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JOHN W. GARDNER CENTER
for Youth and Their Communities

Exploring the Link between Physical Fitness and Academic Achievement

Background

The issue of childhood obesity has received tremendous attention nationally and locally. There is ample research showing that obese children are more likely to experience physical and mental health problems and other negative outcomes, including lower academic achievement. This evidence has led practitioners and policy makers to focus considerable attention on improving overall health and physical fitness among today's youth.

To examine this complex relationship between physical fitness and academic achievement, researchers from the John W. Gardner Center at Stanford University use the Youth Data Archive (YDA) to follow students over four academic years. The study links students' California Standardized Test (CST) scores in math and English Language Arts (ELA), administered every year, to their performance on the California Physical Fitness Test (PFT), which tests students in grades 5, 7, and 9.¹

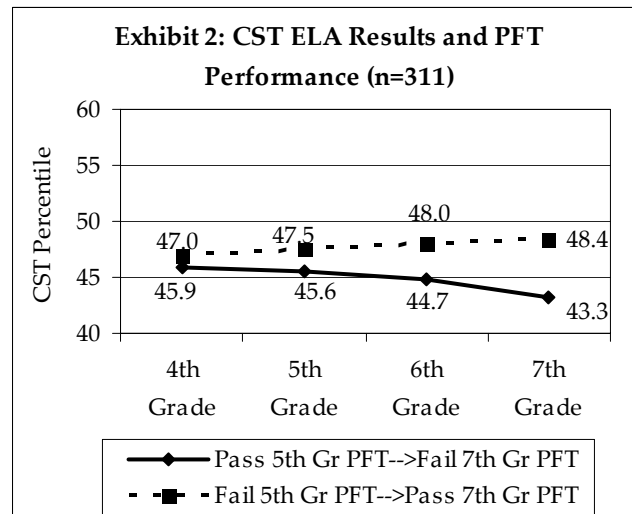
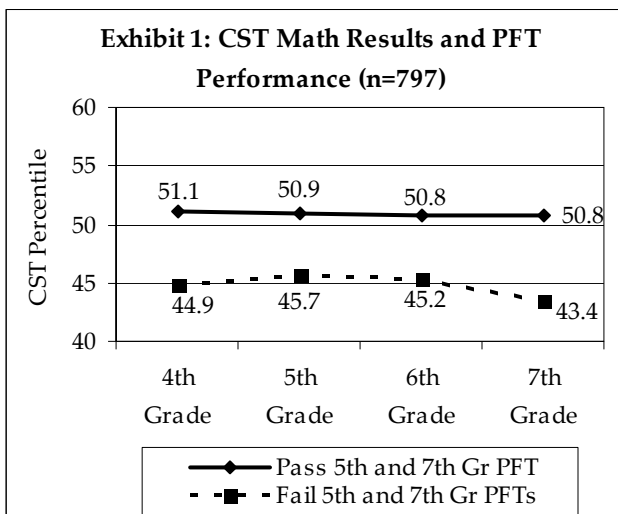
Findings and Interpretation

Although there are differences in demographic characteristics based on PFT performance, the results of this analysis show a consistent link between physical fitness and academic achievement beyond the effects of those demographic differences. The main findings are:

- Students who passed the PFT in both years had higher CST scores than those who failed in both years.² The difference started as early as 4th grade—one year before students first took the PFT—and continued throughout students' academic careers (Exhibit 1).
- Students whose fitness improved between 5th and 7th grade had higher CST scores than students whose fitness declined (Exhibit 2).
- Only improvements in overall fitness, not any single fitness measure, are linked to achievement gains.

¹ The PFT tests students on six different measures of fitness, called Healthy Fitness Zones (HFZs), such as body mass index (BMI), pushups, and a mile run.

² "Passing" is defined as passing five of the six fitness measures on PFT.



Notes: (1) Exhibits include students who took all six Healthy Fitness zones (HFZ) in both 2003-04 and 2005-06 or 2004-05 and 2006-07; (2) All tabulations are regression adjusted for factors including gender, ethnicity, school attended, Free/Reduced Lunch status, parents' education level, special education status, and English language proficiency; (3) CST scale scores were converted into percentiles to allow direct comparisons across grade levels and years.

From Findings to Action

This study cannot conclude that better physical fitness causes better test scores; however, the analysis does show that the two are certainly linked. Fitness is just one piece of the achievement puzzle and not the sole focus for districts struggling with limited resources, but research points to several strategies involving few additional resources that can improve student fitness:

- **Maximizing existing opportunities to improve fitness** – Schools have used instructional time more efficiently toward meeting the minimum mandated physical education minutes by integrating physical activity into the other subjects. Also, research has shown that students benefit most when that time is used for rigorous physical activity. Some schools have focused on their nutrition programs, revamping food offerings to promote healthy eating habits for their students.
- **Expanding partnerships** – Many schools have used partnerships to provide fitness-related programming outside of normal instructional time. Foundations, community organizations, and the state have supported sports and recreational activities during after school hours; health, nutrition and media classes; and community gardens as means of improving students' health.
- **Engaging the community** – Research has shown that parental involvement is critical to improving fitness and healthy behaviors because parents act as powerful models for their children. Beyond the household, schools and community organizations have tried to analyze and expand the access that youth in disadvantaged neighborhoods have to parks and healthy food options.

This analysis shows that physical fitness is linked to students' academic achievement trajectories over time. Through the YDA, the John W. Gardner Center will continue to explore this link to better understand the specific services and factors that can promote positive outcomes in health, well-being, student achievement, and youth development.