International Journal of Multidisciplinary Trends

E-ISSN: 2709-9369
P-ISSN: 2709-9350
www.multisubjectjournal.com
IJMT 2023; 5(5): 51-53
Received: 24-03-2023
Accepted: 28-04-2023

Manoj Bhardwaj
Research Scholar, Department of Physical Education (T), Guru Nanak Dev University, Amritsar, Punjab, India

Baljinder Singh Bal
Assistant Professor, Department of Physical Education (T), Guru Nanak Dev University, Amritsar, Punjab, India

Corresponding Author:
Manoj Bhardwaj
Research Scholar, Department of Physical Education (T), Guru Nanak Dev University, Amritsar, Punjab, India

Physical activity: A comprehensive research review

Manoj Bhardwaj and Baljinder Singh Bal

Abstract
After much-qualified research into the effects of physical inactivity and sedentarism on human health, this topic is still being debated and it remains a challenge to achieve adequate levels of physical activity. Sedentary timeline evolution has long-term, progressive, unforgiving, and almost silent consequences. A cyclic pattern is established, with no specific beginning, but includes a reduction in corporeal capacity; an increase in physical and emotional discomfort when exposed to higher levels of physical demand; and a sedentarism behavioural pattern associated with any kind of exercise avoidance, which is frequently associated with other harmful health behaviours. The initiation of this vicious cycle may be facilitated by social, economic, clinical, age, gender, education, race, civil status, and other factors. Regardless of these aspects, it is beyond the scope of this review to investigate these determinants.

Keywords: Physical activity

Introduction
In an era of sedentary lifestyles and growing public health concerns, physical activity has emerged as a powerful tool for combating the negative effects of inactivity and promoting overall well-being. Physical activity's profound impact on human physiology, mental health, and social dynamics has piqued the interest of researchers, healthcare professionals, and policymakers alike. As a result, scientific research into physical activity has expanded rapidly, providing invaluable insights into its multifaceted benefits and establishing a compelling case for its inclusion in daily life. This research paper intends to delve into the vast body of knowledge surrounding physical activity, emphasising its transformative potential across multiple dimensions of human existence. This study aims to provide a comprehensive overview of the topic by synthesising existing literature and examining the intricate relationships between physical activity and health, cognition, emotional well-being, and social engagement. Furthermore, it will shed light on the underlying mechanisms that drive these positive outcomes, enhancing our understanding of the relationship between physical activity and human physiology. Fitness is defined as a state of health and well-being marked by the ability to participate in daily physical activities or exercise [1]. Thus, strength and conditioning coaches' primary goal is to prescribe the appropriate physical fitness exercises to their athletes and/or clients in order for them to achieve specific fitness goals [2]. Several studies have shown that core training and testing are important in a variety of populations [3, 4] for improving performance [5, 6] and lowering the risk of injury (e.g., back and lower extremity injury) [6, 7]. Furthermore, core physical fitness exercises may help to reduce the risk of other musculoskeletal disorders caused by poor posture and sedentary lifestyles (e.g., lumbar spine overload, hip extensor imbalance, paraspinal muscle atrophy) [8]. The World Health Organisation (WHO) recommends at least 60 minutes of moderate-to-vigorous physical activity (PA) per day for children and adolescents aged 5 to 17, as well as muscle and bone strengthening activities three times per week [9]. According to recent studies, the majority of children and adolescents (80%) worldwide do not meet the recommended level of physical activity of 60 minutes per day [10-12]. Children and adolescents who do not follow WHO recommendations [9] are diagnosed with 'exercise deficit disorder,' which includes all negative health outcomes [13]. Childhood is an important developmental stage for acquiring basic movement skills through daily physical activity in order to achieve motor skill competence and movement confidence. Sedentary children are more likely to have negative health outcomes later in life [13]. Furthermore, it has been proposed that a physically active lifestyle is beneficial during childhood and adolescence and continues into adulthood [14-17]. Physical inactivity is one of the leading causes of death throughout the world [18, 19]. As a result, there is a global need to promote physical activity (PA) strategies. PA can be performed in a variety of settings, including work, organised sports, recreational activities, home activities, and active travel/commuting [19, 20, 21, 22].

Active travel/commuting is a non-motorized, environmentally friendly mode of transportation for people of all ages that involves physical displacement from/to home and workplace/school. Active commuting burns more calories and is easy to fit into daily routines [23, 24]. Cycling and walking appear to be effective strategies for increasing daily PA levels; however, it may also improve physical fitness (PF) levels while promoting health [25, 26, 27]. Previous research has found a strong link between active travel/commuting and PA levels; cycling and walking to school/work has also been linked to higher cardiorespiratory fitness (CRF), strength levels, and lower obesity indicator values in young and adult populations [28, 29, 30]. PF is regarded as a biomarker of health, with the most common health-related attributes of PF being CRF, muscular fitness (MF), and body composition [31, 32]. Assessing body composition, CRF, and/or MF attributes through the performance of most human systems allows one to monitor an individual's PA levels and health status [31]. Previous reviews looked into the associations between active commuting and various PF characteristics at a young age [33, 34, 35, 36]. Although some positive associations exist between active commuting and CRF, MF, and body composition [37, 38, 39], the findings are inconsistent. Furthermore, while some studies in adults have been conducted, no systematic reviews have been conducted to investigate the relationships between PF and active travel/commuting in adults [40]. As a result, the link between active travel/commuting and PF in different age groups is unknown. The goal of this research was to conduct a systematic review of the evidence on the relationship between PF and active travel/commuting in both young and adult populations.

References

1. Ortega FB, Ruiz JR, Castillo MJ, Sjöström M. Physical fitness in childhood and adolescence: A powerful marker of health. Int. J Obes. 2008;32:1-11.
2. Martuscello JM, Nuzzo JL, Ashley CD, Campbell BI, Orriola JJ, Mayer JM. Systematic review of core muscle activity during physical fitness exercises. J Strength Cond. Res. 2013;27:1684-1698.
3. Trajković N, Bogataj Š. Effects of neuromuscular training on motor competence and physical performance in young female volleyball players. Int. J. Environ. Res. Public Health. 2020;17:1755.
4. Tabacchi G, Lopez Sanchez GF, Nese Sahin F, Kizilyalli M, Genchi R, Basile M, *et al*. Field-based tests for the assessment of physical fitness in children and adolescents practicing sport: A systematic review within the ESA program. Sustainability. 2019;11:7187.
5. Willardson JM. Core stability training for healthy athletes: A different paradigm for fitness professionals. Strength Cond. J. 2007;29:42-49.
6. Willson JD, Dougherty CP, Ireland ML, Davis IM. Core stability and its relationship to lower extremity function and injury. J. Am. Acad. Orthop. Surg. 2005;13:316-325.
7. Leetun DT, Ireland ML, Willson JD, Ballantyne BT, Davis IM. Core stability measures as risk factors for lower extremity injury in athletes. Med. Sci. Sport. Exerc. 2004;36:926-934.
8. Rathore M, Trivedi S, Abraham J, Sinha M. Anatomical correlation of core muscle activation in different yogic postures. Int. J Yoga. 2017;10:59.
9. World Health Organization. Global recommendations on physical activity for health. Geneva: World Health Organization; c2010.
10. Kalman M, Inchley J, Sigmundova D, Iannotti RJ, Tynjälä JA, Hamrik Z, *et al*. Secular trends in moderate-to-vigorous physical activity in 32 countries from 2002 to 2010: a cross-national perspective. Eur J Public Health. 2015;25(2):37-40. https://doi.org/10.1093/eurpub/ckv024.
11. Hallal PC, Andersen LB, Bull FC, Guthold R, Haskell W, Ekelund U. Global physical activity levels: surveillance progress, pitfalls, and prospects. Lancet. 2012;380:247-57. https://doi.org/10.1016/ S0140-6736(12)60646-1.
12. 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 16 million participants. Lancet Child Adolesc Health; c2019. https://doi.org/10.1016/S2352 - 4642(19)30323-2.
13. Faigenbaum AD, Myer GD. Exercise deficit disorder in youth: play now or pay later. Curr Sports Med Rep. 2012;11:196-200.
14. Ortega FB, Ruiz JR, Castillo MJ, Sjöström M. Physical fitness in childhood and adolescence: a powerful marker of health. Int J Obes. 2008;32:1-11.
15. Poitras VJ, Gray CE, Borghese MM, Carson V, Chaput JP, Janssen I, *et al*. Systematic review of the relationships between objectively measured physical activity and health indicators in school-aged children and youth. Appl Physiol Nutr Metab. 2016;41:197-239. https://doi.org/10.1139/apnm-2015-0663.
16. García-Hermoso A, Ramírez-Campillo R, Izquierdo M. Is muscular fitness associated with future health benefits in children and adolescents? A systematic review and meta- analysis of longitudinal studies. Sports Med. 2019;49:1079-94. https://doi. org/10.1007/s40279-019-01098-6.
17. Telama R, Yang X, Leskinen E, Kankaanpää A, Hirvensalo M, Tammelin T, *et al*. Tracking of physical activity from early childhood through youth into adulthood. Med Sci Sports Exerc. 2014;46:955-62. https://doi.org/10.1249/MSS.00000 00000 000181.
18. WHO. Physical Activity Strategy for the WHO European Region 2016–2025; Europe, R.C.F., Ed.; World Helath Organization: Vilnus, Lithuania; c2015.
19. Committee PAGA. Physical Activity Guidelines Advisory Committee Scientific Report; U.S. Department of Health and Human Services: Washington, DC, USA; c2018.
20. Ramirez-Velez R, Correa-Bautista JE, Lobelo F, Izquierdo M, Alonso-Martinez A, Rodriguez-Rodriguez F, *et al*. High muscular fitness has a powerful protective cardiometabolic effect in adults: Influence of weight status. BMC Public Health. 2016;16:1012.
21. Australian Sports Commission. Addressing the Decline in Sport Participation in Secondary Schools; Australian Sports Commission: Bruce, Australia, 2017. Canada, P.H.A.O. A Common Vision for Increasing Physical Activity and Reducing Sedentary Living in Canada; Federal, P.A.T.G., Ed.; Diabetes Action Canada: Toronto, ON, Canada; c2018.
22. Page NC, Nilsson VO. Active Commuting: Workplace

Health Promotion for Improved Employee Well-Being and Organizational Behavior. Front. Psychol; c2017, 7.
23. Aparicio-Ugarriza R, Mielgo-Ayuso J, Ruiz E, Ávila JM, Aranceta-Bartrina J, Gil Á, *et al*. Active Commuting, Physical Activity, and Sedentary Behaviors in Children and Adolescents from Spain: Findings from the ANIBES Study. Int. J Environ. Res. Public Health. 2020;17:668.
24. Pizarro AN, Ribeiro JC, Marques EA, Mota J. Santos, MP. Is walking to school associated with improved metabolic health? Int. J Behav. Nutr. Phys. Act. 2013;10:12.
25. Garcia-Hermoso A, Quintero AP, Hernandez E, Correa-Bautista JE, Izquierdo M, Tordecilla-Sanders A, *et al*. Active commuting to and from university, obesity and metabolic syndrome among Colombian university students. BMC Public Health. 2018;18:523.
26. Steell L, Garrido-Mendez A, Petermann F, Diaz-Martinez X, Martinez MA, Leiva AM, *et al*. Active commuting is associated with a lower risk of obesity, diabetes and metabolic syndrome in Chilean adults. J Public Health. 2018;40:508-516.
27. Cooper AR, Wedderkopp N, Jago R, Kristensen PL, Moller NC, Froberg K, *et al*. Longitudinal associations of cycling to school with adolescent fitness. Prev. Med. 2008;47:324-328.
28. Ostergaard L, Kolle E, Steene-Johannessen J, Anderssen SA, Andersen LB. Cross-sectional analysis of the association between mode of school transportation and physical fitness in children and adolescents. Int. J. Behav. Nutr. Phys. Act. 2013;10:91.
29. Vaara JP, Kyrolainen H, Fogelholm M, Santtila M, Hakkinen A, Hakkinen K, *et al*. Associations of leisure time, commuting, and occupational physical activity with physical fitness and cardiovascular risk factors in young men. J. Phys. Act. Health. 2014;11:1482-1491.
30. Ortega FB, Ruiz JR, Castillo MJ, Sjostrom M. Physical fitness in childhood and adolescence: A powerful marker of health. Int. J Obes. 2008;32:1-11.
31. Bouchard C, Blair SN, Haskell W. Physical Activity and Health, 2nd ed.; Human Kinetics: Champaign, IL, USA; c2012.
32. Lee MC, Orenstein MR, Richardson MJ. Systematic Review of Active Commuting to School and Children's Physical Activity and Weight. J Phys. Act. Health. 2008;5:930-949.
33. Faulkner GEJ, Buliung RN, Flora PK, Fusco C. Active school transport, physical activity levels and body weight of children and youth: A systematic review. Prev. Med. 2009;48:3-8.
34. Lubans DR, Boreham CA, Kelly P, Foster CE. The relationship between active travel to school and health-related fitness in children and adolescents: A systematic review. Int. J. Behav. Nutr. Phys. Act. 2011;8:5.
35. Larouche R, Saunders TJ, Faulkner G, Colley R, Tremblay M. Associations between active school transport and physical activity, body composition, and cardiovascular fitness: A systematic review of 68 studies. J Phys. Act. Health. 2014;11:206-227.
36. Gordon-Larsen P, Nelson MC, Beam K. Associations among Active Transportation, Physical Activity, and Weight Status in Young Adults. Obes. Res. 2005;13:868-875.
37. Cooper AR, Wedderkopp N, Wang HAN, Andersen LB, Froberg K, Page AS. Active Travel to School and Cardiovascular Fitness in Danish Children and Adolescents. Med. Sci. Sports Exerc. 2006;38:1724-1731.
38. Andersen LB, Lawlor DA, Cooper AR, Froberg K, Anderssen SA. Physical fitness in relation to transport to school in adolescents: The Danish youth and sports study. Scand. J. Med. Sci. Sports. 2009;19:406-411.
39. Hoehner CM, Barlow CE, Allen P, Schootman M. Commuting distance, cardiorespiratory fitness, and metabolic risk. Am. J. Prev. Med. 2012:42:571-578.
40. Blond MB, Rosenkilde M, Gram AS, Tindborg M, Christensen AN, Quist JS, *et al*. How does 6 months of active bike commuting or leisure-time exercise affect insulin sensitivity, cardiorespiratory fitness and intra-abdominal fat? A randomised controlled trial in individuals with overweight and obesity. Br. J. Sports Med. 2019;53:1183-1192.