



CHILDREN'S HEALTH AND THE IMPACT OF PHYSICAL EDUCATION

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Research Guide

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Introduction:

Our children are our future—and understanding and supporting their natural yearning for physical activity will help lead them to a lifetime of happy and healthy living. If we joyfully teach them how to include healthy exercise from the early stages of their development, we will be giving our children a gift that will endure throughout their lives. Our “Children’s Fitness and Health Program” is geared towards parents and educators, and focuses on creative ways to incorporate exercise into our children’s everyday routine. Outdoor games and playful workout routines can be the tools that instill lasting joy of exercise. I was so lucky that over the years I’ve been fortunate to share this lasting experience with many children and young adults. (I hope you find additional information in the “Families” section of this Web site).

Objectives

The main aim of this study is to present that Physical education is the only subject in school in which children have the opportunity to learn the motor skills and acquire the knowledge to participate in a variety of physical activities (Sallis & McKenzie, 1991). It is the only subject in which physical activity is a primary means of accomplishing educational objectives. Additionally, quality physical education is unique in providing adolescents with self-

management skills to become independently physically active as adults. Physical education is critical to the education of the total person and requires a quality program taught by physical education specialists. The relationship between fitness and achievement appeared to be stronger for females than males and stronger for higher socioeconomic status (SES) than lower SES students. Again, the results should be interpreted with caution. It cannot be inferred from these data that physical fitness causes academic achievement to improve.

Hypotheses

Physical education plays a critical role in educating the whole student. Research supports the importance of movement in educating both mind and body. Physical education contributes directly to development of physical competence and fitness. It also helps students to make informed choices and understand the value of leading a physically active lifestyle. The benefits of physical education can affect both academic learning and physical activity patterns of students. The healthy, physically active student is more likely to be academically motivated, alert, and successful. In the preschool and primary years, active play may be positively related to motor abilities and cognitive development. As children grow older and enter adolescence, physical activity may enhance the development of a positive self-concept as well as the ability to pursue intellectual, social and emotional challenges. Throughout the school years, quality physical education can promote social, cooperative and problem solving competencies. Quality physical education programs in our nation's schools are essential in developing motor skills, physical fitness and understanding of concepts that foster lifelong healthy lifestyles.

Methodology: This study examined the relationship between physical education and academic achievement in children who were first-time test takers of both the Texas tests of choice. Physical education scores were determined using the Fitness gram. Academic achievement scores were determined using the Texas Assessment of Knowledge and Skills. The study required the use of a cross tabulation with chi square analysis. Data analysis further determined relationships between the categorical variables gender and socioeconomic status. Chi square analyses revealed that for the study sample: (1) there was no statistically significant relationship between Fitness gram scores and scores from the Texas Assessment of Knowledge and Skills (TAKS); (2) there was no statistically significant relationship between Fitness gram scores and scores from the TAKS when examined by student gender;

and (3) there was no statistically significant relationship between Fitness gram scores and scores from the TAKS when analyzed by student socioeconomic status. Further research should be conducted because physical education has the potential to affect the health and future of America's and the world' population. Other studies have shown a correlation between physical fitness and academic achievement.

Result Analysis

Researchers analyzed a nationally representative sample of more than 5,000 students from the 1998–99 kindergarten class as they progressed through grade 5. Among boys, greater exposure to PE was neither positively or negatively associated with academic achievement.

A study of more than 200 sixth-grade students in Michigan, conducted in 2006, found that students enrolled in PE had similar grades and standardized test scores as students who were not enrolled in PE, despite receiving 55 fewer minutes of daily classroom instruction. A study of 311 fourth-grade students in southeastern Massachusetts found that students who received 56 or more hours of PE per school year scored significantly higher on standardized test scores in English and language arts than did students who received 28 hours of PE per school year. The study, which was conducted in 2000–01, found no significant differences on standardized mathematics test scores.

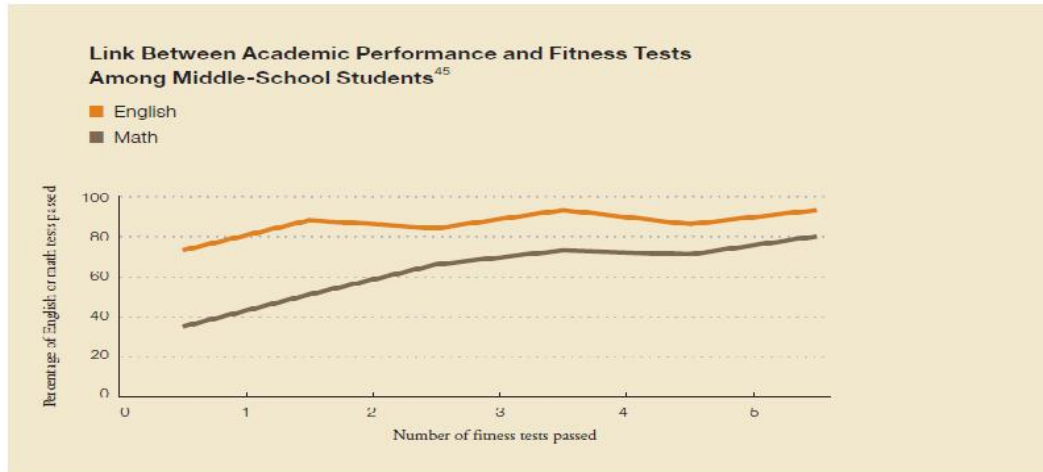
According to a 2007 study of 259 third- and fifth-grade students, children who performed better on aerobic capacity fitness tests were more likely to score higher on state math and reading exams

According to seven studies involving elementary-school students,^{47–53} and one survey of elementary- and middle-school administrators,⁵⁴ regular physical activity breaks during the school day may enhance academic performance, academic focus and/or behavior in the classroom.

It is important to note that cognitive and behavioral responses to physical activity breaks during

The school day has not been systematically investigated among middle- or high-school students. Teachers reported better classroom behavior for students who had more than 15 minutes of daily recess, according to an analysis of 1998–99 data for approximately 11,000 students ages 8 to 9. Thirty percent of students in the study had little or no daily recess.

Further analysis showed that only 7 percent to 14 percent of black, Hispanic and low-income students had daily recess, compared with 54 percent to 67 percent of white and affluent students.



Additional research is needed to determine the impact of physical activity on academic performance among those children who are at highest risk for obesity in the United States, including black, Latino, American Indian and Alaska Native, and Asian-American and Pacific Islander children, as well as children living in lower-income communities.

in-school physical activity time by approximately 50 minutes per week, students receiving the extra physical activity time had similar standardized test scores for mathematics, reading and

Language arts as did students in the control group.

The association between physical activity and enhanced academic performance is strengthened by related research that found higher levels of physical fitness to

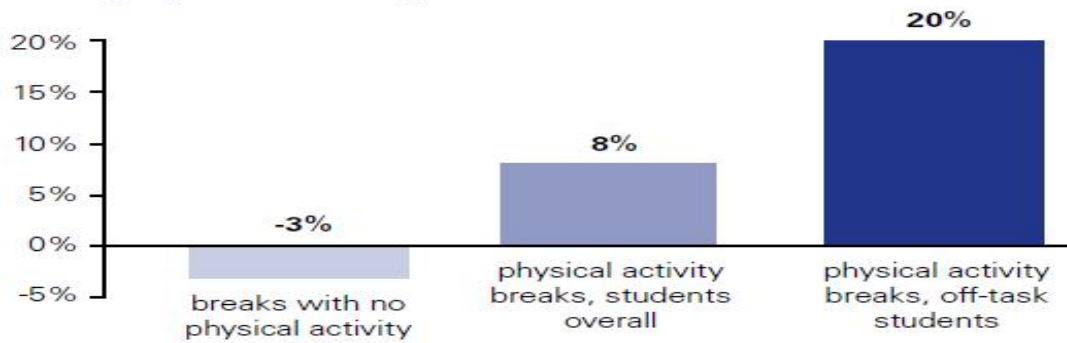
Be linked with improved academic performance among children and teens. For example two large national studies in Australia²² and Korea, ²⁸ along with two smaller studies conducted in the U.S., ^{29, 30} found physical fitness scores to be significantly and positively related to academic performance. These studies included students from elementary through high school.

Activity breaks can improve cognitive performance and classroom behavior

According to five studies involving elementary students, regular physical activity breaks during the school day may enhance academic performance. Introducing physical activity has

been shown to improve cognitive performance and promote on-task classroom behavior.³¹⁻³⁶ It is important to note that the cognitive and behavioral responses to physical activity breaks during the school day have not been systematically investigated among middle or high school students.

Elementary students' on-task classroom behavior improves with physical activity breaks³⁵



In a study conducted in 1999 with 177 New Jersey elementary students, researchers compared concentration test scores after students completed either a classroom lesson or a 15-minute physical activity session. Fourth-grade students exhibited significantly better concentration scores after completing the physical activity. Among second- and third-grade students, the physical activity intervention was neither beneficial nor detrimental to test performance.

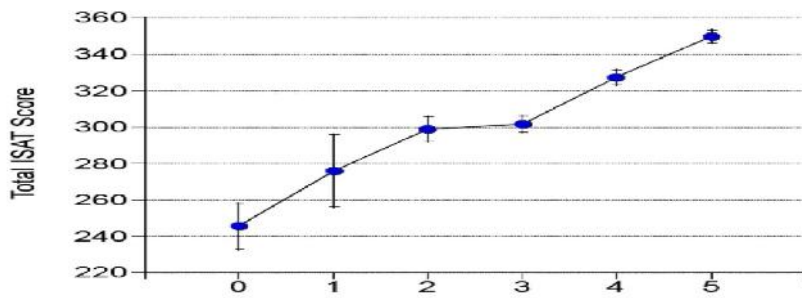
Five studies consistently show that more time in physical education and other school-based physical activity programs does not adversely affect academic performance.

In some cases, more time in physical education leads to improved grades and standardized test scores. Physically active and fit children tend to have better academic achievement.

There are several possible mechanisms by which physical education and regular physical activity could improve academic achievement, including enhanced concentration skills and classroom behavior.

Additional research is needed to determine the impact of physical activity on academic performance among those who are at highest risk for obesity in the United States, including African-American, Latino, Native American, Asian American and Pacific Islander children, as well as children living in lower-income communities.

Physical Fitness & Achievement Test Performance



Only 3.8% of elementary schools, 7.9% of middle schools and 2.1% of high schools provide daily physical education or its equivalent for the entire school year. Twenty-two percent of schools do not require students to take any physical education at all.

Yet, 95% of parents believe physical education should be part of a school curriculum for All students in grades K-12.

Evidence from the Early Childhood Longitudinal Study showed that physical education programs

Not allow waivers or substitutions for physical education. Students should not be permitted to substitute activities such as sports, ROTC, or marching band for physical education.

Require physical education for graduation and count the physical education grade as part of a student's overall GPA.

Physical Fitness in Childhood Linked to Higher Reading and Math Scores

If your child is struggling in school, you may want to evaluate his level of physical activity and fitness.

Researchers have repeatedly found connections between fitness and brain health, which naturally impacts all areas of brain function, such as cognitive thinking skills and memory.

"Cardio respiratory fitness was the only factor that we consistently found to have an impact on both boys' and girls' grades on reading and math tests... This provides more evidence that schools need to re-examine any policies that have limited students' involvement in physical education classes."

- Recent research indicates having a healthy heart and lungs may be one of the most important factors for middle school students to make good grades in math and reading. To improve academic performance, the authors urge schools to re-examine policies that limit students' involvement in physical education classes
- Previous studies have shown that children who exercised regularly nearly doubled their reading scores. Thirty minutes on a treadmill allowed students to solve problems up to 10 percent more effectively
- Aerobic and resistance training have been found to be equally important for maintaining brain and cognitive health. Aerobic fitness can improve your ability to coordinate multiple tasks, and your ability to stay on task for extended periods, while resistance training appears to improve your ability to focus amid distractions. Overall, exercise tends to improve the ability of different parts of your brain to work together
- Intermittent bouts of exercise, i.e. high-intensity interval training, are an ideal form of exercise for children, as well as adults. Video demonstration and safety guidelines are included

Conclusion

Perhaps more than anything, they would wish for good health for their children and their loved ones. This is no doubt one reason why support for physical education is so strong. However, this support is not always reflected when critical decisions about children's education are made. Physical education programs, like many other programs (e.g., music, art), face increased scrutiny and the potential for elimination when budgets are tight. In order to survive, physical educators must accept the responsibility of promoting their quality physical education programs to children, parents, colleagues, administrators, and the general public.

The accumulated evidence presented in this article can serve as a resource for helping physical educators make a stronger case for the importance of quality physical education. It is important for all physical education professionals and researchers to help public and school policy decision makers to become aware of the facts presented in this article. Finally,

professionals and researchers must work together to establish physical education as a “first class” profession in the 21st century

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