

Health, Physical Activity, Physical Fitness, and Academic Performance

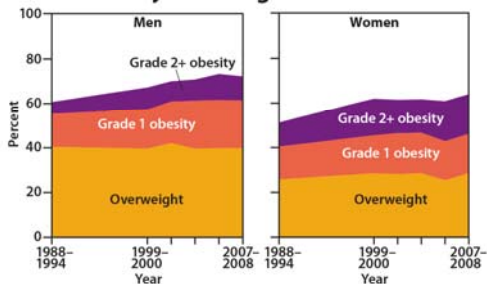
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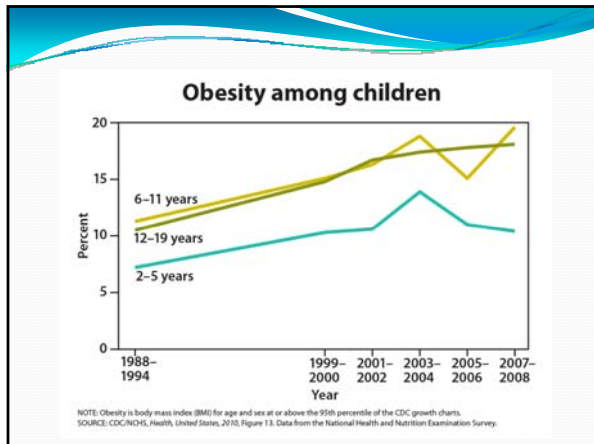
Problems, Problems, Problems

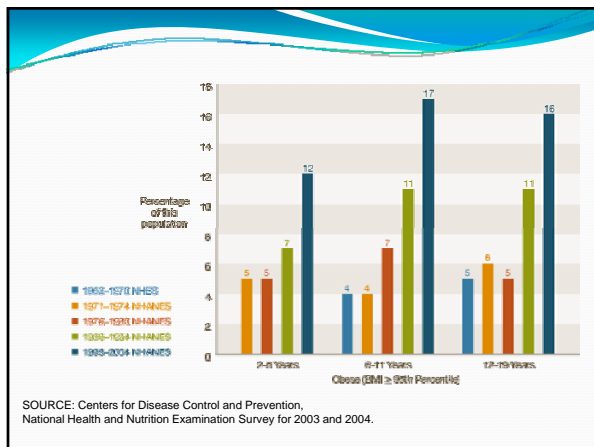
- American children and Texas children are underperforming academically – especially in STEM
- Many American children and Texas children are not physically active and fit enough for good health
- In Texas – 2007 – Senate Bill 530 – required statewide fitness testing with the Cooper Institute's FITNESSGRAM®
 - Modified in the last legislative session
- Resistance in Texas – more time on physical activity and less time on academics and TAKS scores would suffer

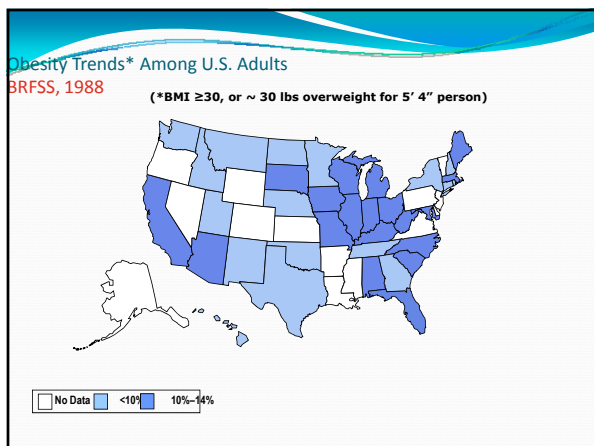
Overweight and obesity among adults 20 years of age and over

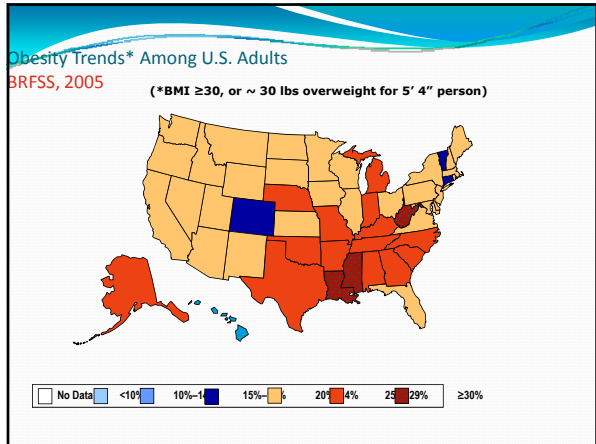


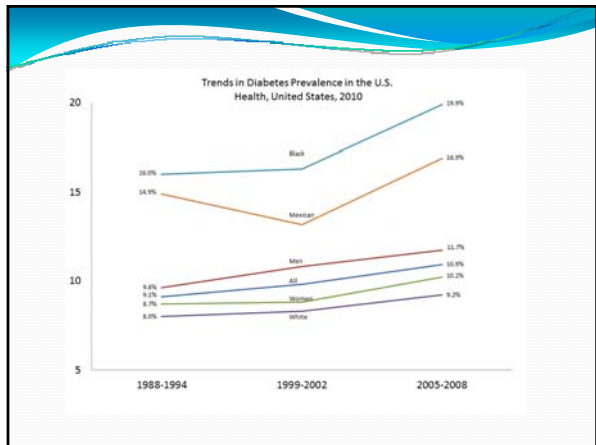
NOTES: Overweight is body mass index (BMI) greater than or equal to 25, but less than 30; grade 1 obesity is BMI greater than or equal to 30 but less than 35; grade 2+ obesity is BMI 35 or greater.
 SOURCE: CDC/NCHS, Health, United States, 2010, Figure 14. Data from the National Health and Nutrition Examination Survey.

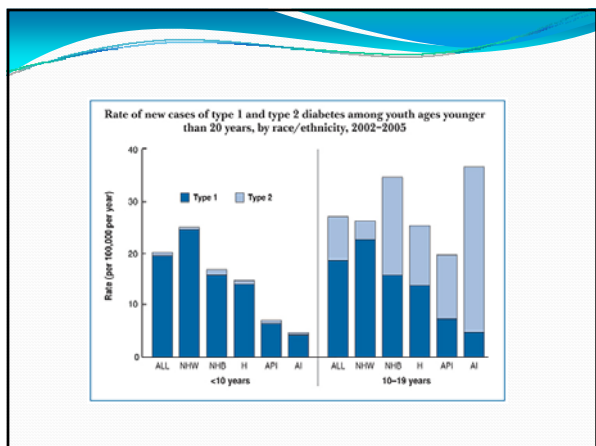




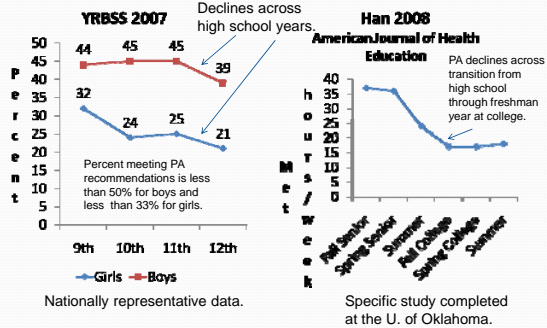








High School Seniors and College Freshman Women



Health People 2020 Objectives

<http://www.healthypeople.gov/2020/>

Nutrition and Weight Status

- NWS-10 Reduce the proportion of children and adolescents who are considered obese
- NWS-11 (Developmental) Prevent inappropriate weight gain in youth and adults

Physical Activity

- PA-3 Increase the proportion of adolescents who meet current Federal physical activity guidelines for aerobic physical activity and for muscle-strengthening activity
- PA-4 Increase the proportion of the Nation's public and private schools that require daily physical education for all students
- PA-6 Increase regularly scheduled elementary school recess in the United States
- PA-8 Increase the proportion of children and adolescents who do not exceed recommended limits for screen time

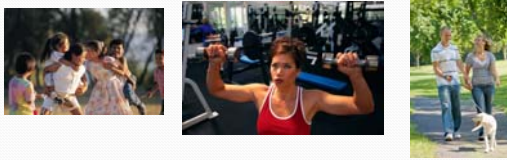


No way, buddy!

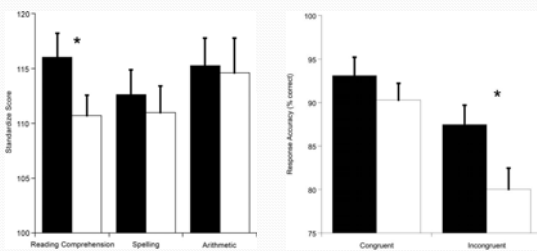
Major Recommendations and Positions on Academics and Physical Activity

- Research shows that healthy children learn more effectively and achieve more academically. American Heart Association, 2009
- Centers for Disease Control and Prevention, 2010
 - Types of physical activity, 1) school based physical education, 2) recess, 3) classroom physical activity integration, 4) extracurricular physical activity
 - Academic performance, representing measures of academic achievement, academic behavior, and cognitive skills and attitudes.
 - 51% positive associations, 48% not statistically significant, 2% negative association
- Conclusions
 - There is substantial evidence that physical activity can help improve academic achievement (including grades and standardized test scores).
 - Increasing or maintaining time dedicated to physical education may help, and does not appear to adversely impact, academic performance.
- Robert Wood Johnson Foundation, 2009
 - In schools across the United States, physical education has been substantially reduced — and in some cases completely eliminated — in response to budget concerns and pressures to improve academic test scores. Yet the available evidence shows that children who are physically active and fit tend to perform better in the classroom and that daily physical education does not adversely affect academic performance.

Why?

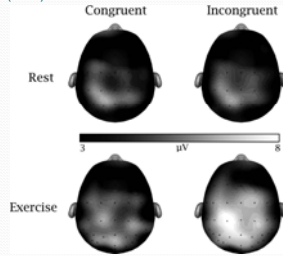


C. H. HILLMAN, et al.
EFFECT OF ACUTE TREADMILL WALKING ON COGNITIVE CONTROL AND ACADEMIC ACHIEVEMENT IN PREADOLESCENT CHILDREN
Neuroscience 159 (2009) 1044–1054



Findings: Results indicated an improvement in response accuracy, larger P3 amplitude, and better performance on the academic achievement test following aerobic exercise relative to the resting session.

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Hillman, C.H., K.I. Erickson, & A.F. Kramer. (2008) Be Smart, Exercise Your Heart: Exercise Effects on Brain and Cognition. *Nature Reviews Neuroscience*, 9, 58-65.

An emerging body of multidisciplinary literature has documented the beneficial influence of physical activity engendered through aerobic exercise on selective aspects of brain function. Human and non-human animal studies have shown that aerobic exercise can improve a number of aspects of cognition and performance. Lack of physical activity, particularly among children in the developed world, is one of the major causes of obesity. Exercise might not only help to improve their physical health, but might also improve their academic performance. **This article examines the positive effects of aerobic physical activity on cognition and brain function, at the molecular, cellular, systems and behavioural levels.** A growing number of studies support the idea that physical exercise is a lifestyle factor that might lead to increased physical and mental health throughout life.

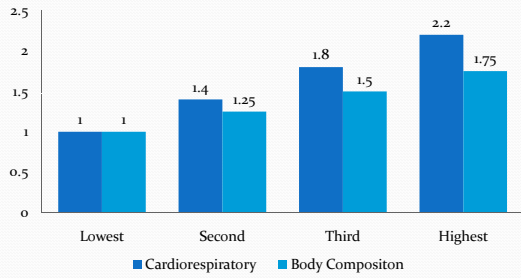
How about?



Welk et. al. (2010) The Association of Health Related Fitness with Indicators of Academic Performance in Texas Schools, Research Quarterly for Exercise and Sport, 81, s16 – s23

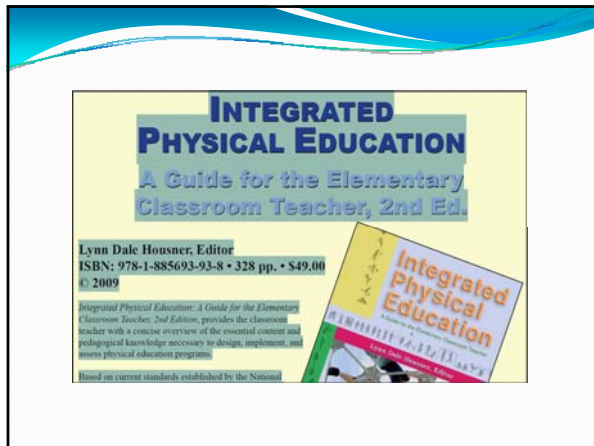
- Texas Youth Fitness Study: state wide FITNESSGRAM® results with academic measures from the TEA.
- Included: 6,222 schools, 1052 districts, 248 counties
- School level data
- Major Findings:
 - Passing rates for cardiorespiratory fitness positively related to TAKS performance and attendance, negatively related to delinquency
 - Passing rates for body composition positively related to TAKS performance and attendance, negatively related to delinquency

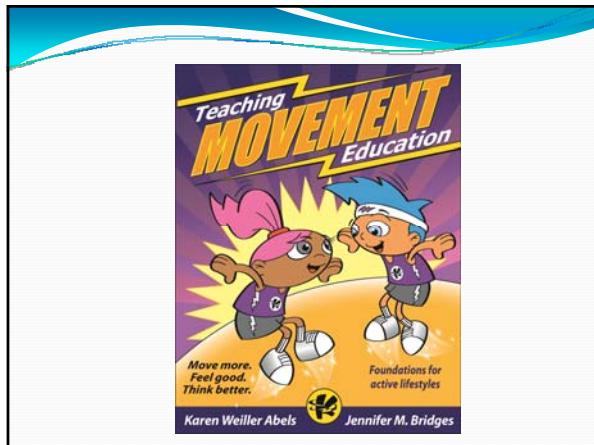
Probability of School Being Classified as Exemplary or Recognized vs Acceptable or Unacceptable across Quartiles of Passing Rates of FITNESSGRAM® Fitness Tests (Texas Youth Fitness Study)

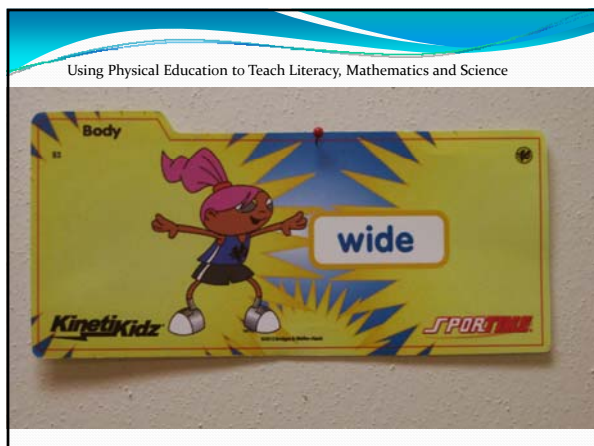


Classroom ↔ Physical Education









Using Physical Education to Teach Literacy, Mathematics and Science

Final Thoughts

- It should not be and it does not need to be Health, Physical Activity and Physical Fitness **OR** Academic Excellence.
- It **should be all and it needs to be all** if we are going to improve Texas and the U.S. in productivity and competitiveness.
- Should we, could we, have a longer and more diverse day for children in the public schools of Texas that would allow all of the above to be accomplished??????

Thank you for giving me your attention.

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