**International Journal of Yoga, Physiotherapy and Physical Education**
**www.sportsjournal.in**
**ISSN: 2456-5067**
**Received: 24-08-2026, Accepted: 23-09-2026, Published: 08-10-2026**
**Volume 11, Issue 4, 2026, Page No. 22-26**

# Effect of yoga on psychological variables among sports persons: A systematic review

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**DOI:** https://doi.org/10.66856/ijyppe.2026.11.4.11092

**Abstract**
**Background:** Modern competitive sports demand high levels of mental resilience. Yoga, an ancient Indian practice, has emerged as a complementary mind–body intervention to enhance psychological well-being among sports persons.
**Objective:** This review aims to synthesize current evidence regarding the impact of yoga on psychological constructs in sports persons.
**Methods:** A systematic search was conducted across PubMed, Scopus, Google Scholar, Shodhganga etc online and offline libraries. Out of 120 initially identified records, 8 high-quality studies met the final inclusion criteria for qualitative synthesis.
**Results:** The included studies comprised randomized controlled trials and quasi-experimental designs involving athletes from India, the United States, China, Europe, and mixed international samples. Yoga interventions ranging from 6 to 24 weeks showed significant improvements in psychological variables, particularly anxiety reduction, stress management, mindfulness, emotional regulation, concentration, and self-confidence.
**Conclusion:** Integrated yoga modules are effective adjuncts to physical training for optimizing peak performance and psychological health in sports persons. However, methodological limitations and heterogeneity across studies highlight the need for further high-quality research.

**Keywords:** Yoga, psychological variables, athletes, sports persons, anxiety, stress, systematic review

## Introduction

Optimal sports performance is influenced not only by physical conditioning and technical skills but also by psychological preparedness. Psychological variables such as anxiety, stress, emotional control, attention, self-confidence, and mental resilience play a decisive role in competitive success. Athletes frequently encounter psychological challenges arising from competition pressure, performance expectations, injuries, and training demands, which may adversely affect both performance and well-being.

Conventional sports psychology interventions primarily rely on cognitive-behavioral techniques, mental skills training, and counseling. While effective, these approaches often address psychological functioning in isolation from physical processes. In contrast, holistic mind–body practices such as yoga integrate physical movement, controlled breathing, relaxation, and meditation, offering a comprehensive approach to psychological regulation.

Yoga, originating from ancient Indian philosophy, has gained global recognition as a therapeutic and performance-enhancing practice. Scientific evidence suggests that yoga may modulate stress response systems, improve emotional regulation, enhance attentional control, and promote psychological balance. These effects are particularly relevant for sports persons who operate under high cognitive and emotional demands.

Although several studies have examined the effects of yoga among athletes, findings are dispersed across different sports, countries, and psychological constructs. Moreover, previous reviews have often focused on physical or clinical outcomes rather than athlete-specific psychological variables. Therefore, a systematic synthesis of contemporary evidence is warranted. This review aims to critically evaluate research conducted between 2015 and 2025 on the effects of yoga on psychological variables among sports persons.

## Methods

### Search Strategy

A systematic literature search was conducted following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. Electronic searches were performed in the following databases:

- PubMed
- Scopus
- Web of Science
- SPORTDiscus
- Google Scholar

The search period was restricted to 2015 – 2025.

Search terms included combinations of Yoga, Yogic Intervention, Pranayama, Meditation and Athletes, Sports persons, Players and Psychological variables, Anxiety, Stress, Mindfulness, Mental toughness, Self-confidence, Self Efficacy

### Eligibility Criteria

#### Inclusion Criteria

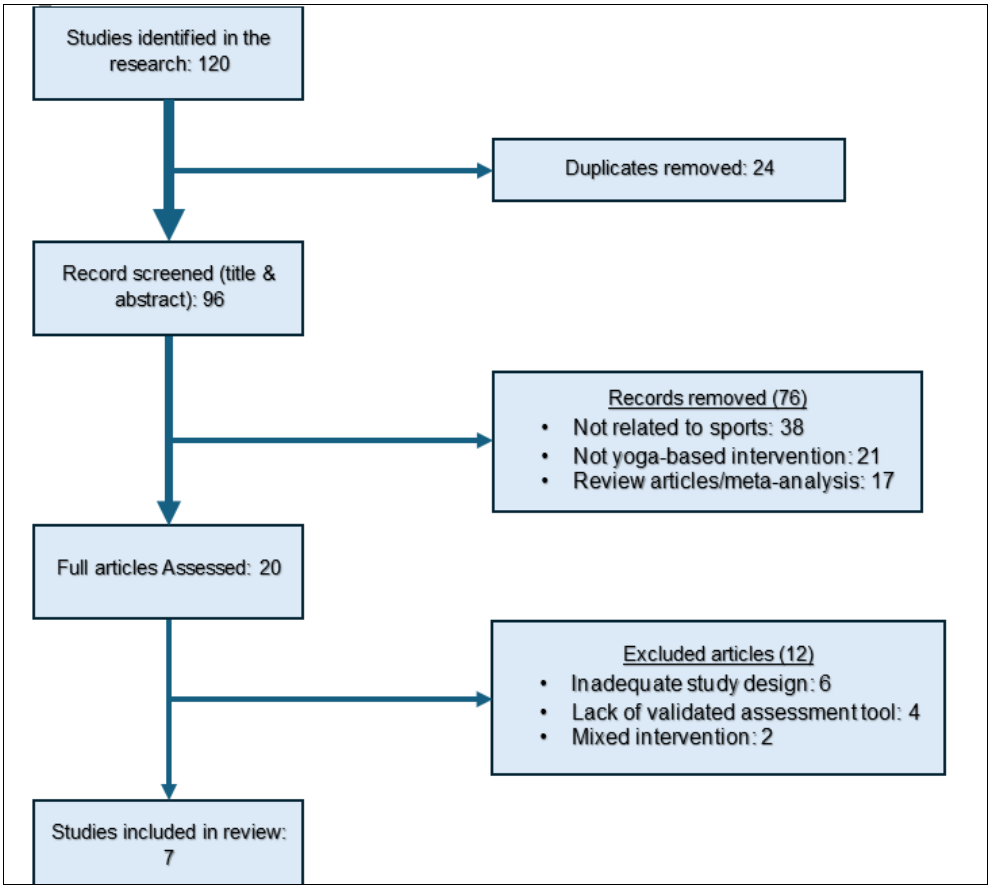
- **Participants:** Sports persons or athletes (competitive, collegiate, or elite level)
- **Intervention:** Yoga-based practices (asana, pranayama, meditation, or integrated yoga modules)
- **Outcomes:** Psychological variables measured using standardized tools
- **Study design:** Randomized controlled trials or quasi-experimental studies

- **Language:** English
- **Publication period:** 2015–2025

**Exclusion Criteria**

- Review articles, editorials, conference abstracts
- Studies on non-athlete populations
- Studies assessing only physical or physiological outcomes
- Studies without a yoga-based intervention

**PRISMA Flow Diagram**




**Results**

Summary of the findings

| Study (Year) | Country | Participants/ Sport | Study Design | Duration | Yoga Intervention | Psychological Variables | Assessment Tools | Key Findings |
|---|---|---|---|---|---|---|---|---|
| Arbo, Brems &Tasker (2020) [1] | USA | 31 male Division III soccer players | Non-experimental | 10 weeks | Yogic asanas | Recovery-stress, fatigue, injury | RESTQ-Sport | Yoga was associated with favourable changes in stress-related recovery indicators; injury and fatigue scales changed in the hypothesized direction. |
| di Fronso et al. (2022) [2] | Italy | Athletes (37) + recreationally active participants (31) | Randomized dismantling intervention | 10 sessions (2 sessions per week) | Mindful yoga, static mindfulness technique | Perceived stress, mindfulness, psychobiosocial states | MAAS, PS, PBS | Both strategies improved functional psychobiosocial states, reduced perceived stress and increased mindfulness; athlete improvements in functional PBS were significant. |
| Holguín-Ramírez et al. (2020) [3] | Mexico | 42 professional soccer players | Longitudinal case-control | 6week | MSPE included mindful yoga | Stress-recovery balance, stress, recovery | RESTQ-76 Sport + HRV | Six weeks of MSPE improved stress–recovery balance, reduced global stress and increased global recovery. |
| Saraf et al. (2025) | India | Sports persons | Pre-post test design | 4 weeks | Yogic intervention | VC, RHR, SBP, DBP and anxiety | Physiological tools and anxiety scale | Significant lower post intervention values of VC, RHR, SBP, DBP and anxiety |
| Saraswati et al. (2024) [7] | India | 44 Recreational athletes | Pre and post test randomized design | 6 weeks | Yoga includin g pranaya ma and meditati on | Stress, anxiety, sleep,mindfulness, psychological rigidity and experience avoidance | PSS, PSQI, Sport competition anxiety test, MAAS, AAQ-II | Significant reductions in stress and anxiety with improved mindfulness |
| Saraswati et al. (2025) [8] | India | 88 Recreational | Randomized Controlled | 4 weeks | Pranayama and meditation | Sress, mindfulness, Experience | PSS, AAQ-II, MAAS | Yoga group showed superior psychological well-being compared |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | athletes | Trial | | | avoidance and psychological rigidity. | | to controls |
| Vijayalakshami & Saroja (2025) | India | 30 collegiate players | Controlled experimental design | 8 weeks | Asana, pranayama and meditation | Cognitive focus, psychological resilience, perceived stress | $d_2$ Test of attention, CD-RISC-10, PSS-10 | Significant improvements were observed in cognitive focus, psychological resilience, and reduced perceived stress in the experimental group. |
| Xu et al. (2022) [11] | China | 80 collegiate sports-training students | Quasi-experimental, pre/post-test control | 12 weeks | Yogic asanas, meditation and meditation | Mindfulness | FMS, MAAS | Mindfulness was significantly higher in the yoga group than control |

**Discussion**

The present systematic review examined the effects of yoga and yoga-based mindfulness interventions on psychological variables among sports persons. Across the included studies, the overall pattern of findings was favourable, with improvements reported in perceived stress, anxiety, mindfulness, psychological well-being, emotional regulation, stress–recovery balance, psychological resilience, and psychological flexibility. However, the evidence was heterogeneous with respect to intervention content, duration, sporting population, study design, and outcome measures. Therefore, the findings support yoga as a promising complementary psychological intervention in sport, while the magnitude and consistency of its effects remain to be established through more standardized and adequately powered trials.

A prominent finding was the beneficial influence of yoga and yoga-based mindfulness practices on stress-related outcomes. Arbo et al. (2020) [1] evaluated a 10-week yoga intervention among Division III male soccer players and examined psychological factors associated with sports-injury risk. The study provides athlete-specific evidence that yoga can be feasibly incorporated into sporting environments and may influence stress-related recovery factors. Similarly, Holguín-Ramírez et al. (2020) [3] reported that six weeks of Mindful Sport Performance Enhancement (MSPE) improved stress–recovery balance and global recovery while reducing global stress in professional soccer players during the competitive season. Although MSPE is broader than yoga alone, its inclusion of mindful yoga makes it relevant to the present review's yoga-based mindfulness framework.

The findings of Xu et al. (2022) [11] further extend this evidence by demonstrating that a 12-week yoga intervention among collegiate athletes significantly increased mindfulness compared with a control condition. The intervention involved a structured sequence of postures together with meditation and relaxation, illustrating the integrated nature of yoga as a mind-body practice. Di Fronso et al. (2022) [2] similarly found that mindfulness-based strategies involving mindful yoga reduced perceived stress and increased mindfulness in athletes and recreationally active individuals. Importantly, improvements in functional psychobiosocial states were particularly evident among the athlete subgroup, suggesting that mindful movement may have relevance to the emotional and experiential demands of sport.

These findings are consistent with higher-level evidence. Kanaujia et al. (2023) [4] conducted a meta-analysis of 15 studies involving young and recreational athletes and found a significant overall effect of yoga and mindfulness interventions on stress and mindfulness, although the pooled effect for anxiety was not statistically significant. The stress outcome showed substantial heterogeneity, indicating that intervention and participant characteristics may moderate the observed effects. Likewise, Myall et al. (2023) [5], in a systematic review and meta-analysis of 12 randomized controlled trials involving 614 elite athletes, reported large pooled effects for reduced anxiety and stress and improved psychological well-being following mindfulness-based programmes. Nevertheless, the authors emphasized substantial heterogeneity and characterized the overall evidence as promising but provisional.

The consistency of the stress-related findings may be explained by the combined physiological and psychological characteristics of yogic practice. Yoga incorporates controlled breathing, physical movement, relaxation, and attentional regulation. These elements may influence autonomic balance and the physiological stress response while simultaneously promoting greater awareness of emotional and bodily states. A broader meta-analysis by Pascoe et al. (2017) [6], involving 42 studies across populations, reported favourable changes in several stress-related physiological measures following yoga and mindfulness-based interventions. Such findings provide a plausible physiological basis for the stress and recovery improvements observed in athlete populations, although mechanisms were not directly measured in most of the studies included in the present review.

Another consistent outcome was mindfulness. Xu et al. (2022) [11], di Fronso et al. (2022) [2], and Saraswati et al. (2024) [7] all reported improvements in mindfulness following yoga or yoga-based mindfulness intervention. Saraswati et al. (2024) [7], for example, examined recreational athletes and reported significant changes in stress, anxiety, mindfulness, psychological rigidity, and experiential avoidance following a yoga intervention incorporating pranayama and meditation. Saraswati et al. (2025) [8] similarly found that a randomized yoga intervention significantly reduced stress and improved mindfulness and psychological flexibility among young athletes.

These findings are supported by Wang et al. (2023) [10], who synthesized 32 randomized controlled trials of mindfulness-based interventions in athletes. Their meta-analysis found a moderate improvement in mindfulness and a large effect on mindfulness-related psychological components, although considerable heterogeneity was present.

The findings concerning anxiety require a more cautious interpretation. Saraswati et al. (2024) [7] reported significant reductions in anxiety following yoga, and the direct athlete literature generally points toward a beneficial direction. However, Kanaujia et al. (2023) [4] found no statistically significant pooled effect for anxiety among young and

recreational athletes. In contrast, Myall et al. (2023) [5], whose sample was restricted to elite athletes and whose interventions were mindfulness-based rather than exclusively yoga-based, found a significant large pooled reduction in anxiety. One possible explanation is the substantial variation in the type of anxiety assessed.

Psychological well-being was another important outcome. Saraswati et al. (2024) [7] reported improvements in athletes' mental well-being, while Saraswati et al. (2025) [8] found better psychological well-being following randomized yoga intervention. The latter study also examined psychological flexibility, suggesting that yoga may influence not only negative psychological states but also adaptive psychological functioning. This interpretation is supported by Myall et al. (2023) [5], who found a significant pooled improvement in psychological well-being among elite athletes; however, the result showed high heterogeneity and was downgraded in certainty because of inconsistency and imprecision. Thus, yoga appears promising for promoting positive psychological functioning, but the available evidence does not yet justify assuming a uniform effect across athletes.

The recent controlled experimental study by Vijayalakshmi and Saroja (2025) [9] adds further athlete-specific evidence. The study reported significant improvements in cognitive focus, resilience, and perceived stress in the yoga group. This is particularly relevant because it extends the literature beyond mindfulness and anxiety to include psychological resilience, a construct of considerable importance in competitive sport.

Similarly, Saraf et al. (2025) investigated yoga therapy among 120 male inter-university players from basketball, volleyball, and handball and specifically examined pre-competition anxiety alongside physiological outcomes. This study strengthens the sport-specific evidence base and is useful in demonstrating the potential relevance of yoga immediately around competitive situations.

Taken together, the included evidence suggests that the psychological effects of yoga may arise through several interacting pathways. First, breath regulation and relaxation may help modulate physiological arousal. Second, mindful attention may reduce automatic emotional reactions and improve awareness of thoughts and bodily states. Third, repeated practice may enhance self-regulation and psychological flexibility, enabling athletes to respond more adaptively to stressors. Fourth, the physical component of yoga may provide a form of embodied attention in which athletes learn to maintain awareness while performing controlled movements. The combination of these processes may help explain why outcomes involving stress, mindfulness, emotional regulation and well-being appear repeatedly across the literature.

The present review also highlights an important methodological issue: yoga and yoga-based mindfulness interventions should not be treated as completely interchangeable. Some studies used traditional or integrated yoga protocols involving asanas, pranayama and meditation, whereas others used mindfulness programmes in which mindful yoga was one component. Holguín-Ramírez et al. (2020) [3] used MSPE, while di Fronso et al. (2022) [2] explicitly contrasted mindful yoga with a static mindfulness strategy. Such heterogeneity is important because the relative contribution of movement, breathing, meditation and mindfulness cannot be separated in many interventions. Future systematic reviews and trials should therefore specify whether the intervention is traditional yoga, mindful yoga, yoga plus meditation, or a broader mindfulness-based programme incorporating yoga. The inclusion of international studies strengthens the generalizability of findings, demonstrating that yoga's psychological benefits are not limited to cultural or regional contexts.

**Practical Implications**

- Yoga can be incorporated as a psychological conditioning tool in athletic training programs
- Particularly beneficial for precision sports (e.g., shooting, archery) and high-pressure competitions
- Can serve as a cost-effective, non-pharmacological intervention
- Suitable for injury rehabilitation and off-season mental recovery

**Research Gaps and Future Directions**

- Lack of large-scale randomized controlled trials
- Inconsistent yoga protocols across studies
- Limited sport-specific psychological assessments
- Absence of long-term follow-up data
- Need for objective neuropsychological and physiological correlates

Future research should focus on standardized yoga modules, sport-specific interventions, and longitudinal designs.

**Conclusion**

The evidence synthesized in this systematic review indicates that yoga and yoga-based mindfulness interventions are associated with favourable psychological outcomes among sports persons. The most consistent findings concern reductions in stress, improvements in mindfulness, and enhancement of psychological well-being, while positive findings have also been reported for anxiety, psychological flexibility, resilience, emotional regulation and stress–recovery balance. Evidence from athlete-specific studies and broader systematic reviews generally supports these benefits, although the magnitude of effects varies between outcomes and populations.

At the same time, considerable methodological heterogeneity and limited numbers of high-quality athlete-specific trials prevent definitive conclusions regarding optimal intervention duration, yoga format, or the magnitude of benefit for individual psychological variables. Yoga should therefore be considered a promising complementary strategy within sports training and psychological preparation, rather than a universally established replacement for conventional sport psychology interventions. Future research should prioritize rigorous randomized controlled trials with clearly described yoga protocols, larger and more diverse athletic samples, standardized psychological assessments, and longer-term follow-up. Such research would help establish how and for whom yogic training can most effectively contribute to psychological health and performance in sport.

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