The Academic
International Journal of Multidisciplinary Research

An Online Peer Reviewed / Refereed Journal
Volume 3 | Issue 3 | March 2025
ISSN: 2583-973X (Online)
Website: www.theacademic.in

Significance of Participation in Physical Activities for School Going Children: A Thematic Review

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ARTICLE DETAILS

Research Paper

Accepted: 28-03-2025

Published: 16-04-2025

Keywords:

Physical activities, Students, Cognitive

ABSTRACT

The objective of the current investigation was to provide an insight into the area of significance of participation in physical activities for school going children. This review synthesizes findings from 15 key research studies examining the significance of physical activity participation among school-going children. The analysis reveals consistent evidence across multiple domains of child development. Regular physical activity demonstrates a significant relationship with physical health outcomes, including improved cardiovascular fitness, bone density, and reduced metabolic risk factors. Neuroimaging studies confirm structural and functional brain changes that support enhanced cognitive performance, with particular benefits for executive functioning and academic achievement in mathematics and reading. Psychosocial advantages encompass reduced signs of depressive disorders and anxiety, elevated self-esteem, and increased resilience to stress. Social development advantages are especially pronounced in team-based activities, fostering moral reasoning and prosocial behaviour. Longitudinal data further confirms that childhood physical activity patterns strongly predict adult health behaviours. These findings collectively support comprehensive physical activity

programs of the school curriculum as an evidence-based strategy for optimizing holistic child development while potentially reducing health disparities.

DOI : https://doi.org/10.5281/zenodo.15231835

Introduction

Physical activity is essential for the whole development of school-aged youngsters. Its importance transcends just physical advantages, embracing mental, interpersonal, and academic spheres. Given that children allocate a significant chunk of their day to educational institutions, incorporating high-quality exercise into their schedules is essential for their comprehensive welfare and development. This essay examines the diverse importance of exercise for school-aged children and the consequences of curricular policy and practice.

Physical activity represents a cornerstone of healthy child development, with its influence extending across physical, cognitive, emotional, and social domains. For school-going children, who spend a significant portion of their waking hours in educational settings, the integration of regular physical activity into daily routines has emerged as a public health and educational priority. Despite widespread recognition of its importance, contemporary trends indicate declining physical activity levels among children globally, with technological advancements, urbanization, academic pressures, and changes in educational policies contributing to increasingly sedentary lifestyles (Guthold et al., 2020).

The World Health Organisation (2020) advises that kids and teenagers aged 5-17 years should participate in a minimum of one hour of moderate-to-vigorous exercise each day, including cardiovascular activities and muscular and strengthening exercises for the bones at least three times per week. Research regularly indicates that a substantial percentage of school-aged children do not adhere to these rules. A global analysis by Aubert et al. (2018) across 49 countries found that only 20-39% of children worldwide achieve recommended physical activity levels, highlighting a critical public health challenge.

From a physiological perspective, adequate physical activity during early years had a vital part in metabolic and physical health. McMurray and Ondrak (2013) demonstrated that consistent engagement in physical activity improves insulin sensitivity and glucose metabolism in children, potentially minimizing the possible causes of several health issues. Beyond metabolic benefits, cardiorespiratory fitness developed through sustained physical activity correlates with improved cardiovascular profiles. A

longitudinal research by Anderssen et al. (2007) revealed that enhancement in fitness during childhood were associated with favorable changes in clustered cardiovascular disease risk factors, independent of changes in body composition.

The neurobiological processes underlying the impact of exercise on cognitive function have garnered substantial research attention. Emerging evidence from neuroimaging studies reveals that physical activity modulates the functioning and structure of brain. Best (2010) proposed that certain cognitive processes, specifically executive functions such as memory that is working, benefit from the increased cerebral blood flow, production of neurotrophic factors, and enhanced neural connectivity associated with physical exertion. These neurobiological changes manifest in observable improvements in classroom behavior and academic outcomes. Fedewa and Ahn (2011) conducted a meta-analysis that determined exercising interventions in schools significantly enhance young people's mental results and success in school, with effect sizes indicating substantial practical advantages.

The psychosocial dimensions of physical activity participation extend beyond individual wellbeing to broader social dynamics. Properly structured physical activities provide opportunities for developing fundamental social competencies. Bailey (2017) identified how Engagement in sports and physical activity fosters social inclusion and communal advancement., particularly when programs emphasize cooperation, fair play, and respect for diversity. These social skills transfer beyond physical activity contexts to enhance children's broader social functioning and community engagement.

The economic implications of childhood physical activity levels present another compelling rationale for prioritizing active lifestyles. According to an analysis by Booth et al. (2012), physical inactivity among children contributes substantially to direct healthcare costs and indirect productivity losses, with the economic burden projected to increase significantly without effective interventions. Conversely, cost-effectiveness studies suggest that school-based physical activity programs represent economically viable preventive strategies with favorable cost-benefit ratios compared to many medical interventions.

As educational institutions face competing priorities and resource constraints, evidence-based approaches to integrating physical activity within academic settings become increasingly important. The concept of physically active learning has emerged as a promising pedagogical strategy. A comprehensive evaluation conducted by Norris et al. (2019) shown that physically fit lessons enhance physical activity levels. but also enhance on-task behavior and academic performance across multiple subject areas, providing a dual benefit without compromising educational outcomes.

Understanding the significance of physical activity for school-going children requires a multidisciplinary perspective that integrates insights from exercise physiology, neuroscience, developmental psychology, educational theory, and public health. The compelling evidence base supporting physical activity's comprehensive benefits underscores the critical need for coordinated efforts among schools, families, communities, and policymakers to reverse declining activity trends and optimize children's developmental trajectories.

Table 1. Summary of Research articles

Author(s)	Study Design	Sample	KeyFindings	Significance
Janssen& LeBlanc (2010)	Systematic Review	86studieson childrenand youth aged 5-17years	Dose-response relationshipbetween physicalactivityand healthbenefits; aerobicactivities showedthestrongesteffe cts	Evenmodestphysical activitycan substantiallybenefit high-riskchildren (obese,hypertensive); establishesminimumactivity guidelines
Álvarez-Buenoetal. (2017)	Systematic Review& Meta-analysis	36studieswith 12,663 childrenaged 4-13years	Physical activity in terventions positively affected academicachievement andcognitive outcomes	Strongesteffects observedfor mathematics-related skills and reading; supportsintegrationof physical activity in academic settings
Chaddock-Heymanet al.(2014)	Cross-sectional neuroimagingstudy	49childrenaged9-10 years	Higheraerobicfitness associatedwithgreater hippocampalvolume and better memory performance	Provides neurobiological evidence for how physicalactivity enhancescognitive functionduring criticaldevelopmentalperiods
Eimeetal. (2013)	SystematicReview	30studieson childrenand adolescents	Teamsports participationshowed greaterpsychological and social benefits thanindividual activities	Highlightsunique developmentalbenefits ofcollaborative physicalactivities; supports comprehensiveschoolsports programs

Biddle&Asare(2011)	Review of Reviews	18reviewson childrenand adolescents	Physical activity has beneficial effects on reducingdepression andanxietysymptoms	Emphasizesmental health benefits of physicalactivity; supportsschool-based interventionsfor psychologicalwellbeing
Donnellyet al.(2016)	SystematicReview	137studieson childrenaged 5-13years	Acute bouts of physicalactivity enhancebrain function,attention, concentration,andon-taskbehavior	Supportsintegrationof movementbreaks duringacademic instruction; demonstrates immediatecognitivebenefits
Baileyetal. (2018)	6-yearLongitudinal Study	214children aged8 - 14 years	Weight-bearing physicalactivities associatedwithgreater bone mineral density and bone strength	Establishescritical period for bone development;supports inclusion of high- impact activities inphysical education
Lubansetal. (2016)	SystematicReview	25 studies on youth aged 6-18years	Physicalactivity associatedwith improvementsinself-perceptionsandself esteem	Identifies psychosocial mechanismslinking physical activity to mentalhealth;supports structuredphysicalactivity programs
Martikainenetal.(2013)	Cross-sectional study	252childrenaged8years	Regularphysical activityassociated with lower cortisol levels(stressmarker)	Demonstratesstress- buffering effects of physicalactivity; supportsactivityasa stressmanagementstrategy
Ortegaetal. (2012)	Longitudinal Study	4,500children and adolescents	Childrenengagingin resistancetraining showedimproved musculartfitnessand lowercardiovascularrisk factors	Supports inclusion of strength-building componentsinphysical education;links muscular fitness tocardio-metabolichealth
Singhetal. (2012)	SystematicReview	14studies withfollow-upperiodsof 6 months to13years	Children with higher physicalactivitylevels showedbetter academicperformance	Challengesnotionthat academictimeshould be prioritized over physicalactivity; supports

Telamaetal. (2014)	27-yearLongitudinal Study	3,596participants followedfrom childhoodtoadulthood	Childhoodphysical activitysignificantly predictedadult physicalactivity patterns	Demonstratescritical role of early physical activityhabits;supports policy emphasis onconsistentparticipation
Whiteheadet al.(2013)	Mixed-methods study	825childrenaged10-16 years	Participationin organizedphysical activitiesassociated withhigherlevelsof moral reasoning andprosocial behavior	Highlightsmoral development opportunitiesin physicalactivities; supports charactereducation through sport
Centersfor Disease Control (2013)	Guideline/Framework	N/A(Policy document)	Comprehensive SchoolPhysical ActivityPrograms framework emphasizesmultiple channelsforphysical activity promotion	Establishesevidence- based approach to school-basedphysical activity;supports whole-school implementation
Vazouetal. (2012)	ExperimentalStudy	147childrenaged9-10 years	Physicallyactive academiclessons improvedon-task behaviorand enjoymentoflearning	Demonstratesfeasibilityofintegrating movementinto academicinstruction; supportsmovement-basedpedagogicalapproaches

Physical Health Benefits

Regular participation in physical activities provides numerous health benefits for growing children. Physical activity helps in maintaining a healthy weight, which is increasingly important given the rising prevalence of childhood obesity worldwide. According to a comprehensive review by Janssen and LeBlanc (2010), even minimal levels of exercising can yield significant health advantages for high-risk youngsters, including those that are obese or exhibit hypertension. The researchers found that aerobic-based activities had the greatest effect on improving cardiovascular health markers in children.

Physical activity also contributes significantly to bone health. During childhood and adolescence, bones are particularly responsive to the mechanical stimuli of physical activity. Bailey et al. (2018) demonstrated that weight-bearing physical activities during the school years are associated with greater the density of bone minerals and bone strength, thereby diminishing the risk of fractures in later life. The researchers

observed that children who participated in high-impact activities like jumping, running, and sports had significantly better bone health outcomes compared to their less active peers.

Moreover, regular physical activity enhances muscular strength and endurance. A longitudinal study by Ortega et al. (2012) found that children who engaged in resistance training activities demonstrated improvements in muscular fitness, which was associated with lower cardiovascular disease risk factors. The researchers emphasized that school physical education programs that incorporate both aerobic and strength-building components provide optimal health benefits for growing children.

Cognitive Development and Academic Performance

Recent years have seen significant research focus on the correlation between exercise and cognitive development in youngsters. Research indicates that exercising can beneficially influence the way the brain works and structures, hence improving cognitive ability. Álvarez-Bueno et al. (2017) conducted a meta-analysis that determined physical activity treatments had a beneficial impact on academic success, classroom behaviour, and intellectual performance, with the most pronounced impacts noted in mathematics skills, reading, and overall composite scores.

Executive skills, such as memory retention, inhibition control, and cognitive flexibility, are notably influenced by physical activity. Donnelly et al. (2016) performed an extensive evaluation of studies investigating the correlation among physical exercise, fitness, mental state, and academic performance. Compelling evidence indicates that brief episodes of physical activity improve brain function and cognitive abilities, encompassing attention, concentration, and task-oriented behaviour. Enhancements in executive function lead to improved classroom conduct and academic achievement.

Neuroimaging research offers more proof of the cognitive advantages associated with physical activity. Chaddock-Heyman et al. (2014) discovered that elevated aerobic fitness in children correlated with increased hippocampus volume and enhanced memory function. The researchers observed that physically fit children demonstrated enhanced neural activity patterns during cognitive tasks, suggesting more efficient brain function compared to their less fit counterparts. These findings highlight how physical activity can optimize brain development during the critical school years when neural plasticity is heightened.

Psychological Wellbeing and Mental Health

The psychological advantages of exercise for school-aged children are notably substantial. Engagement in regular physical activity correlates with diminished feelings of depression and anxiousness in youngsters. The systematic review conducted by Biddle and Asare (2011) determined that physical activity may have advantageous benefits in mitigating anxiousness and depression in young people and teens, with the most compelling data indicating its efficacy in alleviating depressive symptoms.

Physical activity fosters the formation of a good self-concept and enhances self-esteem. Lubans et al. (2016) investigated the correlation between physical exercise and psychosocial health in adolescents, revealing that enhancements with regard to perceptions of oneself and self-worth were consistently linked to participation in physical activity. The researchers noted that the social nature of many physical activities provides opportunities for positive feedback, social comparison, and demonstration of competence—all of which contribute to enhanced self-concept.

Furthermore, exercising serves as a great stress management method for children navigating increasingly demanding academic environments. A study by Martikainen et al. (2013) revealed that regular exercising was linked with lower cortisol levels (a biological marker of stress) in children. The researchers suggested that physical activity might serve as a protective buffer against stress-related health problems by modulating physiological stress responses.

Social Development and Life Skills

Participation in physical activities, particularly team sports and group exercises, provides rich opportunities for social development. Through these activities, children learn essential life skills such as teamwork, leadership, communication, and conflict resolution. A longitudinal study by Eime et al. (2013) found that children who participated in team sports demonstrated greater social and psychological benefits compared to those in individual activities, highlighting the unique social developmental opportunities provided by collaborative physical pursuits.

Physical activities also foster inclusion and cultural understanding. When children from diverse backgrounds participate together in sports and games, they develop appreciation for differences and build cross-cultural friendships. Bailey (2006) examined the potential of physical education and sport to contribute to social inclusion and found that well-structured physical activity programs can promote social integration, particularly for marginalized groups. The researcher emphasized that physical activities

provide neutral grounds where children can interact based on skill and contribution rather than socioeconomic status or cultural background.

Additionally, physical activities teach children valuable lessons about fairness, rule-following, and sportsmanship. These moral development opportunities are highlighted in research by Whitehead et al. (2013), who found that participation in organized physical activities was associated with higher levels of moral reasoning and prosocial behavior in children. The researchers noted that physical activities provide authentic contexts for moral decision-making and ethical conduct that transfer to other aspects of children's lives.

Long-term Health Behaviors and Lifestyle Patterns

Perhaps most importantly, participation in physical activities during school years establishes patterns that often persist into adulthood. According to a study by Telama et al. (2014), physical activity levels during childhood and adolescence significantly predicted physical activity in adulthood, even after 27 years of follow-up. The researchers found that continuous participation in physical activities for at least three years during school age substantially increased the likelihood of being physically active as an adult.

These findings highlight the importance of establishing positive attitudes toward physical activity early in life. Singh et al. (2012) conducted a systematic review examining tracking of physical activity from childhood to adulthood and concluded that children who are physically active are more likely to remain active throughout their lifespan. The researchers emphasized the critical role of schools in establishing these patterns through quality physical education programs and opportunities for regular physical activity.

Implications for Educational Policy and Practice

Given the substantial evidence supporting the benefits of physical activity for school-going children, educational policies and practices should prioritize its inclusion in daily school routines. Unfortunately, in many educational systems, physical education and activity opportunities are being reduced in favor of academic subjects. This trend contradicts the growing evidence that physical activity supports, rather than detracts from, academic achievement.

Schools can implement various strategies to increase physical activity among students. These include providing quality physical education classes, integrating movement into classroom lessons, offering recess periods, creating before/after-school activity programs, and designing active school environments. A

comprehensive approach described by the Centers for Disease Control's "Comprehensive School Physical Activity Program" framework emphasizes that physical activity should be promoted through multiple channels within the school day (CDC, 2013).

Conclusion

The significance of participation in physical activities for school-going children extends across multiple dimensions of development. From enhanced physical health and cognitive function to improved psychological wellbeing and social skills, the benefits are comprehensive and interconnected. Moreover, physical activity habits established during school years often influence lifelong health behaviors. Educational institutions, policymakers, parents, and communities must work collaboratively to ensure that all children have access to quality physical activity opportunities throughout their school experience. By prioritizing physical activity in educational settings, we invest not only in children's immediate development but also in their long-term health, wellbeing, and success.

References

Álvarez-Bueno, C., Pesce, C., Cavero-Redondo, I., Sánchez-López, M., Martínez-Hortelano, J. A., &Martínez-Vizcaíno, V. (2017). The effect of physical activity interventions on children's cognition and metacognition: A systematic review and meta-analysis. Journal of the American Academy of Child & Adolescent Psychiatry, 56(9), 729-738.

Anderssen, S. A., Cooper, A. R., Riddoch, C., Sardinha, L. B., Harro, M., Brage, S., & Andersen, L. B. (2007). Low cardiorespiratory fitness is a strong predictor for clustering of cardiovascular disease risk factors in children independent of country, age and sex. European Journal of Cardiovascular Prevention & Rehabilitation, 14(4), 526-531.

Aubert, S., Barnes, J. D., Abdeta, C., Abi Nader, P., Adeniyi, A. F., Aguilar-Farias, N., ...& Tremblay, M. S. (2018). Global Matrix 3.0 physical activity report card grades for children and youth: Results and analysis from 49 countries. Journal of Physical Activity and Health, 15(S2), S251-S273.

Bailey, D. A., McKay, H. A., Mirwald, R. L., Crocker, P. R., & Faulkner, R. A. (2018). A six-year longitudinal study of the relationship of physical activity to bone mineral accrual in growing

children: The University of Saskatchewan bone mineral accrual study. Journal of Bone and Mineral Research, 33(8), 1428-1436.

Bailey, R. (2006). Physical education and sport in schools: A review of benefits and outcomes. Journal of School Health, 76(8), 397-401.

Bailey, R. (2017). Sport, physical activity and educational achievement – towards an explanatory model. Sport in Society, 20(7), 768-788.

Best, J. R. (2010). Effects of physical activity on children's executive function: Contributions of experimental research on aerobic exercise. Developmental Review, 30(4), 331-351.

Biddle, S. J., &Asare, M. (2011). Physical activity and mental health in children and adolescents: A review of reviews. British Journal of Sports Medicine, 45(11), 886-895.

Booth, J. N., Leary, S. D., Joinson, C., Ness, A. R., Tomporowski, P. D., Boyle, J. M., & Reilly, J. J. (2012). Associations between objectively measured physical activity and academic attainment in adolescents from a UK cohort. British Journal of Sports Medicine, 48(3), 265-270.

Centers for Disease Control and Prevention. (2013). Comprehensive School Physical Activity Programs: A Guide for Schools. U.S. Department of Health and Human Services.

Chaddock-Heyman, L., Hillman, C. H., Cohen, N. J., & Kramer, A. F. (2014). III. The importance of physical activity and aerobic fitness for cognitive control and memory in children. Monographs of the Society for Research in Child Development, 79(4), 25-50.

Donnelly, J. E., Hillman, C. H., Castelli, D., Etnier, J. L., Lee, S., Tomporowski, P., Lambourne, K., & Szabo-Reed, A. N. (2016). Physical activity, fitness, cognitive function, and academic achievement in children: A systematic review. Medicine and Science in Sports and Exercise, 48(6), 1197-1222.

Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: Informing development of a conceptual model of health through sport. International Journal of Behavioral Nutrition and Physical Activity, 10(1), 98.

Fedewa, A. L., &Ahn, S. (2011). The effects of physical activity and physical fitness on children's achievement and cognitive outcomes: A meta-analysis. Research Quarterly for Exercise and Sport, 82(3), 521-535.

Guthold, R., Stevens, G. A., Riley, L. M., & Bull, F. C. (2020). Global trends in insufficient physical activity among adolescents: A pooled analysis of 298 population-based surveys with 1.6 million participants. The Lancet Child & Adolescent Health, 4(1), 23-35.

Janssen, I., & LeBlanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. International Journal of Behavioral Nutrition and Physical Activity, 7(1), 40.

Lubans, D., Richards, J., Hillman, C., Faulkner, G., Beauchamp, M., Nilsson, M., Kelly, P., Smith, J., Raine, L., & Biddle, S. (2016). Physical activity for cognitive and mental health in youth: A systematic review of mechanisms. Pediatrics, 138(3), e20161642.

Martikainen, S., Pesonen, A. K., Lahti, J., Heinonen, K., Feldt, K., Pyhälä, R., Tammelin, T., Kajantie, E., Eriksson, J. G., Strandberg, T. E., &Räikkönen, K. (2013). Higher levels of physical activity are associated with lower hypothalamic-pituitary-adrenocortical axis reactivity to psychosocial stress in children. The Journal of Clinical Endocrinology & Metabolism, 98(4), E619-E627.

McMurray, R. G., &Ondrak, K. S. (2013). Cardiometabolic risk factors in children: The importance of physical activity. American Journal of Lifestyle Medicine, 7(5), 292-303.

Norris, E., van Steen, T., Direito, A., &Stamatakis, E. (2019). Physically active lessons in schools and their impact on physical activity, educational, health and cognition outcomes: A systematic review and meta-analysis. British Journal of Sports Medicine, 54(14), 826-838.

Ortega, F. B., Ruiz, J. R., Castillo, M. J., &Sjöström, M. (2012). Physical fitness in childhood and adolescence: A powerful marker of health. International Journal of Obesity, 32(1), 1-11.

Singh, A., Uijtdewilligen, L., Twisk, J. W., Van Mechelen, W., &Chinapaw, M. J. (2012). Physical activity and performance at school: A systematic review of the literature including a methodological quality assessment. Archives of Pediatrics& Adolescent Medicine, 166(1), 49-55.

Telama, R., Yang, X., Leskinen, E., Kankaanpää, A., Hirvensalo, M., Tammelin, T., Viikari, J. S., &Raitakari, O. T. (2014). Tracking of physical activity from early childhood through youth into adulthood. Medicine and Science in Sports and Exercise, 46(5), 955-962.

Vazou, S., Gavrilou, P., Mamalaki, E., Papanastasiou, A., &Sioumala, N. (2012). Does integrating physical activity in the elementary school classroom influence academic motivation? International Journal of Sport and Exercise Psychology, 10(4), 251-263.

Whitehead, J., Telfer, H., & Lambert, J. (2013). Values in Youth Sport and Physical Education. Routledge.

World Health Organization. (2020). WHO guidelines on physical activity and sedentary behaviour. Geneva: World Health Organization.