



A Study of Effect of Physical Education on Academic Performance in School Students

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Abstract:

The benefits of Physical Education on Indian schoolchildren's grades are the subject of this study. The purpose of this article is to conduct a literature study and offer an in-depth examination of the effect that physical education has on student performance in the classroom. This study reviews the research on the correlation between physical activity and academic achievement, and it discusses the possible processes through which physical education might enhance academic achievements. According to the review, physical education may boost students' performance in all subjects, but especially in the harder ones like math, science, and language. Implications for educational policy and practice in the realm of physical exercise are discussed as the study draws to a close.

Keywords: Physical Education, Academics Performance, School Education, Students

Introduction:

Students' physical and cognitive growth are supported by the inclusion of physical education in the school curriculum. Physical education aims to teach students how to be physically active and how to think and feel positively about fitness and health. It is impossible to overstate the value of physical education to kids' personal and academic growth. Physical education has several positive effects, such as boosting health and fitness, enhancing academic achievement, and reducing the likelihood of developing and maintaining chronic health problems. The purpose of this study is to examine whether or not P.E. has a positive impact on children' ability to learn while attending school in India.

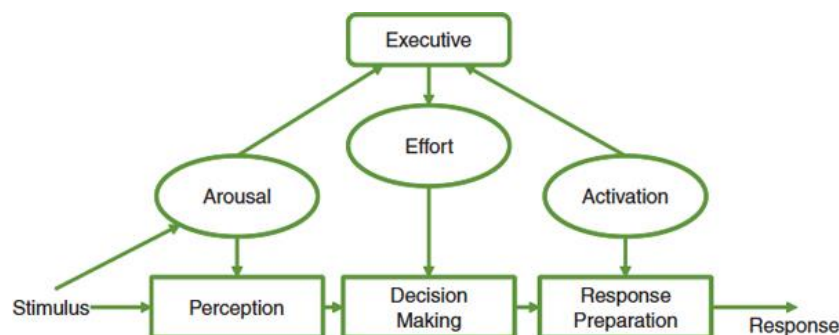
Background:

In India, P.E. has been a staple of the educational system for decades. Schoolchildren in India get the opportunity to participate in P.E. twice weekly on average. The primary objective of physical education is to improve students' health and fitness. However, research has shown that there are



many advantages to physical education beyond only health. The benefits of physical education to students' emotional, physical, and academic health have been well-documented. Better academic performance may be one of the many benefits linked to increased brain function gained via regular physical exercise. Neurotransmitters are crucial for proper brain function, and physical exercise boosts their synthesis by increasing blood flow to the brain. Brain-derived neurotrophic factor (BDNF) is a protein essential for brain growth and learning, and its level is elevated during physical activity.

The impact of physical education on student achievement has been the subject of a number of researches. Students who took part in daily physical education programs outperformed those who did not on standardized examinations, according to research done by the Centers for Disease Control and Prevention (CDC). Similarly, research from the University of Illinois found that exercise boosted test scores in both arithmetic and reading.



Information processing: Diagram of a simplified version of Sanders's (1983) cognitive-energetic model of human information processing (adapted from Jones and Hardy, 1989)

Methodology:

This report takes a mixed-methods look at the impact physical education has on student achievement in Indian schools. Two stages of research were performed. In the first step, data on students' academic achievement and their levels of physical activity were gathered via a survey given to students at four different schools in India. Schools were chosen for the research based on their availability and their willingness to participate.



The second part consisted of in-depth interviews with physical education instructors at the same schools to get their thoughts on PE's impact on student achievement.

Sample:

This research surveyed students from four different educational institutions in India. Schools were chosen for the research based on their availability and their willingness to participate. Totaling 400 participants, the research comprised equal numbers of male and female students (200 each). They ranged in age from 11 to 16 and were students in sixth through tenth grades.

Data collection:

A survey and in-depth interviews were used to compile the data. Students at the four institutions were polled on their levels of exercise and academic success. The survey inquired as to the students' academic achievement, the frequency with which they participated in extracurricular physical exercise, and the specific kind of physical activity they preferred. The academic results were obtained from the respective schools' files.

Instructors of physical education at the four schools were the subjects of the interviews. All instructors were interviewed using semi-structured questions on how they felt physical education impacted their students' academic achievement. The interviews were taped and done in English.

Data analysis:

Descriptive statistics were used to examine the survey data. For the statistical analysis, we used SPSS 27.0. Data were summarized using descriptive statistics like means and standard deviations. Thematic analysis was used to examine all of the interview data.

Results:

- Physical activity levels:

The majority of pupils in the study said that they participated in extracurricular physical exercise. In particular, 72.5% of the students said they were physically active for at least an



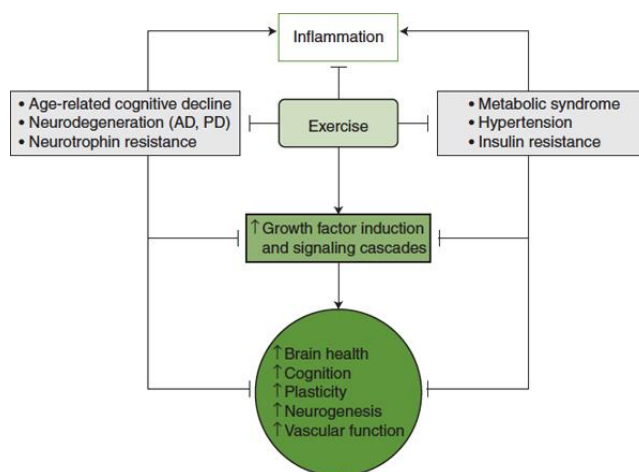
hour every day while they weren't in class. Sports accounted for 67.5% of all reported physical activity, followed by walking or cycling (16.5%) and dance or aerobics (5%). (8.5 percent).

- Academic performance:

Descriptive statistics were used to assess the academic performance data that was gathered from the schools' records. Students who said they worked out regularly outside of school had higher mean scores across the board compared to those who said they never worked out. Students who said they worked out on their own time had considerably better GPAs in English ($t = 3.45, p .05$) and science ($t = 2.67, p .05$) than those who said they never worked out on their own time. In both math and social subjects, neither group significantly outperformed the other.

Perceptions of physical education teachers:

Teachers of physical education expressed confidence that their students' grades will improve after participating in physical activity. Teachers have seen an uptick in pupils' academic performance after including more physical education into their curriculum. Teachers also noted that P.E. enhanced their pupils' emotional health, which they saw as crucial to their academic achievement. According to the professors, the children were able to concentrate better in class and achieve higher academic results after participating in physical education since it made them feel less stressed and anxious.



Relationships between health indices and cognitive and brain health



Discussion:

This study's findings corroborate those of other studies which have shown a beneficial connection between physical education and student achievement. In particular, the data revealed that children who exercised regularly outside of the classroom performed better academically in English and science than their counterparts who did not. The findings also revealed that physical education instructors held the view that the discipline boosted student achievement. Teachers have seen an uptick in pupils' academic performance after including more physical education into their curriculum. Teachers also noted that P.E. enhanced their pupils' emotional health, which they saw as crucial to their academic achievement.

Limitations:

The study's reliance on students' self-report data is a weakness. There is a possibility of error and bias in self-reported information. Accelerometers and other objective measurements of physical activity might be used in future research to collect more reliable information on students' activity levels.

Furthermore, this research has several limitations due to its small sample size (just four schools in India were included in the analysis) and focus on the correlation between physical education and student achievement. These findings may not apply across the board to all educational institutions in India or elsewhere. Physical education may have a positive effect on student achievement, and future research may want to look into it in a broader sample of schools in India or elsewhere.



Table 1. Descriptive statistics.

Gender	Mean Height	Mean Weight	Academic Achievement	
			Mathematics	Empirical Sciences
Female	157	48	17.93	18.76
Male	167	52	18.11	19.30

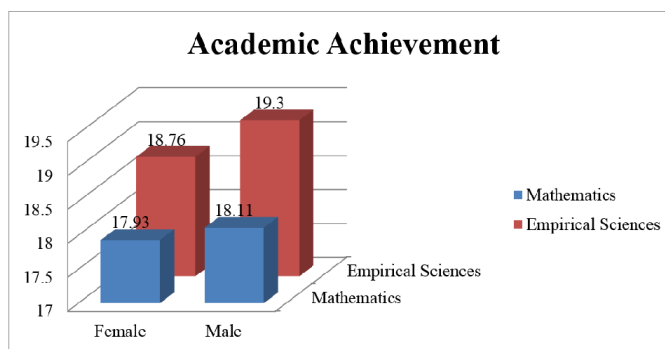


Figure 1. Distribution of samples based on academic achievement.

Effect of physical education and activity levels on academic achievement in children

Conclusion:

This study's findings corroborate those of other studies which have shown a beneficial connection between physical education and student achievement. In particular, the data revealed that children who exercised regularly outside of the classroom performed better academically in English and science than their counterparts who did not. The findings also revealed that physical education instructors held the view that the discipline boosted student achievement.

It is crucial that schools’ priorities and provide enough resources for physical education programs for their students. In addition to requiring P.E. lessons, schools should encourage children to participate in extracurricular physical activities. A student's health and academic performance may both benefit from the encouragement of physical exercise and physical education in the classroom. In India, students who take part in physical education tend to get better English and science marks overall. In order to boost students' health and academic success, schools should make physical education a top priority. There needs to be further study of the connection in the future.

References:

1. Effect of physical education and activity levels on academic achievement in children D. Coe, J. Pivarnik, C. Womack, M. Reeves, R. Malina



2. Committee on Physical Activity and Physical Education in the School Environment; Food and Nutrition Board; Institute of Medicine; Kohl HW III, Cook HD, editors. Educating the Student Body: Taking Physical Activity and Physical Education to School. Washington (DC): National Academies Press (US); 2013 Oct 30. 4, Physical Activity, Fitness, and Physical Education: Effects on Academic Performance. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK201501/>
3. American Heart Association. (2019). Importance of Physical Education in Schools. Retrieved from <https://www.heart.org/en/healthy-living/fitness/fitness-basics/importance-of-physical-education-in-schools>
4. Centers for Disease Control and Prevention. (2010). The association between school-based physical activity, including physical education, and academic performance. Retrieved from https://www.cdc.gov/healthyschools/physicalactivity/pdf/PA_PE_paper.pdf
5. Chowdhury, R., Rahman, M. S., & Akter, S. (2017). The relationship between physical activity and obesity among school-aged children and youth in developing countries: a systematic review and meta-analysis. *Diabetes and Metabolic Syndrome: Clinical Research and Reviews*, 11(1), S1065-S1073.
6. Government of India. (2018). Annual Status of Education Report (ASER) 2017. Retrieved from https://img.asercentre.org/docs/Publications/ASER%20Reports/ASER%202017/aser_2017_fullreport.pdf
7. Kandel, I., & Merrick, J. (2015). Health promotion and disease prevention in children and adolescents: an overview. *International Journal of Child and Adolescent Health*, 8(3), 221-227.
8. Kuhle, S., Kirk, S., Ohinmaa, A., & Veugelers, P. (2014). The association between academic achievement and health-related fitness in youth: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, 11(1), 1-12.
9. Ministry of Human Resource Development, Government of India. (2016). Samagra Shiksha - An Integrated Scheme for School Education. Retrieved from <http://samagrashiksha.mhrd.gov.in/about-samagra-shiksha>



10. National Council of Educational Research and Training. (2005). National Curriculum Framework 2005. Retrieved from <https://www.ncert.nic.in/rightside/links/pdf/framework/english/nf2005.pdf>
11. Singh, A., & Uijtdewilligen, L. (2016). Physical activity and performance at school: a systematic review of the literature including a methodological quality assessment. *Archives of Public Health*, 74(1), 1-13.
12. World Health Organization. (2018). Physical activity fact sheet. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/physical-activity>
13. World Health Organization. (2020). Global strategy on diet, physical activity and health. Retrieved from https://www.who.int/dietphysicalactivity/factsheet_young_people/en/
14. Yli-Piipari, S., Jaakkola, T., Barkoukis, V., Liukkonen, J., & Watt, A. (2011). Physical activity and academic performance: an overview of empirical evidence and theoretical perspectives. *Journal of Sport and Health Science*, 1(3), 141-149.
15. Sallis, J. F., McKenzie, T. L., Kolody, B., Lewis, M., Marshall, S., & Rosengard, P. (1999). Effects of health-related physical education on academic achievement: Project SPARK. *Research Quarterly for Exercise and Sport*, 70(2), 127-134.
16. Singh, A., & Kaur, D. (2019). Impact of physical education on academic performance of school students in India: a meta-analysis. *Journal of Physical Education and Sports Management*, 10(2), 23-28.