
EFFECT OF YOGIC PRACTICES AND INDIGENOUS PHYSICAL ACTIVITIES ON FUNCTIONAL FITNESS, COGNITIVE ABILITY AND PSYCHOLOGICAL WELL-BEING AMONG YOUNG ATHLETES: A NEP 2020 PERSPECTIVE

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Article Received: 10 May 2026

Article Revised: 30 May 2026

Published on: 20 June 2026

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DOI: <https://doi-org/101555/ijrpa.6966>

ABSTRACT

Yogic practices and indigenous Indian physical activities such as Kabaddi, Kho-Kho, Mallakhamb and regional folk games have long been embedded in the country's cultural and educational fabric, yet their systematic role in shaping functional fitness, cognitive ability and psychological well-being among young athletes remains under-synthesised in the sports science literature. This paper undertakes a narrative review of empirical and conceptual studies on yoga and indigenous games, organised around three outcome domains: functional fitness, cognitive ability and psychological well-being. The review situates these findings within the National Education Policy (NEP) 2020, which explicitly foregrounds indigenous sports and holistic, sports-integrated learning as curricular priorities. Across the reviewed literature, yogic practices are consistently associated with gains in flexibility, strength, attention and emotional regulation, while indigenous games are associated with anaerobic fitness, reflexes, teamwork and culturally-rooted psychological resilience. The paper further proposes a conceptual framework integrating yoga and indigenous activity within school and collegiate sport curricula, and outlines a methodology — including candidate instruments and a quasi-experimental design — for future primary research with young athletes. The paper concludes that yoga and indigenous physical activities are complementary rather than competing strategies

for holistic athlete development, and that NEP 2020 provides a timely policy window for their structured integration into Indian sport and physical education curricula.

KEYWORDS: yogic practices; indigenous games; functional fitness; cognitive ability; psychological well-being; young athletes; NEP 2020.

1. INTRODUCTION

Athletic performance is no longer understood purely in biomechanical or physiological terms; it is increasingly framed as the product of an interaction between physical conditioning, cognitive efficiency and psychological stability. For young athletes in particular, who are simultaneously navigating physical growth, academic demands and competitive pressure, interventions that support all three domains together are of considerable practical value. Two culturally rooted Indian practices—yoga and indigenous physical activities such as Kabaddi, Kho-Kho and Mallakhamb—have repeatedly been proposed as candidates for this integrated role, since both combine physical exertion with attentional and emotional demands that extend beyond conventional fitness training.

Yoga's contribution to flexibility, strength, cardiovascular conditioning and stress regulation among athletes has been documented across a range of populations, from elite adult athletes to school-age children. Indigenous games, for their part, are increasingly recognised not merely as recreational pastimes but as structured physical and psychological training systems with their own embedded pedagogy of teamwork, strategy and resilience. The near-simultaneous policy emphasis placed on both practices by the National Education Policy (NEP) 2020—which explicitly names Indian sports and martial arts within its “knowledge of India” curricular strand and promotes sports-integrated learning—makes this an opportune moment to examine what the existing evidence base says about their combined potential for young athletes.

2. Need and Significance of the Study

Despite growing policy interest, much of the available research treats yoga and indigenous games as separate fields of inquiry, with comparatively few studies examining them within a single, integrated framework for young athletes. A synthesis of existing findings, mapped explicitly against NEP 2020's provisions, can help coaches, physical education teachers and policy implementers identify where the evidence is strong, where it is preliminary, and where structured empirical work is still required. This is of particular significance in India, where school and

collegiate sport curricula are currently being redesigned in line with NEP 2020, and where decisions about which activities to prioritise are often made with limited reference to the underlying evidence base.

3. Objectives of the Review

- To synthesise existing literature on the effects of yogic practices on functional fitness, cognitive ability and psychological well-being among athletes.
- To synthesise existing literature on the effects of indigenous Indian physical activities on the same three outcome domains.
- To map these findings against the relevant provisions of NEP 2020 concerning physical education and indigenous sport.
- To propose an integrated conceptual framework and a methodology for future primary research examining yoga and indigenous activities together among young athletes.

4. Methodology of the Review

This review draws on peer-reviewed journal articles, indexed conference papers and policy documents identified through targeted searches using combinations of the terms “yoga,” “indigenous games,” “Kabaddi,” “Kho-Kho,” “Mallakhamb,” “functional fitness,” “cognitive function,” “psychological well-being,” “young athletes” and “NEP 2020.” Sources were prioritised where they reported primary empirical data (experimental, quasi-experimental or survey-based) or where they offered a substantive conceptual or policy analysis of indigenous Indian physical culture. Government and policy documents relating to NEP 2020 were consulted directly. The review is narrative rather than systematic in structure: it is intended to map the contours of the field and identify gaps rather than to provide an exhaustive, PRISMA-style synthesis, and sample sizes, designs and outcome measures therefore vary considerably across the studies discussed below.

5. Review of Literature

Yogic Practices and Functional Fitness

Several studies link structured yoga practice to improvements in flexibility, muscular strength, endurance and cardiovascular performance among athletes. A quasi-experimental study of collegiate athletes found that an asana-based intervention improved functional movement screen scores relative to a non-yoga control group, alongside gains in self-reported mindfulness. Survey-based research with elite athletes and coaches similarly

associated with improvements in flexibility, strength and endurance, and reported broadly favourable stakeholder attitudes toward its use for injury prevention and rehabilitation.

Yogic Practices and Cognitive Ability

Evidence for yoga's cognitive effects in athletic populations is more preliminary. A pilot comparative study of adult athletes practising yoga alongside sport, versus sport alone, found a favourable trend on measures of working memory (digit span) and resistance to distraction during verbal learning tasks, though most other cognitive comparisons did not reach statistical significance. Broader reviews of yoga and meditation research point to plausible underlying mechanisms — including changes in brain-derived neurotrophic factor, GABA activity and cortisol regulation, and structural changes in prefrontal and insular brain regions associated with attention and interoception — that may explain reported gains in attention, spatial memory and executive function in non-athlete populations.

Yogic Practices and Psychological Well-being

Yoga's psychological benefits are the most consistently reported outcome across the literature. Practices combining breath regulation, postural work and meditation are associated with reduced physiological stress reactivity, improved self-regulation and greater interoceptive awareness among practitioners. In school-age children, a randomised comparison of a 12-week yoga programme against an alternative after-school activity found better post-intervention behaviour scores and improved self-reported well-being in the yoga group, with the effect considered particularly relevant for children from higher-stress backgrounds.

Indigenous Physical Activities and Functional Fitness

Indigenous games are frequently described in the literature as embedding rigorous physical conditioning within a culturally familiar, low-equipment format. A direct comparison of university-level Kho-Kho and Kabaddi players using the AAHPERD Youth Fitness Battery found that Kho-Kho players recorded better composite fitness scores — attributed to the game's continuous running, evasion and pursuit demands — than Kabaddi players, whose game format emphasises anaerobic bursts, breath control and grappling strength. Conceptual reviews of Bhārātīya Khel (Indian traditional games) similarly describe Mallakhamb as comparable to gymnastics and yoga in its development of flexibility, strength and balance, and Kabaddi as a vehicle for anaerobic fitness, reflexes and quick decision-making.

Indigenous Physical Activities and Psychological Well-being

Beyond fitness outcomes, indigenous games are repeatedly described as vehicles for psychological and social development. A study of the rural folk game Chikki (Budhiya) Kabaddi reported that regular participation among adolescents and youth was linked to heightened attentiveness, breath awareness and team-oriented psychological resilience, attributing these effects to the game's strategic and cooperative demands. An 8-week structured indigenous-games programme (including Pithu, Gilli-Danda, Stapoo and Kancha) delivered to postgraduate students produced measurable change on selected physical and psychological variables relative to a no-intervention control group, suggesting that even short, culturally familiar interventions can register psychological effects in young adult populations.

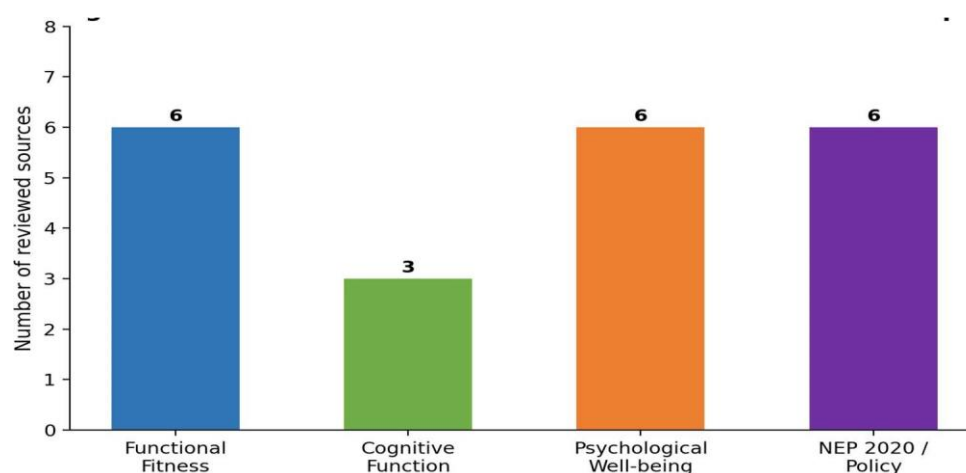


Figure 1. Thematic distribution of the studies and sources reviewed in Section 5, tagged by outcome domain.

Summary Table of Reviewed Studies

Table 1. Summary of key sources.

Source	Population	Activity Studied	Outcome Domain(s)	Key Reported Finding
Xuet al. (2022)	Collegiate athletes	Yoga vs. control (quasi-experimental)	Functional fitness; Psychological	Yoga group showed improved functional movements screen scores and higher mindfulness ratings than controls.
Pilot study, PMC10558629 (2023)	Adult athletes (n=29)	Yoga + sport vs. sport alone	Cognitive	Yoga group showed a favourable trend on digit-span and verbal-learning distraction measures, though most group differences were not statistically significant.
				Survey-based study linked

Frontiers in Psychology (2024)	Elite athletes & coaches (n=500, Romania)	Yoga as injury-prevention adjunct	Functional fitness; Psychological	yoga practice to gains in flexibility, strength and endurance and to favourable stakeholder views on its role in injury prevention and recovery.
RCT, PMC3826528 (2013)	School-age children	12-week yoga after-school programme vs. comparison	Functional fitness; Cognitive; Psychological	Yoga group showed better post-intervention behaviour scores, balance, and self-reported well-being than the comparison group.
Kumar/Deepla & Sunil Kumar (IJHPECSS)	University Kho-Kho & Kabaddi players (n=30)	Comparative indigenous-game fitness study	Functional fitness	Kho-Kho players recorded better composite AAHPERD fitness scores (speed, strength, endurance) than Kabaddi players.
Kumar, A. (Chikki Kabaddi study)	Rural adolescents & youth	Chikki/Budhiya Kabaddi (folk game)	Psychological	Regular play was associated with greater attentiveness, breath awareness and team-based psychological resilience among participants.
Sports Science & Health Advances (2025)	Postgraduate students (n=28, Central University of Punjab)	8-week indigenous-games programme (Pithu, Gilli-Danda, Stapoo, etc.)	Functional fitness; Psychological	Experimental group receiving the indigenous-games programme showed measurable change on selected physical and psychological variables versus the no-intervention control group.
Kumar, A. (2025), Bhāratīya Khel review	Conceptual/narrative review	Mallakhamb, Kho-Kho, Kabaddi	Functional fitness	Mallakhamb is described as building flexibility, strength and balance comparable to yoga/gymnastics; Kabaddi is linked to anaerobic capacity, reflexes and teamwork.
TPM Journal, yogic practices + Bokwa study	Athletes (narrative synthesis)	Yoga combined with Bokwa fitness training	Cognitive; Psychological	Synthesis of prior work links yogic practice to improved spatial memory, attention/recall and faster, more accurate executive-function performance.

6. NEP2020 and the Revival of Indigenous Physical Culture

The National Education Policy 2020 marks a deliberate shift away from treating physical education as a peripheral, extracurricular activity. The policy's “knowledge of India” curricular strand explicitly names Indian sports and martial arts as content to be drawn from the country's ancient knowledge traditions, while its sports-integrated learning approach treats physical activity — including indigenous games — as a pedagogical tool for building collaboration,

self-discipline, citizenship and lifelong fitness habits in line with the Fit India Movement. By dismantling the rigid separation between curricular, co-curricular and extracurricular activities, NEP 2020 creates formal curricular space for yoga and indigenous games that did not consistently exist under earlier policy frameworks.

Stakeholder reception of this emphasis appears broadly, though not universally, positive. A survey-based analysis of NEP 2020's physical education provisions found that a clear majority of respondents supported the policy's emphasis on indigenous sports and games, with a smaller proportion expressing disagreement or remaining neutral — illustrated in Figure 2 below.

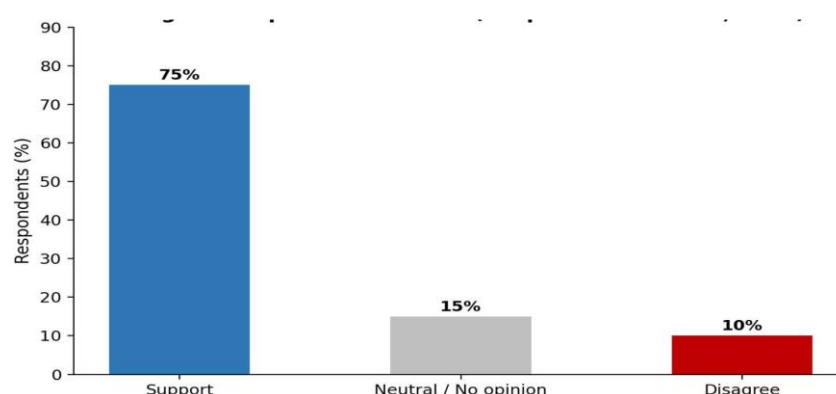


Figure 2. Stake holder opinion on NEP 2020' emphasis on indigenous sports and games (data as reported in the source study; see Table 2 and References).

Table 2. Key NEP 2020 provisions relevant to yoga practice and indigenous physical activity.

NEP 2020 Provision	Relevance to Yoga/Indigenous Physical Activity
“Knowledge of India” curricular strand	Explicitly includes Indian sports and martial arts as part of curricular content drawn from ancient Indian knowledge systems.
Removal of curricular/extracurricular/co-curricular divide	Places physical education and sport on par with academic subjects, creating space for yoga and indigenous games within timetable instruction.
Sports-integrated learning	Uses physical activities, including indigenous sports, as a pedagogical strategy to build collaboration, self-discipline and citizenship.
Fit India Movement alignment	Encourages students to adopt fitness as a lifelong attitude, consistent with sustained engagement in yoga and traditional games.
Secondary-stage subject flexibility	Allows students to choose physical education, arts and vocational subjects as part of individualised pathways rather than a fixed academic stream.
Holistic development mandate	Frames sport participation as supporting physical, cognitive, social and psychological development together, rather than physical fitness alone.

7. Developing an Integrated Conceptual Framework

Read together, the literature reviewed above suggests that yoga and indigenous games are best understood as complementary rather than competing components of a young athlete's training regimen. Yoga's contribution is concentrated in flexibility, breath-linked stress regulation and sustained attention; indigenous games contribute anaerobic conditioning, reflex speed, strategic cognition and socially-embedded resilience built through team-based competition. A combined programme — for instance, structured yoga sessions for recovery, mobility and pre-competition focus, paired with regular indigenous-game-based conditioning for anaerobic capacity and tactical decision-making — maps onto NEP 2020's own framing of sport as a vehicle for physical, cognitive and psychosocial development simultaneously, rather than physical fitness in isolation.

8. Proposed Methodology for Future Empirical Research

To move from this conceptual synthesis to direct evidence, future research should adopt a pre-post quasi-experimental or randomised controlled design comparing a yoga-only group, an indigenous-games-only group, a combined group, and an active control group of young athletes (suggested age range 14–21 years) over an 8–12 week intervention period, consistent with durations used in the reviewed studies. Table 3 outlines candidate instruments for each outcome domain.

Table 3. Candidate instruments and design parameters for future primary research.

Construct	Candidate Instrument(s)	Notes
Functional fitness	AAHPERDYouthFitnessBattery; sit-and-reach; standing broad jump; vertical jump; 50 m/600 m run; grip strength	Battery should be selected to match the sport-specific demands of the athlete sample.
Cognitive ability	Stroop Colour-Word Test; d2 Test of Attention; Digit Span (forward/backward); Trail Making Test	Pair with a sport-relevant reaction-time or decision-making task where feasible.
Psychological well-being	Ryff Scales of Psychological Well-Being; PANAS (Positive and Negative Affect Schedule); Perceived Stress Scale	Use a validated regional-language version where the athlete sample is not fluent in English.
	Pre-post quasi-experimental design	An 8–12 week intervention

Design	withyogagroup,indigenous-games group, combined group and active control	period is consistent with durationsusedinthereviewed literature.
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Researchersadoptingthisdesignshouldpre-registertheirhypotheses,reporteffectsizesalongside significancetests,anddisaggregateresultsbysport,sexandagebandwheresamplesizepermits, given that the reviewed literature suggests these factors may moderate both fitness and psychological outcomes.

9. ImplicationsforCoaches,EducatorsandPolicyMakers

- Coachesworkingwithyoungathletesmayconsiderstructuredyogasessionsasarecovery andattention-focusedcomplementtoconventionalstrengthandconditioningwork,rather than a substitute for sport-specific training.
- Physical education curricula designed under NEP 2020 can draw on regionally relevant indigenousgamesasalow-cost,culturally resonantwayofbuildinganaerobicfitnessand teamwork alongside formal sport coaching.
- Teacher-training and coach-education programmes should include basic instruction in yoga asana sequencing and in the rules and conditioning demands of major indigenous games, so that both can be delivered safely and effectively in school settings.
- Stateandinstitutionalpolicyimplementersshouldcommissionprimarystudiesofthekind proposedinSection8,sincecurrentevidence—whilebroadlyfavourable—remainsthin for several outcome and population combinations, particularly cognitive effects in indigenous-game participants.

10. Limitations of the Review

Thisreviewisnarrativeratherthansystematic,drawsonaheterogeneoussetofstudydesignsand samplesizes,andwasnotconductedusingaformalprotocolsuchasPRISMA;itshouldtherefore be read as a scoping synthesis rather than an exhaustive or quality-weighted evidence summary. Several of the indigenous-games studies cited here used relatively small samples and non-randomised designs,anddirectcomparativetrialsofyogaversusindigenousgames—ratherthan eachagainstanon-activecontrol—remainscarce.Findingsdrawnfromadultorchildpopulations have been extrapolated cautiously to the young-athlete age band, since dedicated studies in this specific population are limited.

11. CONCLUSION

Yogic practices and indigenous Indian physical activities each carry a distinct, evidence-supported contribution to functional fitness, cognitive ability and psychological well-being, and the two appear complementary rather than redundant when considered together. NEP 2020's explicit curricular space for indigenous sport and its sports-integrated learning approach provide a timely policy opening for their structured combination in school and collegiate athlete development. Realising this potential, however, depends on dedicated primary research of the kind outlined in this paper's proposed methodology — research that this paper itself does not, and does not claim to, provide.

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