense, the design of a new model of sports selection requires scientific-methodological validations, for which the purpose of this research is to theoretically validate a model of tactical purpose for the selection of talents in combat sports, such as the one presented in the section of methods and results of the present research.

MATERIALS AND METHODS

This work was carried out from the instrumentation of a bibliographic review on some theories and documents related to the selection of talents in combat sports (focused on the sport of Fencing) and the application of a survey as part of the selected expert criteria (Method Delphi).

In the bibliographic review, fundamental elements were taken into account by which Cuban sports entities have historically guided in order to develop a selection of talents in combat sports. Among those components are the following:

- General characteristics of the existing model for talent selection.
- Aspects related to motivation, production, creativity, proactivity and other traits of the athlete's personality.
- The physical conditions in which the athlete has been trained: The facilities, the means he has had for his training.

Regarding the application of the survey to the 38 experts, it should be reported that the selection criteria are based on the following characteristics:



- Twenty-four doctors in Sciences of Physical Culture and Sports
- Nine Master of Science; seven in Physical Culture and Sports and two in Management and Business Administration.

Five specialists; four in Physical Culture and Sports and 1 in Management and Business Administration) that integrate knowledge of talent selection, management and direction of processes, tactical sports, selection and sports preparation at an early age, modeling, systematization of processes, and combat sports (Self-assessed on the degree of knowledge and information on the subject of study and its sources of argument).

Five indicators were studied to validate the proposal through expert consultation. The analysis indicators were:

1. Objectivity (I): That the model fits the objective and the context in which it is proposed.
2. Affordability (A): That the foundation of the designed model efficiently fulfills the objectives of the selection according to the age range of each stage, responding to the principle of affordability
3. Progression (P): That the selection requirements can be classified by groups of increasing complexity according to the proposed stages, allowing the principle of progression of sports training to be fulfilled.
4. Variety (V): That the contents of each stage are varied in the measurement by components, allowing them to be adapted to the selection needs in correspondence with the functional and sports development of the subject, allowing to respond to the principle of general multilateralism.
5. Progressive Specialization (EP): That the selection stages have connectivity and a higher level of rigor in the evaluations by stages, which allows gradually adapting to the principle of sports specialization, during the development of the athlete.

The research is descriptive-explanatory of a qualitative nature, structured in three phases announced below; it is emphasized for the present work in phase three:

1. First phase: preliminary theoretical study and diagnosis of the current state of the talent selection process in combat sports. In the first phase, the documentary analysis allowed the study of the scientific foundations associated with the object of study. The referential theoretical platform that serves as the basis for the research was built, so the documentary review method was unavoidable. The analysis, synthesis and interpretation of the contents are inseparable cognitive processes. These were used during the process of consultation and critical assessment of the literature studied and the specialized documentation, as well as in the application of other methods of scientific knowledge, in the analysis of the results obtained in the diagnosis and during the evaluation of the proposed model.
2. Second phase: design of the Tactical Purpose Model for the selection of talents for combat sports. The second phase of design of the model and implicit system in the first selective stage, the research methods that were applied were those of



a theoretical level. The object was modeled by studying its component parts, as well as the relationships between them. On the one hand, the structure was investigated and on the other hand its development. The result was the design of the scientific proposal. Hence, the relevance of the use of modeling and the functional structural systemic method.

3. Third phase: Evaluation of the designed model.

Experts were consulted using the pairwise comparison methodology; responses to the applied questionnaire were statistically processed to determine the degree of consensus among the experts, which was done through the Kendall concordance coefficient with its significance test evaluated at 0.8 correspondence.

The practical validation of the system for the sport of fencing, in stage 1, from the base to high school performance, allowed to verify its applicability, the objectivity of the tests and of the process itself through corrective actions resulting from continuous improvement, through from the feedback on your three applications.

RESULTS AND DISCUSSION

In the bibliographic review, the following arguments were determined that formed the starting point for the elaboration of *the tactical purpose model*, within these elements the following prevailed:

- Limitations regarding the contextualization of the current model with the sports field linked its incidences in the community, the home and the family, the training area and the coach, the school and the teaching teachers.
- Difficulties regarding the promotion and maintenance of motivation levels, disposition in training and competition.
- Insufficiency in the levels of creativity, independence, autonomy, tolerance to stress and defeat among other psychological factors.
- Difficulties at work with physical and motor capacities.

Regarding the data obtained in the surveys as part of the expert criteria method, the following results have been synthesized:

The questionnaires determined that all the experts agree on very adequate and quite adequate, where the concordance coefficient obtained was $W = 0.798$. This value indicates that there is consensus among experts in general. The typical deviation between the five questions was (0.00 to 0.45) so it was assessed not to transform the proposal, only to make minimal adjustments suggested in aspect 4 (Table 1).



Table 1. - Coefficient of variation of the indicators that analyze the intervention proposal

statistician	survey questions				
	Question 1	Question 2	Question 3	Question 4	Question 5
Half	1.00	1.00	1.00	2.13	1.00
Typical deviation	0.00	0.00	0.00	0.45	0.00
Coefficient of variation (%)	0.00	0.00	0.00	21.11	0.00

The practical validation of the selection system for potentially talented athletes, for the sport of fencing, in stage 1, which is in charge of the selective process of the base link to high school performance, allowed to verify its applicability, the objectivity of the tests and of the process itself through corrective actions resulting from continuous improvement, based on feedback in its three applications in the province of Havana in the 2017-2018, 2018-2019 and 2019-2020 school years.

As a solution initiative based on the revealed results, the talent selection tactical purpose model for combat sports. Here are some essential features of this model

A model of tactical purpose of talent selection for combat sports was elaborated, describing its basic characteristics from figure 4 (Figure 4).

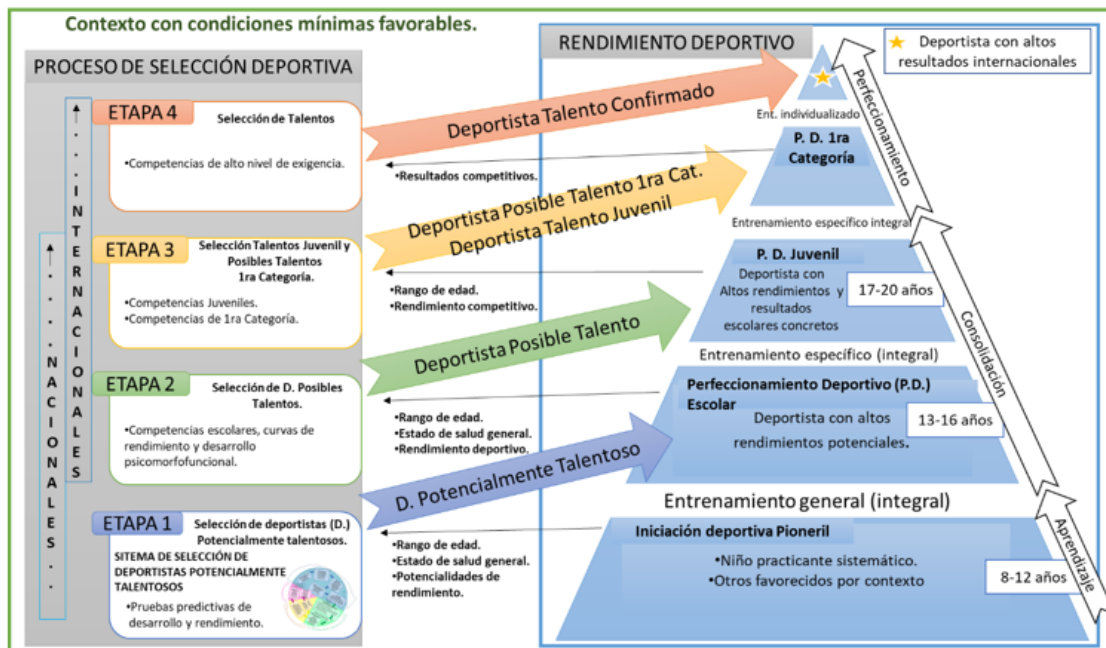


Fig 4. - Model of tactical purpose of talent selection for combat sports



It was arrived at the model by the systematization of existing theories and the recognition of the need to declare a pyramidal and scientific model that perfects the process.

The previous referents led to the result of this work: the relevance of this built model lies in the fact that, from a social context with minimum favorable conditions for sports development, where the community, home and family influence, the area of training and the coach, the school and the teaching teachers, a potentially talented athlete is managed who meets the following prerequisites in his personality:

1. Cognitive development above average.
2. A high motivational and volitional component that is summed up in a high willingness to train, compete and win in combat sports. The productive position of the athlete should reflect their initiative, creativity and proactivity, perseverance, adaptability, self-esteem, values, emotional intelligence, tolerance to stress, ambiguity, success and failure, motor learning and training strategies, among other aspects.
3. Perceptual-motor capacities that guarantee high tactical development with efficient decision-making processes.
4. Physical capacities and motor skills that support combat.

This model also distinguishes the verticality of two well-defined processes where the sports selection process converges with the high-performance development pyramid, but specifying well the contents adjusted to each step and stage.

Focused on the high performance development pyramid, where in its learning phase, which begins with the Pioneer Sports Initiation for children who systematically practice combat sports and other athletes favored by the context, from other related sports, exceptional biopsychosocial characteristics, excellent physical conditions, proximity to sports facilities, interested family, own sports implements, etc.) the selection criteria for transition to stage 1 of the selection process are established. They are: Age corresponding to admission to the Sport Initiation School (Eide in Spanish), good health status and empirical evaluations of potentialities (Flores Abad *et al.*, 2014).

In the aforementioned stage 1, (Figure 4) the selection system of potentially talented athletes to fight is developed, through predictive tests of development and performance. This system constitutes the most relevant result of the research, which is why it will be analyzed later.

Starting from the selection in Stage 1, the potentially talented athletes to fight move, in the performance pyramid, to the first part of the Consolidation Phase for the Improvement of school sports, classifying themselves as athletes with high potential performances.

In the transition to stage 2, the selection criteria considered are: good general health, age range corresponding to the category and sports performance (in competitions) according to their training level (Figure 4). In this stage 2, which includes more biologically mature athletes (up to 16 years), the Sports Selection is specified through the evaluation of the competitive results reflected in the ranking and analysis of national and international competitive performance curves. The confirmation of the development



characteristics foreseen in the previous selective stage and their correspondence with the given sport will also be verified.

This analysis gives rise to possible talent athletes for the second part of the consolidation phase in the pyramidal step of school sports improvement. In the transition to stage 3 of athletes with high performance and specific school results, the selection criteria considered are: age range corresponding to the category and sports performance (in competitions) consistent with their level of training.

Stage 3 is planned for athletes up to 20 years old and with little uncertainty in their biological maturation characteristics (Figure 4), it contemplates the performance and competitive results of a national and international nature in the competitions planned for their category and the higher one, as the main selection criteria. In this stage, the selection will be made by national and international results in correspondence with their category, determining the possible talents in the 1st Category (over 20 years old) and the young talents that enter the pyramidal phase of improvement with concrete results in both levels of competition.

In the transition to selective stage 4 of athletes with high specific results, the competitive result is measured as the only selection criterion. In the fourth and last stage of the selection process, the confirmed talent athlete will be determined (Figure 4), only by results in high-level international competitions, reaching the top of the pyramid. It refers to athletes who have the highest performance and positions in the medal table at the world and Olympic level in combat sports.

In the model, it is fulfilled with systematic character each of the steps of the pyramid (Pioneer Sports Initiation, School Sports Improvement (PD in Spanish), Youth PD, 1st Category PD) up to its peak (athletes with high international results) is corresponds to a selective stage, which serves as the basis for the selection of athletes from the next higher step of the pyramid. This course of athletes through all the steps of the pyramid, will generate new standards and updated percentiles for the evaluation of new selective processes from the base, in stage 1.

As mentioned above, the *Selection System for potentially talented athletes for combat sports* that is developed in stage 1 of the sports selection process, is vital to achieve the final result of the model where it is intended to achieve an athlete with high international results. (World and Olympic medalists) at the top of the performance pyramid.

Stage 1 of selection, runs with the greatest scientific weight due to the little and indistinct maturation that children up to 12 years of age have. In it, in a predictive way, the development potentialities will be measured in each of the athletes, in correspondence with the given combat sport.

Sports potential will be estimated based on exceptional basic skills to fight and withstand the demands of training and competition in these opposition sports, predictively expressing the levels of specific trainability of the athlete to obtain high performance in combat sports.

Graphically, the *Selection System for Potentially Talented Athletes for Combat Sports* (Figure 5).



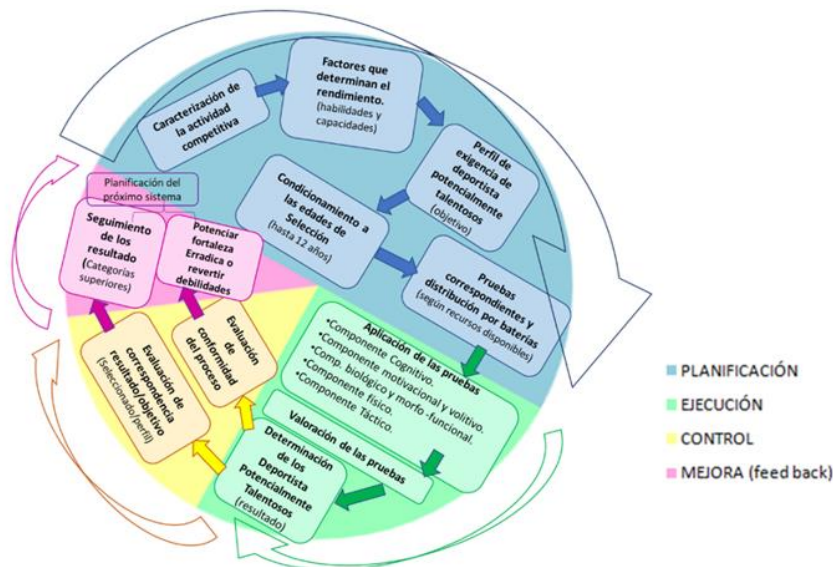


Fig 5. - Selection System for Potentially Talented Athletes for Combat Sports

This scientific result is based on the foundations of the continuous improvement system that uses the Deming cycle or PDCA, to establish the four phases: planning, execution, control and improvement by feedback. The planning phase begins with the characterization of the competitive activity from which the factors that determine the performance to combat are generated. This allows defining the demand profile of the ideal fencing athlete that is needed, which is the objective of the system. It is considered that the age of selection in this phase is up to 12 years, the corresponding tests are established that measure the potentialities of the profile of demands to combat and are classified according to their evaluative moments for their application and according to their components for the interpretation of the results.

In the transition within the system, from the planning phase to the execution phase, a risk assessment is carried out, through a similar Daffoo Matrix. The execution phase begins with the application of tests that measure the cognitive, motivational and volitional, biological and morphofunctional, physical and tactical components determined specifically for each of the combat sports. The tests are interpreted, and with a multifactorial character, criteria are agreed upon and the potentially talented athletes to fight are determined. In the control phase, on the one hand, the conformity or actual performance of the entire process is evaluated, and on the other hand, the correspondence of the result with the proposed objective (selected athlete-profile).

In the improvement phase based on the conformity evaluation, carried out in the previous phase (control), actions are established to enhance strengths, eradicate weaknesses and find opportunities, and the results obtained by these combat athletes are monitored. selected, in the higher categories. As a result of this feedback, the system is adjusted and perfected for the next application.

The theoretical validation method has been assumed from the perspective of the integration of didactic, psychological and sociological foundations of the best researchers in this branch of knowledge, its results have been compared with others and this demonstrates the authenticity and impact on the Current sports training programs: (Letunovsky , 2019; Puente & Chibás , 2019; Piñeiro & Aliaga, 2020). Assessments were



also made from its methodology and considering the method of experts in combat sports, works have been consulted that have enriched the experience; These works are based on the contributions of (Pereira, *et al.*, 2018; Braun, 2019; Sánchez, *et al.*, 2020; Córdova, *et al.*, 2020).

CONCLUSIONS

The tactical purpose model for talent selection in combat sports constitutes a theoretical contribution and solves a specific problem in practice by allowing the optimization of the talent selection process with a scientific nature, thus complementing the pyramid system.

The selection system for potentially talented athletes for combat sports ensures, with greater objectivity, the first selective step of the proposed model. This system supports the management of potentially talented combat athletes, to enter high performance, and constitutes the most relevant result of the investigation, being effectively validated from the theoretical point of view through expert consultation, which can contribute to increase the quality of the reserve of combat athletes, optimizing the registration of the EIDE and in the long term, increase the sports results of Cuba.

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Conflicts of interest:

The authors declare that there is no conflict of interest.

Authors' contributions:

Anabel Lastres Madrigal: Conception of the idea, search and review of literature, preparation of instruments, application of instruments, collection of information resulting from the instruments applied, preparation of tables, graphs and images, preparation of database, writing of the original (first version), correction of the article, authorship coordinator, translation of terms or information obtained.

Beatriz Sánchez Córdova: Conception of the idea, literature search and review, preparation of instruments, application of instruments, compilation of the information resulting from the instruments applied, general advice on the subject matter, drafting of the original (first version), correction of the article.

Magda Mesa Anoceto: Preparation of instruments, collection of information resulting from the instruments applied, statistical analysis, revision and final version of the article, correction of the article, revision of the application of the bibliographic standard applied.



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