

" INVESTIGATING THE ACADEMIC BENEFITS OF EXERCISE FOR ELEMENTARY SCHOOL CHILDREN"

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ABSTRACT

This study aims to examine the relationship between physical activity opportunities and academic performance among elementary school students. The research employs a mixed-method design that combines both quantitative and qualitative approaches. Two distinct strategies are used: comparing pre-existing data from schools or classrooms with different levels of physical activity opportunities, and implementing targeted physical activity interventions to observe changes in academic performance over time. A sample of 84 students, aged 6 to 13 years, from a private elementary school with diverse socioeconomic backgrounds and academic abilities will be analysed.

Keywords: Student, School, Health, Physical activity, Academic.

I. INTRODUCTION

Kids' physical, emotional, and cognitive health are all positively impacted by regular physical activity, making it an essential component of healthy childhood development. A lot of people have been paying attention to the correlation between exercise and grades recently, especially in elementary school. More and more people are worried about the health effects of sedentary lifestyles and childhood obesity; therefore this issue has risen to the forefront of public health and education conversations. Physical education and recess are frequently neglected in favor of greater instructional time due to the pressure on schools to prioritize academic successes and standardized test results. On the other hand, there is mounting evidence that school-aged children may benefit academically from including physical exercise into their regular routines. Building emotional resilience, social behavior, and core cognitive abilities occurs during the early years of schooling, especially in elementary education. At this age, kids aren't just picking up scholastic subjects like reading, arithmetic, and science; they're also developing lifelong abilities like paying attention, controlling their impulses, solving problems, and interacting with others. It is believed that physical activity, which includes organized PE lessons, free play at recess, extracurricular sports, and physical activities in the classroom, can help students acquire these skills more quickly. Many people are interested in learning more about the best ways to help children's development in a comprehensive way, and this correlation between physical activity and cognitive development has piqued their curiosity.

Several underlying mechanisms, including physiological, cognitive, and psychological aspects, are associated with physical activity's potential influence on academic achievement. To give just one example, it's well-documented that regular physical activity has several beneficial effects on the brain, including better blood circulation, more oxygen delivery, and the

generation of hormones and neurotransmitters that affect energy levels, mood, and cognitive functioning. Enhanced brain function, especially in regions linked to memory, attention, and executive function—crucial components of effective learning and academic success—is directly correlated with these physiological advantages. Exercise has several great effects on mental health, including lowering stress, anxiety, and depression; this, in turn, creates a more conducive atmosphere for learning, allowing students to give their all to their studies. One must not forget the importance of the social component when engaging in physical exercise. Improving social skills, encouraging cooperation, and building self-confidence can be achieved through participating in cooperative physical activities, group exercises, or sports. Improvements in classroom conduct, participation, and attitude toward school, all of which are associated with academic achievement, can result from these psychosocial benefits. More and more, people are realizing that a balanced education must include physical education since it helps develop important social skills like leadership, teamwork, and communication. Therefore, the link between exercise and academic achievement is about more than just improving cognitive capacities; it also includes cultivating the social and emotional competencies that are important for academic and personal success throughout one's life.

These advantages have prompted schools to think about ways to incorporate physical education into their curricula without sacrificing academic rigor. It is becoming more and more apparent that the conventional wisdom about teaching young students to sit still for lengthy periods of time with few opportunities to move around may not be true. Short "brain breaks" that include physical movement are one example of an innovative approach that some schools have begun to test. Others have adopted more flexible schedules that permit longer and more frequent recess periods, and still others have integrated movement-based learning activities directly into classes. These tactics are designed to make physical activity a powerful tool for primary school children' learning and to make class more interesting and interactive overall. Various factors, including students' socioeconomic backgrounds, the school environment, individual differences in exercise responses, and the intensity and type of physical activity, influence the relationship between physical activity and academic performance, which is complex and multifaceted despite the promising evidence. Although some studies have shown that low-intensity exercises, such as walking or stretching, can have large effects on cognitive function and academic achievement, other studies have found that moderate-to-vigorous physical activity had the most influence. Physical exercise can have an effect on academic performance regardless of when it takes place: before, during, or after school. The importance of a comprehensive understanding of the relationship between various types of physical exercise and academic performance, as well as strategies for implementing effective programs in schools, is underscored by these variables. The importance of striking a balance between academic rigor and physical activity is growing as schools confront more and more problems with time, resources, and curriculum demands. Policies backed by facts are necessary if physical education is to be seen as an essential part of a well-rounded education and not just an extracurricular activity. Supporting students' physical health and creating conditions that promote optimal cognitive development and academic accomplishment can be achieved through schools that prioritize physical education and opportunities for active play.

II. REVIEW OF LITERATURE

Skogstad, Martin & Laumann, Karin. (2012). In healthy children and adolescents, this review looks at the psychological benefits of exercise. Researchers looked at studies that looked at how exercise affected things like mood, self-esteem, emotions, and academic achievement. Studies have shown that substituting more exercise, physical activity, or physical education for fewer traditional academic subjects does not negatively impact students' academic performance. When it comes to healthy kids and teens, exercise appears to boost their confidence and improve various parts of their brains. The limited research on the topic has shown a beneficial correlation between physical activity and children's emotional well-being.

Komarudin, Komarudin et al., (2017) The current study seeks to establish a connection between physical activity and academic performance, even though physical exercise is one of the everyday health supports that can aid in the educational process. Ten hundred forty-five kids from twenty-one different elementary schools (ESs) were the subjects of this quantitative correlational study. The Assessment of Physical Activity Levels Questionnaire (APALQ) was used to measure physical activity, and the average scores from the previous semester's report card were used to investigate academic achievement. The research classified people as either "extremely active," "moderately active," or "inactive" in terms of their level of physical activity. Out of the ES students surveyed, just 30 (or 3% of the total) were deemed "extremely active," while 460 (44% of the total) were deemed "moderately active," and 53% were deemed "inactive." Generally speaking, the average increase in physical activity was moderate, coming in at 33% with a total of 348 points. The study indicates that physical activity and academic achievement are not significantly correlated, even though the sig. value is bigger than 0.05 (0.529). With a weak correlation coefficient of only 0.020, the study concludes that primary school pupils do not exhibit a significant association between physical exercise and academic performance.

Dollaway, Kerry et al., (2018) The significance of PE and athletics in elementary school is examined in this article. When compared to other academic disciplines, physical education has long been considered to be of lower priority. Physical education, however, is now known to be an integral part of a balanced curriculum. Many positive outcomes have been linked to sports and physical education. To start, kids in elementary school benefit greatly from physical and mental wellness programs that include PE. Primary school students can benefit from physical education in many ways, including social development and enhanced cultural competency. Additionally, it improves test scores by encouraging cognitive competency. At the end of the day, kids who participate in PE programs in elementary school are more likely to live a healthy lifestyle as adults. Along with these advantages, this paper explores the disadvantages of skipping PE classes while students study for tests, stresses the importance of teachers' roles in providing PE, and stresses the need for teachers to have proper training and qualifications to teach PE and sports.

Latino, Francesca & Tafuri, Francesco. (2017). Cognitive function and academic performance have been the subject of numerous studies investigating the effects of physical exercise interventions. This concise review seeks to provide an empirical summary of this vast and continuously expanding body of research. This review drew on studies conducted in a variety of physical activity contexts, including PE classes, after-school programs, and community fitness centers, to shed light on the nature and extent of these associations. It is possible to infer from the research in this area that exercise causes substantial alterations in the brain that mediate improvements in cognitive ability and academic success. As a result, this study's overarching goal is to determine whether and how physical exercise may boost cognitive health and academic achievement in children of school age.

III. RESEARCH METHODOLOGY

RESEARCH DESIGN

Using current data, compare the academic performance outcomes of schools or classrooms with different degrees of physical exercise opportunities from high to poor.

Make a difference in students' academic performance by introducing physical activity interventions into classrooms.

SAMPLE SIZE

84 students from a range of socioeconomic circumstances and academic talents were chosen from a private elementary school. The students' ages ranged from six to thirteen years old.

DATA COLLECTION METHODS

Quantitative & Qualitative Data:

Academic Success: Look up grades and standardized test results in the student's official school record. Assess students' levels of physical activity using accelerometers, activity logs, or self-report assessments. Gather qualitative insights on how teachers, parents, and students perceive the impact of physical activity on academic performance and behavior through interviews or focus groups.

IV. DATA ANALYSIS AND INTERPRETATION

DEMOGRAPHIC TABLE

Table 1: Gender of the respondents

Particular	Frequency	Percentage
Boys	46	54.76%

Girls	38	45.24
Total	84	100

Table 1 provides a breakdown of the gender distribution among the sample of 84 elementary school students. Out of the total respondents, 46 are boys, accounting for 54.76% of the sample. Meanwhile, 38 are girls, representing 45.24% of the participants. This shows a slightly higher number of boys compared to girls in the sample, with boys making up just over half of the total population. The total percentage sums to 100%, confirming that the entire sample has been accounted for in terms of gender.

Table 2: Showing Mean and Standard Error of Mean (SEM) of the Variables of Co-Curricular Activities and Academic Achievement of the whole Sample of 84 Students of the Elementary School.

S.no	Variables	Sample	Mean	Sem
1	Physical Activities	84	46.124	9.861
2	Academic Achievement	84	56.604	9.973

The data presented in Table 2 provides a summary of the mean and Standard Error of Mean (SEM) for two key variables—Physical Activities and Academic Achievement—among a sample of 84 elementary school students. The mean score for Physical Activities is 46.124, with a Standard Error of Mean (SEM) of 9.861. This suggests that, on average, the students' involvement in physical activities falls around this value, with a relatively moderate variability as indicated by the SEM. Meanwhile, the mean score for Academic Achievement is higher, at 56.604, with a slightly larger SEM of 9.973. This indicates that, on average, the students performed better in academic measures than in physical activities, with a similar degree of variability as indicated by the SEM values.

Table 3: Showing Mean, S.D, SED and t-Value to locate the Significant Difference in Relationship between Physical Activities and Academic Achievement on the Variables of Participation in Physical Activities of the Whole Sample.

S.no	Variables	Sample	Mean	SD	SED	t-value
1	Physical Activities	84	43.28	8.59		
2	Academic Achievement	84	48.77	10.29	1.23	4.052

Table 3 presents the analysis of the relationship between Physical Activities and Academic Achievement, specifically examining the differences based on participation in physical activities for a sample of 84 elementary school students. The mean score for Physical Activities is 43.28 with a Standard Deviation (SD) of 8.59, indicating the average level of physical activity participation among the students and the variability in their scores. For Academic

Achievement, the mean score is 48.77 with a higher Standard Deviation of 10.29, suggesting a slightly greater variation in academic performance.

The Standard Error of the Difference (SED) between the two variables is 1.23, which is used to assess the reliability of the difference between the means. The t-value calculated from this data is 4.052, indicating a statistically significant difference between the means of Physical Activities and Academic Achievement. This significant t-value suggests that participation in physical activities has a noteworthy relationship with the students' academic achievement.

V. CONCLUSION

Physical activity plays a vital role in enhancing the academic performance of elementary school students. It positively influences cognitive functions such as memory, attention, and executive skills, while also improving physical health, emotional well-being, and social skills. By integrating regular physical activity into the school day, children benefit not only in terms of academic achievement but also in their overall development. The growing body of research underscores the importance of finding a balance between academic learning and physical movement, ensuring that students receive a well-rounded education that supports both their intellectual and physical growth. As schools continue to face the challenges of modern education, prioritizing physical activity can contribute significantly to creating healthier, more engaged, and successful students.

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