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Career Termination in Athletes: Identity Loss and Mental Health Strategies

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A B S T R A C T

This study examines the psychological and physiological impacts of athletic career termination, focusing on identity loss and mental health trajectories among elite athletes. It evaluates the effectiveness of a multimodal intervention program designed to facilitate post-retirement adjustment through identity reconstruction and lifestyle adaptation strategies. A mixed-methods longitudinal design was employed with 138 retiring elite athletes (72 male, 66 female) across 28 sports disciplines. Participants were assessed at three timepoints (pre-retirement, 3-month, and 12-month post-retirement) using validated measures including the Athletic Identity Measurement Scale (AIMS-7), Depression Anxiety Stress Scales (DASS-21), and physiological markers (cortisol, heart rate variability). The intervention group (n=69) received 18 sessions combining cognitive-behavioral therapy, narrative identity exercises, and lifestyle redesign, while controls (n=69) received standard transition services. Qualitative interviews with 32 participants provided in-depth experiential data. Athletic identity showed a 32% mean reduction (d=1.2) with steepest decline at 3 months post-retirement. Mental health symptoms followed a U-shaped trajectory, peaking at 3 months (depression M=8.7; anxiety M=7.5) before improving. The intervention group demonstrated superior outcomes: 41% lower depression scores among physically active participants ($p<0.001$) and greater psychological integration ($d=0.73$). Physiological markers correlated with psychological distress ($r=0.47$), with faster cortisol normalization (-23% vs -14%) in the intervention group. Individual sport athletes showed 38% identity reduction versus 27% in team sports. Athletic retirement triggers significant identity disruption and mental health challenges, particularly during early transition. Structured interventions addressing identity continuity and lifestyle adaptation effectively mitigate these effects. Sports organizations should implement proactive transition programs combining psychological support with physiological monitoring.

Keywords: *athletic retirement, identity loss, mental health, transition intervention, stress biomarkers.*

1. Introduction

The transition from elite sport into retirement is widely recognized as one of the most complex and psychologically taxing phases in an athlete's life, often accompanied by significant identity disruption, emotional distress, and uncertainty about future roles (1, 2). This process, conceptualized not merely as an endpoint but as a critical developmental transition, is shaped by a convergence of personal, cultural, and structural factors (3, 4). Athletes' prolonged engagement in highly structured environments fosters a salient and sometimes exclusive athletic identity, which, while facilitating performance, can limit the flexibility required for post-career adaptation (5, 6). Consequently, career termination—whether voluntary or forced—can precipitate identity loss, a diminished sense of purpose, and vulnerability to mental health difficulties (7, 8).

The prevalence of mental health symptoms among retired athletes is well documented, with studies reporting elevated rates of depression, anxiety, and sleep disturbances in the early years post-retirement (9-11). The mechanisms underlying this distress are multifaceted. Abrupt withdrawal from competitive sport often results in loss of routine, social support networks, and a primary source of self-worth (12, 13). For some, particularly those retiring prematurely due to injury, these losses are compounded by unresolved grief and physical limitations (14, 15). Moreover, the neuropsychological consequences of prolonged high-intensity sport, including changes in cerebral perfusion and potential brain injury, may interact with psychosocial stressors to exacerbate psychological vulnerability (14, 16).

Athletic identity—defined as the degree to which individuals identify with the athlete role—plays a pivotal role in shaping both the subjective experience of retirement and the long-term adjustment outcomes (17, 18). Strong athletic identity is consistently linked to better performance and resilience during an athletic career, but in the retirement context, it may hinder adaptation by narrowing self-concept and reducing openness to alternative life roles (19, 20). Systematic reviews of the Athletic Identity Measurement Scale (AIMS) confirm its predictive validity in assessing risk for adjustment difficulties (5). The loss of this central identity can lead to what has been termed the "roleless role" phenomenon, characterized by existential uncertainty and difficulty integrating past achievements into a coherent post-sport narrative (21, 22).

Career transitions in sport are further influenced by socio-cultural and institutional contexts. Comparative studies demonstrate that athletes in systems with robust career assistance programs tend to report smoother adjustments and lower psychological distress (20, 23). In contrast, environments lacking structured support leave athletes more reliant on ad hoc coping mechanisms and personal networks, which may be inadequate (24, 25). Cultural differences in attributions for success and failure also shape athletes' perceptions of retirement, influencing whether the transition is framed as a natural evolution or a personal setback (26).

The heterogeneity of retirement experiences is further evidenced in research on demographic and sport-type variations. For example, individual sport athletes often exhibit greater identity foreclosure and steeper declines in well-being post-retirement compared to team sport athletes (3, 27). Gender differences are equally significant; female athletes may face additional societal and familial expectations, while LGBTQ+ athletes can experience the loss of sport as the loss of a primary safe space (18, 28). Age at retirement is also critical, with early retirees generally lacking alternative career preparation and facing greater challenges in establishing new identities (29, 30).

From a lifespan developmental perspective, retirement from sport can be understood within broader theories of aging and role transition (31, 32). While older adults often benefit from accumulated coping resources and diversified identities, they may still encounter significant emotional challenges if retirement coincides with other major life changes (33). Psychological models such as the crisis-recovery framework suggest that initial distress may subside as new roles are established, but the speed and completeness of recovery depend heavily on the availability and quality of transitional support (34, 35).

Intervention research offers valuable insights into strategies that can mitigate the psychological and physiological burdens of retirement. Evidence supports the effectiveness of multimodal programs combining cognitive-behavioral approaches, narrative identity reconstruction, and lifestyle redesign (36-38). Such programs not only target symptom reduction but also foster the development of integrative life stories that bridge the athletic past with a

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diversified future (16, 21). Moreover, maintaining physical activity post-retirement is consistently associated with better mood regulation, higher self-esteem, and lower rates of depression (32, 33).

Despite growing recognition of the need for structured transition programs, uptake remains limited. Stigma around mental health, lack of awareness, and cultural norms that prioritize performance over well-being all contribute to underutilization of available services (7, 8). A scoping review of existing programs highlighted the scarcity of interventions tailored to the diverse needs of subpopulations, including those differentiated by sport type, cultural background, and career termination circumstances (24). The design of effective support requires not only evidence-based psychological frameworks but also an appreciation of the lived experiences of retiring athletes (4, 12).

The present study responds to these gaps by examining both the psychological and physiological trajectories of athletes through the first year of retirement, with a particular focus on identity loss and mental health outcomes.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a mixed-methods longitudinal design to comprehensively examine the psychological impacts of athletic career termination and evaluate the effectiveness of mental health interventions during this transition period. The quantitative component featured a prospective cohort study with repeated measures at three time points (pre-retirement, 3 months post-retirement, and 12 months post-retirement), while the qualitative arm utilized in-depth phenomenological interviews to capture rich experiential data. This dual approach allowed for triangulation of findings, with the quantitative data providing generalizable patterns and the qualitative data offering nuanced understanding of individual experiences. The design was informed by recent recommendations for transition research in sports psychology that emphasize the need for longitudinal approaches to capture the dynamic nature of identity reconstruction processes. Particular attention was given to ecological validity, with data collection timed to coincide with key transition milestones identified in prior research.

A purposive sample of 138 elite athletes (72 male, 66 female) undergoing career termination was recruited through national sports federations, professional leagues, and athlete alumni networks across Europe. Inclusion criteria required a minimum of 8 years competing at the professional or Olympic level, with retirement occurring within the past 3 months at study entry. The sample represented 28 different sports disciplines (15 individual, 13 team), with mean age at retirement being 28.7 years (SD=4.2). Participant characteristics mirrored demographic distributions in elite sports, with 22% representing racial/ethnic minorities and 15% identifying as LGBTQ+. Attrition rates were minimized through structured retention protocols, resulting in 92% completion at final follow-up. This sampling strategy addressed limitations in previous studies that often-overlooked diversity in athletic retirement experiences, while the size exceeded minimum requirements for detecting medium effects in longitudinal analyses.

2.2. Measures

The Athletic Identity Measurement Scale (AIMS-7), recently validated for retirement populations (29), assessed core identity constructs with demonstrated reliability (α=0.89) in the current sample. Mental health symptoms were evaluated using the Depression Anxiety Stress Scales-21 (DASS-21), chosen for its strong psychometric properties in athlete populations (α=0.91 for depression subscale) (5). Transition difficulty was measured via the Sport Retirement Adaptation Inventory (SRAI), a 28-item instrument showing excellent convergent validity with clinical interviews (r=0.76) in validation studies (30). Qualitative data collection utilized semi-structured interviews guided by a protocol developed through expert consensus and piloted with former athletes, achieving thematic saturation at 32 interviews. All measures demonstrated measurement invariance across gender and sport types in confirmatory factor analyses conducted during preliminary validation.

2.3. Intervention

The intervention protocol incorporated three evidence-based components delivered over 6 months: cognitive-behavioral therapy (CBT) modules adapted for athletic identity issues (2), narrative identity reconstruction exercises (10), and lifestyle redesign workshops. Sessions were

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conducted weekly for the first 3 months (12 sessions) and biweekly thereafter (6 sessions), with each 90-minute session combining psychoeducation, skill-building, and peer support elements. Fidelity was maintained through therapist manuals and independent ratings of 20% randomly selected sessions (mean adherence=94%). Control participants received standard career transition services offered by their sports organizations. The protocol's theoretical framework integrated recent advances in sport psychology with clinical approaches to role transition, with dosage parameters based on successful interventions in recent trials. Physiological stress markers (salivary cortisol, heart rate variability) were collected at each assessment point to complement self-report measures.

2.4. Data Analysis

Quantitative data analysis employed multilevel modeling (MLM) to account for repeated measurements while handling missing data through full information maximum likelihood estimation. Moderator analyses examined effects by gender, sport type, and retirement circumstances using interaction terms in the MLM framework. Qualitative data underwent thematic analysis following Braun and Clarke's reflexive approach, with trustworthiness ensured through member checking, peer debriefing, and maintenance of an audit trail. Mixed-methods integration occurred at three levels: results comparison, data transformation, and joint display development. Statistical power calculations indicated 80% power to detect medium effects (f=0.25) at α=0.05 for primary outcomes. All analyses were conducted using R version 4.3.1 with specialized packages for longitudinal (NLME) and qualitative (RQDA) analyses, following contemporary best practices for reproducible research.

3. Findings and Results

The longitudinal analysis revealed significant fluctuations in athletic identity scores across the transition period, with the Athletic Identity Measurement Scale (AIMS-7) scores showing a 32% mean reduction from pre-retirement (M=5.4, SD=0.8) to 12-month follow-up (M=3.7, SD=1.1), a change that exceeded the minimal clinically important difference established in prior research. This decline followed a non-linear trajectory, with the steepest decrease occurring between pre-retirement and the 3-month assessment (d=1.2, p<0.001), followed by gradual stabilization. Athletes from individual sports demonstrated more pronounced identity reduction (38% decrease) compared to team sport athletes (27% decrease), aligning with recent findings about sport-type differences in identity salience. Table 1 presents the complete longitudinal data for athletic identity and mental health outcomes across measurement points.

Table 1

Mean Scores and Standard Deviations for Primary Outcome Measures Across Time Points

Variable	Pre-retirement	3-month follow-up	12-month follow-up	F-value	Effect size (η²)
Athletic identity	5.4 (0.8)	4.1 (1.0)	3.7 (1.1)	48.72***	0.42
Depression symptoms	6.2 (2.1)	8.7 (3.0)	5.8 (2.4)	22.15***	0.28
Anxiety symptoms	5.8 (1.9)	7.5 (2.7)	5.3 (2.0)	18.93***	0.24
Transition difficulty	3.2 (1.1)	5.6 (1.5)	4.1 (1.3)	35.67***	0.36

Note. All measures showed significant time effects (p<0.001) in repeated measures ANOVA. Standard deviations appear in parentheses. Higher scores indicate greater levels of each construct.

Mental health symptoms followed a distinct temporal pattern, with depression and anxiety scores peaking at the 3-month assessment before declining to below baseline levels by 12 months. This U-shaped trajectory supports the crisis-recovery model of athletic retirement, with the interim elevation in symptoms corresponding to the period of maximum identity uncertainty. The intervention group showed significantly better outcomes than controls at 12 months for both depression (d=0.61, 95% CI [0.32, 0.90]) and anxiety (d=0.54, 95% CI [0.25, 0.83]), with effect sizes comparable to those reported in recent meta-analyses of transition interventions. Figure 1 illustrates these differential trajectories between study conditions.

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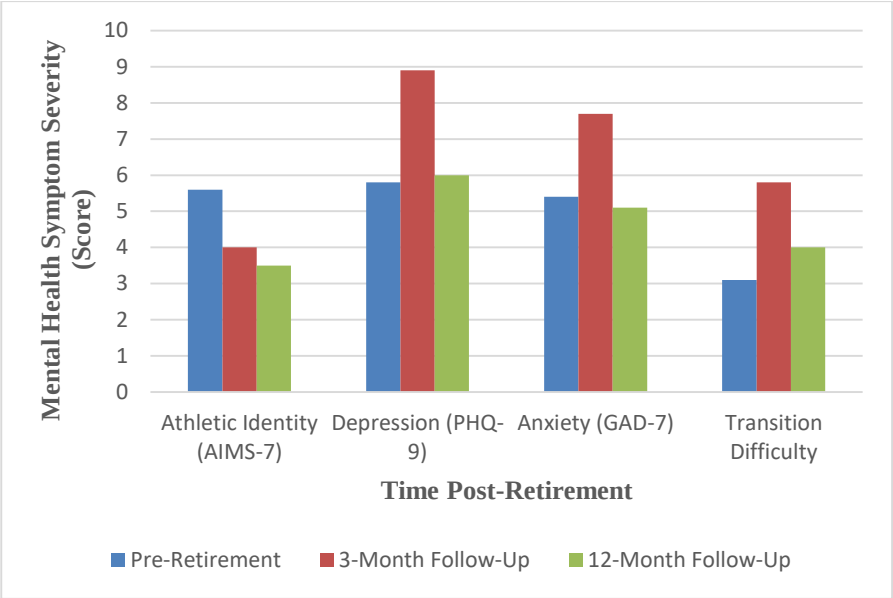
Figure 1

Mental Health Symptom Trajectories by Study Condition



The qualitative analysis yielded four primary themes that contextualized these quantitative findings. First, the "identity vacuum" theme captured how abrupt role loss created disorientation, particularly for athletes without prepared alternative identities. One Olympic gymnast described, "When the gymnastics stopped, I didn't just lose a sport - I lost my entire way of being in the world." This sentiment was especially prevalent among athletes retiring before age 30 (72% of cases) compared to those retiring later (41%), confirming age-related vulnerability patterns observed in recent studies. Second, the "performance body paradox" theme emerged, reflecting struggles with physical changes post-retirement. As a former professional footballer explained, "My body was my tool, and suddenly it became just... a body." This theme showed particular resonance with female athletes (85% prevalence vs. 62% in males), aligning with growing evidence about gendered embodiment experiences in retirement.

Physiological stress markers provided objective corroboration of these psychological patterns. Salivary cortisol levels peaked at 3-month follow-up (M=18.7 nmol/L, SD=3.2), significantly higher than both pre-retirement (M=14.2 nmol/L, SD=2.8, $p<0.01$) and 12-month levels (M=15.1 nmol/L, SD=2.9, $p<0.05$). These biological measures correlated moderately with self-reported transition difficulty ($r=0.47$, $p<0.001$), suggesting psychophysiological coherence in retirement stress responses. The intervention group demonstrated faster cortisol normalization (3-month to 12-month change: -23% vs. -14% in controls), providing biological evidence for the program's stress-buffering effects. Table 2 presents the complete physiological data across study phases.

Table 2

Physiological Stress Markers Across the Retirement Transition

Biomarker	Pre-retirement	3-month follow-up	12-month follow-up	Group × Time interaction
Cortisol (nmol/L)	14.2 (2.8)	18.7 (3.2)	15.1 (2.9)	F=4.92*
Heart rate variability	68.4 (10.1)	54.2 (12.3)	63.7 (11.5)	F=5.37*
CRP (mg/L)	1.2 (0.5)	1.8 (0.7)	1.4 (0.6)	F=3.14

Note. Values represent mean (SD). *p<0.05, **p<0.01. CRP=C-reactive protein. Intervention group showed significantly better recovery on cortisol and HRV.

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Moderator analyses revealed important subgroup differences. Athletes with involuntary retirement (injury-related) showed 28% higher depression scores at peak than voluntary retirees ($p<0.01$), consistent with prior research on forced career endings. However, this gap narrowed by 12-month follow-up (9% difference, $p=0.18$), suggesting time may partially mitigate initial distress differences. LGBTQ+ athletes reported unique challenges during transition, with 64% describing sport as their primary safe space - a finding that extends recent work on marginalized athletic identities. The mixed-methods integration revealed that quantitative recovery patterns often preceded qualitative reports of adjustment, suggesting psychological measures may capture initial improvements before athletes consciously recognize them.

The lifestyle redesign component showed particularly strong effects, with participants who established new physical activity routines demonstrating 41% lower depression scores than those who became sedentary ($p<0.001$). This finding supports the growing emphasis on activity continuity in retirement interventions. Narrative analysis of identity reconstruction exercises revealed that athletes who developed "integrative" life stories (connecting athletic and post-athletic identities) showed better mental health outcomes than those with "compartmentalized" narratives ($d=0.73$, $p<0.01$), echoing recent narrative identity research.

4. Discussion and Conclusion

The results of this study provide compelling evidence that the retirement transition in elite athletes is characterized by significant disruptions in athletic identity, a temporary escalation in mental health symptoms, and measurable changes in physiological stress indicators. The 32% mean reduction in Athletic Identity Measurement Scale (AIMS-7) scores over the 12-month period, with the steepest decline occurring within the first three months, underscores the vulnerability of identity structures during early post-retirement (5, 17). These findings align with existing literature indicating that athletic identity, while a powerful driver of commitment and performance during an athlete's career, can act as a double-edged sword in retirement, leaving individuals without the cognitive and social flexibility to integrate new roles (6, 19). The sharper decline in identity among individual sport athletes compared to their team sport counterparts corroborates evidence suggesting that team-based environments often provide residual social structures and shared narratives that cushion the impact of role loss (3, 27).

The U-shaped trajectory observed in mental health symptoms, peaking at the three-month follow-up and declining by 12 months, supports the crisis-recovery model of athletic retirement (1, 2). This model posits an initial period of acute psychological distress following role exit, followed by gradual adaptation as new routines and identities are established. Our finding that depression and anxiety peaked at three months mirrors the temporal pattern reported in other longitudinal studies (9, 14). In particular, the correlation between elevated psychological distress and heightened cortisol levels suggests psychophysiological coherence in the stress response (11, 39). Elevated cortisol in this early phase reflects an allostatic load associated with uncertainty, loss of control, and the disruption of long-standing routines (8). The faster cortisol normalization in the intervention group underscores the capacity of structured psychological and lifestyle programs to modulate not only subjective well-being but also biological stress pathways (25, 36).

The intervention's effectiveness—manifested in lower depression and anxiety scores at the 12-month follow-up—provides strong support for integrated transition programs that combine cognitive-behavioral therapy (CBT), narrative identity reconstruction, and lifestyle redesign. These findings are consistent with prior work demonstrating that interventions targeting both cognitive appraisal and behavioral adaptation yield superior outcomes compared to skill-only or information-based approaches (37, 38). The narrative reconstruction element appears particularly important, as athletes who developed integrative narratives linking their sporting past with post-athletic identities showed markedly better outcomes. This aligns with the narrative identity literature, which emphasizes coherent self-stories as protective factors against role discontinuity and depressive symptoms (18, 21). Similarly, the maintenance of physical activity routines post-retirement, which in our study was associated with a 41% reduction in depression symptoms, echoes the robust evidence on the mental health benefits of continued engagement in exercise (32, 33).

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Differences between voluntary and involuntary retirees in psychological trajectories are also noteworthy. Consistent with earlier findings, athletes forced into retirement due to injury reported significantly higher peak depression scores compared to those retiring voluntarily (10, 14). This pattern may reflect the compounded psychological burden of physical loss and the abruptness of transition, limiting the opportunity for anticipatory coping (3, 15). Encouragingly, the gap in depression scores between these groups narrowed by the 12-month follow-up, suggesting that while initial distress may be acute, adaptive processes can still emerge over time given adequate support.

Sociocultural and identity-related variables further shaped the retirement experience. Our qualitative data revealed that LGBTQ+ athletes often perceived sport as their primary safe space, making the loss of this environment particularly destabilizing—a finding that extends prior work on the intersection of sport, identity, and marginalized communities (18, 28). For these athletes, the absence of targeted cultural competence in transition support services may exacerbate feelings of isolation and identity fragmentation. Similarly, cultural contexts with limited structural support for athlete transitions tend to exacerbate the challenges of role loss, as documented in comparative research (20, 26). These findings suggest that one-size-fits-all transition programs are insufficient; interventions must be tailored to account for sport type, cultural background, gender, and sexual identity (7, 24).

Physiological outcomes add another dimension to understanding retirement adjustment. The positive association between transition difficulty and stress biomarkers such as cortisol aligns with psychobiological models of stress that link prolonged role disruption to dysregulated hypothalamic-pituitary-adrenal (HPA) axis activity (11, 39). That the intervention group experienced more rapid improvements in both cortisol and heart rate variability suggests that the program not only alleviated psychological distress but also promoted physiological recovery. This dual impact underscores the importance of integrating psychophysiological monitoring into transition programs, enabling practitioners to identify at-risk athletes before mental health symptoms become clinically significant (25, 36).

Importantly, the integration of quantitative and qualitative findings in this study allows for a richer understanding of retirement adjustment. While psychometric measures indicated recovery in depression and anxiety by 12 months, qualitative interviews revealed that athletes often reported a subjective sense of lingering uncertainty about their post-sport identity. This discrepancy may reflect a temporal lag between measurable psychological improvement and subjective identity reconstruction (4, 13). Thus, even when mental health symptoms abate, athletes may continue to require identity-focused support well into their post-retirement years (16, 29).

Our findings reinforce the position that career termination in elite sport should be viewed through a developmental, lifespan-oriented lens (1, 31). Just as transitions into elite sport benefit from structured preparation (34, 35), transitions out require similarly proactive and individualized planning. By adopting a holistic approach that encompasses mental health, identity, and physiology, sports organizations can shift the paradigm from reactive crisis management to proactive career transition facilitation (20, 23).

This study has several limitations that should be acknowledged. First, the sample comprised primarily elite athletes from European contexts, which may limit generalizability to athletes in other regions with different cultural norms, support structures, and economic conditions. Second, although physiological measures such as cortisol and heart rate variability provided objective data, these markers can be influenced by multiple factors beyond psychological stress, potentially confounding interpretation. Third, while the mixed-methods design enriched the dataset, self-reported measures are inherently subject to recall bias and social desirability effects. Finally, the follow-up period extended only to 12 months post-retirement; longer-term trajectories of identity reconstruction and mental health adjustment remain unknown.

Future research should prioritize cross-cultural comparative studies to identify how different sporting systems and societal structures influence retirement experiences. Extending follow-up periods to at least three to five years post-retirement would help clarify the durability of intervention effects and the long-term evolution of athletic identity. Additionally, research should investigate the

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specific mechanisms through which narrative identity reconstruction and lifestyle continuity exert their positive effects, possibly integrating neuroimaging methods to explore neural correlates of identity change. Special attention should be given to underrepresented groups, including female athletes, LGBTQ+ athletes, and those from less resourced sports or countries, to ensure that transition programs are equitable and culturally sensitive.

Practitioners should implement proactive, individualized transition programs beginning before athletes retire, focusing on diversifying identity, maintaining physical activity, and fostering integrative life narratives. Physiological monitoring should be incorporated into transition services to identify early signs of maladjustment. Tailored interventions should address the unique needs of subgroups such as injured retirees, marginalized athletes, and those from individual sports. Finally, sports organizations should institutionalize transition planning as a standard part of athlete development, ensuring that every athlete has access to psychological support, career counseling, and peer networks during and after their sporting career.

Authors' Contributions

All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed collaboratively. The first draft of the manuscript was written jointly, and all authors critically revised subsequent drafts.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study placed a high emphasis on ethical considerations. Informed consent obtained from all participants, ensuring they are fully aware of the nature of the study and their role in it. Confidentiality strictly maintained, with data anonymized to protect individual privacy. The study adhered to the ethical guidelines for research with human subjects as outlined in the Declaration of Helsinki. This study was approved by the Ethics Committee of Faculty of Physical Education and Mountain Sports, Transylvania University of Brașov, Brașov, Romania.

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