

**Research Article****THE RELATIONSHIP BETWEEN YOGA EXERCISES AND WELL-BEING IN YOUNG CHILDREN*****Sandip Sinha**

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Abstract

This paper examines the benefits of yoga exercises for young children's physiological, psychological, and holistic development. Children in contemporary technology-driven societies face heightened risks of stress, anxiety, behavioural dysregulation, and sedentary lifestyles, necessitating evidence-based, low-infrastructure wellness interventions. The study is aimed to synthesise existing empirical evidence on the outcomes of school-based and home-based yoga practice among early primary school-aged children and to recommend pragmatic integration pathways for educational institutions. Using a descriptive review methodology, five peer-reviewed empirical studies published between 2014 – 2026 were systematically selected and analysed. Findings consistently demonstrated that structured yoga programmes encompassing asanas (postures), pranayama (breathing exercises), and mindfulness-based movement produce measurable improvements in psycho-physiological health, neurological regulation, emotional resilience, social behaviour, and academic engagement. Notably, Kundalini Yoga integrated within Physical Education produced positive trajectories in affective engagement among first-grade children, while neuro-yoga practices were found to optimise autonomic nervous system balance and executive function. A decade-long integrative review further confirmed significant reductions in perceived stress and improvements in resilience and self-regulation. These findings support the institutional integration of yoga within school curricula as a feasible, cost-effective strategy for promoting holistic child well-being. Recommendations for policymakers, school administrators, and parents are discussed.

Keywords: Yoga, Exercise, Physical training, Psycho-physiological health, Neurotic-yoga, Well-being, Young children, School curriculum.**INTRODUCTION**

Yoga, a millennia-old discipline originating in the Indian subcontinent, has gained increasing recognition within contemporary health and education research as a holistic intervention for physical, mental, and socio-emotional development. While traditionally associated with adult wellness practices, a growing body of empirical evidence now substantiates its efficacy and accessibility for young children. In an era characterised by academic pressure, digital saturation, and diminishing opportunities for unstructured physical activity, the mental health and developmental trajectories of primary school-age children have become a significant public health concern (Kerekes *et al.*, 2024). Yoga, with its minimal infrastructure requirements and adaptable delivery modes, presents a practical and evidence-supported response to these challenges. Contemporary children exhibit markedly different behavioural profiles from preceding generations, with researchers noting elevated rates of anxiety, attentional difficulties, and aggressive interpersonal responses (Kerekes *et al.*, 2024). These trends reflect complex interactions between biological developmental factors, socio-environmental stressors, and the pervasive influence of technology-mediated lifestyles. Left unaddressed, these issues may compromise academic performance, social functioning, and long-term well-being. Yoga's multimodal approach integrating physical postures, controlled breathing, and mindfulness targets these concerns at multiple developmental levels simultaneously. Physiologically, yoga improves flexibility, postural alignment, muscular coordination, and hormonal balance. Neurologically, pranayama (breathing practices) modulates the autonomic nervous system, promoting parasympathetic dominance associated with calmness and cognitive clarity (Mikhailova, 2025).

Psychologically, consistent yoga practice has been shown to reduce stress and anxiety, enhance emotional regulation, and improve mood and self-perception (Nanthakumar, 2017). Socially, the discipline cultivated through yoga practice supports improved peer relationships, behavioural self-regulation, and positive classroom engagement (Kerekes *et al.*, 2024). Despite these demonstrated benefits, yoga remains under-integrated in formal school curricula globally, including in India where its cultural roots are most deeply embedded. Structural barriers including limited trained instructors, insufficient time allocation, and absence of policy mandates have impeded systematic adoption. Nonetheless, several recent studies have demonstrated the feasibility of embedding yoga within existing Physical Education (PE) frameworks with minimal additional resources (Fuenzalida *et al.*, 2026; Sharma, 2025). The present paper undertakes a descriptive review of recent empirical studies to consolidate evidence on yoga's benefits for young children and to articulate clear recommendations for educational integration. By synthesising findings across physiological, neurological, psychological, and social domains, this review aims to contribute to the growing evidence base supporting yoga as a foundational component of child wellness and school health promotion.

Objectives of the Study

The study was guided by the following objectives:

- To document and synthesise the physiological benefits of yoga practice for young children as evidenced by recent empirical research.
- To examine the psychological, neurological, and socio-emotional outcomes associated with school-based yoga interventions.
- To recommend evidence-based strategies for integrating yoga within school curricula in resource-diverse educational settings.

METHOD

Research Design

This study employed a descriptive review methodology, systematically examining peer-reviewed literature to identify, evaluate, and synthesise findings pertinent to yoga's effects on young children's development. Descriptive reviews are appropriate when the aim is to provide a comprehensive narrative account of existing knowledge on a defined topic (Hagen & Nayar, 2014). This approach allowed for the integration of diverse study designs including quasi-experimental, longitudinal, and qualitative investigations within a coherent analytical framework.

Literature Search and Selection Criteria

Articles were identified through searches of electronic databases including ScienceDirect, ResearchGate, PubMed, and Frontiers in Psychology. Search terms included combinations of: yoga, children, school-based intervention, well-being, physical education, pranayama, psycho-physiological health, neurological development, and emotional regulation. Inclusion criteria required that studies: (a) focused on participants aged 4–12 years; (b) examined yoga-based interventions in school or home contexts; (c) reported measurable physical, psychological, or socio-emotional outcomes; and (d) were published in English in peer-reviewed journals or credible academic sources. Five empirical articles meeting these criteria formed the primary analytical corpus, supplemented by relevant theoretical and policy literature.

REVIEW OF LITERATURE

The following section summarises the key findings of the five core studies included in this review, organised thematically to highlight convergent and complementary evidence.

Kundalini Yoga and Affective Development in Early Childhood

Fuenzalida et al. (2026) conducted a quasi-experimental study examining the integration of a seven-week Kundalini Yoga (KY) programme within Physical Education classes for first-grade children. The study conceptualised affectivity as a multidimensional construct encompassing affective engagement, self-perception, proactive orientation, and motivational disposition. Both quantitative and qualitative data were collected, enabling triangulation of findings. Results indicated that children who participated in the KY programme demonstrated more adaptive affective trajectories than comparison groups, with improvements observable across all four affective dimensions. The convergence of quantitative modelling and qualitative interpretation aligned with prior research suggesting that yoga-based interventions support emotional regulation and psychological adjustment within school contexts. These findings are particularly significant given that affective engagement in early primary school predicts later academic achievement and social competence.

Neuro-Yoga and Psycho-Physiological Optimisation

Mikhailova (2025) investigated the application of neuro-yoga; an integrative approach combining neurological principles with yoga-based postural and breathing practices in optimising

children's responses to academic workload and supporting psycho-physiological health. The study found that pranayama (breathing practices) plays a fundamental regulatory role in balancing sympathetic and parasympathetic branches of the autonomic nervous system. When children practise diaphragmatic and alternate-nostril breathing, activation of the parasympathetic nervous system induces physiological calm, reducing cortisol levels and promoting cognitive readiness. Additionally, postural practices (asanas) were found to improve proprioceptive sensitivity and establish stable patterns of motor coordination, positively affecting self-regulation and spatial awareness. Exercises targeting balance and axial stabilisation were identified as particularly effective, given their demonstrated association with attentional control and executive function. Mikhailova's (2025) findings underscore the neurological mechanisms through which yoga exerts its beneficial effects, providing a biological basis for observed improvements in academic performance and behavioural regulation.

Yoga benefits across physical, mental, and academic domains

Nanthakumar (2017) reviewed outcomes of two structured yoga programmes, a ten-week general yoga programme and a twelve-week Kripalu Yoga intervention among school-aged children. Participants in both programmes reported yoga's effectiveness as a stress-relieving and nerve-relaxant practice. Of particular note, the twelve-week Kripalu Yoga programme produced measurable improvements in both mental health outcomes, specifically stress regulation, and performance outcomes, including academic and athletic achievement. Nanthakumar (2017) concluded that consistent yoga practice enables children to establish mind-body-breath coordination, fostering a healthier physical, mental, and emotional life. This research underscores the capacity of yoga to function not merely as a relaxation tool but as a comprehensive developmental intervention.

A decade of school-based yoga research: Feasibility and efficacy

Kerekes et al. (2024) conducted an integrative review spanning a decade of literature on yoga interventions in school-based and psychiatric care settings for children and adolescents. Quantitative analyses revealed significant reductions in perceived stress, alongside increases in resilience and positive affect. Qualitative analyses highlighted stress reduction, improved relaxation, and enhanced emotional control as outcomes reported most consistently by elementary school children, with boys demonstrating particularly notable gains. Teachers and yoga instructors reported improved participant well-being, decreased stress manifestations, enhanced attentional capacity, greater self-control, more positive peer attitudes, and improved academic performance. This comprehensive review provides robust, aggregated evidence supporting the feasibility and efficacy of yoga in school settings across diverse demographic and institutional contexts.

Yoga as a tool for children's mental health and well-being

Hagen and Nayar (2014) reviewed research on yoga's potential contribution to the mental health and well-being of children and young people. The authors argued that children and young people, as developing agents with evolving capacities for self-

determination, are particularly well-positioned to benefit from yoga's structured yet flexible approach to self-development. The review emphasised the importance of pedagogically appropriate delivery incorporating creative, interactive, and participatory methods suited to children's developmental stages. Hagen and Nayar (2014) concluded that effectively communicated yoga practice provides children and young people with a potent, self-directed tool for stress minimisation and resilience development, ultimately contributing to holistic well-being at both individual and societal levels.

BENEFITS OF YOGA EXERCISES IN YOUNG CHILDREN

The reviewed literature collectively identifies five principal domains in which yoga practice yields demonstrable benefits for young children.

Physical Development: Asanas (Postures)

Yoga postures (asanas) promote bodily flexibility, muscular strength, postural alignment, and coordination. Young children's musculoskeletal systems exhibit heightened neuroplasticity, rendering them particularly responsive to structured movement practices during developmental sensitive periods. Regular asana practice supports the physical alignment of the body, prevents postural deficiencies associated with sedentary screen-based activities, and provides an accessible alternative to competitive sports for children with varying physical capacities. Nanthakumar (2017) reported that children who consistently practised yoga asanas demonstrated improved physical health and enhanced capacity for emotional adaptation and academic engagement. Asanas are further notable for their contextual flexibility; they may be practised in classroom, gymnasium, or home environments with minimal equipment requirements.

Physiological Health: Physical Training Integration

Yoga-based Physical Training (PT) encompasses subtle, sequenced bodily movements that refresh energy levels, improve circulation, and restore neurological balance following periods of sustained cognitive effort. Fuenzalida et al. (2026) demonstrated that structured physical movement within PE settings enhanced children's mood, intrinsic motivation, and readiness for subsequent learning activities. Regular PT practice has also been identified as a counter-measure to the physiological and postural harm associated with excessive screen time and mobile device use, issues of growing concern among primary school populations. The structured, non-competitive nature of yoga-based PT is particularly conducive to inclusive participation, accommodating children with diverse physical abilities and developmental profiles.

Neurological Development: Neuro-Yoga (Pranayama)

Pranayama, the controlled regulation of breath, constitutes one of yoga's most neurologically potent practices. Mikhailova (2025) identified pranayama as a primary mechanism through which yoga modulates the autonomic nervous system, specifically by activating the parasympathetic branch responsible for physiological calm and cognitive restoration. Consistent pranayama practice among young children has been associated with enhanced attention, improved executive function, reduced physiological stress responses, and greater emotional equilibrium. These neurological benefits translate

directly into observable classroom behaviours, including improved task persistence, reduced impulsivity, and more effective peer conflict resolution. Given the critical role of executive function in academic achievement, pranayama's neurological benefits represent a compelling case for its systematic inclusion in school health programming.

Socio-emotional Development

Yoga practice cultivates the attentional and self-regulatory capacities that underpin effective social functioning. Through consistent engagement with yoga's principles of breath-awareness, present-moment focus, and intentional movement, children develop improved capacities for behavioural self-regulation, anger management, and empathetic peer engagement. Kerekes et al. (2024) reported that qualitative analyses consistently identified enhanced emotional control and more positive attitudes toward classmates among children participating in school-based yoga programmes. These socio-emotional benefits are particularly significant given contemporary concerns about childhood aggression, social isolation, and the erosion of prosocial peer interaction in technology-mediated environments. Yoga's emphasis on non-competitiveness and collaborative practice further supports the development of cooperative social dispositions.

Holistic Development: Asana and Pranayama Integration

The integrated practice of asana and pranayama addresses holistic child development, the simultaneous cultivation of physical, cognitive, emotional, and spiritual well-being. Holistic development reflects a child's capacity to navigate diverse environmental demands with clarity, equanimity, and purposefulness. Yoga's foundational philosophy; alignment of body, mind, and breath within the broader context of universal consciousness cultivates environmental awareness and ethical self-understanding that extends beyond physical health into moral and civic development. Nanthakumar (2017) observed that children who practised yoga consistently demonstrated improved capacity to manage daily academic and social demands. Hagen and Nayar (2014) further argued that yoga, when effectively communicated, empowers children as active agents in their own development, equipping them with transferable life skills that persist across developmental stages.

DISCUSSION

The convergent evidence reviewed in this paper robustly supports the conclusion that yoga is a developmentally appropriate, multi-dimensionally beneficial, and institutionally feasible intervention for young children. Across diverse study designs quasi-experimental trials, longitudinal reviews, and qualitative investigations yoga practice consistently produced improvements spanning physiological, neurological, psychological, and socio-emotional domains. The mechanisms underlying these effects are theoretically coherent: pranayama-mediated autonomic regulation provides the neurological substrate for emotional self-regulation (Mikhailova, 2025), while asana practice supports the physical development and mind-body integration necessary for holistic functioning (Nanthakumar, 2017). Particularly noteworthy is the evidence that yoga benefits are not confined to wellness metrics but extend to academic and behavioural outcomes directly relevant to school performance. Kerekes et al.'s (2024) decade-long integrative review found that teachers, not merely participants,

reported observable improvements in children's attention, self-control, and academic engagement outcomes of direct relevance to educational administrators and curriculum developers. Similarly, Fuenzalida et al.'s (2026) demonstration of affective trajectory improvements through a seven-week Kundalini Yoga integration suggests that even brief, structured yoga programmes embedded within existing curricular frameworks can produce meaningful developmental gains.

These findings carry significant implications for educational policy and school health promotion. Current Physical Education frameworks in many countries nominally include provisions for health and wellness activities; yoga represents a theoretically grounded, evidence-supported modality that aligns with these frameworks while requiring minimal additional infrastructure. The principal resource investment required for effective school-based yoga programming is the provision of trained yoga instructors and appropriate scheduling allocation (Sharma, 2025; Borkakoty, 2024). Governments and educational authorities in resource-constrained contexts including India, where geographic diversity and infrastructural disparities present implementation challenges may find yoga particularly attractive given its adaptability to diverse physical environments. A complementary role for parents and caregivers is also indicated by the literature. Hagen and Nayar (2014) emphasised that children's capacity to adopt yoga as a self-directed wellness tool depends significantly on adult modelling and home-based reinforcement. School-based yoga programming is maximally effective when supported by concurrent parental guidance, enabling children to maintain practice beyond institutional settings. Community-based yoga literacy initiatives targeting parents could therefore amplify the developmental impact of school programmes.

CONCLUSION

This descriptive review synthesised evidence from five peer-reviewed studies to document yoga's multidimensional benefits for young children across physiological, neurological, psychological, socio-emotional, and holistic developmental domains. Findings consistently support the conclusion that structured yoga practice encompassing asanas, pranayama, and mindfulness-based movement constitutes an evidence-based, institutionally feasible, and developmentally appropriate wellness intervention for primary school-aged children. Yoga's regulatory effects on the autonomic nervous system, mediated through pranayama practice, provide a neurobiological basis for observed improvements in stress resilience, attentional control, and emotional regulation. Its physical dimension promotes bodily alignment, flexibility, and motor coordination, counteracting the sedentary and postural harms of contemporary screen-saturated lifestyles. Its socio-emotional dimension fosters the self-regulatory and pro-social capacities essential for effective classroom participation and peer relationships. The evidence base reviewed in this paper supports urgent recommendations for the systematic integration of yoga within school curricula globally. For educational systems in India and comparable contexts, yoga represents a culturally resonant, resource-efficient, and empirically validated strategy for holistic child development. Realising its potential requires coordinated investment in instructor training, curricular policy revision, and parental engagement, investments whose returns, in terms of child well-

being, academic achievement, and long-term health, are abundantly justified by the available evidence.

Recommendations

Based on the synthesis of reviewed evidence, the following recommendations are directed at relevant stakeholders:

- **School Administrators:** Integrate yoga as a structured component of Physical Education curricula, allocating a minimum of 30–40 minutes per week to yoga-based activities. A seven-week introductory programme, as demonstrated by Fuenzalida et al. (2026), provides a feasible and effective model for initial implementation.
- **Government and Policy Makers:** Develop national standards for school-based yoga instruction, including trainer certification requirements and minimum infrastructural provisions. Prioritise resource allocation to under-served geographic regions to ensure equitable access.
- **Teacher Training Institutions:** Incorporate yoga pedagogy within pre-service and in-service teacher education programmes, equipping educators with the knowledge and skills to deliver or support yoga integration within their classroom practices.
- **Parents and Caregivers:** Actively reinforce school-based yoga practice through home engagement, modelling consistent practice and creating supportive environmental conditions for children's daily yoga routines.
- **Future Research:** Longitudinal studies examining the developmental trajectories of children with sustained exposure to yoga practice are warranted. Particular attention should be directed to under-researched populations, including children with special educational needs, and to comparative analyses of different yoga modalities across developmental age bands.

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