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Original article

Perception in offensive tactics for contemporary competitive swordsmanship

[*Percepción en la táctica ofensiva para la espada competitiva contemporánea*]

[*Percepção das táticas ofensivas para a espada competitiva contemporânea*]

Zenaida Herenia Rodríguez Hernánde [1*], *Guillermina Virginia Zaldívar Cordón* [1], *Esteban Juan Pérez Hernández* [1]

[1] *University of Holguín, Faculty of Physical Culture and Sport, Holguín, Cuba.*

[*] Corresponding author: zrodriguezh@uho.edu.cu

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ABSTRACT

Introduction: Tactical offensive perception is needed in contemporary competitive épée due to the dynamics of quick and frequent attacks in combat; every épéeist needs to learn to anticipate attacks and frustrate opponents' attacks.

Objective: To implement a personalized training plan to contribute to offensive tactical awareness. in the contemporary competitions of the 13- to 15-year-old fencers of the "Pedro Miguel Díaz Coello" Comprehensive School Sports School of Holguín.

Methods: A pre-experimental design was used to determine the preparation and performance of 13- to 15-year-old fencers using the Offensive Tactical Behavior Observational Instrument (CTOF). Data were processed using mathematical-statistical methods: descriptive and inferential statistics. The evaluation was conducted over one year as part of a doctoral study.

Results: The analysis of considerations, definitions of terms related to offensive tactical perception, and the results of applying the CTOF (Common Tactical Offensive) during the diagnostic phase revealed a lack of analysis of the opponent's intentions and the distances between them , with repeated attacks executed without capitalizing on the opponent's mistakes to surprise and win. When applying the personalized offensive tactical preparation plan, a greater number of attacks were executed; the most frequent valid attacks were "Advanced" (AA), of the "simple" and "compound" types, while the least frequent attacks were "Simultaneous Attacks" (AS). These changes in attack patterns during combat and for each opponent demonstrated a greater degree of analysis for developing valid attacks .

Conclusion: The development of offensive tactical perception facilitated the direction and organization of bouts for the 13- to 15-year-old fencers, enabling them to combine simple and compound attacks to surprise their opponents. The fencers demonstrated skill in compound attacks involving two or more feints, advanced attacks (using the foot, forearm, and head) with changes of pace, timing, and distance necessary for the attacks to be valid.

Keywords: offensive tactical perception, offensive tactical behavior, offensive tactical preparation, swordsmen.

RESUMEN

Introducción: la percepción táctica ofensiva en la espada competitiva contemporánea se necesita, por la dinámica de ataques rápidos y frecuentes en los combates, cada espadista requiere aprender a anticipar ataques y frustrar los ataques de los oponentes.

Objetivo: aplicar un plan de preparación personalizado para contribuir a la percepción táctica ofensiva en las competencias contemporáneas de los espadistas de 13 a 15 años de la Escuela Integral Deportiva Escolar "Pedro Miguel Díaz Coello" de Holguín.

Métodos: se realizó un experimento mediante un diseño de preexperimento para determinar en la preparación y competencias a través del instrumento observacional del comportamiento táctico ofensivo (CTOF), de los espadistas de 13 a 15 años. Los datos se procesaron a través de los métodos matemáticos-estadísticos: estadística descriptiva e inferencial. La evaluación se realizó durante un año, como parte del estudio doctoral.

Resultado: el análisis de consideraciones, definiciones de términos relacionados con la percepción táctica ofensiva y los resultados de la aplicación del CTOF durante el diagnóstico determinó poco análisis de las intenciones del oponente y de las distancias entre ellos, ejecución de ataques repetidos, sin aprovechar los errores del oponente para sorprender y ganar. Al aplicar el plan de preparación táctico ofensivo personalizado, se ejecutó una mayor cantidad de ataques; la mayor frecuencia de ataques válidos estuvo "A la avanzada" (AA), del tipo "simples" y "compuestos", y los ataques menos frecuentes resultaron los "ataques simultáneos" (AS). Estos cambios en las formas de atacar durante los combates y para cada oponente, demostraron mayor análisis para desarrollar ataques válidos.

Conclusión: el desarrollo de la percepción táctica ofensiva, les facilitó a los espadistas de 13 a 15 años, la dirección y organización de los combates, al combinar los ataques del tipo simples y compuestos (AA), para sorprender a los oponentes. Los espadistas demostraron destrezas en los ataques compuestos de dos o varias fintas, A la avanzada (en el pie, antebrazo y la cabeza) con cambios de ritmo, en tiempo y a la distancia necesaria para ser válidos.

Palabras clave: percepción táctica ofensiva, comportamiento táctico ofensivo, preparación táctica ofensiva, espadistas.

RESUMO

Introdução: A percepção tática ofensiva é necessária na esgrima de espada competitiva contemporânea. Devido à dinâmica de ataques rápidos e frequentes nos combates, cada esgrimista precisa aprender a antecipar ataques e frustrar as investidas dos oponentes.

Objetivo: Aplicar um plano de preparação personalizado para contribuir com a percepção tática ofensiva em competições contemporâneas, voltado para esgrimistas de 13 a 15 anos da Escola Integral Esportiva Escolar "Pedro Miguel Díaz Coello", em Holguín.

Métodos: Realizou-se um experimento, utilizando um delineamento de pré-experimento, para avaliar a preparação e o desempenho em competições de esgrimistas de 13 a 15 anos, por meio de um instrumento de observação do comportamento tático ofensivo (CTOF). Os dados foram processados utilizando métodos matemático-estatísticos (estatística descritiva e inferencial). A avaliação ocorreu ao longo de um ano, como parte de um estudo de doutorado.

Resultados: A análise de conceitos e definições relacionados à percepção tática ofensiva, somada aos resultados da aplicação do CTOF durante o diagnóstico, revelou uma análise limitada das intenções do oponente e das distâncias entre os esgrimistas. Observou-se a execução de ataques repetitivos, sem o aproveitamento dos erros do adversário para surpreender e pontuar. Com a aplicação do plano de preparação tática ofensiva personalizado, houve um aumento na quantidade de ataques executados. A maior frequência de ataques válidos ocorreu na forma de "Avançadas" (AA) — tanto do tipo "simples" quanto "compostos" —, enquanto os "ataques simultâneos" (AS) foram os menos frequentes. Essas mudanças nas formas de atacar, adaptadas aos combates e a cada oponente, demonstraram uma maior capacidade analítica para o desenvolvimento de ataques válidos.

Conclusão: O desenvolvimento da percepção tática ofensiva facilitou, para os esgrimistas de 13 a 15 anos, a condução e a organização dos combates, permitindo a

combinação de ataques simples e compostos (a partir de avançadas) para surpreender os oponentes. Os esgrimistas de espada demonstraram habilidade em ataques compostos com duas ou mais fintas — dirigidos ao pé, ao antebraço e à cabeça —, utilizando mudanças de ritmo, no tempo correto e na distância necessária para que os golpes fossem válidos.

Palavras-chave: percepção tática ofensiva, comportamento tático ofensivo, preparação tática ofensiva, esgrimistas de espada.

INTRODUCTION

Contemporary épée competitions unfold with a different dynamic for the development of attacks, because these are immediate, frequent, and rapid. The time available for fencers to analyze each attack during combat is increasingly shorter, and tactical offensive perception is fundamental for these attacks to be effective. Personalized analyses of opponents and every aspect of the competition influence each fencer's unique approach during bouts.

The theoretical training on the offensive tactical knowledge of fencers allowed for a focus on the behavior of opponents during combat. Rodríguez Hernández *et al.* (2024) contributed the methodological matrix from the perceptual and cognitive dimensions for the offensive tactical preparation of 13-15 year old fencers in Cuba.

Regarding offensive tactical knowledge, Borges *et al.* (2022), Soler Prieto *et al.* (2022) and Guillén Pereira and De la Rosa (2019) agree that this should be acquired through the transition through the sensory-perceptual , representative and conceptual or rational levels, until reaching the perception and analysis of the situation.

Perceptions can be measured, evaluated, and trained, and are related to the stability of attentional focus, determined by the direction of the psychological activity of tactical preparation. Rodríguez Hernández *et al.* (2024) considered that offensive tactical perception requires attentional focus.

The treatment of perceptual and cognitive dimensions in the offensive tactical preparation of fencers was addressed by Rodríguez Hernández *et al.* (2024), who pointed out the need for studies focused on this topic to develop responses based on acquired knowledge and offensive tactical perception during bouts against an unknown type of attack or defense and against opponents for the first time. Fernández *et al.* (2022), González and Enríquez (2023), and Sánchez *et al.* (2024) contributed to demonstrating the relationships between tactical preparation and offensive tactical actions in bouts.

Hence the question: how to contribute to offensive tactical perception in épée fencers aged 13 to 15? Based on the diagnostic results, the individual characteristics of the fencers were revealed, facilitating the determination of their offensive tactical behavior related to the perceptual dimension in each of the observed épée classes. Adjustments were then made to the personalized training plan, from the microcycles and mesocycles of the macrocycle, to achieve transformations in offensive tactical behavior.

Offensive tactical preparation in épée fencing is developed in a personalized way for individual and team competitions. The perceptive ability to analyze opponents' actions and identify opportunities to attack or defend is essential in épée matches for 13- to 15-year-olds. In the study by León *et al.* (2024), they attributed ... Importance is given to preparing the type of attack, perceiving and analyzing opponents, positions, distances in combat, and gestures, in order to obtain more information about their true intentions in combat.

Based on the systematization of definitions of offensive tactical behavior, Rodríguez Hernández *et al.* (2024) provided the descriptive definition of the behavior of swordsmen in combat: types of impetuous or equanimous attacks directed at opponents, based on knowledge and individual perception developed for sword combat.

According to Sánchez *et al.* (2020), offensive tactical perception is developed through the teaching of attacks tailored to the characteristics of competitive swordsmanship. Rodríguez Olivera *et al.* (2023) assessed combat indicators, such as attack classification, predominant perception types, space and time constraints, and attack effectiveness

criteria, according to the hierarchy of offensive tactics and the types of attacks: simple, secondary, combined, and repetitive.

Rodríguez Hernández *et al.* (2024) organized the offensive tactical contents of the perceptual dimension into low, medium and high levels of complexity, according to the periods and stages of preparation, for individualized treatment in the 13-15 year old swordsmen of the study.

The literature review reaffirmed the importance of addressing offensive tactical perception at the study ages, given the limited theoretical and practical knowledge of offensive tactical preparation among fencers, proposing as an objective Implement a personalized preparation plan to contribute to offensive tactical awareness in the contemporary skills of épée fencers aged 13-15 from the Pedro Miguel Díaz Coello Comprehensive School Sports (Eide) in Holguín.

MATERIALS AND METHODS

A diagnostic assessment was conducted using the observational instrument (CTOF) to determine the current state of personalized offensive tactical perception in 13-15 year old fencers. The general analysis of the training plan was developed from theoretical, physical, technical, psychological, and tactical perspectives, with a focus on offensive tactics.

Workshops were developed for the preparation of the teachers and the user criteria were used in order to collect the opinions, criteria and evaluative judgments in relation to the observational instrument (CTOF) and the offensive tactical preparation plan, on the basis of results obtained from the diagnosis, its analysis and the determination of the limitations, the offensive tactical preparation plan was applied to the swordsmen in study (Table 1).

Table 1. - *Operationalization of the offensive tactical preparation variable, perceptual dimension*

Dimensiones	Indicadores	Sub indicadores	Consideraciones			Observaciones
			I	U	E	
Perceptiva	Previsión de intenciones del oponente	Anticipación a ataques del oponente		5	6	
		Dirección del combate a su favor para atacar		3	8	
	Elige el tipo de ataque de acuerdo con circunstancias	Cambia el tipo de ataque según características del oponente		2	9	
		Ejecuta ataques con cambios de ritmo			11	
		Cambia de ataques en plazo corto		3	8	

The implementation of the offensive tactical preparation plan was also monitored through the observation of 30 training sessions distributed across different periods and stages, the analysis of competitions using videos, and the review of documents. The process concluded with an assessment of the achievement of the proposed objectives. To test the hypothesis, a pre-experimental design was applied in each stratum, defining the scientific problem, the hypothesis, and the objectives.

The hypothesis: if there is a significant difference between the pre-test and post-test , then the application of the offensive tactical training plan for the fencers can be evaluated positively. To state the statistical hypotheses that respond to the proposed objectives:$H0: \mu = \mu 0$

H_0: the offensive tactical behavior of the swordsmen remains the same, after the offensive tactical preparation plan is applied.$H1: \mu \neq \mu 0$. The offensive tactical behavior of the fencers changes after the application of the offensive tactical preparation plan H_a. The selection of the experimental design and number of repetitions.

The treatment consisted of applying the offensive tactical training plan over a one-year period to a single group, considered both experimental and control, comprised of eight fencers aged 13 to 15. In this study, given the small population ($N = 8$), a normal distribution of the data was assumed. The significance level was set at $a = 0.05$,

equivalent to 95% confidence. A pre-experimental , single-group design was established, with a pre-test and a post-test . To ensure internal validity, the most influential concomitant variables were controlled. These included factors related to the researchers and their expertise, student turnover, ethical consent based on age for implementing the training plan, and teacher acceptance of the CTOF observational instrument (Figure 1).

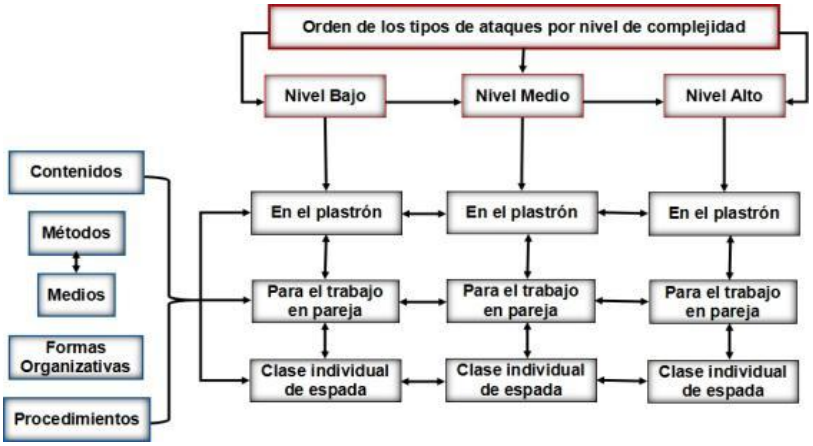


Figure 1. - *Organization of offensive tactical content*

Error correction, anticipation, and reaction time are closely related to decision-making in individual épée lessons (Rodríguez Hernández *et al.*, 2018; Rodríguez Verdura *et al.*, 2022). These authors reaffirm the importance of acquiring knowledge to reach the maximum potential during performances, with the teacher's vocabulary serving as a stimulus for effort (Figure 2).

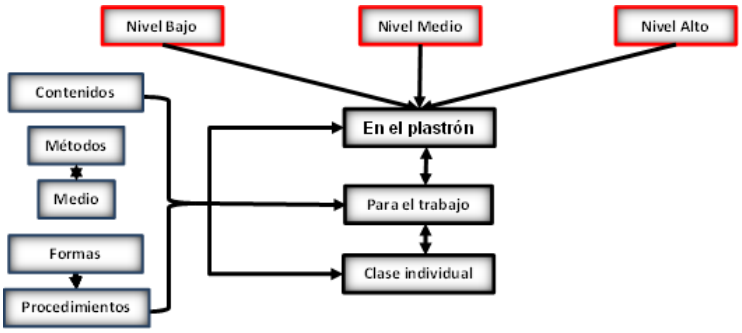


Figure 2. - *Order of attack types by level of complexity*

For a first level of low complexity, corresponding to the preparatory period, general physical preparation stage, the volume and intensity are low in the incoming mesocycles, and will increase gradually and undulatorily in the basic development mesocycle 2. The offensive tactical contents of the perceptual dimension of the second level of medium complexity, corresponded to the preparatory period, special physical preparation stage, in the basic stabilizing mesocycle, the volume and intensity are maintained, increasing again in the preparation and control mesocycle.

For the third level of high complexity, it corresponded to the competitive period, in the pre-competitive stage, the pre-competitive mesocycle, the volume and intensity of the offensive tactical content increases, from the organization for personalized work, the study of the opponent was enhanced, the creation of offensive tactical plans from the introduction of problematic combat situations.

Decision-making and appropriate psychological responses were encouraged, and the theoretical knowledge acquired was systematically assessed. The introduction of scientific study results and the experience of instructors is planned to address individual differences during training. In the competitive stage, the competitive mesocycle, the volume and intensity of tactical content are high, focusing on offensive tactical behavior in the perceptual dimension and its systematic feedback during matches, thus promoting continuous improvement until effective offensive tactical behavior is achieved in competition.

During the transition period, specifically the relief mesocycle, the volume and intensity of offensive tactical training decreases to allow for adjustments and preparation for the start of another macrocycle of offensive tactical training focused on the perceptual dimension. This preparation is based on the results of the main competition and an assessment of the fencers' offensive tactical behavior in bouts. The correlation between physical condition, technique learning, and the development of specific motor skills for the épée discipline was observed at each level.

The expiration of the parameters of the current level achieved allows the step towards the next level, but the swordsmen who did not manage to overcome it on the first try, remained at the same level, the analysis, orientation and adjustment of offensive tactical content for the perceptual dimension and the methods was carried out, until their transition to a higher level was achieved and frustration was avoided.

The development of individual offensive tactics with simple direct and indirect attacks, the skills for their execution in every circumstance of combat for the analysis of opponents through sports classes and individual sword classes (2 to 3 weekly).

Table 2. - *Organization of attack types according to complexity levels*

Espadistas	**Orden de prioridad de tipos de ataques Por niveles de complejidad**		
	Bajo	**Medio**	**Alto**
1 y 5	1. Anticipados	1. Anticipados	1. Anticipados
		2. Simultáneos	2. Simultáneos
			3. A la avanzada
2, 3 y 6	1. A la avanzada	1. A la avanzada	1. A la avanzada
		2. Anticipados	2. Anticipados
			3. Simultáneos
4 y 7	1. Simultáneos	1. Simultáneos	1. Simultáneos
	2. Anticipado	2. Anticipados	2. Anticipados
			3. A la avanzada
8	1. Anticipados	1. Anticipados	1. Anticipados
	2. Simultáneos	2. Simultáneos	2. Simultáneos
	3. A la avanzada	3. A la avanzada	3. A la avanzada

For the introduction of offensive tactical content based on diagnostic results, the swordsmen were grouped according to the diagnostic results for their similar behaviors: swordsman 1 with 5, those identified as 2, 3 and 6, 4 with 7 and swordsman 8 who is new to the practice of the sword.

The equipment used included: a fencing mask, weapons, fencing suits, masks, gloves, and a fencing piste. The organizational methods were: partner work on the fencing mask and individual épée lessons. The procedures focused on developing individual offensive tactics with simple direct and indirect attacks, the skills to execute them in every bout situation, and opponent analysis through sports classes and individual épée lessons (2 to 3 per week).

RESULTS

The results obtained after (D) the application of the personalized offensive tactical preparation plan, in indicator 1. Prediction of opponent's intentions, demonstrated that the organization of the offensive tactical content was favorable in each of the indicators and their sub-indicators established in the observational instrument (CTOF). The analysis was carried out for each of the variants: simple attack (AS), compound attack (AC), simple simultaneous attack (SS), compound simultaneous attack (SC), simple advanced attack (AAS), and compound advanced attack (AAC) (Table 3).

Table 3. - *Results of the types of attacks according to indicators, before and after applying the offensive tactical preparation plan in the perceptual dimension*

Dimensiones	Indicadores	Sub indicadores	AS		AC		SS		SC		AAS		AAC	
			A	D	A	D	A	D	A	D	A	D	A	D
Perceptiva	Previsión de intenciones del oponente	Dirección del combate a su favor para atacar	20	28	23	31	20	28	26	24	25	35	19	32
		Cambia de ataques	21	29	21	34	23	33	21	34	21	30	25	34
		Cambia el ritmo de las acciones	21	29	21	31	20	32	22	31	21	32	20	29
		Cambia de acciones en corto plazo	21	34	20	29	21	29	23	31	23	32	21	32
	Elige el tipo de ataque de acuerdo a circunstancias	Dirección del combate a su favor para atacar	22	31	19	29	21	29	21	29	22	31	20	29
		Cambia de ataques	21	29	21	34	23	33	21	34	21	30	25	34
		Cambia el ritmo de las acciones	22	31	19	29	21	29	21	29	22	31	20	29
		Cambia de acciones en corto plazo	20	28	23	31	20	28	26	24	25	35	19	32

The fencers (A) made invalid attacks because they were out of range and sometimes too close to their opponents (Figure 3). The repeated attacks allowed their opponents to decipher their intentions and defend themselves (Figure 4). They failed to capitalize on their opponents' mistakes to surprise them and win (Figure 5).

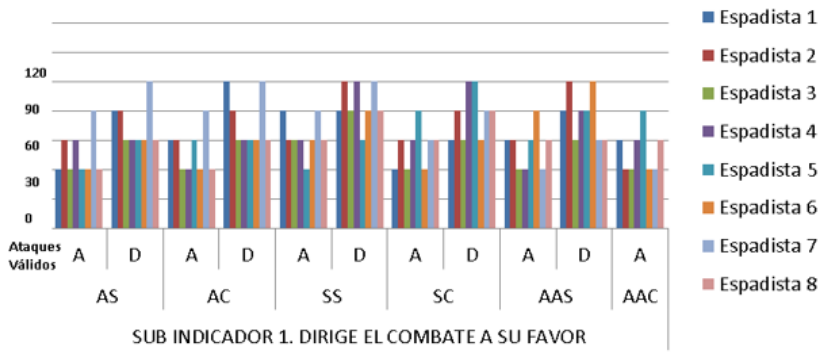


Figure 3. *- Results of sub-indicator 1*

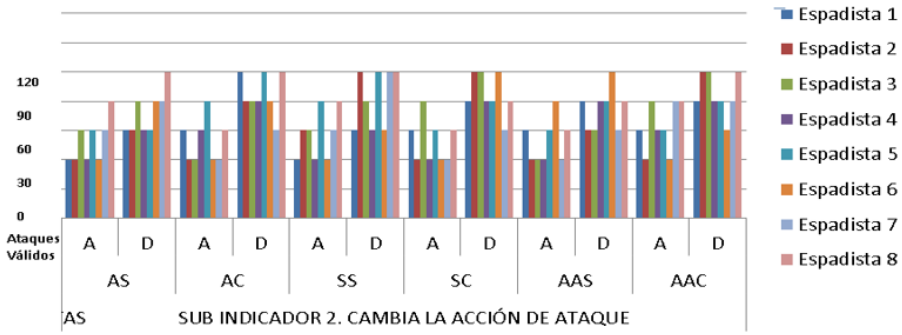


Figure 4. - *Results of sub-indicator 2*

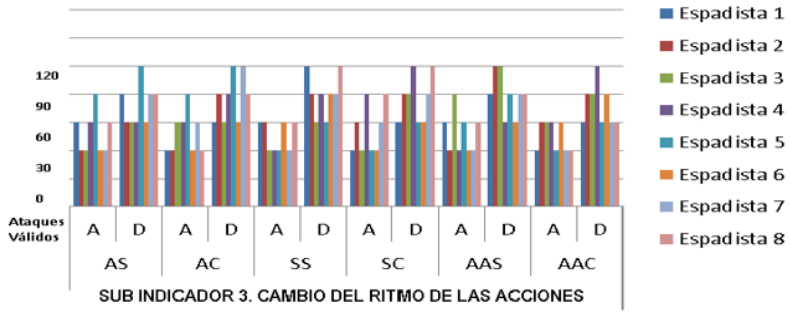


Figure 5. *- Results of sub-indicator 3*

The results of indicator 2, "Choose the type of action according to the circumstances," in sub-indicator 1, "Direct the fight in their favor," and in sub-indicator 2, "Select the area to attack," also showed that after applying the offensive tactical preparation plan, the fencers executed a greater number of valid attacks (Figure 6). The changes in attack patterns (D), during the fights and for each opponent, demonstrated greater offensive tactical awareness for developing valid attacks (Figure 7).

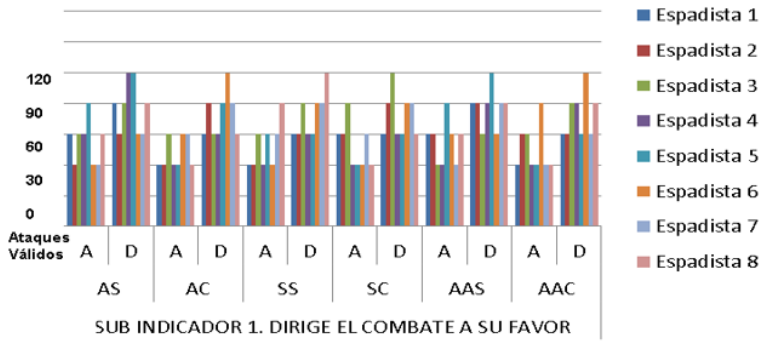


Figure 6. *- Results of sub-indicator 1*

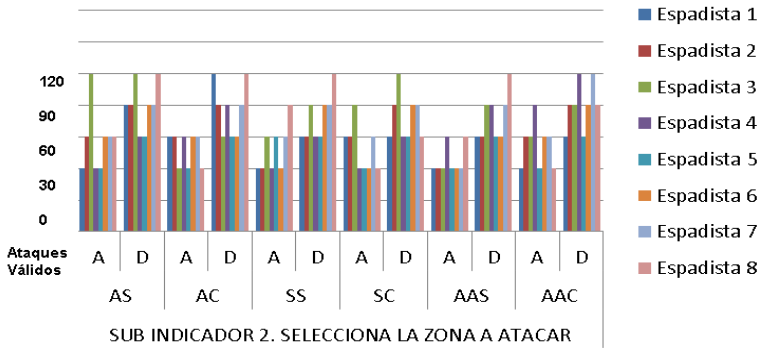


Figure 6. - *Results of sub-indicator 2*

In the results obtained (D), in Indicator 3. Definition of the attack action (Figure 8), the swordsmen performed a greater number of attacks, and with a higher frequency of valid attacks (Figure 8) The advanced (AA), of the simple and compound type and the less frequent attacks resulted in simultaneous attacks (AS).

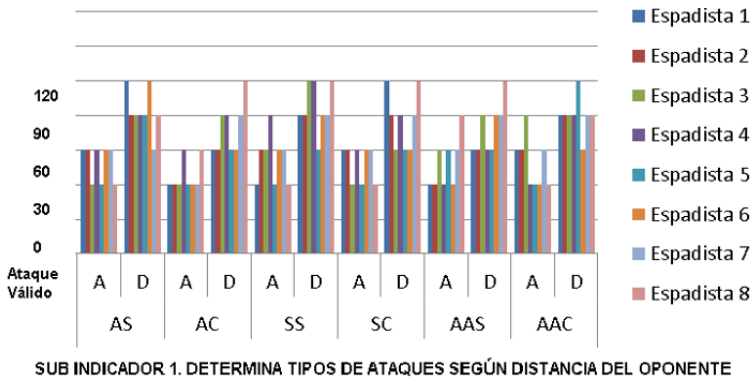


Figure 8. *- Results of sub-indicator 1*

DISCUSSION

The importance of this research lay in the analysis of individual offensive tactical behavior, which allowed for reflection on the types of attacks developed and the projection of improvements. The theoretical training on the offensive tactical knowledge of fencers allows for a focus on the behavior of opponents during bouts. Jorge and Caballero (2022) developed a technical-tactical profile in modern pentathlon that serves as a reference for this study, although it lacks specific details to address perception according to the characteristics of fencers.

Attention to the behavior of opponents during offensive tactical preparation was aimed at teaching fencers how to analyze their actions in bouts (Rodríguez Hernández *et al.*, 2023; Salazar Lebot *et al.*, 2022; Tarragó & Iglesias, 2016). In the present study, it is considered necessary to determine the offensive tactical profile of fencers, promote the creation of a coherent individual tactical plan based on their experiences, evaluate the effectiveness of attacks, analyze frequent attacks, and know how to react to an unknown opponent.

Furthermore, the offensive tactical preparation described by Pérez Iznaga *et al.* (2018) and the methodological guidelines of Ortiz Puente and Gómez Chibás (2019) were systematically implemented for all fencers and fencer groups, with the aim of developing tactical skills in pursuit of a common objective. Tejeda Piñeiro and Núñez Aliaga (2020) and Rodríguez Olivera *et al.* (2023) pointed out that collective offensive tactical preparation should be adapted to the style of competition and the development of thinking skills to promote the efficient and effective resolution of diverse combat situations.

The results obtained coincide with those available in the consulted literature, the offensive tactical behavior in combat being characterized by a lack of perception and confidence, because formal thought began from the argumentation of opinions and in the emergence of their own interests in those of the 13- to 15-year-old swordsmen.

Borges *et al.* (2022) described the didactic components of offensive tactical preparation for the perceptual dimension as a unit with sensations, understood as the sensory-perceptual capacity that helps the fencer assess the types of attacks and create the tactical plan. This aspect is considered important in the present study.

In summary, offensive tactical preparation focused on developing perception is necessary for 13- to 15-year-old fencers to teach them to think, analyze opponents, and create emergent offensive tactical plans.

CONCLUSIONS

The diagnostic results revealed deficiencies in offensive tactical perception from the conception of the preparation process, to contribute to the offensive tactical behavior of 13–15-year-old swordsmen in combat.

The personalized offensive tactical preparation plan was applied, based on the psychopedagogical approach, by conceiving the assimilation of offensive tactical content

as a gradual and ascending process, in direct relation to the real possibilities of the fencers.

The CTOF observational instrument of offensive tactical behavior facilitated the individualized evaluation of the offensive tactical perception of 13–15-year-old fencers in combat. and the updating of teachers' knowledge on offensive tactical preparation and its treatment in this context under study.

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