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Raising Active Generations: A Pediatric Call to Address Physical Inactivity and Sedentary Lifestyles

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Physical activity is essential for the healthy growth and development of children. However, modern lifestyle changes, including increased screen exposure and sedentary behaviors, have contributed to a global decline in physical activity among children and adolescents. The World Health Organization recommends that children aged 5–17 years engage in at least 60 minutes of moderate-to-vigorous physical activity daily. Despite this recommendation, a large proportion of children worldwide do not meet these guidelines.

Recent literature indicates that physical inactivity in childhood is associated with multiple adverse health outcomes, including increased risk of obesity, cardiometabolic disorders, mental health problems, sleep disturbances, reduced cognitive performance, and lower health-related quality of life. Sedentary behaviors, particularly excessive screen time, appear to play an important role in mediating these associations. Additionally, prolonged sedentary behavior may contribute to musculoskeletal discomfort and postural problems.

Physical inactivity represents a growing public health concern among children. Interventions aimed at increasing physical activity and reducing sedentary behavior are essential to improve pediatric health outcomes. Schools, families, and community-based programs play a key role in promoting active lifestyles in children.

WHY IS PHYSICAL INACTIVITY IMPORTANT IN CHILDREN?

Regular physical activity is a key determinant of health during childhood and adolescence. Adequate levels of physical activity contribute to improved cardiovascular fitness, musculoskeletal development, metabolic health, and psychological well-being, also supports cognitive development and academic performance.[1,2]

The World Health Organization recommends that children and adolescents accumulate at least 60 minutes of moderate-to-vigorous physical activity per day while limiting sedentary behavior.[3] However, global data indicate that approximately 80% of adolescents fail to meet these recommendations.[4]

Several interrelated factors contribute to physical inactivity in children.[5,6] Rapid digitalization has transformed playtime into screen time, with mobile devices, television, and computer games replacing outdoor activities.[7] Urban planning that limits access to green spaces, increased academic demands, and parental safety concerns have further constrained opportunities for physical movement.[6] Moreover, socioeconomic disparities often exacerbate the problem, as children in lower-income communities are less likely to participate in organized sports or have access to safe environments for active play.[8] Collectively, these dynamics create a setting in which sedentary behavior becomes normative rather than exceptional. The COVID-19 pandemic further accelerated sedentary lifestyles due to lockdown measures and reduced opportunities for outdoor activity.[9]

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Childhood physical inactivity has a variety of negative health effects.[10] Insufficient physical activity is associated with reduced cardiovascular fitness, increased adiposity, and impaired musculoskeletal development.[11] Evidence suggests a strong link between sedentary lifestyles and early markers of metabolic syndrome, including insulin resistance, dyslipidemia, and elevated blood pressure—even in children.[12-14] Moreover, physical inactivity has been shown to negatively affect bone density, motor skill acquisition, and overall endurance, which are essential components of healthy growth and development.[12,15,16] Psychologically, inactive lifestyles correlate with decreased self-esteem, higher levels of anxiety and depression, and poorer cognitive performance, highlighting the interconnectedness of physical and mental health.[12,17,18]

THE MULTIFACETED HEALTH CONSEQUENCES OF PHYSICAL INACTIVITY IN CHILDREN: NOT A SINGLE RISK

Recent research has emphasized the importance of multisectoral interventions that engage families, schools, and communities.[19] School-based physical education programs, active transportation initiatives, and accessible recreational facilities are among the most promising avenues to foster regular physical activity among children.[20,21] Additionally, emerging evidence supports the integration of technology-driven tools, such as activity trackers and gamified exercise applications, to motivate participation and monitor progress.[22-24] However, despite growing awareness, global progress toward increasing physical activity levels in youth remains limited, suggesting the need for renewed policy efforts and evidence-based approaches tailored to diverse cultural and socioeconomic contexts.[4]

Obesity and cardiometabolic risk

The pooled analysis by Chong et al. shows that more active daily movement compositions (higher MVPA, lower sedentary time, adequate sleep) are associated with lower adiposity, better cardiometabolic indicators, higher fitness and better health-related quality of life, whereas shifts towards more sedentary, less active compositions relate to deterioration in these markers over time.[25] This is consistent with the updated review by Piszka et al., which highlights physical inactivity as an early cause of obesity, insulin resistance, and elevated blood pressure and summarizes the broad "medicine-like" effects of regular physical activity on cardiometabolic health, musculoskeletal development, immune function, and psychological well-being.[12] The observational study in children with obesity further demonstrates an endless cycle in which low MVPA and high inactive time are associated with greater BMI, higher blood pressure, and worse fitness, indicating that obesity-related restrictions both contribute to and are reinforced by inactivity.[26]

Mental health

Numerous studies highlight the effects of sedentary lifestyles and inactivity on perceived and social-emotional health in addition to physical consequences. According to Liang et al., individuals who are very sedentary and inactive tend to have a more negative perception of their health, while those who engage in more physical activity and spend less time sitting down are consistently linked to better self-rated health, fewer somatic complaints, and overall well-being.[27] In contrast to nonadherence, which is linked to emotional challenges and behavioral issues, Bourke et al. show that adherence to integrated 24-hour movement guidelines—meeting recommendations for MVPA, sedentary time, and sleep—is linked to fewer internalizing and externalizing problems, better prosocial behavior, and higher social-emotional health.[28] More sedentary time, especially screen-based time, is linked to higher depressive symptom scores, according to Lu et al.[29] This raises concerns that prolonged sitting and digital media use may cause mood dysregulation by displacing protective behaviors and exposing users to negative online experiences. These results are supported by Ivory et al.'s scoping review, which shows consistent links between sedentary behavior and obesity, cardiometabolic risk, and psychosocial issues.[30] It also suggests potential biological pathways that might extend to later cancer-related risk factors, even though causal inferences are still cautious.[30]

Sleep health

The study of screen time, physical activity and sleep among school-aged children showed that greater recreational screen use was associated with shorter sleep duration and more irregular sleep patterns, whereas higher physical activity was linked to more favourable sleep profiles.[31] Reviews synthesising 24-hour movement behaviours indicated that integrated adherence to recommendations for physical activity, limited sedentary time and sufficient sleep is associated with better overall health and psychosocial outcomes than meeting only one or two of these behaviours.[12,25,28]

Cognitive function and academic performance

Movement habits also seem to have an impact on the academic and cognitive domains. Higher levels of physical exercise and increased physical fitness are linked to better academic achievement, according to Hermassi et al.[32] This relationship is probably mediated by stronger executive functions, better behavior in the classroom, and improved general well-being. These results imply that sedentary, inactive lifestyles may indirectly impair learning and academic trajectories when taken into account with data that excessive sedentary time and inadequate sleep are associated with depressive symptoms, emotional problems, and daytime dysfunction. One important use is sleep itself. According to AlKhenaizi et al., school-age children who spend a lot of time on screens and engage in little physical exercise have shorter and lower-quality sleep, which may have a negative impact on their ability to regulate their emotions, think rationally, and have a healthy metabolism.[31]

Quality of life

The systematic review on physical activity, sedentary behaviour and self-rated health demonstrated that higher physical activity levels were consistently associated with better self-rated health, whereas greater sedentary time corresponded to poorer perceived health among children and adolescents.[27] A large cross-national survey from low- and middle-income countries reported that many adolescents failed to meet MVPA guidelines and that lower activity levels clustered with multiple health-risk behaviours, implying broader implications for quality of life.[33] An updated narrative review on the role of physical activity in pediatric health concluded that regular activity supports overall well-being and health-related quality of life,

while inactivity is linked with a broad range of adverse health outcomes.[12]

Musculoskeletal health

Although few of the included articles focused primarily on the musculoskeletal system, the pooled analysis of 24-hour movement behaviours indicated that activity profiles richer in MVPA were associated with healthier growth trajectories, including more favourable body composition and indicators related to musculoskeletal development.[12,25] The updated review on pediatric physical activity summarised evidence that regular weight-bearing and vigorous activities contribute to bone and muscle health during growth, whereas predominantly sedentary lifestyles may undermine optimal musculoskeletal development.[12] However, the authors highlighted the need for more longitudinal studies with direct measures of bone and muscle outcomes in children and adolescents.

24-hour movement behavior perspective: more movement, less sitting, better sleep

The studies show that regular physical exercise within a balanced 24-hour movement pattern has broad protective effects, while sedentary behavior and physical inactivity are consistently linked to a wide range of negative health indicators.[12,25,26,28-31,33-36] A potential causal contribution of inactivity to poor pediatric health is supported by the consistent nature of connections across many populations, locations, study designs, and health domains. The integrated 24-hour movement point of view is particularly instructive, showing that rather than focusing on any one behavior alone, the greatest health advantages occur when adequate physical activity is paired with limited inactive time and proper sleep.[12,25,28] In order to reduce current pediatric morbidity and improve long-term health trajectories into adulthood, recent research supports the development of multi-level strategies—spanning families, schools, communities, and policy—that aim to reshape children's entire day toward more movement, less sitting, and healthier sleep.

Family, school, and environmental barriers

The prevalence and consequences of inactivity are influenced by the family and environmental setting. Zhu et al. show that characteristics of the school break environment, such as playground layout, equipment availability, social norms, and teacher involvement, have a significant impact on how active kids are during break time.[37] Unsupportive environments turn this window into more time spent sitting down rather than an opportunity for MVPA. Bruijns et al. demonstrate that parents who are aware of movement standards are more likely to have active and less sedentary children, highlighting the significance of home routines and parental awareness in influencing daily movement behaviors.[38] According to Lopez-Fernandez et al., a significant percentage of European teenagers do not adhere to recommended levels of physical activity, with inactivity being more common among girls and teenagers from poorer socioeconomic backgrounds.[34] Adolescents from low- and middle-income nations, whose options for active living are further limited by infrastructure limitations, safety concerns, and cultural norms, exhibit comparable low activity and high inactive time, according to Li et al.[33] Saudi et al. collect trend data showing that youth MVPA has decreased and sedentary time has increased, which is consistent with rising obesity and mental health issues and supports the description of physical inactivity as a global pediatric public health concern.[35]

CALL TO ACTION: A ROADMAP FOR PEDIATRICS

The health consequences of physical inactivity in children and adolescents are multifaceted and mutually reinforcing; low physical activity and high sedentary behavior have been found to be associated with obesity, unfavorable cardiometabolic profile, impaired sleep, poor socio-emotional functioning, increased depressive symptoms, and lower academic performance. The 24-hour movement behaviors perspective, in particular, shows that reducing sedentary time and supporting adequate sleep are as critical as increasing physical activity, and that desired health gains may be limited if these three components are not optimized together.

These findings indicate that for healthcare professionals, educators, and policymakers working in the pediatric field, interventions for physical inactivity should be multifaceted; individual behavioral change should be supported, the knowledge and awareness of families and parents should be increased, school environments should be redesigned to facilitate active living, and structural barriers should be focused on, especially in disadvantaged socioeconomic groups. For example, integrating school-based physical activity programs with family participation, implementing environmental arrangements that encourage active use of recess and class breaks, and community-level campaigns to limit screen time stand out as viable strategies to mitigate the risks identified in the literature.

During routine visits, physical activity and sedentary behavior screening should be treated like vital signs, family counseling should be provided with simple messages, and at-risk children should be referred to structured programs.

School-based physical activity programs, active transportation (walking/cycling to school) practices, safe playgrounds, and accessible sports facilities need to be supported by local government and education policies.

Age-appropriate limits should be set for screen time, family physical activity routines should be established, and the intelligent use of technology-supported but movement-focused tools (wearable sensors, gamified exercise) should be encouraged.

Transforming physical behaviors early in life is a crucial window of opportunity for lifelong health. Raising active generations is one of the most effective ways to reduce many morbidities in adulthood, including obesity and cardiometabolic diseases.

REFERENCES

1. Janssen I, LeBlanc AG. Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *Int J Behav Nutr Phys Act*. 2010;7(1):40. [CrossRef]
2. Ruiz-Ranz E, Asín-Izquierdo I. Physical activity, exercise, and mental health of healthy adolescents: a review of the last 5 years. *Sports Med Health Sci*. 2025;7(3):161-172. [CrossRef]
3. Organization WH. *WHO Guidelines on Physical Activity and Sedentary Behaviour*. World Health Organization; Geneva; 2020.

4. Guthold R, Stevens GA, Riley LM, Bull FC. Global trends in insufficient physical activity among adolescents: a pooled analysis of 298 population-based surveys with 1·6 million participants. *Lancet Child Adolesc Health*. 2020;4(1):23-35. [CrossRef]
5. Habyarimana JdD, Tugirumukiza E, Sun H, Pathirana A, Zhou K. From active play to sedentary lifestyles: understanding the decline in physical activity from childhood through adolescence—a systematic review. *Front Public Health*. 2025;13:1636891. [CrossRef]
6. Pouliou T, Sera F, Griffiths L, et al. Environmental influences on children's physical activity. *J Epidemiol Community Health*. 2015;69(1):77-85. [CrossRef]
7. Nasrallah M, Abu Helwa AA, Jawhar NY, et al. Assessing the effect of screen time on physical activity in children based on parent-reported data: a cross-sectional study. *Cureus*. 2025;17(4):e82971. [CrossRef]
8. Wilén C, Ahlqvist VH, Chen C, et al. Socioeconomic disparities in organized sports participation and physical activity among a population based sample of preschool children: a cross-sectional study. *BMC Pediatr*. 2025;25(1):298. [CrossRef]
9. Moore KN, Do B, Wang SD, et al. Long-term effects of the COVID-19 pandemic on children's physical activity and sedentary behavior. *Obes Sci Pract*. 2024;10(1):e710. [CrossRef]
10. Mitchell JA. Physical inactivity in childhood from preschool to adolescence. *ACSMs Health Fit J*. 2019;23(5):21-25. [CrossRef]
11. Brand C, Sehn AP, Fochesatto CF, et al. Fitness and fatness in children and adolescents: investigating their role in the association between physical activity and cardiometabolic health. *Biol Sport*. 2024;41(2):147-154. [CrossRef]
12. Piszka M, Kubicka M, Zerdka J, et al. The impact of regular physical activity on children's health parameters: A critical literature analysis of metabolism, the musculoskeletal system, respiratory system diseases, and neuropsychiatry. *Cureus*. 2025;17(11):e98198. [CrossRef]
13. Sánchez-Delgado A, Perez-Bey A, Conde-Caveda J, et al. Associations between sedentary behaviors and sedentary patterns with metabolic syndrome in children and adolescents: the UP&DOWN longitudinal study. *Healthcare (Basel)*. MDPI. 2025;13(19):2544. [CrossRef]
14. Silva TO, Norde MM, Vasques AC, et al. Association of physical activity and sitting with metabolic syndrome and hyperglycemic clamp parameters in adolescents–BRAMS pediatric study. *Front Endocrinol*. 2023;14:1191935. [CrossRef]
15. Utesch T, Dreiskämper D, Naul R, Geukes K. Understanding physical (in-) activity, overweight, and obesity in childhood: Effects of congruence between physical self-concept and motor competence. *Sci Rep*. 2018;8(1):5908. [CrossRef]
16. Williams RA, Cooper SB, Dring KJ, et al. Physical fitness, physical activity and adiposity: associations with risk factors for cardiometabolic disease and cognitive function across adolescence. *BMC Pediatr*. 2022;22(1):75. [CrossRef]
17. Jia N, Zhang X, Wang X, Dong X, Zhou Y, Ding M. The effects of diverse exercise on cognition and mental health of children aged 5-6 years: a controlled trial. *Front Psychol*. 2021;12:759351. [CrossRef]
18. Laurier C, Pascuzzo K, Jubinville V, Lemieux A. Physical activity and its benefits on adolescents' mental health through self-esteem. *Front Child Adolesc Psychiatry*. 2024;3:1503920. [CrossRef]
19. Moss S, Gu X. Home- and community-based interventions for physical activity and early child development: a systematic review of effective strategies. *Int J Environ Res Public Health*. 2022;19(19):11968. [CrossRef]
20. *Activity CoP, Environment PEitS. Educating the Student Body: Taking Physical Activity and Physical Education to School*; 2013.
21. Malnes L, Berntsen S, Kolle E, et al. School-based physical activity in relation to active travel–a cluster randomized controlled trial among adolescents enrolled in the school in motion study in Norway. *Int J Behav Nutr Phys Act*. 2023;20(1):136. [CrossRef]
22. Alonso-Martínez AM, Legarra-Gorgoñon G, García-Alonso Y, et al. Gamified family-based health exercise intervention to improve adherence to 24-h movement behaviors recommendations in children: "3, 2, 1 Move on Study". *Trials*. 2023;24(1):531. [CrossRef]
23. Böhm B, Karwiese SD, Böhm H, Oberhoffer R. Effects of mobile health including wearable activity trackers to increase physical activity outcomes among healthy children and adolescents: systematic review. *JMIR mHealth uHealth*. 2019;7(4):e8298. [CrossRef]
24. Legarra-Gorgoñon G, García-Alonso Y, Ramírez-Vélez R, Alonso-Martínez L, Izquierdo M, Alonso-Martínez AM. Effect of a gamified family-based exercise intervention on adherence to 24-hour movement behavior recommendations in preschool children: single-Center pragmatic trial. *JMIR Serious Games*. 2025;13:e60185. [CrossRef]
25. Chong KH, Parrish A-M, Cliff DP, Dumuid D, Okely AD. Cross-sectional and longitudinal associations between 24-hour movement behaviours, recreational screen use and psychosocial health outcomes in children: a compositional data analysis approach. *Int J Environ Res Public Health*. 2021;18(11):5995. [CrossRef]
26. Lundh H, Arvidsson D, Greven C, et al. Physical activity and sedentary behaviour amongst children with obesity—exploring cross-sectional associations between child and parent. *J Act Sedentary Sleep Behav*. 2025;4(1):2. [CrossRef]
27. Liang Y, Zhu X, Yang J-H, et al. Associations of different types of physical activity and sedentary behavior with self-rated health in children and adolescents: a systematic review of research from 2010 to 2024. *Int J Behav Nutr Phys Act*. 2025;22(1):48. [CrossRef]
28. Bourke M, Wang HFW, Fortnum K, et al. Association between 24-h movement behaviors and mental health in children and adolescents: a systematic review and compositional data meta-analysis. *Scand J Med Sci Sports*. 2025;35(8):e70120. [CrossRef]
29. Lu S, Sun J, Guo Z, et al. Instrumented measures of sedentary behavior and physical activity are associated with depression among children and adolescents: a systematic review and dose–response meta-analysis of observational studies. *Front Psychol*. 2024;15:1465974. [CrossRef]
30. Ivory BJ, Moore K, Dinalo JE, et al. Sedentary behavior in children, adolescents, and young adults treated for cancer: a scoping review of health outcomes and interventions. *J Cancer Surviv*. 2025:1-25. [CrossRef]
31. AlKhenaizi AK, Shakeeb FN, Fredericks S, Gaynor D. Physical activity levels, recreational screen time, sleep quality and mood among young adult healthcare students at an international university in Bahrain: a cross-sectional study. *BMJ Open*. 2025;15(5):e093655. [CrossRef]
32. Hermassi S, Dhahbi W, Jebabli N, Alneama A, Ketelhut S, van den Tillaar R. Difference in out-of-school physical activity patterns, sedentary behavior, and health-related fitness in relation to mathematics achievement among school-aged children: a cross-sectional study. *Front Educ*. 2025;10:1590300. [CrossRef]
33. Li H, Zhang W, Yan J. Physical activity and sedentary behavior among school-going adolescents in low- and middle-income countries: insights from the Global School-Based Health Survey. *PeerJ*. 2024;12:e17097. [CrossRef]
34. Lopez-Fernandez J, Serrano C, Hernandez-Martin A, Martin-Sanchez ML. Physical inactivity behaviour of European adolescents between 2013 and 2022. *BMC Public Health*. 2025;25(1):3830. [CrossRef]
35. Saudi L, Lameky VY. A systematic review of physical activity, sedentary behavior, and screen time in youth aged 7-18. *J Pubnurs Sci*. 2025;3(1):30-41. [CrossRef]
36. Zhang D, Zhang B, Wu Q, Peng X, Shao Y, Xu R. Exploring the associations between physical inactivity and cognitive function, mental

health, and metabolic parameters in U.S. adolescents: results stratified by sex. *BMC Public Health*. 2025;25(1):3036. [CrossRef]

37. Zhu K, Yin X, Liu Y, et al. Correlates of physical activity and sedentary behavior in children and adolescents during school recess: a systematic review and meta-analysis. *BMC Public Health*. 2025;25(1):2662. [CrossRef]

38. Bruijns BA, Bourke M, Saravanamuttoo K, Tucker P. Physical activity, sedentary behaviour, and sleep knowledge and self-efficacy among parents of young children in Canada. *J Act Sedentary Sleep Behav*. 2024;3(1):12. [CrossRef]