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The Impact of Mindfulness Interventions on Athletes' Psychological Well-Being: A Narrative Review

Jake Mao

Hunter College High School, New York, NY, United States
jakemao@hunterschools.org

Abstract: There is increasing emphasis on the importance of an athlete's mental well-being alongside physical health. This narrative review explores and characterizes recent research on the impact of mindfulness interventions on athletes' psychological well-being. The main psychological domains examined include mood, anxiety, resilience-related resources, emotional well-being, mindfulness, mental skills, and flow state. A targeted PubMed search for randomized controlled trials from 2016 to 2026 used the keywords "mindfulness," "training," and "athletes" and was supplemented by reference checking. Sixteen selected study reports were synthesized narratively across four thematic areas. Study populations ranged from amateur to professional athletes, and the studies included both team and individual sports. Several studies reported improvements in mindfulness, mental toughness, self-compassion, grit, emotional well-being, and flow, as well as reductions in burnout and pessimism. Findings for anxiety and mental fatigue were mixed, and improvements in competitive performance remain uncertain. Small, homogeneous samples and varied interventions and measures limit confidence in these findings. Future research should investigate the effects of mindfulness interventions in larger athlete populations and whether the resulting psychological improvements translate into better athletic performance.

Keywords: mindfulness, athletes, psychological well-being, anxiety, resilience, flow state

Introduction

In the last decade, there has been an increased emphasis on mental health in athletes. Contrary to popular belief, athletes are not resistant to mental health issues like anxiety and depression and actually experience them at similar rates to non-athletes. Athletes face unique stressors from environmental pressures surrounding their performance, training, and careers. Research shows that the relationship between mental and physical health is intertwined, as mental health struggles can negatively impact athletic performance and increase the likelihood of injury. Athletes present as a vulnerable population for mental disorders due to the various social, physical, and mental stressors that they face during their careers. Thus, athletes need adequate mental health resources and treatment. In this review, athletes' psychological well-being refers to positive emotional experience and psychological functioning in and beyond sport. Psychological distress, such as anxiety or burnout, is distinct from positive resources and experiences, such as self-compassion, mental toughness, and flow. Improvement in one does not guarantee improvement in another. For example, Wang et al. (2023) found improvements in mindfulness-related psychological components but no significant pooled effect on mental health outcomes. Research has shown that mindfulness-based interventions can help individuals cope with some physical and mental health conditions in general populations. Schuman-Olivier et al. state that mindfulness can be described as the acceptance and non-judgement of the present

moment. General mindfulness practice includes exercises such as meditation and attention to breathing. Mindfulness-Based Stress Reduction (MBSR) is a structured program combining meditation, body awareness, and mindful movement, while mindfulness-based cognitive therapy combines mindfulness with cognitive therapy. Sport-specific programs also differ: Mindful Sport Performance Enhancement (MSPE) adapts mindfulness practice to sport, while Mindfulness-Acceptance-Commitment (MAC) training combines present-moment awareness with acceptance and action guided by personal values. Brief meditation, psycho-yogic training, and blended app-based programs vary in their components and duration and should not be treated as identical interventions (Gross et al., 2018; Niazi & Niazi, 2011; Reardon et al., 2019; Rice et al., 2016; Schuman-Olivier et al., 2020).

In sports contexts, emerging evidence suggests that mindfulness can benefit athletes. Previous systematic reviews have examined athletic performance alongside broader categories of mindfulness-related psychological components and mental health. This review considers individual psychological outcomes within these broader categories. Thus, this narrative review will re-examine randomized controlled trials (RCTs) from 2016-2026 that describe the impact of mindfulness interventions on athletes' psychological well-being, grouping them into distinct, focused categories by the psychological measures they target. Psychological correlates include pain catastrophizing, anxiety, self-confidence, mindfulness, emotional state, emotional intelligence, mental fatigue, mental toughness, self-compassion, grit, burnout, pessimism, and flow state. With a more nuanced understanding of how mindfulness interventions influence athletes' mental health, researchers can tailor interventions to athletes' specific psychological needs, optimizing training and preparation (Si et al., 2024; Wang et al., 2023).

Methodology

PubMed was searched using the string ((mindfulness) AND (training)) AND (athletes). The search focused on randomized controlled trials published from 2016 to 2026. Eligible reports examined athletic populations, interventions designed to promote mindfulness, and at least one psychological outcome. Studies examining both psychological and physical impacts were also eligible. Multicomponent programs were included, but their findings were interpreted as effects of the complete intervention rather than mindfulness alone. Reports without an athletic population, a randomized intervention, or a relevant psychological outcome were outside the scope of the trial synthesis. During reference checking on November 12, 2026, all 22 cited references were reviewed for study design and relevant outcomes. Six reviews or consensus papers provided background, and 16 trial reports were included in the narrative synthesis. The original search date, retrieval total, and stage-specific exclusion counts were not documented, so a complete historical screening flow could not be reconstructed. This is a selective narrative synthesis. The 16 reports should not be interpreted as all eligible studies retrieved by the original search or as confirmed independent participant samples. Similar authorship and participant characteristics were checked for possible sample overlap, but the available reports did not establish whether any participants overlapped. The findings were organized into four areas: psychological distress and well-being; positive psychological resources and resilience; emotional awareness and self-regulation; and sports-specific psychological functioning. Because the studies used different interventions and outcome measures, the findings were synthesized narratively.

Literature Review and Findings

Psychological Distress and Well-Being

Research suggests that mindfulness interventions in athletes may improve burnout and pessimism, while findings for mental fatigue are mixed. Gross et al. (2018) compared MAC with psychological skills training (PST) in 18 female collegiate athletes and found greater reductions in hostility, substance use, and emotion dysregulation over time in the MAC group. In 2021, Coimbra et al. investigated the effects of a 2-week mindfulness intervention compared to a 2-week music intervention and a control group in female elite Brazilian volleyball players. Using a mental fatigue visual analog scale, the researchers found no significant difference between the mindfulness group and either comparison group, although they interpreted the pattern as attenuation of competition-related fatigue. Furthermore, the control group for Coimbra et al.'s study was not competing during the study period unlike the mindfulness and music intervention groups who were. This methodological discrepancy weakens Coimbra's comparison and the validity of their results. In 2026, Qian et al. also studied the effect of a mindfulness intervention on Chinese college table tennis players and reported lower posttest perceived-exertion scores in the mindfulness group, interpreted as reduced mental fatigue. However, their use of a perceived-exertion scale limits the specificity of this finding. Similarly, in 2025, Liu et al. studied the effects of a brief mindfulness intervention on mood and burnout in athletes. After the intervention, athletes reported significantly lower burnout. Liu also used Hayes' PROCESS macro and found that baseline burnout moderated the intervention's effect on mood. Related to burnout, Scott-Hamilton et al. investigated the effects of an 8-week mindfulness intervention on competitive cyclists' sports-related pessimistic attributions in 2016. Using analysis of covariance (ANCOVA) to adjust for baseline differences between the control and intervention groups, they found that mindfulness interventions significantly decreased pessimistic attributions in athletes. These findings suggest potential benefits for some distress-related outcomes, but they do not establish whether mindfulness helps athletes stay motivated through long seasons or adapt to setbacks (Coimbra et al., 2021; Liu et al., 2025; Qian et al., 2026; Scott-Hamilton et al., 2016).

However, the literature is more mixed regarding the impact of mindfulness interventions on anxiety. Gross et al. (2018) also observed reduced anxiety and psychological distress within the MAC group, but these within-group changes do not establish superiority over PST. Scott-Hamilton et al. found no statistically significant between-group effect on sports-specific anxiety, despite a within-group decrease after mindfulness training. Likewise, in 2025, Saha et al. found that psycho-yogic training incorporating mindfulness techniques did not significantly alter anxiety levels in underperforming female athletes. Yet, Qian et al. found that mindfulness interventions were associated with decreased anxiety in Chinese college table tennis athletes. Several factors may explain these discrepancies. One potential explanation is that Scott-Hamilton's intervention integrated mindfulness practice with cycling-related exercise, which could affect an athlete's ability to combat sport-specific anxiety while training alongside mindfulness. Saha and Qian's interventions were similar, both involving mindfulness meditation and breathing exercises. Yet, Saha's results demonstrate that mindfulness did not significantly affect sports-related anxiety. The differences between Saha's and Qian's results may reflect that Saha focused on the impact of mindfulness in underperforming female athletes, while Qian's recruitment criteria were more general. Overall, Scott-Hamilton and Saha used sports-specific anxiety inventories and controlled for covariance, which may explain why their results are similar. Qian, by contrast, used the State-Trait Anxiety Inventory and repeated-measures analyses, which limits direct comparison with the other studies. Future studies should use appropriate baseline-adjusted analyses to account for

initial differences between intervention and control groups. In terms of length, both Scott-Hamilton's and Saha's interventions were 8 weeks, while Qian's was 16 weeks. Perhaps mindfulness interventions over a longer period of time may be able to reduce levels of anxiety more effectively. However, intervention length cannot be isolated from these studies due to confounding variables. Future trials should control for other factors to measure the impact of intervention length on improving anxiety and psychological well-being in athletes. Finally, the mixed results may be attributed to the fact that a degree of anxiety is normal among athletes facing the various stressors of being involved in sports. The variability in results surrounding the effects of mindfulness interventions on anxiety in athletes calls for more rigorous, standardized methodology and statistical analysis by researchers, including comparable anxiety measures, defined athlete levels, intervention standardization, and baseline-adjusted analyses (Qian et al., 2026; Saha et al., 2025; Scott-Hamilton et al., 2016).

Positive Psychological Resources and Resilience

Unlike anxiety, the literature on mindfulness interventions in athletes suggests that these techniques may boost resilience-related psychological resources, including mental toughness, grit, and coping strategies. In 2019, Ajilchi et al. studied the impact of sports-specific mindfulness training on mental toughness in amateur male basketball players. Using ANCOVA to control for baseline differences between groups, they found that the intervention significantly increased mental toughness scores. However, the sample size was limited, and the study may not generalize to the wider athletic population. Still, their results showed the promising effects of mindfulness on increasing resiliency among athletes. Then, in 2021, Bagheri et al. examined how an 8-week mindfulness intervention alongside an 18-week exercise therapy regimen affected coping strategies among runners with patellofemoral pain. They found that runners who underwent mindfulness training alongside exercise therapy were significantly better at ignoring pain sensations and using strategies to distract themselves from pain. While these results support the incremental value of mindfulness during injury rehabilitation, they cannot be generalized to broader forms of resilience in sports, such as coping with competitive adversity. In 2022, Mohebi et al. investigated the impact of MAC therapy on grit within elite female athletes. They found that grit scores were significantly higher in the MAC condition compared to the control group. While Mohebi's data is promising, the study population was homogeneous in gender and nationality and may not accurately represent the impact of MAC therapy on broader athletic populations. Then in 2022, Ajilchi et al. further investigated the impact of mindfulness on mental toughness in athletes. However, this time they studied the effect of a MAC intervention on elite female athletes. They found that MAC intervention significantly increased mental toughness, with improvements maintained at the 2-month follow-up. The pilot trial randomized 45 athletes, of whom 42 completed it. Its power calculation required at least 15 participants per group and assumed a large effect on mindfulness, so it does not establish equivalent power for mental toughness. Mohebi's and Ajilchi's 2022 studies shared the same sample characteristics (elite female athletes), again suggesting these results may not generalize to the broader population. The present studies show that much of the evidence comes from geographically concentrated samples. Future multisite research could test whether culture, coaching environment, sport system, or access to psychological training moderates treatment effects. Finally, in 2025, Saha et al. performed a study to see if psycho-yogic training could improve mental toughness in underperforming female athletes. Using ANCOVA to adjust for between-group baseline differences, Saha found a significant difference in mental toughness scores after the intervention, with athletes who received the intervention scoring higher than the control group. Limitations include the study's sample size (N = 56, with 28 participants per group) and the homogeneity of the sample, young,

underperforming female athletes from India sourced from the same university, calling into question the external validity and generalizability of their research. However, it is encouraging that both Saha and Ajilchi's 2022 studies used the Sports Mental Toughness Questionnaire to measure mental toughness, indicating a move toward greater standardization in studies of this nature. Overarchingly, the small sample sizes used in these studies could lead to greater variability and skewed effects, and adjustment for baseline differences does not eliminate these limitations. Future research should use larger, more diverse study samples, while continuing to use standardized questionnaires to measure resiliency and statistical measures to adjust for between-group baseline differences in mindfulness (Ajilchi et al., 2019, 2022; Bagheri et al., 2021; Mohebi et al., 2022; Saha et al., 2025).

Emotional Awareness and Self-Regulation

Preliminary evidence suggests that mindfulness interventions can enhance emotional well-being, such as emotional intelligence, self-compassion, and happiness, in athletes. In 2019, Ajilchi et al. used the Self-Rated Emotional Intelligence Scale (SEIS) to measure changes in emotional intelligence in male amateur Iranian athletes following an MSPE intervention. Compared to the control group, SEIS ratings in the intervention group were significantly higher following mindfulness training. In 2022, Mohebi et al. assessed the impact of MAC intervention on self-compassion in elite Iranian female athletes. They found that degrees of self-compassion increased considerably more in athletes who participated in the MAC intervention than in those in the control group. Finally, in 2026, Qian et al. investigated how mindfulness interventions could impact happiness in table tennis players as a secondary outcome. They saw that mindfulness intervention significantly increased happiness scores among athletes, while participants in the control group did not experience the same effects. Mindfulness interventions may alter and reinforce positive emotional states in athletes. However, these findings do not establish greater longevity in sport or a lower risk of burnout. These studies also used athletic populations at various levels, from amateur to elite, which may limit the generalizability of these results to competitive or elite athletes. In Ajilchi and Mohebi's studies, the populations were homogeneous with respect to gender, so future studies should prioritize more diverse samples in gender and age. Furthermore, all of the studies had small or medium sample sizes, which may limit statistical precision and the generalizability of the findings. Future research should aim to expand the sample size to increase statistical power and precision (Ajilchi et al., 2019; Mohebi et al., 2022; Qian et al., 2026).

Several studies suggest that various mindfulness interventions can increase athletes' mindfulness. Starting in 2016, Scott-Hamilton et al. investigated whether a mindful spin-bike intervention could increase levels of mindfulness in cyclists. Using ANCOVA, they discovered that mindfulness interventions significantly boosted mindfulness levels in athletes compared to the control group. In 2019, Ajilchi et al. investigated how MSPE impacted amateur male basketball players. Also using ANCOVA, they found that MSPE significantly benefited athletes' mindfulness compared to the control. Although the interventions differ, both studies incorporate sports-specific mindfulness training and use similar statistical methods, supporting the effectiveness of mindfulness training in athletes. In 2022, Ajilchi continued to study how mindfulness interventions impact athletes, but this time they studied elite female athletes using a MAC intervention. Using the Mindfulness Inventory for Sport (MIS), they found that mindfulness increased significantly in the experimental group and that higher mindfulness levels corresponded with greater mental toughness and psychological well-being at the 2-month follow-up. Ajilchi's findings support the idea that mindfulness training may support other positive psychological outcomes in athletes, but future research should explore the underlying mechanism. Mohebi

et al. (2022) also investigated how MAC intervention impacted mindfulness levels in elite female athletes. Mohebi et al. also found improvements in mindfulness in the experimental group. The studies shared authors and similar athlete populations, but differed in sample size, control condition, and follow-up. The reports do not establish whether participants overlapped, and their p-values cannot be used to compare the magnitude of intervention effects. Also investigating MAC intervention, Harrison et al. (2025) explored how it could improve professional ballet dancers' psychological states around performance, measuring mindfulness levels using MIS. Using ANCOVA to control for baseline differences in mindfulness, they found no significant difference in mindfulness levels between the two groups post-intervention. One reason for the lack of significance could be that the study by Harrison's et al. was a pilot study (N = 16), which may have made it difficult to detect statistical significance given the small sample. Harrison et al. (2025) did see small changes in non-judgment scores, refocusing, and levels of acceptance and action in the experimental group, but noted that further studies are needed to elucidate the impact of MAC intervention in athletes.

Bordo et al. (2025) examined how a sports-specific app-based blended intervention incorporating mindfulness could improve psychological skills, like mindfulness, in club tennis players. Also using the MIS to measure mindfulness levels, they found a significant positive change in awareness and refocusing for the experimental group and no change for the control group. Also in 2025, Liu et al. investigated how brief mindfulness training impacted college athletes' mindfulness levels. Instead of using a sports-specific mindfulness inventory, they used the Five Facet Mindfulness Questionnaire (FFMQ), which is widely used in psychological research and clinical practice. They found that participants in the experimental group significantly improved their mindfulness scores compared to those in the control group and that pretest differences in mindfulness between groups were not statistically significant. Saha et al. (2025) similarly investigated how mindfulness exercises could impact athletes but focused on how a psycho-yogic intervention could affect underperforming female athletes. Like Liu, Saha also used the FFMQ to measure mindfulness and used ANCOVA to control for between-group differences in baseline mindfulness levels. They found that mindfulness factors improved significantly among this specific group. Saha's study is unique because it studied a particularly vulnerable group. As sports professionalization has begun at progressively younger ages, athletic identity can become tied to performance and success. Thus, underperforming athletes face unique psychosocial challenges compared to other athletes. In 2026, Qian et al. explored how a 16-week mindfulness intervention impacted mindfulness in college table tennis athletes. Like Liu and Saha, Qian also used the FFMQ to measure mindfulness levels and used repeated-measures analysis of variance (rANOVA) to assess change over time between groups. They found that only participants in the experimental group showed significant changes in FFMQ scores, indicating the intervention's efficacy. Qian's study is important because its intervention was the longest among the studies reviewed, and the study showed that the intervention increased mindfulness levels and happiness while decreasing levels of anxiety, findings that contradicted those of prior studies that examined anxiety levels over a shorter duration.

Finally, in 2026, Song et al. examined whether a short-term (10-day) intensive mindfulness intervention improved mindfulness in elite badminton athletes. Using the FFMQ and rANOVAs, they found the experimental group scored significantly higher on the FFMQ post-intervention than the control group. Overall, research supports the idea that mindfulness interventions can improve levels of mindfulness in athletes, but confidence is limited by small samples, self-report measures, and highly varied interventions. Most studies utilize either the MIS or FFMQ for self-reporting mindfulness levels, with the MIS being used for athletic performance contexts and the FFMQ being used for everyday

mindfulness. For athletes, maintaining mindfulness matters both during and away from practice and competition, so future research could examine whether improvements in sport-specific mindfulness transfer to everyday life. Although several studies report improved mindfulness in athletes, the literature has been sparse on comparisons between interventions. In the coming years, researchers should compare the efficacy of different mindfulness interventions to determine which would best suit athletes (Ajilchi et al., 2019, 2022; Bordo et al., 2025; Harrison et al., 2025; Liu et al., 2025; Mohebi et al., 2022; Qian et al., 2026; Saha et al., 2025; Scott-Hamilton et al., 2016; Song et al., 2026).

Sports-Specific Psychological Functioning

Recent research indicates that mindfulness interventions may enhance mental skills in athletes across multiple domains, although whether these changes improve competitive performance remains uncertain. Gross et al. (2018) reported improved coach-rated performance within the MAC group, although this does not establish an objective competitive advantage. In 2020, Röthlin et al. investigated how mindfulness training (MT) and PST affected psychological factors in sports. They found that PST better helped athletes apply mental skills during training, while MT better improved athletes' mindfulness. Interestingly, MT was better at helping athletes engage with discomfort compared to PST. Similarly, Bordo et al.'s 2025 study used the Psychological Inventory of Sport Performance (IPPS-48) to assess tennis players' self-reported psychological skills. The IPPS-48 has 8 distinct domains (concentration, arousal control, preparation for the match, goal setting, visualization, cognitive anxiety, self-confidence, and self-talk), each measured with 6 items. Using rANOVAs to measure significance, Bordo et al. (2025) found that cognitive anxiety decreased, while arousal control and self-confidence increased in the intervention group relative to the control group. These were the three IPPS-48 domains analyzed. They also found that mindfulness levels significantly increased in athletes after they completed the mindfulness intervention. These findings suggest that mindfulness interventions can help athletes feel more confident in their abilities to apply psychological skills in stressful situations, but do not establish improved competitive performance. Cao et al. (2024) investigated the psychological and physical performance implications of mindfulness training in athletes by examining how a brief mindfulness intervention could affect mental fatigue and basketball tactical performance. Using a three-arm cluster RCT with a control group, a mental fatigue group, and a mental fatigue-mindfulness group, they found that a brief intervention increased mindfulness and decreased mental fatigue in basketball players. Additionally, Cao et al. identified differences in tactical approach across all three groups by observing small-sided games. The authors point to these differences as evidence that mental fatigue negatively impacts tactical performance, but it is unclear which tactics are considered cognitively more complex or superior, especially given that the number of tactics used by the groups was not meaningfully different. Given the dynamic and fluid nature of basketball, subjectively measuring the number and types of tactics used creates uncertainty surrounding their claim that mental fatigue alters tactical decision-making and that this altered decision-making results in decreased performance. Future studies could measure objective game outcomes alongside tactical frequency.

Sifi et al. (2026) investigated the impact of a 3-week mindfulness intervention on swimmers' mental skills and sports performance, specifically measuring their 400-meter freestyle time. They used the Ottawa Mental Skills Assessment Tool-3 (OMSAT-3) to measure mental skills across three domains: basic skills, psychosomatic skills, and cognitive skills. Although the experimental group had higher OMSAT-3 scores post-intervention, their 400-meter times did not differ meaningfully from the control group. Sifi's findings differ from Cao's because Sifi found no difference in performance following mindfulness training. Setting aside the ambiguity of Cao's findings, these differences could reflect the

sports they studied. Cao studied basketball, an open-skill sport with different cognitive demands from swimming. Since mindfulness functionally affects psychological and cognitive capabilities of athletes, its impact on performance may differ between open-skill and closed-skill sports, although these studies do not directly test that possibility (Bordo et al., 2025; Cao et al., 2024; Röthlin et al., 2020; Sifi et al., 2026).

Mindfulness training has also been shown to increase flow state, which is a psychological factor connected to enhanced sports performance. Scott-Hamilton et al. (2016) found that an 8-week mindfulness intervention significantly increased mindfulness and flow levels in cyclists. Moreover, they found a positive correlation between changes in mindfulness from the intervention and changes in flow, suggesting that higher mindfulness could contribute to entering a flow state. Saha et al. (2025) found that a mindfulness intervention could increase flow in underperforming female athletes. Specifically, the researchers found that all aspects of flow state improved significantly after the intervention, allowing athletes to have clear goals, merge action and awareness, and maintain an autotelic experience. Because both studies rely heavily on self-report outcomes and use relatively small samples, more research is needed to strengthen the evidence for this relationship. Future studies should test whether flow improvements persist over time and predict objective competitive performance (Saha et al., 2025; Scott-Hamilton et al., 2016).

Conclusions

This literature review suggests that mindfulness interventions may support aspects of athletes' psychological well-being. Several studies reported improvements in mindfulness, mental toughness, grit, self-compassion, emotional well-being, and flow, alongside reductions in burnout and pessimism. Findings for anxiety and mental fatigue were mixed, and some pilot studies found no significant change in mindfulness. Small samples and varied methods limit confidence in these results. Overall, the literature suggests that mindfulness interventions can help athletes manage and reduce sports-related psychological stressors, but most studies do not determine whether these mental improvements are associated with performance gains. Gross et al. (2018) reported within-group improvement in coach-rated performance, which does not establish superiority over the comparison treatment. Cao et al. (2024) and Sifi et al. (2026) examined sport-specific performance with differing findings, and methodological limitations in Cao et al.'s study make the results difficult to interpret. While mindfulness interventions may enhance athletes' psychological well-being, it would be valuable to see whether future research shows that these improvements are associated with better performance outcomes.

Limitations and Future Research

Limitations of this literature review include reliance on one database (PubMed) supplemented by reference checking, a narrow search strategy, selective coverage, and the absence of systematic synthesis or meta-analysis. These choices may introduce selection bias, while reliance on published studies may introduce publication bias. A prospective protocol and independent duplicate screening were not documented, leaving reviewer-dependent selection bias unresolved. The included reports were available in English, but the original language restrictions could not be verified. Missing historical screening records limit reproducibility. Possible overlap between participant samples also limits certainty about the independence of the evidence. Some programs combined mindfulness with breathing, relaxation, visualization, or other psychological techniques, preventing attribution of their effects specifically to mindfulness. While the findings are promising, they should be interpreted with caution because the studies reviewed had small, relatively homogeneous samples and lacked standardization in the questionnaires and inventories

used to assess psychological measures. Future studies on mindfulness interventions in athletes should use larger, more diverse samples, more rigorous statistical analyses, and standardized questionnaires and inventories to strengthen the research's validity.

Implications

Mindfulness interventions may help athletes adapt to some psychological demands of sport. However, the studies reviewed do not establish their affordability, ease of integration into daily routines, or effects on athletic longevity. Further research is needed to assess feasibility and optimize intervention content and format.

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