



Institute for Community Health

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Is there a relationship between physical fitness and academic achievement? Positive results from Cambridge, MA Public Schools.

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Objectives. Despite increased incidence of overweight among children, time and funding for physical education programs have been reduced in part to address academic issues related to federal No Child Left Behind legislation. Understanding relationships between physical fitness and academic achievement will help inform policy makers' allocation of scarce school resources and time.

Methods. We conducted a cross-sectional analysis of data from a racially diverse urban public school district with significant health and academic achievement surveillance systems. Fitness was assessed by physical fitness tests in five domains. Academic achievement was measured by Massachusetts Comprehensive Assessment System (MCAS) tests. Mathematics scores were assessed in 4th, 6th and 8th graders (n=1,117). English scores were assessed in 4th and 7th graders (n=753). Multiple regression models were fit to estimate the magnitude of the association between raw MCAS scores and fitness levels. Additionally, multivariable logistic regression analyses tested the association between fitness level and a passing score on the MCAS tests. Both the multiple linear and logistic regression models controlled for student's BMI-for-age percentile, ethnicity, gender and socioeconomic status (free/reduced price meals).

Results: Both English and Mathematics raw test scores were positively associated with the number of fitness tests passed (p-values <.001). In addition, there was a significant increase in the odds of passing the MCAS Mathematics test as the number of fitness tests passed increased (p<.0001).

Discussion. We found positive relationships between fitness and academic achievement in one school district. While more research is required to demonstrate causality, promoting fitness may support academic achievement.