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RESEARCH PAPER

Personality related Risks and Protective Factors for Sleep: Evidence from Elite Field-hockey Varsity Student-Athletes

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ABSTRACT

This research seeks to evaluate the relationship between big five personality traits, sleep quality and sleep efficiency among elite university-level field hockey athletes. A cross-sectional quantitative design was employed, utilizing the PSQI to assess sleep quality and the BFI-10 to analyze personality traits. The sample comprised male and female elite field hockey players who were university students aged 18 to 25 years. The data analysis examined gender-specific variations for sleep quality. In the hierarchical regression analysis of sleep quality among male field hockey athletes, findings suggesting that higher extraversion was linked with better sleep quality. However, in female field hockey athletes there was no significant relationship observed. In addition, sleep efficiency was analyzed regardless of gender. Extraversion, neuroticism and openness were found as a significant predictor, suggesting that extraversion was linked with better sleep efficiency, while neuroticism and openness were linked with worse sleep efficiency. The results of this research are anticipated to better the understanding of the relationship of stable personality traits on sleep among high-performance student-athletes, providing valuable insights for sport psychologists, coaches, and athletic trainers seeking to optimize athlete recovery and mental health through tailored interventions.

| **Keywords:** | Big Five Personality Traits, Sleep Quality, Sleep-Efficiency, Gender, Elite Field-Hockey Athletes, University Students |

Introduction

Sleep is an essential physiological mechanism vital for cognitive function, emotional regulation, and physical recuperation, particularly in groups facing significant physical and mental demands, such as university athletes. High-quality sleep enhances memory consolidation, response time, and overall performance, whereas inadequate sleep quality is associated with diminished attention, emotional problems, and heightened injury risk (Sharafkhaneh et al., 2023). The quality of sleep is essential for overall health, cognitive function, emotional stability, and physical recuperation, particularly for university student-athletes who must balance academic obligations with elite athletic performance. Inadequate sleep correlates with heightened weariness, diminished focus, slower reaction times, and greater vulnerability to psychological discomfort and physical harm (Lastella et al., 2015). Although the need of sufficient sleep for athletes is well-established, university student-athletes often experience sleep difficulties attributed to irregular schedules, psychological stress, early-morning training, and academic demands (Halson, 2019).

Variations in sleep behavior and vulnerability to sleep disturbances may be partially attributed to underlying personality factors. The FFM, sometimes referred to as the BFPTs, is a prominent framework for comprehending personality traits (McCrae & Costa, 1987).

Each of these characteristics has been independently associated with sleep-related outcomes in the general population. Neuroticism, characterized by emotional instability, anxiety, and increased vulnerability to stress, has regularly been identified as a risk factor for sleep problems. Individuals with elevated neuroticism often encounter pre-sleep anxiety, rumination, and unpleasant emotions, which hinder both the beginning and preservation of sleep (Williams et al., 2024). Conversely, conscientiousness denotes self-discipline, goal orientation, and adherence to routines, and is correlated with improved sleep hygiene, consistent sleep-wake cycles, and less sleep complaints (Duggan et al., 2014). Extraversion, defined by friendliness and positive affect, may enhance sleep quality through emotional resilience and social support; nevertheless, other research indicates that extraverted individuals may experience inconsistent sleep patterns due to social commitments (Stephan et al., 2018). Openness and agreeableness have lesser or inconsistent correlations with sleep; still, agreeableness is associated with reduced sleep-related conflicts and enhanced interpersonal functioning, perhaps facilitating better sleep (Kim et al., 2015).

Although these connections have been thoroughly investigated in general and student populations, there is a paucity of research exploring these relationships within the specific context of competitive athletes, especially those engaged in team sports like field hockey. Field hockey requires exceptional physical fitness, coordination, strategic decision-making, and mental concentration. Field hockey student-athletes frequently juggle rigorous training, several competitions, and academic responsibilities, factors recognized to induce sleep disturbances and abnormal sleep patterns (Wilson, 2025). A longitudinal study by Shao et al. (2025), indicated that athletes with strong neuroticism at baseline were more susceptible to severe insomnia symptoms over time, while those with heightened conscientiousness shown resilience to sleep disturbances. Moreover, personality traits may influence athletes' stress reactions, recovery from workouts, and management of pre-competition arousal factors critical for optimal quality of sleep during competitive events.
Gender has emerged as a significant determinant influencing sleep habits and quality, with numerous studies revealing significant variations between gender in both normal and sporty cohorts. Male and female athletes often exhibit distinct patterns in physical activity, recovery behaviors, and sleep features that are influenced by biological and social factors. Generally, male athletes favor rigorous strength training or anaerobic exercises, while female athletes tend to prefer endurance-focused routines or a combination of both. However, these advancements vary with sport (de Oliveira Castro et al., 2023). Such activity profiles can significantly influence the organization of sleep and the duration required for recovery. Female athletes typically exhibit longer overall sleep durations and enhanced sleep efficiency. This may be because they stick to their pre-sleep routines more and their training schedules are less likely to change (Biggins et al., 2019). Conversely, male athletes might be more inclined to engage in workouts, play video games, or socialize with their peers at midnight, thereby complicating their ability to sleep and reducing their overall sleep duration (Lever et al., 2020).

Hormonal changes, especially during the period known as menstruation, might also affect how female athletes sleep, causing them to sleep poorly or not at all (Hausswirth et al., 2022). Even if both men and women don't get enough sleep, these disparities show that athletic organizations need to use different methods for sleep education, recovery, and training for men and women.
Despite the accumulating evidence, the exact relationship between BFPTs and sleeping conditions in university student field hockey athletes is still not well understood. Since personality is a stable and quantifiable psychological construct, elucidating its associations with sleep quality may facilitate tailored sleep therapies and mental skills training to improve athlete well-being and performance. Understanding the impact of personality factors on quality of sleep in university field hockey athletes is of considerable academic and practical importance. This study potentially offering to the expanding literature at the

intersection of personality psychology and sleep studies in high-performance populations. The results may aid coaches, sports psychologists, and health professionals in developing tailored interventions to improve sleeping habits and emotional regulation, particularly for athletes susceptible to sleep disturbances due to their personality characteristics. The findings of this study may bolster health promotion efforts in university athletics by fostering mental well-being and athletic sustainability through enhanced sleep management.

The foremost objective of this research is to explore the relationship between BFPTs, sleep quality and sleep efficiency of university student field hockey athletes.

Literature Review

Guerreiro et al. (2024) conducted a meta-analysis that synthesized data from multiple studies to investigate the relationships between BFPTs and particular sleep patterns. The analysis demonstrated a consistent correlation between neuroticism and lower sleep quality, whereas conscientiousness was associated with enhanced sleep quality. Extraversion, agreeableness, and openness demonstrated differing relationships with sleep patterns, including sleep duration and frequency. These findings underscore the need of incorporating personality characteristics in the evaluation of sleep habits.

Hintsanen et al. (2014) performed a study investigating the correlation between personality traits and sleeping habits within a Finnish demographic. The findings suggested that persons with elevated conscientiousness frequently enjoyed enhanced sleep quality, marked by longer and more restful nights. This suggests that those demonstrating heightened conscientiousness may choose techniques to improve sleep quality.

Križan and Hisler (2019) performed a study examining the correlation between personality traits and sleep disturbances. The findings revealed that increased neuroticism correlated with more severe sleep disturbances, including sensations of sleeplessness. This highlights the potential impact of neuroticism on sleep quality and the importance of incorporating this element into sleep improvement therapy.

People who are very neurotic often feel anxious and doubtful, which can make it hard for them to go asleep and stay asleep. Conversely, conscientiousness is frequently associated with enhanced sleep quality due to organized routines, effective time management, and health-oriented activities (Gray & Watson, 2002).

Extraversion may positively influence sleep by fostering social interaction and emotional expression, while the evidence is inconsistent (Allen & DeYoung, 2017). Openness to experience and agreeableness exhibit weaker and less consistent connections with sleep quality; yet, several research indicate that open persons may experience more flexible sleep patterns due to their curiosity and tendency towards novelty (Steel et al., 2008).

Material and Methods

This study used a quantitative, cross-sectional methodology to explore the relationship between BFPTs, sleep quality and sleep efficiency in university field hockey athletes. The study population comprised university field hockey players enrolled in universities providing Bachelor's and Master's degree programs. Participants were chosen through a purposive sampling method, focusing on individuals actively engaged in competitive field hockey at the university level. A total of 174 student-athletes participated in this research, comprised of 88 males (50.6%) and 86 females (49.4%). The majority of participants were enrolled in undergraduate (BS) programs (n = 170, 97.7%), while a minority were pursuing master's-level studies (n = 4, 2.3%). Concerning their competitive experience, 130 (74.7%) participated at the intervarsity level, 37 (21.3%) at the national

level, and 7 (4.0%) at the international level. The participants mean age was 20.64 years (SD = 1.79), and they possessed an average of 7.03 years (SD = 1.94) of experience in sports.

The Big Five Inventory-10 instrument evaluated an individual's personality traits. The BFI-10 consists of ten components. The BFI-10, created by (Rammstedt & John, 2007) assesses five distinct personality traits: extraversion, agreeableness, openness, conscientiousness, and neuroticism. This instrument comprised two questions for each personality dimension. The BFI-10 is a reliable and extensively utilized instrument for evaluating personality traits in athletics.

The Pittsburgh sleep quality index, a validated self-report tool, was utilized to assess sleep quality over the past month. There are 19 questions on the PSQI, which are divided into seven distinct groups. For each part, a score between 0 and 3 is given, and the scores are totaled up to generate a global PSQI score between 0 and 21. Higher scores mean worse sleep quality. In PSQI, higher values signify worse sleep and lower scores mean better sleep. The relevant university sports departments and the ethics review committee gave permission for the study to be done. Before filling out the questionnaires, participants were told what the research was about and what its purpose was, and they gave their informed consent. Data were collected during regular training sessions or sporting tournaments sponsored by the institution. Participants completed the BFI and PSQI questionnaires individually in a supervised setting to ensure clarity and prevent data loss. During the whole process, privacy and anonymity were strictly protected. Descriptive statistics, Pearson correlation, and hierarchical regression analysis were employed.

The research agreed with ethical standards for studies involving individuals. Ethical permission was secured from the relevant institutional review board. Athletes were well instructed that their involvement was optional and that they could quit at any moment without complications. Data were gathered anonymously and securely maintained to preserve participants' privacy and confidentiality.

Results and Discussion

Table 1
Demographic features of Male and Female student Field Hockey Athletes

Variables	Male		Female	
	f	%	*f*	%
Residence				
Urban	75	85.2	63	73.3
Rural	13	14.8	23	26.7
Highest level of Competition				
Intervarsity	69	78.4	61	70.9
National	18	20.5	19	22.1
International	1	1.1	6	7.0
Study Program				
Marital Status				
Single	86	97.7	86	100
Married	2	2.3	N/A	N/A
BS	84	95.5	86	100
Masters	4	4.5	N/A	N/A
Age	M= 20.73	SD= 1.740	M= 20.55	SD= 1.839
Experience in sports	M= 7.12	SD= 1.727	M= 6.94	SD= 2.149

Note: *f*= Frequency, %= Percentage, M= Mean, SD= Standard deviation, N/A: No participation

A wide range of male and female participants resided in urban regions. Specifically, 85.2% of males and 73.3% of females reported residing in urban regions, while 14.8% of males and 26.7% of females reported residing in rural areas. Among males, 78.4% indicated intervarsity as their highest level of competition, followed by 20.5% at the national level, and 1.1% at the international level. Among females, 70.9% participated at the intervarsity level, 22.1% at the national level, and 7.0% at the international level. Among the male population, 97.7% were unmarried, while 2.3% were married. All female participants (100%) were unmarried. Most male participants (95.5%) were enrolled in a Bachelor's program, whereas 4.5% were pursuing a Master's degree. All female participants (100%) have enrolled in a Bachelor of Science program. The average age of male participants was 20.73 years (SD = 1.74), whereas female participants had mean age of 20.55 years (SD = 1.84). Male participants reported an average of 7.12 years of sports experience (SD = 1.73), whereas female participants reported an average of 6.94 years (SD = 2.15).

Table 2
Summary of ANOVA predicting Big five personality traits in Male student Field Hockey Athletes

Model		Sum of squares	df	Mean squares	*f*	*p*
1	Regression	72.487	1	72.487	35.262	<.001[b]
	Residual	176.786	86	2.056		
	Total	249.273	87			
2	Regression	92.776	6	15.463	8.003	<.001[c]
	Residual	156.487	81	1.932		
	Total	249.273	87			

a. Dependent variable: total score of sleep
b. Predictors: study program
c. Predictors: study program, neuroticism, agreeableness, extraversion, openness, conscientiousness

The first model considered the study program as the predictor variable. The model demonstrated statistical significance, F = 35.26, p < .001, and considered for about 29.1% of the variance in sleep quality (R^2 = .291). This indicated that the study program is a significant predictor of sleep quality among male student field hockey athletes. In the second model, the BFPTs were included together with the study program. The entire model was significant, F = 8.00, p < .001, and considered for about 37.2% of the variance in sleep quality (R^2 = .372). This indicated an improvement of almost 8.1% in explained variation relative to Model 1.

Table 3
Results of Hierarchical regression predicting Sleep Quality in Male student Field Hockey Athletes

Dependent Variable	Model	Predictors	B	SE	β	R²	t	p
	Model 1					0.291		
		Study program	4.357	.734	.539		5.938	<.001
Total Score of Sleep Quality	Model 2					0.372		
		Study program	3.527	.855	.437		4.123	<.001
		Extraversion	-.533	.277	-.254		-2.347	.021
		Agreeableness	.037	.217	.019		.171	.865
		Conscientiousness	-.231	.227	-.128		-1.018	.312
		Neuroticism	-.003	.226	-.002		-.015	.988
		Openness	.073	.234	.039		.314	.754

Note: SE = Standardized error, β = Beta, p = Significant

In the first model, the study program was considered as the predictor variable. The model demonstrated statistical significance, F = 35.26, p < .001, and considered for 29.1%

of the variance in sleep quality (R^2 = .291). The study program was a significant positive predictor of sleep quality (B = 4.36, SE = 0.73, β = .539, t = 5.94, p < .001), suggesting a significant relationship between participants' academic program and sleep quality. The BFPTs were added into the second model. The complete model showed statistical significance, F = 8.00, p < .001, and explained 37.2% of the variance in sleep quality (R^2 = .372). This accounted for an additional 8.1% of the explained variation in this model. The study program was a significant predictor (B = 3.53, SE = 0.86, β = .437, t = 4.12, p < .001). Extraversion was found as a significant predictor (B = −0.53, SE = 0.28, β = −.254, t = −2.35, p = .021), suggesting that greater levels of extraversion were linked with better sleep quality. The remaining personality qualities of agreeableness, conscientiousness, neuroticism, and openness did not significantly predict sleep quality.

Table 4
Summary of ANOVA predicting Big five personality traits in Female student Field Hockey Athletes

Model		Sum of squares	df	Mean squares	*f*	*p*
	Regression	3.165	5	0.633	0.138	.983[d]
	Residual	367.719	80	4.596		
	Total	370.884	85			

a. Dependent variable: total score of sleep
d. Predictors: openness, agreeableness, conscientiousness, neuroticism, extraversion

The entire model was not statistically significant, F = 0.14, p = .983, suggesting that BFPTs did not considered for a significant amount of variance in sleep quality. The model explained just 0.9% of the total variance in sleep quality (R^2 = .009), indicating weak predictive significance.

Table 5
Results of Hierarchical regression predicting Sleep Quality in Female student Field Hockey Athletes

Dependent Variable	Model	Predictors	B	SE	β	*t*	*p*
	1	Extraversion	0.037	0.290	0.016	0.127	0.899
		Agreeableness	-0.014	0.297	-0.006	-0.047	0.962
Total Score of Sleep Quality		Conscientiousness	-0.084	0.273	-0.039	-0.307	0.759
		Neuroticism	-0.101	0.284	-0.042	-0.357	0.722
		Openness	0.217	0.299	0.083	0.725	0.471

Note: SE = Standardized error, β = Beta, p = Significant, R^2= 0.009

The regression model was not found as significant, explaining about 0.9% of the variance in sleep quality (R^2 = .009), indicating that personality traits collectively had poor predictive value for female student field hockey athletes. None of the personality traits significantly predicted sleep quality among female student field hockey athletes, extraversion (B = 0.037, SE = 0.290, β = .016, t = 0.13, p = .899), agreeableness (B = −0.014, SE = 0.297, β = −.006, t = −0.05, p = .962), conscientiousness (B = −0.084, SE = 0.273, β = −.039, t = −0.31, p = .759), neuroticism (B = −0.101, SE = 0.284, β = −.042, t = −0.36, p = .722), and openness (B = 0.217, SE = 0.299, β = .083, t = 0.73, p = .471).

Table 6
Summary of ANOVA predicting Big five personality traits in student Field Hockey Athletes

Model		Sum of squares	df	Mean squares	*f*	*p*
1	Regression	8.418	1	8.418	17.403	<.001[b]
	Residual	83.197	172	.484		
	Total	91.615	173			

2	Regression	15.515	6	2.586	5.675	<.001c
	Residual	76.100	167	.456		
	Total	91.615	173			

a. Dependent Variable: Sleep Efficiency
b. Predictors: Study Program
c. Predictors: Study Program, openness, neuroticism, extraversion, agreeableness, conscientiousness

In the first model, the study program was included as the predictor variable. The model demonstrated statistical significance, F = 17.40, p < .001, accounting for approximately 9.2% of the variance in sleep efficiency (R^2 = .092). This indicated that the nature of the academic program significantly influenced athletes' sleep efficiency. The BFPTs were included into the second model. The model established statistical significance, F = 5.68, p < .001, and explained about 16.9% of the variance in sleep efficiency (R^2 = .169). The inclusion of personality variables contributed to an additional 7.7% rise in variance.

Table 7
Results of Hierarchical regression predicting Sleep Efficiency in student Field Hockey Athletes

Dependent Variable	Model	Predictors	B	SE	β	R²	t	p
	Model 1					0.092		
		Study Program	1.468	.352	.303		4.172	<.001
	Model 2					0.169		
Sleep Efficiency		Study Program	1.650	.361	.341		4.571	<.001
		Extraversion	-.144	.067	-.186		-2.146	.033
		Agreeableness	.077	.068	.092		1.131	.260
		Conscientiousness	.058	.064	.083		.898	.371
		Neuroticism	.159	.066	.207		2.407	.017
		Openness	.175	.068	.213		2.563	.011

Note: SE = Standardized error, β = Beta, p = Significant

Regardless of gender, the hierarchical regression analysis revealed that extraversion, neuroticism, openness, and study program are significant indicators of sleep efficiency in student field hockey athletes. In the first model, the study program was utilized as the predictor variable. The model was statistically significant, explaining 9.2% of the variance in sleep efficiency (R^2 = .092). The study program was a significant predictor (B = 1.47, SE = 0.35, β = .303, t = 4.17, p < .001), suggesting a significant relationship between participants' academic program and sleep quality. In the second model, the BFPTs were included into the model. This model explained a significantly larger proportion of variance in sleep efficiency (R^2 = .169), indicating that the addition of personality factors contributed an additional 7.7% to the variance in sleep efficiency. The study program remained significant (B = 1.65, SE = 0.36, β = .341, t = 4.57, p < .001). Extraversion was found as a significant predictor (B = −0.14, SE = 0.07, β = −.186, t = −2.15, p = .033), suggesting that higher extraversion linked with better sleep efficiency. Neuroticism also appeared as a significant predictor (B = 0.16, SE = 0.07, β = .207, t = 2.41, p = .017), suggesting that higher neuroticism linked with worse sleep efficiency. Moreover, openness also appeared as a significant predictor (B = 0.18, SE = 0.07, β = .213, t = 2.56, p = .011), suggesting that higher openness linked with worse sleep efficiency. The remaining traits, including agreeableness and conscientiousness, did not significantly predicted sleep efficiency.

This study primarily aimed to explore the relationship between BFPTs, sleep quality and efficiency among student field hockey athletes. This study specifically examined sleep among student-athletes within the context of field hockey, distinguishing from prior research that generally addresses sleep in the broader student or athletic populations, thereby providing a deeper understanding of the relationship between psychological factors

affecting sleep quality and efficiency. The addition of both gender-specific and general models enhances depth, uncovering potentially significant gender disparities in sleep predictors.

The hierarchical regression analysis identified several major predictors of sleep-related outcomes in student field hockey athletes. In the analysis of sleep quality among male athletes, the study program emerged as a significant positive predictor of sleep quality, indicating a significant connection between the participants' academic program and their sleep quality. Extraversion was identified as a significant predictor, suggesting that male athletes with higher levels of extraversion experienced better sleep quality.

In female athletes, personality traits did not significantly predict sleep quality, suggesting that these traits may not have connection with sleep quality in female field hockey athletes.

When assessing sleep efficiency across all athletes regardless of gender, the study program again appeared as a consistent predictor, demonstrating a significant association between participants' academic program and sleep efficiency. Extraversion was shown as a significant predictor, suggesting that higher extraversion is linked with better sleep efficiency. Neuroticism was identified as a significant predictor, suggesting that more neuroticism is associated with worse sleep efficiency. Openness was recognized as a significant predictor, suggesting that higher openness is linked with worse sleep efficiency.

The second study demonstrated that extraversion served as a significant predictor of sleep quality among male athletes, suggesting that a greater degree of extraversion correlates with better sleep quality among these individuals. This conclusion aligned with other studies suggesting that extraverted persons may have enhanced sleep quality due to less symptoms of internalization, such as anxiety and rumination, which are acknowledged as harmful to sleep (Gray & Watson, 2002). Extraverts typically possess robust social support networks and exhibit increased daytime activity, both of which enhance sleep quality (Duggan et al., 2014). In contrast, numerous research indicated no correlation, or even a negative relationship, between extraversion and sleep, especially in highly stimulating environments. Allen and DeYoung (2017) found that extraverts are inclined to engage in enjoyable night activities, such as chatting and watching television, which may impede the start of sleep and reduce overall sleep quality.

The study indicated that none of the BFPTs exhibited a significant relationship with sleep quality in female athletes, suggesting that personality may not influence the sleep quality of female field hockey players. Research substantiates this result, suggesting that environmental, genetic, and social variables may have a more significant impact on female sleep routines than stable personality features (Mong & Cusmano, 2016). This conclusion contrasts previous studies indicating that personality qualities, such as neuroticism and conscientiousness, are significant determinants of sleep quality across genders (Duggan et al., 2014).

The results exposed that extraversion was a significant predictor of sleep efficiency. Athletes exhibiting higher extraversion scores had better sleep efficiency. This supported with research indicating that extraverted individuals generally exhibit better emotional regulation and reduced pre-sleep cognitive arousal, facilitating more efficient sleep (Clinkinbeard et al., 2011). Their inclination to uphold regular social patterns may also promote consistent sleep patterns, hence improving sleep efficiency.

Another novel finding was that neuroticism served as a significant predictor of poor sleep efficiency, suggesting that higher neuroticism scores linked with poorer sleep efficiency. This outcome is robustly verified by the extant literature. Neuroticism is often associated with higher stress, anxiety, and emotional instability, which lead to sleep disturbances, frequent awakenings, and poor sleep efficiency (van de Laar et al., 2010).

Individuals exhibiting higher neuroticism also reported higher pre-sleep rumination and hyperarousal, which further disrupted sleep quality. Contradictory evidence in this domain is minimal, as neuroticism consistently predicts poor sleep efficiency across various populations.

The study ultimately demonstrated that openness significantly predicted poor sleep efficiency, suggesting that athletes exhibiting more openness experienced less efficient sleep. This cognitive activation might elucidate suboptimal sleep efficiency. However, several studies have linked openness to positive health behaviors and adaptability, possibly improving sleep efficiency (Steel et al., 2008).

Conclusion

This study emphasized the significant relationship between BFPTs, sleep quality and efficiency of university student field hockey athletes. The enduring influence of study programs on sleep measures signifies that the academic environment is a crucial, if often overlooked, component of student-athletes' well-being. The varying relationship of personality traits, especially extraversion, neuroticism, and openness, on sleep quality and efficiency underscore the need for tailored approaches to sleep health. Tailoring therapies to meet academic demands and individual personality traits may improve the sleep quality and performance of student-athletes.

Recommendations

This study recommended that universities and sports organizations offer customized academic support to student-athletes, particularly those in highly competitive academic programs, to reduce academic stress and enhance sleep quality. Sleep therapies must to be tailored to individual personality traits. Athletes with strong neuroticism may gain from anxiety-reduction techniques, whilst those with high openness may require assistance in regulating cognitive activity before to sleep. Despite the association between extraversion and improved sleep quality, extraverted athletes need to be urged to balance social engagements with healthy sleeping practices. Gender-specific support should be taken into account, especially for female athletes whose sleep may be affected by causes outside personality. Coaches and athletic personnel need to receive training in sleep health, and consistent sleep monitoring should be incorporated into athlete wellness initiatives. Finally, future studies should investigate further psychological and environmental variables influencing sleep and incorporate athletes from various sports and academic disciplines to improve generalizability.

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