

PASS & CATCH Improves Academic Achievement

*Nancy G. Murray, DrPH; Julie C. Garza, DrPH; Pamela M. Diamond, PhD; Melissa H. Stigler, PhD;
Deanna Hoelscher, PhD RD LD CNS; Steve Kelder, PhD; Jerri Ward, MA RD LD*
Michael & Susan Dell Center for Advancement of Healthy Living
The University of Texas School of Public Health

This study examines the association between increased physical activity during the school day and academic achievement among 932 3rd and 4th graders from eight elementary schools in Texas (Mean age = 9.27 years; 52% boys; 62.0% Hispanic, 5.5% Black, 32.5% White/Other; 50.4% normal weight, 17.8% overweight, 31.7% obese) who completed achievement tests in English. All schools were using CATCH as their coordinated school health program. PASS & CATCH offered an enhanced version of CATCH by including classroom physical activities and structured recess to help students achieve 60 minutes of physical activity during the school day, including time spent in physical education classes. Classroom teachers at intervention schools were trained to lead their students in short physical activity sessions written by teachers and based on a modified version of the TAKE 10! Program. Classroom activities ranged from 5 to 20 minutes and teachers were allowed to use these activities at their discretion to meet the goal of 60 minutes per day.

Student achievement was assessed through Stanford 10 achievement tests – abbreviated reading comprehension and math problem-solving at three time points (Sept/Oct 2005, May 2006, Dec 2006). Classroom teachers also completed a Behavioral Assessment System for Children (BASC-2) survey for each participating child. The BASC-2 assessed psychosocial variables, including adaptive skills. Adaptive skills evaluated the student's adaptability, social skills, leadership, study skills and functional communication. Students whose teachers reported they were not adapting well to schools, scoring in the at-risk or clinically significant category (ARCS) for adaptive skills, had poorer scores on Stanford reading and math tests at baseline compared to students without adaptive skills problems. Growth curve analyses were used to test for differences between the intervention (PASS & CATCH) and comparison conditions over time.

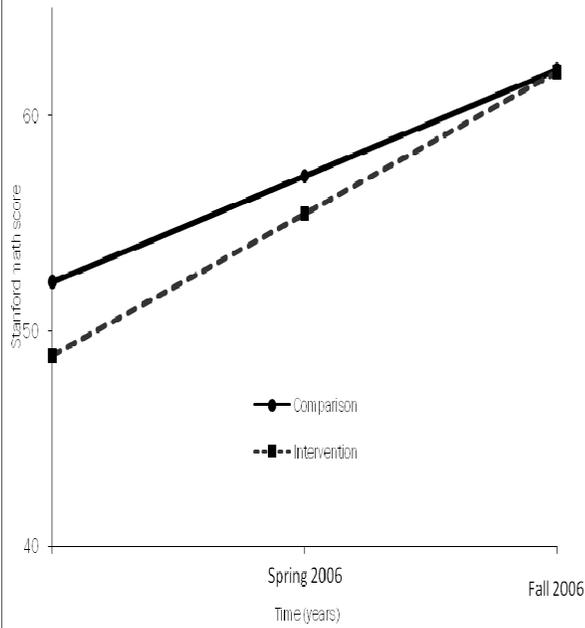
Results of the study included:

- Stanford math scores improved significantly more over time among students in the PASS & CATCH condition compared to the control ($\beta_1=6.58$ vs. 4.93, $p=0.02$). Reading scores increased in both the control and intervention groups at similar rates.
- Students who were not adapting well to school improved their reading ($\beta_1=-1.12$ vs. 3.30, $p<0.01$) and math scores ($\beta_1=7.40$ vs. 2.46, $p<0.01$) at a significantly greater rate if they were in the PASS & CATCH condition compared to the control condition.

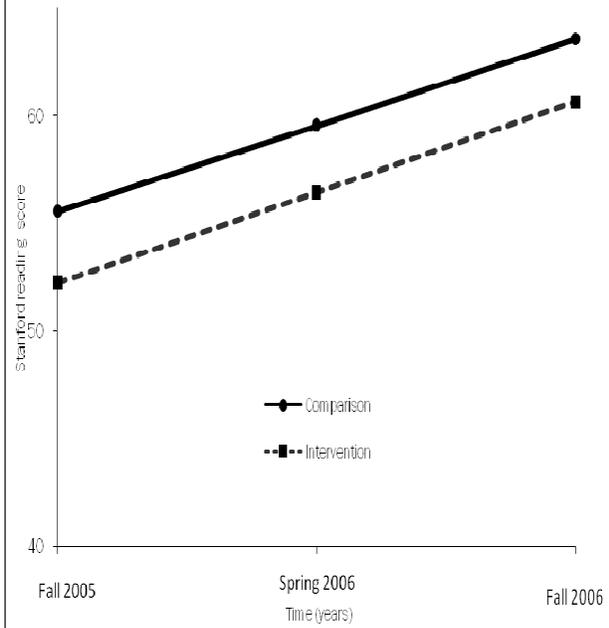
Elementary students in PASS & CATCH schools, which implemented classroom activities for a combined total of 60 minutes of physical activity per day, demonstrated significantly higher academic achievement in math. For children with poor adaptation to school, PASS & CATCH significantly improved both math and reading achievement. PASS & CATCH significantly improved scores on Stanford 10 exams despite spending additional school time on physical activity.

PASS & CATCH is funded by the Centers for Disease Control and Prevention, 2004-2007 (U48 DP000057-03).
Please contact Dr. Nancy Murray (Nancy.G.Murray@uth.tmc.edu; 713-500-9333) or
Dr. Julie Garza (Julie.C.Garza@uth.tmc.edu; 713-500-9325) for more information.

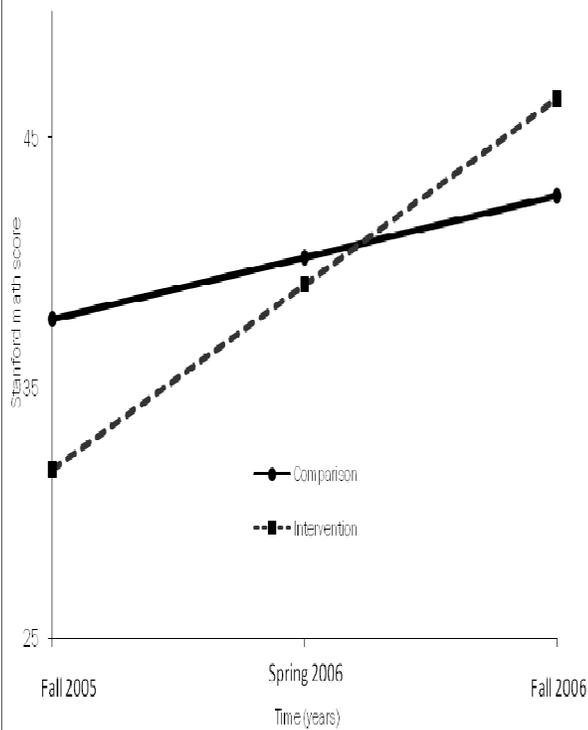
Change in Stanford **math** scores overtime, adjusted for race/ethnicity (i.e., percent Hispanic); among **all students** (n=932)



Change in Stanford **reading** scores overtime, adjusted for race/ethnicity (i.e., percent Hispanic); among **all students** (n=932)



Change in Stanford **math** scores overtime, adjusted for race/ethnicity (i.e., percent Hispanic); among those **not adapting well to school** (n=198)



Change in Stanford **reading** scores overtime, adjusted for race/ethnicity (i.e., percent Hispanic); among those **not adapting well to school** (n=198)

