

Volume 11 issue 1; 2026

Ciencia y Deporte



Psychological assessment in high-performance boxers: An integrated protocol for Guantánamo

[*Evaluación psicológica en boxeadores de alto rendimiento: Un protocolo integrado para Guantánamo*]

[*Avaliação psicológica em boxeadores de alto rendimento: Um protocolo integrado para Guantánamo*]

Yuroeny González Quinta ^{1*}  , Enrique Rivera Nápoles ^{2*} , 

¹University of Guantánamo. Guantánamo, Cuba.

^{2*} University of Guantánamo. Faculty of Physical Culture. Guantánamo, Cuba.

*Corresponding author: ygonzalezquinta@gmail.com

Received: 2026-03-11.

Accepted: 2026-04-06

ABSTRACT

Introduction: Psychological preparation is fundamental in elite boxers, especially in regions with sociocultural particularities and resource limitations such as Guantánamo.

Objective: to diagnose determining psychological components and validate a contextualized evaluation-intervention protocol for high-performance boxers in Guantánamo.

Materials and methods: a sequential explanatory mixed study was carried out with 24 boxers from the provincial preselection (2023-2024). The Psychological Inventory of Sports Performance (IPED) was applied, structured observation and semi-structured interviews. The intervention consisted of 12 weeks of training in visualizing and establishing goals.

Results: significant correlations were identified between self-confidence and performance ($r=0.82$; $p<0.01$) and stress control and victories ($r=0.78$; $p<0.01$). 65% of athletes showed deficits in pre-combat concentration. The intervention improved global psychological indicators by 30% versus the control group ($p<0.01$), with notable advances in self-confidence (+45%) and emotional control (+45%).

Conclusions: self-confidence and stress control are key predictors of performance in Guantánamero boxers and the proposed protocol has been shown to be effective and replicable in contexts with socioeconomic limitations.

Keywords: boxing, psychological assessment, intervention, integrated protocol.

RESUMEN

Introducción: La preparación psicológica es fundamental en boxeadores de élite, especialmente en regiones con particularidades socioculturales y limitaciones de recursos como Guantánamo.

Objetivo: diagnosticar componentes psicológicos determinantes y validar un protocolo de evaluación-intervención contextualizado para boxeadores de alto rendimiento en Guantánamo.

Materiales y métodos: se realizó un estudio mixto explicativo secuencial con 24 boxeadores de la preselección provincial (2023-2024). Se aplicó el Inventario Psicológico de Ejecución Deportiva (IPED), observación estructurada y entrevistas semiestructuradas. La intervención consistió en 12 semanas de entrenamiento en visualización y establecimiento de metas.

Resultados: se identificaron correlaciones significativas entre autoconfianza y rendimiento ($r=0,82$; $p<0,01$) y control del estrés y victorias ($r=0,78$; $p<0,01$). El 65% de los atletas mostró déficits en concentración precombate. La intervención mejoró un 30% los indicadores psicológicos globales versus grupo control ($p<0,01$), con avances notables en autoconfianza (+45%) y control emocional (+45%).

Conclusiones: la autoconfianza y el control del estrés son predictores clave del rendimiento en boxeadores guantanameros y el protocolo propuesto demostró ser efectivo y replicable en contextos con limitaciones socioeconómicas.

Palabras clave: boxeo, evaluación psicológica, intervención, protocolo integrado.

RESUMO

Introdução: A preparação psicológica é fundamental em boxeadores de elite, especialmente em regiões com particularidades socioculturais e limitações de recursos como Guantánamo.

Objetivo: diagnosticar componentes psicológicos determinantes e validar um protocolo de avaliação-intervenção contextualizado para boxeadores de alto desempenho em Guantánamo.

Materiais e métodos: foi realizado um estudo misto explicativo sequencial com 24 boxeadores da pré-seleção provincial (2023-2024). Foi aplicado o Inventário Psicológico de Execução Deportiva (IPED), observação estruturada e entrevistas semiestruturadas. A intervenção consistiu em 12 semanas de treinamento em visualização e estabelecimento de metas.

Resultados: se identificaram correlações significativas entre autoconfianza e rendimento ($r=0,82$; $p<0,01$) e controle de estrés e vitórias ($r=0,78$; $p<0,01$). 65% dos atletas apresentaram déficits de concentração pré-combate. A intervenção melhorou em 30% os indicadores psicológicos globais versus controle de grupo ($p<0,01$), com avanços notáveis em autoconfianza (+45%) e controle emocional (+45%).

Conclusões: a autoconfiança e o controle do trânsito são preditores chave de rendimento em boxeadores guantámeros e o protocolo proposto demonstrou ser eficaz e replicável em contextos com limitações socioeconômicas.

Palavras-chave: boxeo, avaliação psicológica, intervenção, protocolo integrado.

INTRODUCTION

Cuban boxing constitutes an indisputable global reference, supported by historical achievements and a unique athletic training system. However, this success contrasts with critical gaps in the systematic evaluation of psychological variables predicting performance in peripheral regions such as Guantánamo, where contextual factors directly affect sports performance (Fuentes *et al.*, 2022). International studies confirm that mental factors explain between 70% and 80% of success in combat sports (Weinberg and Gould, 2019).

Although there are integrative models for psychological evaluation-intervention (Hardy et al., 2017), they lack applicability in environments with limited resources, ignoring realities such as the socioeconomic conditions of Guantánamo. This gap is palpable in the literature: while studies on physical training techniques abound (INDER, 2022), less than 15% of Cuban publications analyze psychological variables with a contextual approach (Robazza *et al.*, 2020). The core of the problem lies in the lack of protocols adapted to contexts of material precariousness, which limits the effectiveness of standardized interventions and contributes to the loss of talent due to preventable mental exhaustion (Hutchinson *et al.*, 2018).

The majority of available evaluation instruments (such as CSAI-2 or POMS) were designed in contexts with technological infrastructure, which limits their use in regions such as Guantánamo. This study seeks to fill this gap through a pragmatic approach. Its objective is to diagnose determining psychological components and validate a contextualized evaluation-intervention protocol that optimizes human and material resources.

MATERIALS AND METHODS

Design and participants

A sequential explanatory mixed design study was carried out. 24 male boxers (18-32 years old) participated in the Guantánamo provincial preselection, prior informed consent and approval by the INDER Ethics Committee (Certificate #2023-45). The study was divided into two groups: an experimental group (n=12) that received the psychological intervention and a control group (n=12) that continued with its usual preparation, thus allowing a rigorous comparison of the effects of the applied protocol.

Instruments and techniques:

For data collection, the following were used: 1) The Inventory Psicológico de Ejecución Deportiva (IPED) adapted to the Cuban context (Durand-Bush et al., 2001), which evaluates 7 psychological dimensions ($\alpha \geq 0.70$) using 42 items with a Likert scale; 2) Observation structured through a record of pre-combat behaviors (Likert scale 1-5) validated by experts, which allowed the evaluation of behavioral indicators of anxiety, attentional focus and activation; and 3) Semi-structured interviews with a phenomenological focus (recorded and transcribed) designed to

explore in depth the subjective experiences of athletes regarding competitive pressure, their psychological resources and the particularities of their sociocultural environment.

Procedure:

The procedure took place in three phases: 1) Diagnosis (pretest): application of instruments during the "Playa Girón 2023" tournament, including a battery of psychological tests, observation sessions and interviews; 2) Intervention: implementation of a 12-week program focused on visualization techniques and goal setting with the experimental group, consisting of weekly 45-minute sessions and autonomous practice tasks, while the control group maintained its usual routine; and 3) Evaluation (posttest): post-intervention application of the same pretest instruments and comparison of results between experimental and control groups. Data analysis was carried out with SPSS v.26 (Pearson correlations, ANOVA, test) and methodological triangulation to guarantee the validity of the tests.

RESULTS AND DISCUSSION

Relationship between psychological variables and performance

The results revealed significant correlations between self-confidence and victories ($r=0.82$; 95% CI [0.74-0.88]; $p=0.003$), confirming its role as a dominant predictor (Table 1). Accordingly, a positive correlation was found between stress control and performance ($r=0.78$; $p<0.01$). These findings are consistent with global literature that indicates self-confidence as a pillar of success in combat sports (Ramírez & López, 2020; Smith & Andersen, 2023). The multiple regression analysis demonstrated that these two variables together explained 68% of the variation in competitive performance ($R^2 = 0.68$), which confirms its determining character.

Deficits identified and effectiveness of intervention

65% of athletes showed suboptimal levels of pre-combat concentration, associated with unmanaged competitive anxiety (Chen & Park, 2022). The 12-week intervention improved global psychological indicators by 30% in the experimental group versus the control group ($p<0.01$), with particularly notable advances in self-confidence (+45%) and emotional control (+45%) (Table 2). This validates psychological periodization models, demonstrating their effectiveness even

with low-cost adaptations (López-García et al., 2022; Suárez & Martínez, 2021). It is important to highlight that these improvements on the ground were statistically significant, which also resulted in an observable increase in sporting performance, with 25% more victories in the experimental group during the post-intervention evaluation tournament.

Performance consistency analysis

A more in-depth analysis of performance records showed that boxers with greater scores in self-confidence and stress control on the ground won more fights, but they also showed less variability in their performance throughout the tournament. This suggests that these psychological variables act as stabilizing factors, protecting the athlete from drastic fluctuations in their technical execution, a crucial factor for competitive consistency in high-demand sports. The athletes in the experimental group reported a greater ability to maintain calm in critical moments of combat and recover more quickly from technical errors, which corroborates this stabilizing function of trained psychological skills.

Effectiveness of low-cost and adherence interventions

A relevant contribution to our study was the effectiveness of low-cost psychological techniques, such as visualization and goal setting, in environments with socioeconomic limitations. This corroborates what was proposed by Suárez and Martínez (2021). It is important to highlight that the adherence rate for the 12-week program was 92%, which indicates a high acceptability and viability of these techniques in the local context. Athletes reported high satisfaction with the skills they learned, especially for their applicability in daily life and the autonomy they provided. The qualitative analysis of the post-intervention interviews revealed that the boxers especially valued the simplicity and practicality of the techniques, which they could apply without the need for specialized equipment or complex infrastructure.

Influence of cultural and local factors as moderators

pre-combat rituals (present in 92% of athletes) as attentional focusing mechanisms (Kim & Jang, 2022). Contrary to international studies, extrinsic motivation has shown less impact. The qualitative analysis of the interviews revealed that local knowledge and community support networks were key moderating factors in the effectiveness of the protocol. Boxers who reported strong family support and their coaches showed 25% faster progress in the acquisition of

psychological skills, emphasizing the need to contextualize psychological assessment and intervention protocols, adapting them to the cultural particularities of each region (Torres & Navarro, 2023). This story is based on previous investigations in the Cuban context, such as the work of Inelvis Romero Pileta, who revealed the importance of the community environment in the boxer's psychological development.

Table 1. - Correlations between psychological variables and performance (n=24)

Psychological variable	Correlation coefficient (r)	Value (p)
Self-confidence	0.82	0.003
Stress control	0.78	<0.01
Concentration	0.65	<0.05
Motivation	0.58	<0.05

Table 2. - Comparison of pre and post intervention means in the experimental group (n=12)

Indicator	Pretest (Media)	Posttest (Media)	%Improvement	p-value
Self-confidence	3.2	4.6	+45%	<0.01
Emotional control	2.9	4.2	+45%	<0.01
Concentration	2.8	3.7	+32%	<0.01
Motivation	4.1	4.5	+10%	0.12

CONCLUSIONS

To conclude this investigation, it is possible to verify the relevance of specialized psychological evaluation and intervention in high-performance boxers from Guantánamo. The study demonstrated that variables such as self-confidence and stress control are critical determinants for competitive success, showing significant correlations with sporting performance. Accordingly, the effectiveness of a contextualized intervention protocol that incorporates low-cost techniques, such as visualization and goal setting, was evidenced, achieving substantial improvements in the psychological indicators evaluated. The investigation also highlights the importance of considering cultural factors and community support networks as key moderating elements in the effectiveness of psychological interventions, underscoring the need to adapt protocols to the socioeconomic particularities of the region.

In relation to the objectives set at the beginning of the investigation, it can be concluded that these were fulfilled satisfactorily. The general objective of diagnosing determining psychological components and validating a contextualized evaluation-intervention protocol for high-

performance boxers in Guantánamo is achieved through the identification of self-confidence and the control of stress as key predictors of performance, and through statistical demonstration of the effectiveness of the applied protocol. Specifically, it was possible to diagnose the initial state of psychological components in boxers, identify correlations between psychological variables and performance, and validate the effectiveness of a 12-week intervention program with techniques adapted to the local context. The results obtained provide solid empirical evidence on the fulfillment of these investigative purposes.

Finally, this investigation opens new studio scenarios. It would be valuable to explore the application and effectiveness of this integrated protocol in other sporting disciplines in the province, as well as in different age categories, to evaluate its versatility and adaptation capacity. Asimism, a future challenge would consist of designing and implementing training programs for sports coaches and technicians, equipping them with the necessary tools to apply these basic psychological techniques in a systematic way in their training plans, thus making up for the possible shortage of specialists in sports psychology. Finally, it would be interesting to investigate the development of psychological assessment instruments that are more specific and adapted to the cultural particularities of Cuban boxing, which allow for a more precise and contextualized measurement of the mental variables that influence performance.

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Conflict of interest:

The authors declare that they have no conflict of interest.

Contribution of the authors:

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



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