SPORT TK-EuroAmerican Journal of Sport Sciences

https://sportk.eu Online ISSN: 2340-8812

Received: **22/04/2026.** Accepted: **30/07/2026.** Published: **23/11/2026**

Grit in the game: investigating domain-specific grit as a predictor of athlete engagement in collegiate sports

Jessel Gay Wacan[1*], Jay Carlo Bagayas[1], Jet Longakit[2], Joseph Lobo[3], Jinny L. Chee Kee[1], Sammielyn Lavente[1], Mussar Salamat[1], Mara Cuya[1], Chiedel Joan San Diego[2]

[1] Mindanao State University – General Santos, Fatima, General Santos City, 9500, Philippines.

[2] Mindanao State University – Iligan Institute of Technology, Iligan City, Philippines.

[3] Bulacan State University, Malolos City, 3000, Philippines.

* Correspondence: Jessel Gay Wacan; jesselgay.wacan@msugensan.edu.ph

ABSTRACT

While athlete engagement is known to be influenced by psychological traits such as grit, few studies have explored how domain-specific grit particularly Consistency of Interest (COI) and Perseverance of Effort (POE) grounded in Domain-Specific Grit Theory predicts engagement among collegiate athletes. This study examined the predictive role of domain-specific grit in athlete engagement among 315 collegiate student-athletes (55.6% males and 44.4% females), aged 17 years and above, from various state universities in the Southern Philippines. Participants were selected through purposive sampling. Participants were selected through purposive sampling. Participants completed the Domain-Specific Grit Scale for College Athletic Students (DGSCAS) and the Athlete Engagement Questionnaire (AEQ), which measured grit and multi-dimensional engagement (vigor, dedication, enthusiasm, and confidence). Findings revealed that both COI ($\beta = .221$, $p < .001$) and POE ($\beta = .157$, $p = .005$) significantly predicted athlete engagement. Overall, grit accounted for 4% of the variance in engagement ($R^2 = .040$, $p < .001$), supporting the hypothesis that grit is positively linked to psychological investment in sports. These results highlight the importance of domain-specific grit in boosting athlete engagement. Incorporating grit-focused strategies in training may foster sustained motivation and commitment among collegiate athletes.

KEYWORDS

Domain-Specific Grit; Athlete Engagement; Perseverance of Effort; Consistency of Interest; Collegiate Sports

1. INTRODUCTION

Athlete engagement in collegiate sports has garnered growing attention in both Philippine and international contexts due to its profound impact on performance, motivation, and retention. Collegiate sports programs, however, often face systemic challenges such as limited funding, inadequate training facilities, and academic pressures that hinder student-athletes' motivation and sustained participation (Dipasupil & Ofrin, 2024; Gayatgay et al., 2024). Researchers have underscored the significance of psychological resilience and personal traits such as mental toughness, self-discipline, and motivation as pivotal determinants of athletic success, especially in contexts where athletes must navigate the dual demands of rigorous training and academic responsibilities (Galli & Gonzalez, 2015; Cowden, 2017; Schmid et al., 2020). A critical psychological construct in this regard is grit, which Duckworth et al. (2007) define as "perseverance and passion for long-term goals." In a more applied sense, grit reflects a person's will, desire, and decision to overcome obstacles in a task. Within the sporting context, grit is often expressed through two subcomponents: Consistency of Interest (COI) the sustained passion and focus toward sport-related goals and Perseverance of Effort (POE) the ability to exert continuous effort despite difficulties or setbacks (Duckworth et al., 2007; Cormier et al., 2019). These elements highlight grit not merely as a general character trait but as a domain-specific disposition that enables athletes to pursue long-term development within their sport. Effort, in this context, pertains to the sustained physical and psychological energy an athlete invests in training, competition, and recovery, often serving as the behavioral expression of grit.

The theory of grit as proposed by Duckworth et al. (2007) conceptualizes it as a trait-like construct comprising two key dimensions, Consistency of Interest and Perseverance of Effort which together account for sustained commitment to long-term goals. Unlike momentary motivation or short bursts of willpower, grit emphasizes durability of passion and effort over time, even when faced with obstacles, monotony, or failure. While initially framed as a general personality trait, scholars have since argued for a domain-specific application of grit, recognizing that individuals may display varying levels of perseverance and passion depending on the field of endeavor (Cormier et al., 2019; Tedesqui & Young, 2018). In the sports context, this perspective is especially relevant as athletes often encounter rigorous training regimens, fluctuating performance outcomes, and the constant pressure to balance academic and athletic roles. By situating grit within the athletic domain, researchers highlight how athletes' sustained interest in their sport (COI) and their persistent effort in

training and competition (POE) directly influence long-term engagement, resilience under adversity, and eventual sporting success.

While structured training programs and psychological interventions have demonstrated positive outcomes in fostering resilience and motivation among athletes (Akbar et al., 2024; Schlawe et al., 2025), there remains limited research exploring how domain-specific grit, particularly COI and POE, predicts athlete engagement in collegiate settings. This is especially relevant in the Philippines, where student-athletes are often required to balance the demands of academic coursework with participation in institutional sports programs. Unlike previous studies that only reference "university sports" in general, the present research specifies its focus on collegiate athletes from both individual and team sports branches across multiple state universities in the Southern Philippines. These athletes include participants in basketball, volleyball, athletics, martial arts, swimming, and other competitive sports recognized by their institutions, thereby providing a more contextualized view of grit as it applies to field-specific training and performance.

By examining grit not as a vague personality trait but as a sport-anchored disposition, this study seeks to uncover how perseverance and passion uniquely shape the engagement of collegiate athletes, ultimately advancing the understanding of what sustains excellence in the face of academic and athletic challenges. Specifically, it hypothesizes that (H1a) Consistency of Interest positively predicts athlete engagement, (H1b) Perseverance of Effort positively predicts athlete engagement, and (H1) Domain-Specific Grit (a composite of COI and POE) serves as a significant predictor of athlete engagement among collegiate athletes.

2. METHODS

2.1. Participants

This study involved a total of (N = 315) collegiate student-athletes from various state universities across Southern Philippines. Participants were selected using purposive sampling, targeting students who were actively engaged in sports programs recognized by their respective institutions. The sample included athletes from both individual and team sports, and from varying levels of participation recreational, competitive, and elite to ensure a diverse representation of the athletic population in the region. Inclusion criteria required that participants be officially enrolled in their university during the academic year of the study and have at least one semester of active involvement in a university recognized sports program.

2.2. Instruments and Procedure

To ensure accuracy, consistency, and reliability of data collection across multiple sites, a standardized procedure was implemented in all participating state universities in Mindanao. Grit and athlete engagement were assessed using two validated instruments: the *Domain-Specific Grit Scale for College Athletic Students (DGSCAS)* developed by Gao et al. (2024), and the *Athlete Engagement Questionnaire (AEQ)* by Jiang et al. (2023). The DGSCAS measures sustained effort and passion in athletic contexts through subscales such as perseverance of effort and consistency of interest. The AEQ evaluates behavioral, emotional, and cognitive components of engagement, offering a comprehensive understanding of athletes' involvement in sport. Participants independently completed the DGSCAS and AEQ during scheduled data collection sessions conducted in controlled classroom or training environments within their respective campuses. The study underwent review and approval by the Institutional Ethics Review Committee (MSU-General Santos IERC) prior to its implementation. Before data collection, the purpose of the study was thoroughly explained, and informed consent was obtained from all student-athletes. Trained research assistants facilitated the administration to ensure standardization and adherence to ethical protocols. Demographic questionnaires were included to gather relevant contextual data, such as age group, family income, and type and degree of sports participation. This organized and ethically grounded approach minimized procedural variability and ensured that responses accurately reflected each athlete's psychological and behavioral profile within their sports engagement context.

2.3. Statistical Analysis

Descriptive statistics were first computed to summarize the sociodemographic characteristics of the participants. Pearson correlation coefficients were employed to explore the strength and direction of associations between the grit components—consistency of interest and perseverance of effort—and the four dimensions of athlete engagement: confidence, dedication, enthusiasm, and vigor. Subsequently, multiple linear regression analyses were conducted to determine the predictive power of each grit dimension, as well as the combined influence of overall grit, on athlete engagement.

In addition, an independent samples t-test was performed to examine whether levels of grit and engagement differed significantly between athletes in individual sports and those in team sports. This analysis provided further insight into whether the structural nature of sport (individual vs. team-based) influenced the psychological and engagement profiles of athletes. Effect sizes and assumption

checks were considered to strengthen the interpretation of results. All analyses were conducted using JASP statistical software, with an alpha level of .05 set as the threshold for statistical significance.

3. RESULTS

Table 1 presents the sociodemographic characteristics of the 315 participants, including sex, age, family income, and type of sport practised.

Table 1. Sociodemographic characteristics of the participants

Variables		**N (%)**
Sex	Male	175 (55.6)
	Female	140 (44.4)
Age	17-19 years old	98 (31.1)
	20-22 years old	203 (64.4)
	26-30 years old	12 (3.8)
	31 and above	2 (0.6)
Family Income	Lower Middle Class: PHP 21, 194 to PHP 43,828	263 (83.5)
	Middle Class: PHP 43,828 to PHP 76,669	36 (11.4)
	Upper Middle Income: PHP 76,669 to PHP 131,484	11 (3.5)
	High-Income (but not Rich): PHP 131,484 to PHP 219,140	3 (1.0)
	Rich PHP 219,140 and up	2 (0.6)
Type of Sport	Individual Sport	103 (32.7)
	Team Sport	212 (67.3)

The sample consisted of 315 participants, of whom 175 (55.6%) were male and 140 (44.4%) were female. Most participants were aged 20–22 years (203; 64.4%), followed by those aged 17–19 years (98; 31.1%). Regarding family income, the majority belonged to the lower-middle-income category (263; 83.5%). In terms of sport participation, most respondents practised team sports (212; 67.3%), while 103 (32.7%) participated in individual sports. The results of the Pearson correlation coefficients were assessed to examine the relationships between the variables and are presented in Table 2.

Table 2. Intercorrelation among variables

Variables	M	SD	1	2	3	4	5	6
1. COI	16.06	4.98						
2. POE	16.26	5.17	.760***					
3. CON	14.01	4.99	.201***	.145**				
4. DED	14.42	5.09	.241***	.170**	.908***			
5. EN	15.19	5.46	.205***	.152**	.843***	.901***		
6. VI	15.14	5.42	.197***	.133*	.810***	.866***	.932***	

Note: *COI – consistency of interest; POE – perseverance of effort; CON – confidence; DED – dedication; EN – enthusiasm; VI- vigor*

Based on the results of table 2, consistency of interest and perseverance of effort were strongly correlated (r = .760, p < .001). Consistency of interest was significantly and positively correlated with all other constructs, including confidence (r = .201, p < .001), dedication (r = .241, p < .001), enthusiasm (r = .205, p < .001), and vigor (r = .197, p < .001).

Table 3 presents the linear regression analysis examining the relationships between consistency of interest (COI), perseverance of effort (POE), and grit with athlete engagement (AE). The analysis assesses the predictive effects of these variables using regression coefficients (Beta), t-values, p-values, and 95% confidence intervals.

Table 3. Linear regression analysis

Hypothesis	Regression weights	Beta	R^2	F	*t*-value	*p*-value	95% CI LL - UL
H_{1a}	COI → AE	0.221	--	--	4.015	<.001	0.452 - 1.322
H_{1b}	POE → AE	0.157	--	--	2.811	.005	0.182 - 1.031
H_1	GRIT → AE	0.201	.040	13.169	--	<.001	0.193 - 0.650

Note*: COI – consistency of interest; POE – perseverance of effort; AE – athlete engagement*

The results of the regression analysis supported all hypotheses. First, consistency of interest significantly predicted athlete engagement (β = .221, t = 4.015, p < .001), indicating that athletes who maintained a stable and enduring interest in their goals tended to report higher levels of engagement. Similarly, perseverance of effort was also a significant predictor of athlete engagement (β = .157, t = 2.811, p = .005), suggesting that sustained effort toward long-term goals positively contributes to engagement. Moreover, when grit was treated as a composite variable, the model explained 4% of the variance in athlete engagement, with the overall model reaching statistical significance, F(1,313) = 13.169, p < .001. The standardized regression coefficient for overall grit was β = .201, with a 95% confidence interval of 0.193 to 0.650, further underscoring that grit has a small but significant effect on predicting athlete engagement. These findings affirm that both the consistency and perseverance aspects of grit are meaningful contributors to the engagement levels of athletes.

The main hypothesis of this study proposed that domain-specific grit particularly the two subcomponents, consistency of interest and perseverance of effort would serve as significant predictors of athlete engagement in collegiate sports. The results supported this hypothesis, revealing that both facets of grit had a positive and statistically significant relationship with athlete engagement. Specifically, consistency of interest ($\beta = .221$, $p < .001$) and perseverance of effort ($\beta = .157$, $p = .005$) predicted higher levels of engagement, while overall grit as a composite variable accounted for 4% of the variance in engagement ($R^2 = .040$, $F = 13.169$, $p < .001$). An independent samples t-test was conducted to examine differences in grit and athlete engagement between student-athletes from individual and team sports (Table 4).

Table 4. Independent sample t-test

	N	M ± SD	SE	df	t-test	*p* value
Grit						
Individual Sports	103	33.10 ± 9.73	.959	313	1.013	.312
Team Sports	212	31.94 ± 9.42	.647			
Engagement						
Individual Sports	103	60.92 ± 19.30	1.90	313	1.343	.180
Team Sports	212	57.71 ± 20.24	1.39			

The results indicated no statistically significant difference in grit scores between athletes in individual sports (M = 33.10, SD = 9.73) and those in team sports (M = 31.94, SD = 9.42), $t(313) = 1.01$, $p = .312$. Similarly, no significant difference was found in engagement levels between individual-sport athletes (M = 60.92, SD = 19.30) and team-sport athletes (M = 57.71, SD = 20.24), $t(313) = 1.34$, $p = .180$. These findings suggest that the type of sport (individual vs. team) does not significantly influence collegiate athletes' grit or engagement.

4. DISCUSSION

The present study provides valuable insights into the role of domain-specific grit in shaping athlete engagement among collegiate athletes. The findings of this study confirm that grit, particularly the dimensions of consistency of interest and perseverance of effort, plays a meaningful role in sustaining collegiate athletes' engagement in sports. Athletes who maintain a stable passion for their sport and exert continuous effort despite challenges tend to exhibit higher levels of enthusiasm, confidence, vigor, and dedication. This aligns with Duckworth and Gross (2014), who emphasized grit as a long-term psychological resource that helps individuals overcome monotony and adversity in pursuit of their goals. In the athletic domain, grit has been linked to reduced burnout

and enhanced well-being (Gray et al., 2023), as well as to higher resilience and perseverance under pressure (Mendizabal, 2024). Similarly, Apró et al. (2024) reported that Hungarian athletes with higher grit levels demonstrated greater success in competitive settings, further supporting grit's predictive utility in sports performance. These findings reinforce that grit is not just an abstract trait but a practical determinant of sustained engagement, making it a valuable target for intervention in athlete development programs.

Although grit accounted for a modest proportion of engagement variance, its consistent predictive value highlights the importance of integrating grit-enhancing practices into training environments. Various studies demonstrated that grit reliably predicted long-term sport commitment across various competitive levels, suggesting that even small contributions can be crucial in the broader motivational framework of athletes (Cormier et al., 2024; Longakit et al., 2025). Practical applications may include structured goal-setting, mental resilience workshops, and reflective practices that reinforce athletes' passion and persistence. Sigmundsson and Hauge (2023) also found that interventions designed to strengthen grit and self-efficacy positively influenced students' perseverance, underscoring the potential benefits of intentionally cultivating grit within collegiate sports contexts.

The results of the independent samples t-test revealed no significant differences in grit and engagement between athletes from individual and team sports. This indicates that grit is a robust psychological resource that manifests consistently regardless of sport type. Prior research has shown mixed evidence in this regard: Schmid et al. (2021) suggested that young athletes in individual sports often demonstrate higher motivational persistence due to the solitary responsibility of performance, whereas Larkin et al. (2015) found that grit contributed equally to engagement in elite youth soccer players, a team sport. More recent evidence by Rumbold et al. (2022); Gao et al. (2024) supports the domain-specific approach to grit, highlighting that while the expression of grit may vary across contexts, its underlying predictive role in engagement is relatively stable. Thus, the present findings suggest that grit is not dependent on the structural dynamics of sport but rather on athletes' personal orientation toward long-term commitment.

From a practical standpoint, these results imply that grit-enhancing strategies should be applied universally across both individual and team sports. Coaches and sport psychologists can implement programs focused on passion and perseverance without the need to tailor them strictly to sport type. Instead, attention may be better directed toward other contextual and interpersonal factors that influence engagement. For instance, Braun et al. (2024) found that athletes' perceptions of

coaching leadership behaviors significantly influenced grit, while Jee & Osorno (2024) identified that student-athlete satisfaction mediated the relationship between mental energy and engagement. These findings suggest that coaching climate, peer support, and institutional resources may be more decisive in shaping athlete engagement than the sport type itself. In sum, the results affirm grit as a modest yet significant predictor of engagement and demonstrate that its influence extends consistently across different sporting contexts. These findings highlight the need for holistic athlete development approaches that cultivate grit while also addressing complementary factors such as coaching strategies, team cohesion, and academic support systems. Future research may benefit from longitudinal and cross-cultural designs to track the evolution of grit over time and to explore its interactions with other psychological constructs such as resilience, mental toughness, and self-regulation. Such efforts will further refine the understanding of grit's role in sustaining motivation and advancing athlete development in collegiate sports.

Despite its contributions, this study has several limitations. First, the use of a cross-sectional design restricts causal interpretations; it is unclear whether grit leads to engagement or if highly engaged athletes also develop greater grit over time. Second, the reliance on self-report instruments may have introduced response bias, as participants could have over- or under-estimated their perseverance and engagement. Third, while the sample included athletes across a broad age range (17 to 31 and above), the uneven distribution, with a majority of respondents clustered in the 20–22 age group, limits the ability to draw age-specific conclusions. Developmental differences in grit and engagement, such as younger athletes still forming motivational patterns versus older athletes balancing long-term commitments, could not be fully captured in this study. Fourth, gender was not analyzed in depth. Although both male and female athletes were represented, the study did not examine whether gender-based differences in grit and engagement exist, even though prior research suggests that psychological constructs such as motivation and perseverance may vary across genders. Finally, the focus on student-athletes from state universities in the Southern Philippines may limit generalizability to athletes in other contexts, such as private institutions, elite sports programs, or different cultural backgrounds.

5. CONCLUSIONS

This study demonstrated that domain-specific grit, particularly the dimensions of consistency of interest and perseverance of effort, plays a meaningful role in sustaining collegiate athletes' engagement. Athletes who are able to maintain passion for their sport and persist despite challenges are more likely to display enthusiasm, confidence, vigor, and dedication in their athletic pursuits.

Importantly, the findings revealed that grit operates similarly across both individual and team sports, suggesting that this psychological trait is not dependent on sport type but rather reflects athletes' personal orientation toward long-term goals.

Although grit accounted for a modest proportion of engagement, its consistent contribution underscores its practical relevance in athlete development. The results highlight the value of integrating grit-focused strategies, such as structured goal-setting, resilience training, and reflective practices, into collegiate sports programs to nurture persistence and sustained motivation. Moreover, the non-significant differences across sport types indicate that interventions to build grit and engagement can be applied universally, regardless of athletic discipline.

Thus, grit represents a modest yet significant psychological resource that supports long-term commitment in sports. Strengthening grit alongside other psychosocial factors, such as coaching climate, peer support, and academic balance, may enhance athletes' overall engagement and well-being. Future studies should employ longitudinal and cross-cultural approaches to better understand the evolving role of grit in diverse athletic contexts and to inform evidence-based practices for athlete development.

6. REFERENCES

1. Abdul Manaf, Z., Hadi Ruslan, A., Mat Ludin, A. F., & Abdul Basir, S. M. (2020). Motivations, barriers and preferences to exercise among overweight and obese desk-based employees. *International Journal of Sport and Exercise Psychology*, *19*(5), 1–15. https://doi.org/10.1080/1612197x.2020.1766535
2. Akbar, A., Karim, Z. A., & Zakaria, J. (2024). Environmental Psychological Characteristic Supporting the Football Player's Development in Indonesia and Malaysia. *Physical Education Theory and Methodology*, *24*(5), 736–743. https://doi.org/10.17309/tmfv.2024.5.08
3. Apró, A., Fejes, N., Bandi, S. A., & Róbert Járai. (2024). Investigating the effect of grit trait on performance and success in Hungarian athlete's sample. *Frontiers in Psychology*, *15*, 1-16. https://doi.org/10.3389/fpsyg.2024.1283115
4. Braun, L., Ross-Stewart, L., & Meyer, B. (2024). The Relationship Between Athlete Perceptions of Coaching Leadership Behaviors and Athlete Grit. *International Journal of Exercise Science*, *17*(5), 13-24. https://doi.org/10.70252/kwqs8291
5. Byshevets, N., Andrieieva, O., Dutchak, M., Shynkaruk, O., Dmytriv, R., Ievgeniia Zakharina, Kostiantyn Serhiienko, & Maryna Hres. (2024). The Influence of Physical Activity on Stress-associated Conditions in Higher Education Students. *Physical Education Theory and Methodology*, *24*(2), 245–253. https://doi.org/10.17309/tmfv.2024.2.08
6. Cormier, D. L., Dunn, J. G. H., & Causgrove Dunn, J. (2019). Examining the domain specificity of grit. *Personality and Individual Differences*, *139*, 349–354. https://doi.org/10.1016/j.paid.2018.11.026

7. Cormier, D. L., Ferguson, L. J., Gyurcsik, N. C., Briere, J. L., Mosewich, A. D., & Kowalski, K. C. (2024). A quantitative assessment of the predictive utility of grit in sport. *Psychology of Sport and Exercise, 70*, 102540–102540. https://doi.org/10.1016/j.psychsport.2023.102540
8. Cormier, D. L., Jørgensen, H., Ferguson, L. J., Gyurcsik, N. C., Briere, J. L., & Kowalski, K. C. (2024). Constructing a grounded theory of grit in sport: understanding the development and outcomes of long-term passion and perseverance in competitive athletes. *Qualitative Research in Sport, Exercise and Health*, *17*(2), 1–17. https://doi.org/10.1080/2159676x.2024.2432653
9. Cowden, R. G. (2017). Mental Toughness and Success in Sport: A Review and Prospect. *The Open Sports Sciences Journal*, *10*(1), 1–14. https://doi.org/10.2174/1875399x01710010001
10. Dipasupil, R. J., & Ofrin, D. (2024). Challenges in Sports Participation and Coping Mechanism towards Student-Athletes' Achievement: Basis for Flexible Training Program. *International Journal of Social Science Humanity & Management Research*, *3*(6), 1-16. https://doi.org/10.58806/ijsshmr.2024.v3i6n12
11. Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, *92*(6), 1087–1101. https://doi.org/10.1037/0022-3514.92.6.1087
12. Duckworth, A., & Gross, J. J. (2014). Self-control and grit: Related but separable determinants of success. *Current Directions in Psychological Science*, *23*(5), 319–325. https://doi.org/10.1177/0963721414541462
13. Dunn, J., Cormier, D., Kono, S., Dunn, J. C., & Rumbold, J. (2021). Perfectionism and Grit in Competitive Sport. *Journal of Sport Behavior*, *44*(2), 199–223. https://journalofsportbehavior.org/index.php/JSB/article/view/67
14. Fruchart, E., & Rulence-Pâques, P. (2024). Development and validation of the Sports Grit Scale. *International Journal of Sport and Exercise Psychology*, *23*(3), 1–14. https://doi.org/10.1080/1612197x.2024.2342029
15. Galli, N., & Gonzalez, S. P. (2015). Psychological resilience in sport: A review of the literature and implications for research and practice. *International Journal of Sport and Exercise Psychology*, *13*(3), 243–257. https://doi.org/10.1080/1612197x.2014.946947
16. Gao, F., Wei, Q., Dong, X., Gao, J., Lu, S., & Liu, Y. (2024). Developing and validating a Domain-specific Grit Scale for College Athletic Students. *Scientific Reports*, *14*(1), 1-13. https://doi.org/10.1038/s41598-024-62771-z
17. Gayatgay, N., Longakit, J. C., Sasha Blanche Asuncion, & Johnlenon Aliser. (2024). Ready for transition: understanding the experiences of student-athletes' participation in intercollegiate sports. *Edu Sportivo/Edu Sportivo*, *5*(2), 119–133. https://doi.org/10.25299/esijope.2024.vol5(2).16715
18. Gray, H., Moran, R., Elder, E., Wilkerson, A. H., Chaney, E., Gilmore-Childress, G., & Wallace, J. (2023). Examining the influence of grit on athlete burnout and well-being in female collegiate student-athletes. *Journal of Athletic Training*, *58*(10), 1-18. https://doi.org/10.4085/1062-6050-0121.23
19. Jee, I., & Osorno, R. I. (2024). Athletic mental energy and sports engagement as mediated by student-athlete satisfaction. *European Journal of Physical Education and Sport*, *11*(2), 92–112. https://doi.org/10.46827/ejpe.v11i2.5412

20. Jiang, C., Razak, N. A., & Rasyid, N. M. (2023). A Preliminary Psychometric Investigation of a Chinese Version of Athlete Engagement Questionnaire (AEQ). *International Journal of Human Movement and Sports Sciences*, *11*(1), 103–111. https://doi.org/10.13189/saj.2023.110112
21. Kumar, A., Shukla, M., & Acharya, J. (2021). Personality Dimensions Drive Achievement Levels of Cricket Players: A Study on the Five-Factor Model. *Teorìâ Ta Metodika Fìzičnogo Vihovannâ*, *21*(3), 219–226. https://doi.org/10.17309/tmfv.2021.3.05
22. Larkin, P., O'Connor, D., & Williams, A. M. (2015). Does Grit Influence Sport-Specific Engagement and Perceptual-Cognitive Expertise in Elite Youth Soccer? *Journal of Applied Sport Psychology*, *28*(2), 129–138. https://doi.org/10.1080/10413200.2015.1085922
23. Longakit, J. C., Lobo, J., Panganiban, T., Mark, J., Celestial, E. F., & Ballera, J. D. (2025). Hope and grit: the driving forces behind student-athletes' motivation in sports and academics. *International Journal of Evaluation and Research in Education*, *14*(4), 2574–2583. https://doi.org/10.11591/ijere.v14i4.32916
24. Longakit, J. C., Rodriguez, D. R., Tagare, R. L., Gula, L. P., Sinag, J. M. D., Quibral, J. P., Camarador, R. A., Panganiban, T. D., & Lobo, J. (2025). How passion fuels student athletes? A Dualistic model approach to engagement in sports. *Physical Culture and Sport Studies and Research*, *109*(1), 1-9. https://doi.org/10.2478/pcssr-2025-0014
25. Lonsdale, C., Hodge, K., & Jackson, S. A. (2007). Athlete Engagement Questionnaire. *PsycTESTS Dataset*, *38*(4), 1-14. https://doi.org/10.1037/t50268-000
26. Mendizabal, B. (2024). The relationship between athletes' grit, mental toughness, and sport resilience. *Physical Education of Students*, *28*(4), 188–194. https://doi.org/10.15561/20755279.2024.0401
27. Rumbold, J. L., Dunn, J. G. H., & Olusoga, P. (2022). Examining the Predictive Validity of the Grit Scale-Short (Grit-S) Using Domain-General and Domain-Specific Approaches With Student-Athletes. *Frontiers in Psychology*, *13*, 1-11. https://doi.org/10.3389/fpsyg.2022.837321
28. Schlawe, A., Christiansen, A. V., & Henriksen, K. (2025). The high-performance sport environment: laying the foundation for a new research topic. *Frontiers in Sports and Active Living*, *7*, 1-10 https://doi.org/10.3389/fspor.2025.1503199
29. Schmid, M. J., Charbonnet, B., Conzelmann, A., & Zuber, C. (2021). More Success with the Optimal Motivational Pattern? A Prospective Longitudinal Study of Young Athletes in Individual Sports. *Frontiers in Psychology*, *11*, 1-7. https://doi.org/10.3389/fpsyg.2020.606272
30. Sigmundsson, H., & Hauge, H. (2023). I CAN Intervention to Increase Grit and Self-Efficacy: A Pilot Study. *Brain Sciences*, *14*(1), 33–33. https://doi.org/10.3390/brainsci14010033
31. Staff, H. R., Didymus, F. F., & Backhouse, S. H. (2020). Dyadic coping in coach-athlete relationships: A grounded theory. *Psychology of Sport and Exercise*, *50*, 1-10. https://doi.org/10.1016/j.psychsport.2020.101741
32. Tedesqui, R. A. B., & Young, B. W. (2018). Comparing the contribution of conscientiousness, self-control, and grit to key criteria of sport expertise development. *Psychology of Sport and Exercise*, *34*, 110–118. https://doi.org/10.1016/j.psychsport.2017.10.002
33. Von Culin, K., Tsukayama, E., & Duckworth, A. L. (2014). Unpacking grit: Motivational correlates of perseverance and passion for long-term goals. *The Journal of Positive Psychology*, *9*(4), 306–312. https://doi.org/10.1080/17439760.2014.898320

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

FUNDING

This research received no external funding.

COPYRIGHT

© 2026 by the authors. This is an open-access article distributed under the terms of the Creative Commons CC BY 4.0 license, meaning that anyone may download and read the paper for free. The use, distribution or reproduction in other forums is permitted, provided the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms. These conditions allow for maximum use and exposure of the work, while ensuring that the authors receive proper credit.