



Martial Arts and Physical Education in Higher Education: Fostering Discipline, Motivation, and Student Success

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Abstract

This study investigates combat sports and physical education (PE) as powerful tools to boost student engagement, address academic underperformance, and alleviate mental health issues in higher education. Grounded in self-determination theory (SDT) and embodied learning (EL), the research explores how physically intensive activities such as judo and boxing can holistically foster motivation, discipline, and persistence. SDT provides the framework for how physical activity satisfies the psychological needs for autonomy, competence, and relatedness, which are essential for sustained engagement. EL frames the body as central to cognition and identity, recognising that structured movement is a site of knowledge construction. Combat sports, often misrepresented, are shown to instil crucial non-cognitive values paralleling academic success: discipline, resilience, goal-setting, and emotional regulation. Routine physical training reflects the persistence needed for academic achievement. Purposeful PE further supports cognitive development, improving concentration and self-regulated learning. Informal combat sport sessions have particularly aided first-year students with academic adjustment, stress coping, and time management. The findings advocate for integrating these structured physical activities into higher education curricula and student support strategies. Doing so promotes physical health while significantly enhancing students' academic attitudes and outcomes. This study calls for adaptive programming to ensure accessibility and gender inclusivity, ultimately repositioning combat sports and PE as transformative, EL practices crucial for holistic student development in global, and especially South African, higher education.

Keywords: martial arts, physical education, student engagement, higher education, academic success, emotional regulation

Introduction

In contemporary higher education (HE) student engagement is a pressing challenge, especially as academic institutions grapple with rising dropout rates, mental health issues, and a general decline in motivation and physical well-being among students (Chemagosi, 2024). South African HE in particular faces acute student attrition, with recent data estimating that between 50% and 60% of first-year university students drop out before completing their qualifications (Everaert, Opdecam, & Van Der Heijden, 2024).

This crisis is compounded by a severe mental health burden; a national student mental health survey found that anxiety disorders, including post-traumatic stress disorder (21%) and social anxiety (24.5%), are highly prevalent among South African students (Bantjes, Hunt, & Stein, 2023). Traditional pedagogical models often fall short of addressing the holistic needs of students, necessitating a shift toward more integrative and active learning strategies (Tu, Zhong, & Xie, 2025).

One promising avenue is the incorporation of martial arts and physical

education (PE) into academic programmes, which can provide both physical benefits and psychosocial support, thereby fostering engagement and resilience. Martial arts, rooted in discipline, respect, and physical mastery, have been shown to improve not only fitness but also self-confidence, emotional regulation, and cognitive performance (Mathunjwa, 2024). These attributes align well with the goals of higher education, particularly in developing well-rounded graduates who are physically active and mentally resilient. Integrating martial arts and structured physical activity into academic life can promote inclusive learning environments, offer stress relief, and enhance a sense of belonging (Javed, 2023), which are key factors required for student retention and success (Mathunjwa, 2024; Tu, Zhong, & Xie, 2025). Furthermore, PE programmes that emphasise collaborative and culturally relevant activities, such as indigenous games or team sports, help build community, reduce isolation, and cultivate leadership and communication skills (Mathunjwa, Ndlovu, Mazibuko, Mukoma, & Avramov, 2025). These qualities are essential in preparing students for the demands of both academic life and the modern workforce.

Theoretical principles and pedagogical value

The pedagogical value of these activities is explained through theoretical principles such as self-determination theory (SDT) and embodied learning (EL). SDT suggests that intrinsic motivation is fostered when psychological needs for autonomy, competence, and relatedness are met. Martial arts and PE, through mastery of technique and social training environments, naturally satisfy these needs (Ying & Yang, 2025). EL frames the body as a site of knowledge construction, suggesting that the discipline, persistence, and emotional regulation learned physically in combat sports is directly parallel and transfers to the cognitive persistence required for academic achievement.

Integration and unit of analysis

Given these advantages, this paper explores the pedagogical value of martial arts and physical education as transformative tools for improving student engagement in HE. Integration can be achieved by embedding structured PE

modules and combat sports (like judo, boxing, or taekwondo) into campus wellness strategies and co-curricular offerings, addressing both the physical and non-cognitive needs of students (Mathunjwa, 2024).

The unit of analysis for this study is both (a) student-athletes involved in combat sports and (b) general HE students who participate in structured physical education and informal sports. The findings consider how participation in these activities can influence academic outcomes across the broader student body.

Significance of the study

This approach adds value beyond known exercise-engagement links by specifically focusing on the structured, disciplinary, and emotionally regulatory aspects unique to combat sports and purposeful PE. It repositions these activities not as peripheral recreational pursuits, but as transformative educational practices that offer untapped potential to reengage students, especially those who struggle within traditional pedagogical frameworks. The research calls for a renewed commitment to EL as a cornerstone of holistic student development in South African and global HE contexts.

Research objectives

Based on the preceding discussion, this paper aims to address the following objectives:

- To examine the unique contribution of combat sports and structured physical education in cultivating the non-cognitive skills (e.g., discipline, resilience, emotional regulation) essential for HE academic success.
- To analyse the practical implications of integrating combat sports and structured physical activities into HE curriculum and support services to improve students' academic attitudes and outcomes.
- To identify strategies for ensuring the accessibility and gender inclusivity of combat sports and physical education programming in higher education.

Methodological approach: Focused narrative synthesis

This paper utilised a focused narrative synthesis to bridge sports science research and implementable HE policy. This approach involved the systematic selection and critical evaluation of studies on combat sports and student development (Fendt, 2025). This synthesis was essential because it allowed for the structured application of diverse findings from physiological to psychosocial to the specific needs of an HE environment, which primary research often overlooks.

Literature search and selection

The literature search was performed across academic databases using keywords such as "combat sports", "martial arts", "academic performance", "university student", "HE student success", and "psychosocial development". The studies identified were then subjected to rigorous inclusion and exclusion criteria before synthesis.

Inclusion and exclusion criteria

Literature inclusion criteria focused on studies of combat sports or structured physical activity with outcomes relevant to HE student success (academic adjustment, time management, resilience) or related physiological factors (stress biomarkers). Studies had to feature HE populations or comparable contexts.

Exclusion criteria removed research focusing solely on: (a) professional or elite athletic performance without measurable academic or developmental outcomes; (b) studies published outside peer-reviewed journals; and (c) documents where primary data was unavailable.

Data synthesis and evaluation

Structured data extraction captured key findings and their HE relevance. Studies were assigned an objective HE transferability rating (high, medium, or low), to assess direct applicability to a typical university setting. This evidence-based process defines the necessary curriculum designs and the future research agenda.

Literature review

The following review distinguishes between global and local contexts, focusing on the pedagogical transfer mechanisms, and identifying the specific gaps that this study aims to address.

Martial arts in education: Global developments

Globally, martial arts (particularly disciplines like judo, karate, and taekwondo) are being increasingly integrated into educational systems as holistic tools for physical, emotional, and social development. Studies suggest that the structured nature of these activities consistently improve students' self-regulation, discipline, and resilience (Bailey, Sweeney, Sweeney, Huihui, & Samsudin, 2025; Kuzhelnyy et al., 2024; Mathunjwa, 2024). In East Asia and parts of Europe martial arts are often included in the school curriculum, reinforcing values like respect and perseverance alongside physical fitness (Tong, 2022). Research also links martial arts practice with reduced aggression and improved classroom behaviour (Mathunjwa, Shandu, Ndwandwe, Shongwe, & Linda, 2024), positioning it as an important component of educational reform aimed at learner wellness.

Combat sports vs. general physical activity

While general physical activity is widely recognised to enhance cognitive function, combat sports offer distinct benefits. General physical activity links to academic performance primarily through improved blood flow to the brain, better sleep quality, and reduced stress (Chen, Yang, & Kang, 2025). The effects of combat sports are often linked to enhanced executive function (e.g., inhibition and cognitive flexibility) due to the need for rapid decision-making under pressure and the mastery of complex motor sequences (Basyzbek, 2024). Furthermore, the ritualistic adherence to rules and bowing in martial arts strongly facilitates self-regulation and emotional control, which transfers more directly to academic discipline than to unstructured sports (Shaw, Mugandani, Shaw, Djarova, & Mathunjwa, 2020). It is important to note, however, that excessive training load (high intensity or volume) can be a boundary condition, potentially leading to fatigue, injury risk, and diversion of time from academic study, which may

yield null or even detrimental findings during high-stakes academic periods (Ntumi *et al.*, 2025).

Physical education and student engagement

The academic utility of physical engagement extends beyond martial arts. PE and other structured sports programmes have been repeatedly affirmed in the literature for linking physical activity to academic performance (Mathunjwa *et al.*, 2024).

HE vs. school-based PE evidence

In school-based settings where PE is mandatory it is easily integrated into the academic day. Studies in primary and secondary schools consistently show positive correlations between fitness, movement breaks, and improved on-task behaviour and attention (Deci & Ryan, 1985; Sakala, 2023).

In the HE context, the link is predominantly measured through co-curricular or athletic participation, where the mechanisms shift from classroom attention to self-governed skills. University students who participate in regular physical activities, including martial arts, report higher self-discipline, emotional regulation, and academic commitment (Shaw *et al.*, 2020; Mathunjwa *et al.*, 2024). These findings reinforce the importance of embedding such activities within the broader educational experience. However, the evidence is less prevalent than in the school setting and is often focused on student-athletes, so needs to be broadened to general HE students exposed to PE modules (Thompson, Rongen, Cowburn, & Till, 2023).

The African/South African context and contextual gaps

In the African context, PE is often under-resourced and undervalued (Burnett, 2021), making the implementation of robust programmes a significant challenge despite policy recognition of its value.

Local context and policy

In South Africa, post-apartheid policy reforms emphasise inclusive and transformative PE programmes (Dodo, Van Niekerk, & Lyoka, 2020). There is growing recognition of PE's

potential to promote social cohesion, health, and academic achievement (Dodo, Van Niekerk, & Lyoka, 2020). The introduction of indigenous games and the rise of local martial arts clubs are gaining interest as culturally relevant alternatives to mainstream sports, promoting physical literacy while also affirming African heritage (Sakala, 2023). Martial arts are beginning to find a place in community-based initiatives addressing youth marginalisation (Mathunjwa *et al.*, 2024). However, the implementation of these transformative goals remains challenging, primarily due to a lack of trained educators and suitable infrastructure (Joseph, Onwuzulike, & Shitu, 2024).

Contextual gaps in South Africa justifying the study

Despite the strong international evidence linking physical activity to improved academic engagement and psychological wellbeing, significant contextual gaps remain in the South African HE environment. The country continues to face high student dropout rates (approximately 55%) and a growing mental health crisis among university students (Scherer & Leshner, 2021). These challenges underscore the need for context-specific interventions that enhance student resilience, motivation, and academic success.

The first major gap is the HE specific causal mechanism gap. While international studies have established that general physical activity improves engagement and wellbeing (Vella *et al.*, 2023), there is limited empirical research in South Africa examining how combat sports such as judo and boxing foster non-cognitive skills such as discipline, persistence, and emotional regulation among the general student population. Existing studies largely focus on elite athletes or traditional exercise interventions rather than martial arts as a pedagogical tool (Tu, Zhong, & Xie, 2025). The second is the integration and policy gap. Current literature and policies lack clear frameworks for incorporating martial arts or physical education into HE curricula and student support programmes, with limited consideration of accessibility, inclusivity, and socio-economic disparities (Valiyev, Aliyev, Huseynova, & Khalilov, 2025). Lastly, a divergent findings

synthesis gap exists. Poorly managed training loads may produce adverse academic effects, especially in stressed student populations (Ntumi et al., 2025). Therefore, a critical synthesis defining optimal conditions for success is essential. This study addresses these gaps by exploring combat sports as structured, inclusive, and emotionally beneficial interventions to support student success in South African HE.

Theoretical framework

This study is grounded in two central theoretical paradigms: SDT and EL, complemented by social cognitive theory (SCT) to add a behavioural lens (Lintunen, Ady, Guckelsberger, & Deterding, 2024). These frameworks are crucial to understanding participants' motivations, behaviours, and learning experiences engaged in combat sports/martial arts for health promotion and their potential transfer to academic persistence among university students. This focus on combat sports is now aligned with the study's scope.

SDT was developed by Deci and Ryan (1985) and emphasises the role of intrinsic motivation in fostering sustained behavioural engagement (Thompson et al., 2023). Operationally, SDT explains engagement and motivation through the satisfaction of basic psychological needs: in this case autonomy is fostered by choosing training techniques; competence by achieving belt promotions or skill mastery (mastery-oriented challenges); and relatedness by the mentor-student relationship and training partners. In the university context, this satisfaction is hypothesised to enhance motivation for physical activity and academic persistence by building self-efficacy and a sense of belonging (Hellison, 2011).

On the other hand, EL frames the body not just as a subject of knowledge but also as a site of knowledge construction (Stolz, 2015). This theory is especially pertinent to combat sports, recognising the lived bodily experience of sparring and drilling as central to cognition and identity (Low, 2025). EL explains engagement and academic persistence as the successful integration of physical and cognitive skills. The physical mastery and discipline achieved through martial

arts training is theorised to foster self-efficacy and self-regulation that transfers to overcoming academic challenges.

SCT (Bandura, 1986) complements this framework by emphasising the role of observational learning and self-efficacy. Combat sports training provides opportunities for observing higher-ranked practitioners (social modelling) and receiving immediate reinforcement (Brand, 2024). This theory offers a behavioural explanation: seeing instructors and peers successfully master techniques strengthens one's belief in one's ability to persist (self-efficacy) in both the physical training and academic spheres.

Testable propositions

1. Satisfaction of SDT needs through combat sport training will positively predict university students' academic persistence.
2. Increased self-efficacy derived from mastering combat sport techniques (EL/SCT) will correlate with higher academic self-regulation.
3. Combat sport participation will promote social belonging (relatedness) that mediates the relationship between motivation and engagement among university students.

Combat sports and student development in higher education

Role of combat sports in promoting self-discipline and resilience

Combat sports, such as judo, boxing, and taekwondo, are vital in fostering self-discipline and resilience among university students. Regular participation in these sports demands adherence to strict training routines, rules, and personal goal-setting, which nurture internal discipline (Lane, 2025). Moreover, the physical and psychological challenges inherent in combat sports build coping strategies and mental toughness, key aspects of resilience in academic and personal life (Mojtahedi et al., 2023). As a result, combat sports contribute positively to students' holistic development in higher education contexts.

Addressing risks in combat sports participation in higher education

While participation in combat sports offers valuable developmental benefits (Lane, 2025), HE institutions must proactively address the significant risks involved to ensure student welfare. The main constraints are high injury rates, which demand dedicated medical provision, and critical time conflicts arising from intense training and competition that can undermine academic progress (Miranda-Comas, Zaman, Ramin, & Gluck, 2022; Muthunjwa *et al.*, 2024). These factors substantially increase the institution's liability and duty of care. A comprehensive mitigation strategy is therefore required.

This framework must begin with mandatory medical screening and support, guaranteeing pre-participation assessments and the

reliable presence of qualified athletic therapy staff (Weise *et al.*, 2025). To physically manage the athletes, the implementation of periodisation (structuring training load over time) is crucial for reducing overtraining and injury risk (Kalkhoven, Watsford, Coutts, Edwards, & Impellizzeri, 2021). Most importantly, institutions must prioritise mandatory academic support, utilising tools like flexible scheduling, dedicated tutoring, and active progress monitoring (Secreto, Ofrin & Tabo, 2025). By establishing this balanced risk management plan, universities can responsibly maximise the holistic benefits of combat sports participation while safeguarding their student-athletes' educational success. Table 1 summarises the link between physical activity (including combat sports) and student academic or developmental benefits, drawing from international and local studies.

Table 1. Summary of selected studies linking combat sports/physical education to academic and student development outcomes

Study	Country	Population Focus	Sport/Intervention	Key Findings (HE Relevance)	HE Transferability
Park Jeon, Ahn & So, 2022	South Korea	University students	Taekwondo (Elite/Sporting)	Taekwondo participation enhances psychological traits (responsibility, goal setting). Identified stress factors (competition anxiety, academic pressure) that require institutional support to maintain academic engagement.	High
Rao, Ellomalay, Lourdsamy, Sivachandran, & Raj, (2018).	Malaysia	University students (medical)	General Sports Participation	Students engaged in sports demonstrated better academic results (lower anxiety, better class performance), emphasising the positive role of discipline and time management skills transfer.	High
Mathunjwa, Mahlangu, & Haddad, 2025)	South Africa	First-year university students	Informal Combat Sports (Taekwondo, Games)	Participation in introductory sessions improved student engagement, academic adjustment, sense of belonging, time management, and stress coping skills during the transition to HE.	High
Shaw <i>et al.</i> (2020)	South Africa	University students	High-Intensity Interval	Physiological study showing short-duration training improves physical fitness and body composition, promoting healthier	Low

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			Taekwondo Training	lifestyles (limited direct academic outcome).	
Mathunjwa, Mugandani, Kappo, Ivanov, & Djarova-Daniels (2016)	South Africa	Previously-trained individuals	Concurrent Taekwondo + Resistance Training	Improved physiological stress biomarkers post-exercise, highlighting stress recovery and resilience (limited direct academic outcome).	Low
Hlasho, Mathunjwa, Shaw, & Shaw, (2025)	South Africa	School learners (underprivileged)	Judo Training Programme	Judo positively influenced social skills and reduced aggressive behaviour, leading to improved social development and behaviour regulation.	Medium
Aithal (2016)	India	General (school/education focus)	Regular Physical Activity	Regular physical activity enhances learner attention, focus, and discipline, supporting the general principle of integrating physical education into academic routines.	Medium
Mahlangu, Mathunjwa, Millard, & Breukelman, (2024)	South Africa	Literature review	Visual Skills in Boxing	Identified essential visual perceptual skills for boxing, informing the curriculum design for skill-specific training and assessment in tertiary sport programmes.	Medium
Dube, Shaw, Mathunjwa, & Shaw, (2025)	Multi-Country (LMIC)	General populations	Traditional Dance & Games	Traditional physical activities improved cardiovascular health markers, strengthening the evidence base for culturally relevant physical activity interventions.	Medium

Psychosocial benefits: Confidence, self-regulation, and mental health

Engaging in combat sports offers significant psychosocial benefits for students. Mastery of new skills and positive social reinforcement directly boost self-confidence. Simultaneously, the structured nature of training fosters self-regulation, teaching essential discipline, patience, and effective goal-setting abilities. Crucially, this regular physical involvement provides a direct mental health benefit. It reduces anxiety and depression while equipping individuals with enhanced coping strategies and emotional resilience (Mathunjwa et al., 2024). This toolkit is vital for managing the demands of high-pressure academic environments and successfully navigating the tertiary transition.

Cognitive and executive functioning enhancement through martial Arts

Martial arts training has shown promise in enhancing cognitive and executive functioning, particularly among children and young adults. Regular practice improves attention, working memory, self-control, and cognitive flexibility through structured, repetitive movements and discipline-based learning (Mathunjwa, 2024) (Table 2).

Physical education as a vehicle for holistic student development

PE can be viewed as a critical and indispensable component of holistic student development (Chemagosi, 2024), extending its influence far beyond physical fitness into the crucial domains of academic persistence and social well-being. A significant body of evidence, while

often rooted in school settings, confirms that the cognitive and neurobiological benefits of physical activity such as enhanced executive function and

reduced stress are directly transferable to the HE context (Mathunjwa, 2024).

Table 2. Effects of martial arts training on executive functioning

Study Type	Age Group	Effects
Experimental/Quasi-Experimental	Primarily School-Aged Children (but also young adults)	Chronic Training Effects: Repeated, long-term training leads to structural and functional brain changes, improving inhibitory control and attention (key executive functioning components) (He et al. 2025).
Correlational/Acute	Various (including young adults)	Acute Effects: A single bout of exercise can transiently boost attention, decision-making speed, and processing fluency immediately post-exercise (Buwadi, 2025; Shandu, Mathunjwa, Shaw, & Shaw, 2022).

Academic success and retention

Crucially, specific HE studies confirm the link between activity and academic outcomes, showing that university students enrolled in activity courses have dramatically increased odds of retention (Javed, 2023), a finding highly relevant to South African institutions. Successful implementation requires pragmatic solutions to address HE constraints like heavy credit loads. This can be achieved by integrating brief, high-frequency physical activity breaks into long lectures (addressing the 'dose-response' concern) or providing flexible, non-credit bearing modules that are feasible within compressed HE timetables.

Inclusion and social integration

Furthermore, PE serves as a potent vehicle for inclusion and social integration (Tu, Zhong, & Xie, 2025). It naturally creates a shared, collaborative space essential for building social cohesion among diverse student populations (Mathunjwa, 2024). To ensure cultural safety and equity, HE programmes must implement concrete, inclusive measures. This includes modifying drills and sports to offer non-contact or non-weight-class options, ensuring the provision of adaptive equipment for students with disabilities, and upholding explicit gender-affirming policies regarding facilities and attire. These practices ensure all students feel respected and valued within the institutional environment (Mathunjwa et al., 2024).

Physical literacy and lifelong outcomes

Finally, PE is the primary conduit for developing physical literacy (Kuzhelny et al., 2024). Defined in the HE context as the motivation, confidence, physical competence, knowledge, and understanding to take responsibility for sustained, active living (Bailey et al., 2025), this outcome directly aligns with key graduate attributes. It cultivates essential life skills like self-management, resilience, and critical thinking. Assessing this involves a multi-domain approach that goes beyond fitness testing, utilising validated self-report scales and reflective journals to measure affective commitment and the students' long-term valuing of the activity. By strategically embracing and integrating these academic, social, and developmental functions, PE transforms from a marginal subject into a central pillar for producing capable, healthy, and socially integrated graduates.

Intersection between combat sports, academic performance, and campus culture

The participation of student-athletes in combat sports including judo, boxing, and taekwondo is highly relevant to the university experience (Mathunjwa, 2019). Their influence extends beyond physical skills to create a unique intersection with academic performance and campus culture, shaping student motivation, engagement, and social dynamics (Mathunjwa, 2025).

Engagement and academic motivation among student-athletes

Combat sports fundamentally foster psychological traits such as discipline, resilience, and goal-setting, which transfer positively to the academic domain (Amfo, 2024). This transfer can be monitored using concrete, campus-level indicators, such as tracking credits earned per semester or learning management system (LMS) engagement metrics for participating athletes (Basyzbek, 2024). To establish a clear link, university athletic departments should implement a baseline–midline–endline monitoring plan, assessing these indicators against training load across a single academic year.

A critical challenge is the tension between training load and study time. To provide actionable support, institutions should mandate learning contracts that formalise required study hours. Additionally, clubs must adopt flexible training blocks, significantly reducing training frequency or intensity in the three weeks leading up to major examination periods to prioritise academic focus. This structural support acknowledges the demands of high-level competition while safeguarding student-athlete well-being and academic progress (Mathunjwa, Shaw, Avramov, & Shaw, 2025).

Gender and cultural dynamics in combat sport participation

Combat sports play an important role in challenging male-dominated sporting norms, but this progress is constantly tested by persistent cultural and institutional barriers (Yang & Montez de Oca, 2025). In the South African HE context, addressing these requires explicit changes at the club governance level and within campus norms. Barriers often include unequal resource access, lack of female coaching representation, and the absence of policies that support menstrual health or motherhood (Deda, 2024).

Remedies must be specific and targeted: establishing targeted scholarships for female athletes, creating women-only introductory sessions to provide a comfortable entry point, and formalising partnerships with local community clubs to expand developmental opportunities. To ensure ethical practice, all interventions should be

developed through co-design with specific student groups to avoid essentialising culture, thus ensuring policies reflect lived experiences and cultural safety. Furthermore, an explicit ethics of care and safeguarding framework is mandatory, aligning with broader campus policies on gender-based violence to protect all participants (Rana, 2022; Meng, Zidi, & Asma, 2024).

Implications for curriculum design and co-curricular activities

Integrating combat sports requires a comprehensive, implementable model that aligns curriculum structure with safety protocols. A foundational 6–8 week first-year module pilot should be established, utilising autonomy-supportive pedagogy and reflective assessments (Chemagosi, 2024). The co-curricular pathway should feature a tiered progression, moving from non-contact fundamentals to controlled competition, supported by rigorous instructor credential standards and formal injury reporting (Tu, Zhong, & Xie, 2025). A crucial risk protocol must include mandatory daily safety checks and clear referral pathways to student counselling for mental and physical health concerns (Mathunjwa, 2024). A monitoring and evaluation plan can track key performance indicators including attendance, self-regulation (via scales), perceived belonging, and credit retention using a baseline endline cadence managed by Student Affairs (Tu, Zhong, & Xie, 2025). Resource investment is light, requiring dedicated space, protective mats, basic gear, and certified coaching hours (Mathunjwa, Ndlovu et al., 2025).

Gaps in the literature and future research directions

Despite recognising the benefits of combat sports, the literature lacks rigorous, contextualised evidence, necessitating a focused future research agenda.

Future research agenda

Methodological Rigour: Future work must prioritise longitudinal HE cohort studies that track combat sport participants, explicitly monitoring academic engagement, general physical activity, and retention rates over four to five years to understand its sustained influence.

Crucially, randomised controlled trials or quasi-experiments are needed to compare the psychosocial and academic outcomes of students enrolled in a combat-sports module against those participating in other general wellness modules.

Inclusion and Implementation: Mixed-methods studies can be conducted, focusing on specific campus culture changes and exploring shifts in perceived belonging and self-efficacy across gender and cultural lines. These studies should be paired with gender-responsive and disability-inclusive design trials to rigorously test the impact of targeted interventions (like women-only classes or adaptive equipment protocols). Finally, implementation science is required to assess programme fidelity, determine the optimal "dose" (frequency and intensity) of training, and ensure true equity of access across diverse student demographics and campus settings (Aithal, 2016; Cook, 2024; Jacobs, 2025).

Conclusion

Combat sports serve as a powerful, dynamic vehicle for holistic student development, effectively boosting academic resilience, self-regulation, and campus integration. The most actionable implication for HE policy is the establishment of formally governed, inclusive, tiered co-curricular pathways supported by academic time-management assistance and rigorous safety protocols. Research must now prioritise longitudinal studies and controlled trials to validate the long-term impact of participation on student retention and psychosocial growth across diverse cohorts. Leveraging these sports thoughtfully can significantly enrich the overall educational experience.

Disclosure

Conflict of interest

The authors declare no conflict of interest

Author Contributions

M.L.M., I.S., O.P and B.S.S. conceived the review; M.L.M. wrote the protocol; performed the initial database search; screened titles, abstracts, and full texts; and performed data extraction. B.S.S. and O.P. screened titles, abstracts, and full texts. I.S. resolved conflicts

through the screening process and provided guidance. M.L.M., I.S., O.P. and B.S.S. wrote the initial draft of this manuscript. M.L.M., I.S., O.P. and B.S.S. wrote subsequent drafts of the manuscript. All authors have read and agreed to the published version of the manuscript.

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References

- Aithal, A. P. (2016). The impact of physical activities on the academic performance of medical students. *Online Journal of Health and Allied Sciences*, 15(2).
- Amfo, J. (2024). *Balancing academics and athletics: The impact of student-led sports program oversight on student-athletes at Ashesi University*. Doctoral thesis, Ashesi University, Berekuso, Ghana. <https://hdl.handle.net/20.500.11988/1197>
- Bailey, R. P., Sweeney, R., Sweeney, C., Huihui, L., & Samsudin, N. (2025). Martial arts for young people? A review of the benefits and outcomes of children's and adolescents' participation in martial arts. *Idō Movement for Culture*, 20(3), 31-34. <https://doi.org/10.14589/ido.25.3.4>
- Bantjes, J., Hunt, X., & Stein, D. J. (2023). Anxious, depressed, and suicidal: Crisis narratives in university student mental health and the need for a balanced approach to student wellness. *International Journal of Environmental Research and Public Health*, 20(6), 4859. <https://doi.org/10.3390/ijerph20064859>
- Basyzbek, B. (2024). Cognitive load management and decision-making speed in professional boxing: A comparative, theoretical, and applied analysis. *Актуальные исследования*, 52(234), 55-62.

- Brand, N. (2024). *Efficacy of Zulu indigenous games in enhancing perceptual-motor skills in pre-schoolers: A qualitative study of two informal settlements in KwaZulu-Natal*. Master's dissertation, University of Cape Town, Cape Town, South Africa.
<http://hdl.handle.net/11427/40799>
- Burnett, C. (2021). A national study on the state and status of physical education in South African public schools. *Physical Education and Sport Pedagogy*, 26(2), 179-196. DOI:
<https://doi.org/10.1080/17408989.2020.1792869>
- Buwadi, L. (2025). *Exploring the influence of acute aerobic exercise on executive function in individuals with trait anxiety*. Master's dissertation, University of Western Ontario, London, Canada.
- Chemagosi, M. J. (2024). Student well-being in higher education institutions: Academic pressures. In P. Aloka (Ed.), *Student well-being in higher education institutions* (pp. 81-106). IGI Global.
<https://doi.org/10.4018/979-8-3693-4417-0.ch004>
- Cheng, R., Yang, L., & Kang, S. J. (2025). A study on the relationship between high school students' sleep quality, physical exercise, academic stress, and subjective well-being. *BMC Psychology*, 13(1).
<https://doi.org/10.1186/s40359-025-02497-3>
- Cook, L. L. (2024). *Factors affecting college choice of African American male undergraduates at two private liberal arts colleges in the South*. Doctoral thesis, Jackson State University, Jackson, MS, USA.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Springer.
<https://doi.org/10.1007/978-1-4899-2271-7>
- Deda, N. (2024). Research on the challenges and solutions for achieving gender equality in professional sports analysis of barriers and opportunities for female athletes. *International Journal of Social and Educational Innovation*, 11(22), 247-259.
<https://doi.org/10.5281/zenodo.14731484>
- Dodo, O. E., Van Niekerk, R. L., & Lyoka, P. A. (2020). Transformational-infrastructure keys to equality and inclusivity in sports: Policy trajectory in post-apartheid South African sports. *South African Journal for Research in Sport, Physical Education and Recreation*, 42(3), 91-110.
<https://www.ajol.info/index.php/sajrs/article/view/202662>
- Dube, A., Shaw, I., Mathunjwa, M. L., & Shaw, B. S. (2025). Impact of traditional dance and games on cardiovascular health: A scoping review of outcomes across diverse low-and middle-income countries. *International Journal of Environmental Research and Public Health*, 22(3), 440.
<https://doi.org/10.3390/ijerph22030440>
- Everaert, P., Opdecam, E., & Van Der Heijden, H. (2024). Predicting first-year university progression using early warning signals from accounting education: A machine learning approach. *Accounting Education*, 33(1), 1-26.
<https://doi.org/10.1080/09639284.2022.2145570>
- Fendt, J. (2025). Embracing emergence in qualitative meta-analysis: A guide to higher-order synthesis. *Methodological Innovations*, 18(3), 143-167.
<https://doi.org/10.1177/20597991251352414>
- He, M., Guo, J., Yu, S., Lian, H., Zhan, R., Luo, R., ... & Cai, W. (2025). The effects of aerobic exercise on goal-directed attention and inhibitory control in individuals with high trait anxiety: An EEG study. *BMC Psychology*, 13(1), 86.

- <https://doi.org/10.1016/j.pmatsci.2025.101526>
- Hellison, D. (2011). *Teaching personal and social responsibility through physical activity*. Human Kinetics.
<http://dx.doi.org/10.5040/9781718208919>
- Hlasho, T. S., Mathunjwa, M. L., Shaw, B., & Shaw, I. (2025). Factors affecting recruitment and retention of different race groups in Judo South Africa. *Journal of Biomedical Research & Environmental Sciences*, 6(1), 98-106.
<https://dx.doi.org/10.37871/jbres206>.
- Jacobs, J. K. (2025). *How black women's perceptions of inclusion influence their lived experience and ability to thrive working in intermediate administration roles within NCAA-affiliated athletic departments*. University of Sioux Falls.
- Javed, M. (2023). The effectiveness of different teaching methods in education: A comprehensive review. *Journal of Social Signs Review*, 1(1), 17-24.
- Joseph, O. B., Onwuzulike, O. C., & Shitu, K. (2024). Digital transformation in education: Strategies for effective implementation. *World Journal of Advanced Research and Reviews*, 23(2), 2785-2799.
<https://doi.org/10.30574/wjarr.2024.23.2.2668>
- Kalkhoven, J. T., Watsford, M. L., Coutts, A. J., Edwards, W. B., & Impellizzeri, F. M. (2021). Training load and injury: causal pathways and future directions. *Sports Medicine*, 51(6), 1137-1150.
<https://doi.org/10.1007/s40279-020-01413-6>
- Kuzhelnyi, S., Kudin, S., Kuzhelnyi, A., Zhlobo, T., Shyrai, O., Trotsyk, I., & Davydov, O. (2024). Fostering self-regulation skills among high school students through martial arts training. *Multidisciplinary Reviews*, 7, 2024spe024.
- <https://doi.org/10.31893/multirev.2024spe024>
- Lane, A. M. (2025). CALM: Cultivating awareness, learning, and mastery to reduce anger and violence through combat sports. *Youth*, 5(2), 45.
<https://doi.org/10.3390/youth5020045>
- Lintunen, E. M., Ady, N. M., Guckelsberger, C., & Deterding, S. (2024). Advancing self-determination theory with computational intrinsic motivation: The case of competence. *PsyArXiv preprint*, 10. DOI: [10.31234/osf.io/7qy35](https://doi.org/10.31234/osf.io/7qy35)
- Low, R. Y. (2025). *Neurodecolonisation in the classroom: Roxana Ng and Qigong as embodied pedagogy*. Taylor & Francis.
<https://doi.org/10.4324/9781003586401>
- Mahlangu, S. B., Mathunjwa, M. L., Millard, L., & Breukelman, G. J. (2024). Essential visual skills required for boxing: A review. *African Vision and Eye Health*, 83(1), a981.
<https://doi.org/10.4102/aveh.v83i1.981>
- Mathunjwa, M. L. (2019). *Physical tests, hormonal and oxidative-stress related biomarkers in intermittent training of Taekwondo athletes*. Doctoral thesis, University of Zululand, KwaDlangezwa, South Africa.
- Mathunjwa, M. L. (2024). Martial arts exercises and their mind-body effects: A narrative review. *Psychology and Psychotherapy: Theory, Research and Practice*, 8(2), 1-4. DOI: 10.31031/PPRS.2024.08.000685.
- Mathunjwa, M. L. (2025). Informal sports and academic performance: A first-year study. *International Journal of Higher Education*, 14(1), 51-59.
<https://doi.org/10.5430/ijhe.v14n1p51>
- Mathunjwa, M. L., Mahlangu, S. B., & Haddad, M. (2025). Evaluating the impact of massage therapy on performance and well-being in Taekwondo practitioners: A systematic review. *International Journal of Environmental Research and*

- Public Health*, 22(5), 742.
<https://doi.org/10.3390/ijerph22050742>
- Mathunjwa, M. L., Mugandani, S. C., Kappo, A. P., Ivanov, S., & Djarova-Daniels, T. (2016). Effect of 4 weeks high-intensity intermittent Taekwondo training on body composition and physical fitness in Zulu descent, South African Taekwondo athletes. *British Journal of Sports Medicine*, 50(22), e4-e4.
<https://doi.org/10.1136/bjsports-2016-096952.22>
- Mathunjwa, M. L., Shandu, N. M., Ndwandwe, N. K., Shongwe, N., & Linda, N. (2024). Beyond the classroom: The social benefits of informal sports for first-year students. *Proceedings of the Focus Conference (TFC 2024)* (pp. 560-580). Atlantis Press.
<https://doi.org/10.2991/978-94-6463-630-731>
- Mathunjwa, M. L., Shaw, I., Avramov, D., & Shaw, B. (2025). Enhancing engagement and academic success through combat sports in higher education. *International Journal of Higher Education*, 14(3), 51-59.
<https://doi.org/10.5430/ijhe.v14n3p51>
- Mathunjwa, M. L., Ndlovu P. B., Mazibuko S., Mukoma, G. G., & Avramov, D. (2025). [Indigenous games and physical activity for preventing non-communicable diseases in African communities: A public health perspective](#). *Frontiers in Sports Active Living*, 7.
<https://doi.org/10.3389/fspor.2025.1674875>
- Meng, L. K., Zaidi, H. J., & Asma, A. (2024). Celebrating cultural diversity through sports for global peace and understanding. In J. Zajda & Y. Vissing (Eds.), *Globalisation, cultural diversity and human rights* (pp. 11-39). Springer Nature.
- Miranda-Comas, G., Zaman, N., Ramin, J., & Gluck, A. (2022). The role of workload management in injury prevention, athletic, and academic performance in the student-athlete. *Current Sports Medicine Reports*, 21(6), 186-191.
<https://doi.org/10.1249/jsr.00000000000000964>
- Mojtahedi, D., Dagnall, N., Denovan, A., Clough, P., Dewhurst, S., Hillier, M., ... & Perry, J. (2023). Competition anxiety in combat sports and the importance of mental toughness. *Behavioral Sciences*, 13(9), 713. <https://doi.org/10.3390/bs13090713>
- Ntumi, S., Amos, P. M., Antwi, T., Nimo, D. G., Ofori, D. M., & Sarfo, P. O. (2025). Linking burnout emotional exhaustion and assessment related stress to mental health outcomes among early career teachers: Counselling support as a dual mediating and moderating factor. Preprint: <https://doi.org/10.21203/rs.3.rs-7003152/v1>
- Park, S. U., Jeon, J. W., Ahn, H., Yang, Y. K., & So, W. Y. (2022). Big data analysis of the key attributes related to stress and mental health in Korean Taekwondo student athletes. *Sustainability*, 14(1), 477. <https://doi.org/10.3390/su14010477>
- Rana, J. (2022). *Punching back: Gender, religion and belonging in women-only kickboxing* (Vol. 5). Berghahn Books.
- Rao, U. S., Ellomalay, S., Lourdsamy, P., Sivachandran, J., & Raj, N. B. (2018). Relationship between sports participation and academic performance among medical students of Universiti Sultan Zainal Abidin. *Research Journal of Pharmacy and Technology*, 11(8), 3737-3742. DOI: <https://doi.org/10.5958/0974-360X.2018.00685.6>
- Sakala, M. (2023). Indigenous games as part of school-based physical activity delivery programmes: prospects for optimum implementation for primary school learners' holistic health outcomes. Doctoral thesis, University of Johannesburg, Johannesburg, South

- Africa. Handle:
<https://hdl.handle.net/10210/505174>
- Scherer, L. A., & Leshner, A. I. (Eds.). (2021). *Mental health, substance use, and wellbeing in higher education: Supporting the whole student*. National Academies Press.
<https://doi.org/10.17226/26015>
- Secreto, P. V., Ofrin, D., & Tabo, E. (2025). Data-driven decision-making through real-time student progress monitoring: Academic administrators perspectives. *International Journal in Information Technology in Governance, Education and Business*, 7(1), 97-115.
- Shandu, N. M., Mathunjwa, M. L., Shaw, B. S., & Shaw, I. (2022). Effects of high-intensity interval training and continuous aerobic training on health-fitness, health related quality of life, and psychological measures in college-aged smokers. *International Journal of Environmental Research and Public Health*, 20(1), 653.
<https://doi.org/10.3390/ijerph20010653>
- Shaw, B. S., Mugandani, S., Shaw, I., Djarova, T., & Mathunjwa, M. (2020). Short duration high-intensity interval taekwondo training substantially improves body composition and physical fitness in previously-trained individuals: a proof-of-concept study. *Archives of Budo*, 16, 221-226.
- Stolz, S. A. (2015). Embodied learning. *Educational Philosophy and Theory*, 47(5), 474-487.
<https://doi.org/10.1080/00131857.2013.879694>
- Thompson, F., Rongen, F., Cowburn, I., & Till, K. (2023). What is it like to be a sport school student-athlete? A mixed method evaluation of holistic impacts and experiences. *Plos One*, 18(11), e0289265.
<https://doi.org/10.1371/journal.pone.0289265>
- Tong, A. W. (2022). *The science and philosophy of martial arts: Exploring the connections between the cognitive, physical, and spiritual aspects of martial arts*. Blue Snake Books.
<https://doi.org/10.1080/09502386.2024.2345102>
- Tu, Z., Zhong, L., & Xie, J. (2025). Traditional Chinese martial art Wushu to improve students' mental state and physical fitness: designing space for optimal practice and training. *Frontiers in Psychology*, 16, 1581226.
[10.3389/fpsyg.2025.1581226](https://doi.org/10.3389/fpsyg.2025.1581226)
- Valiyev, Y., Aliyev, S., Huseynova, K., & Khalilov, T. (2025). Planning and implementation of physical education and sports policy in the context of strategic management of education: An administrative perspective analysis. *Science of Law*, (1), 159-166.
<https://doi.org/10.55284/zk11v055>
- Vella, S. A., Aidman, E., Teychenne, M., Smith, J. J., Swann, C., Rosenbaum, S., ... & Lubans, D. R. (2023). Optimising the effects of physical activity on mental health and wellbeing: A joint consensus statement from Sports Medicine Australia and the Australian Psychological Society. *Journal of Science and Medicine in Sport*, 26(2), 132-139.
<https://doi.org/10.1016/j.jsams.2023.01.001>
- Weise, A., Könsgen, N., Joisten, C., Schlumberger, F., Hirschmüller, A., Breuing, J., & Gooßen, K. (2025). Pre-participation evaluation of recreational and competitive athletes—A systematic review of guidelines and consensus statements. *Sports Medicine-Open*, 11(1), 33.
<https://doi.org/10.1186/s40798-025-00837-6>
- Yang, X., & Montez de Oca, J. (2025). Empowerment & anxiety: Social identity of Chinese women in combat sports.

Sport in Society, 1-21.

<https://doi.org/10.1080/17430437.2025.2518087>

Ying, L., & Yang, Q. (2025). The impact of combat sports on undergraduate students'

subjective well-being: Chain mediation effects of emotional intelligence and self-esteem. *Frontiers in Psychology*, 16, 1659084.

<https://doi.org/10.3389/fpsyg.2025.1659084>