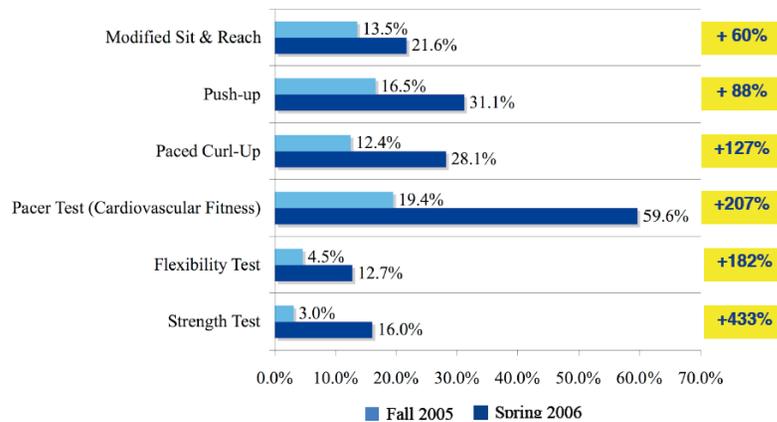


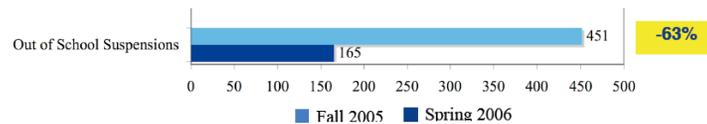
The Naperville Phenomenon

GROUP REPORT
 Grades 4 and 5
 Fitness Gram Results: Fall 2005 – Spring 2006

Percent of Students in Healthy Fitness Zone



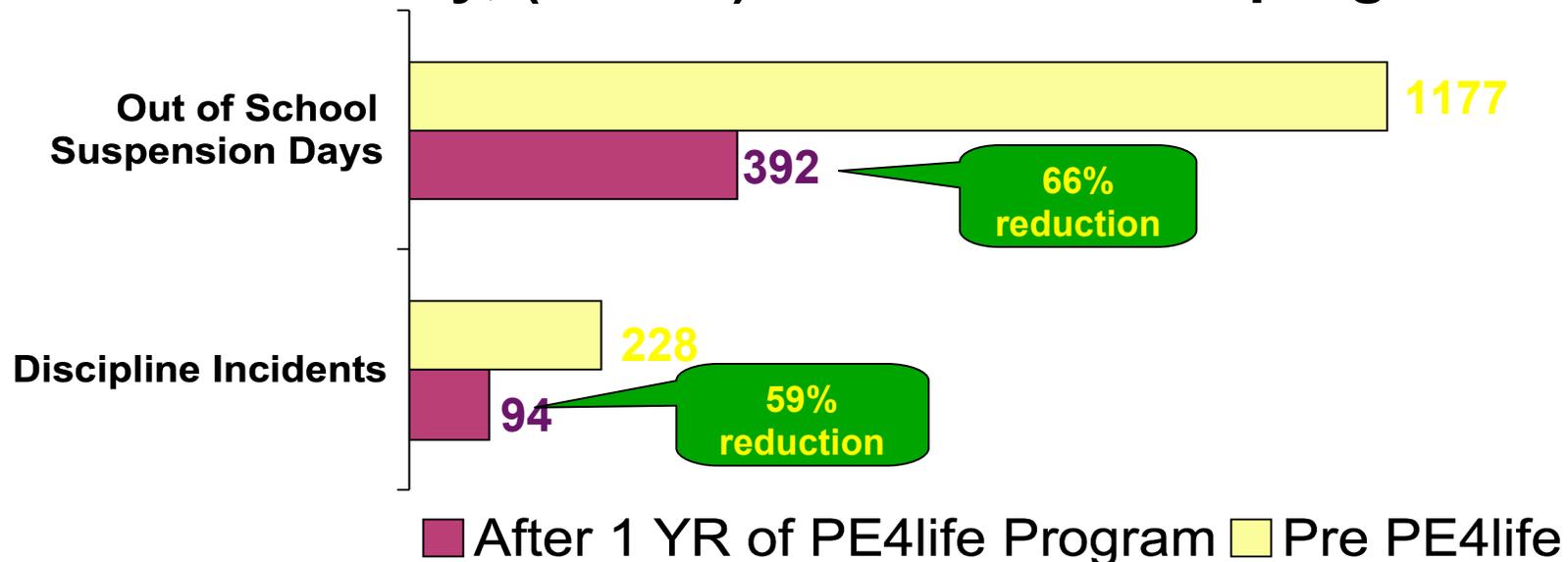
Percent Reduction in Disciplinary Issues



- In the fall of 2005, this elementary school had PE one day per week of 50 minutes. This year Jan-June 2006 a PE4life Program was offered five days a week at 45 minutes.
- The changes are remarkable. This is an inner city school with 80% of kids on free lunch program, mostly Hispanic and African American heritage.
- The PE4LIFE added elements were cardiac monitored watches

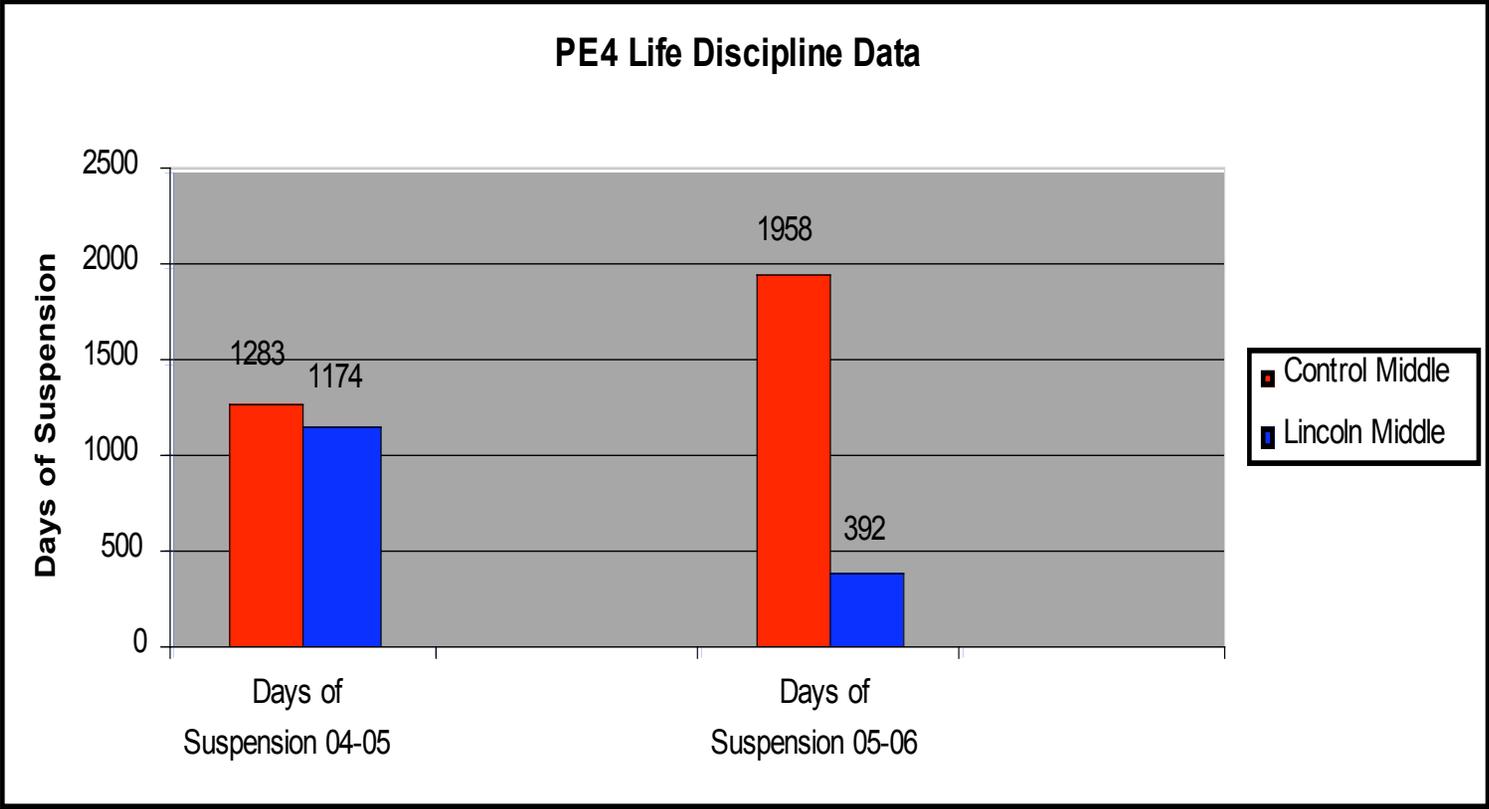


Major reduction of disciplinary issues in Woodland Elementary, (KCMO) site of a PE4life program

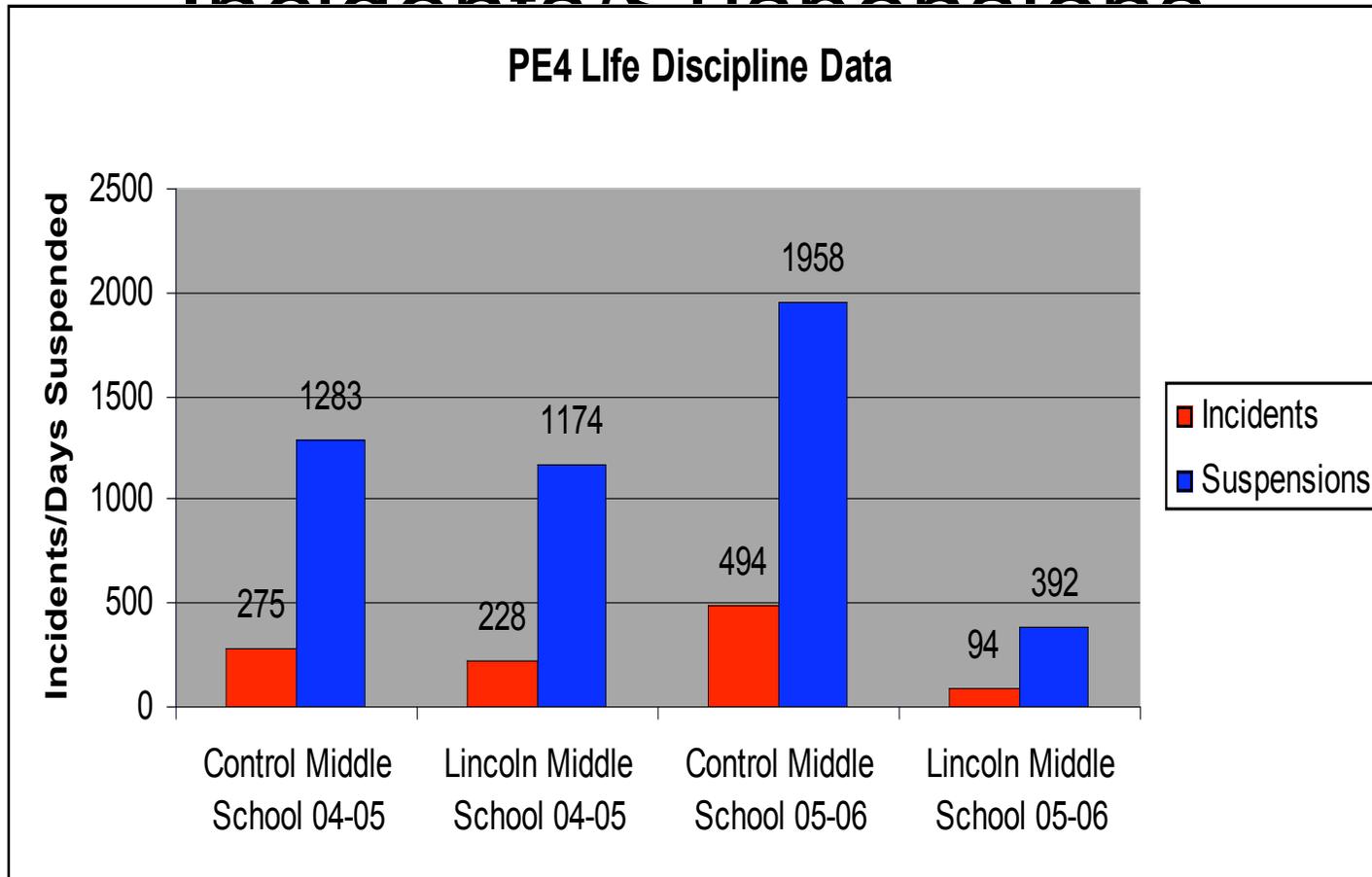


“PE4life has had a tremendous influence on the lives of our students. Students are also more motivated throughout the day, their enthusiasm is way up, and the discipline issues are way down”. Craig Rupert, Principal, Woodland Elementary School

Lincoln Middle School Suspensions



Lincoln Middle School Incidents/Suspensions



Charleston Progressive Academy

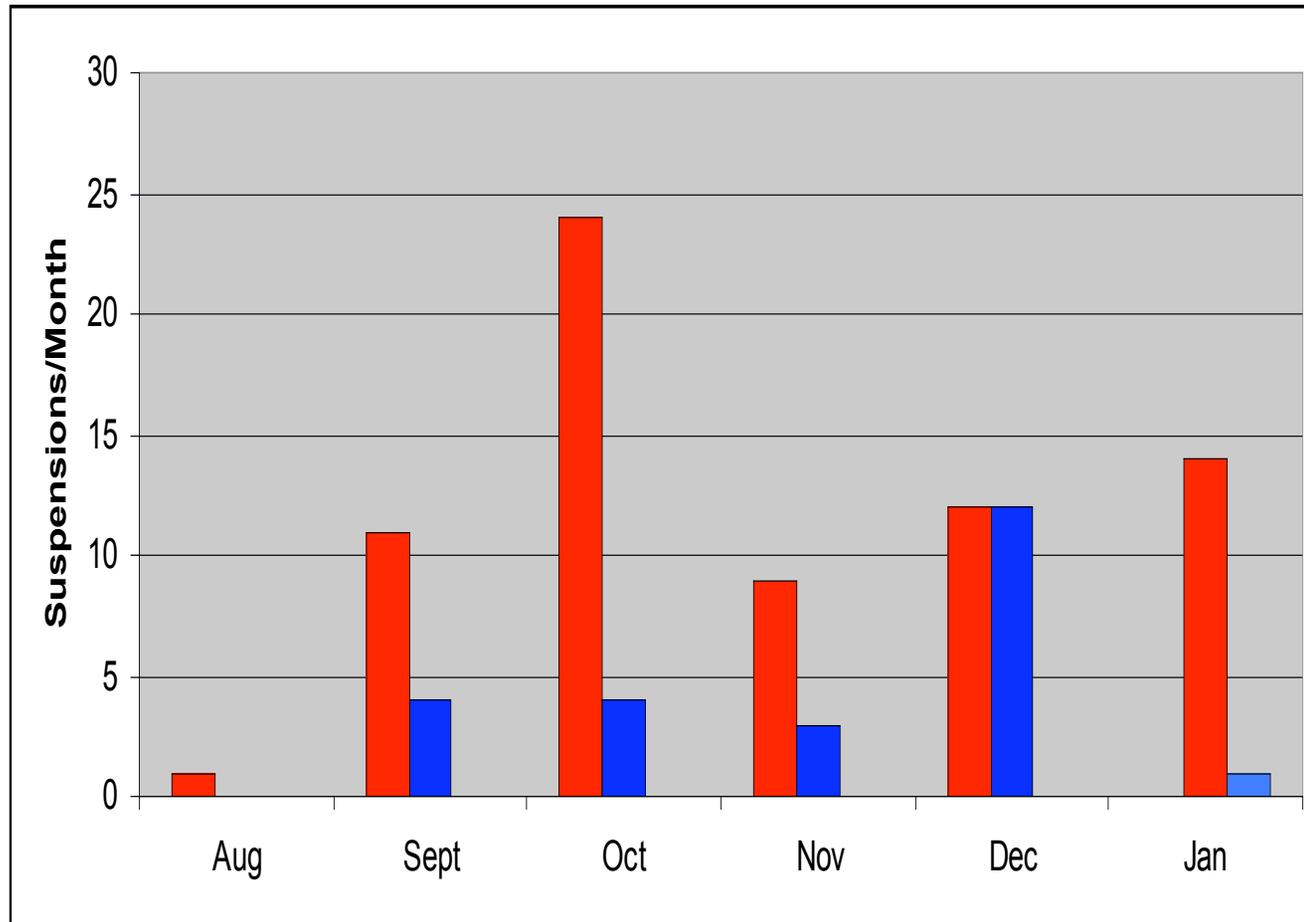
- Public magnet school, K-8 all on school breakfast and lunch programs. This September added 40 minutes in the morning while waiting for everyone to arrive started activities, such as basketball, "double Dutch" jump roping and pogo stick jumping at stations in the gym before classes
- This is what the 1st semesters of 2006 and 2007 look like.

»	2006	2007
Referrals:	661	353
Suspensions:	71	24

- Teachers have reported that students are more focused. We observed this as well during our MAP (Measure of Academic Progress) testing. ... Our initial observation was that students testing immediately after

http://www.charleston.net/news/2008/jan/14/sparking_mind27365/

Suspensions By Month



Suspensions by Month/Year - Charleston Progressive Academy

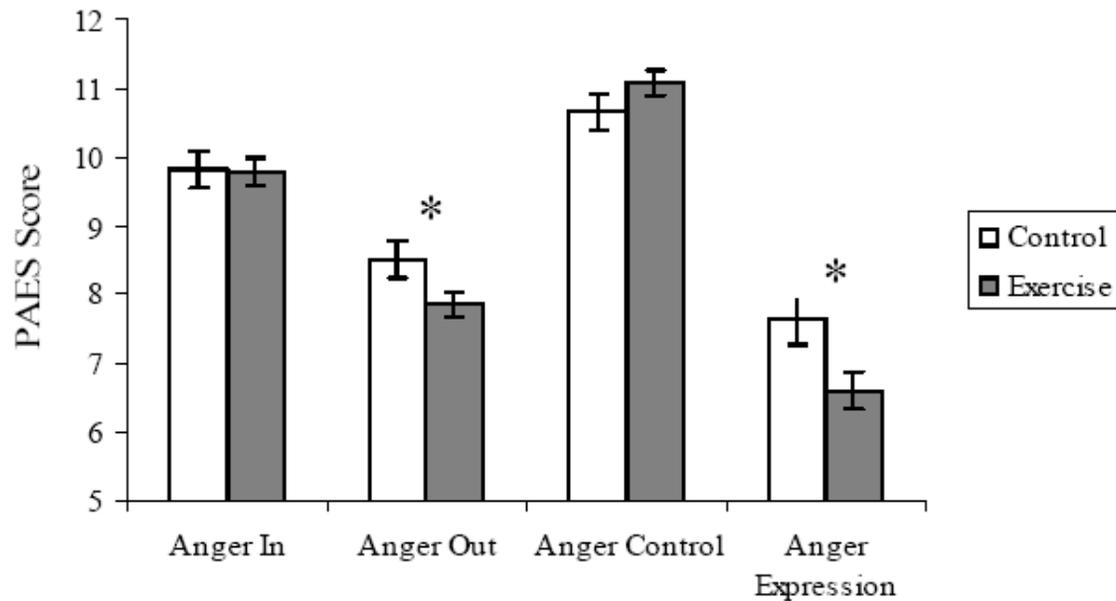
Average # Suspensions/Month Before Program: 14

Average # Suspensions/Month After Program: 3

Exercise Anger Out and Control

Control 69 kids Exercise 139 (20, 40 min/day)
15 weeks after school
7-11 yrs old, overweight $\geq 85^{\text{th}}$ % BMI

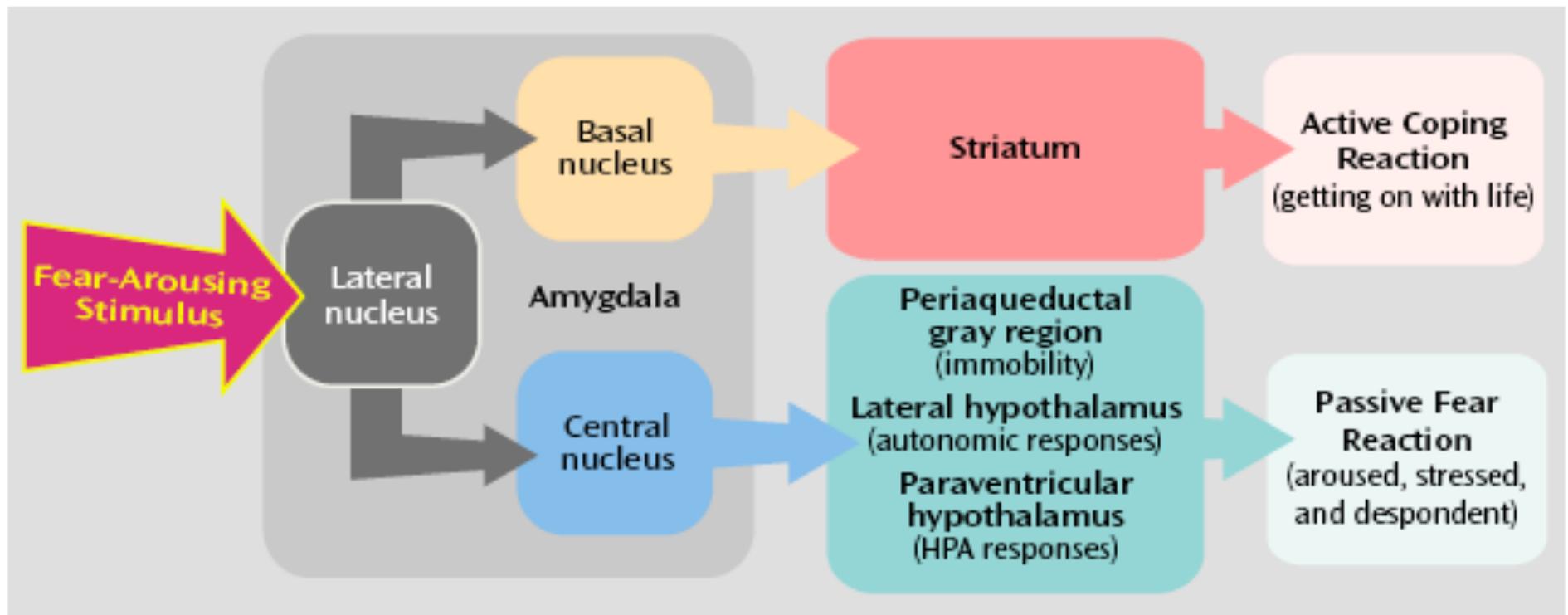
Improved fitness, a direct result of the exercise program, was related to lower posttest Anger Out scores. Previous work has related fitness to improved executive function in children and adults, and reduced anger in adults. The prefrontal cortex is the locus of executive function, including inhibition and self-control. Emotions are generated, integrated with other information, and restrained by the prefrontal cortex. Exercise training has been shown to improve executive function in older adults, and an improvement in executive function due to exercise has been observed in this sample of overweight children. Thus, improvement in executive functioning due to exercise may explain these findings. Fitness (i.e., treadmill time) change was also a significant predictor of posttest Anger Out, such that greater improvements in fitness were associated with greater reductions in Anger Out.



*Exercise condition significantly lower than control condition ($p < .05$)

Tkacz J, Young-Hyman D., Boyle C., Davis C.L. : Aerobic Exercise Program Reduces Anger Expression Among Overweight Children. Presented at the 10th National Conference on Child Health Psychology in Gainesville, Florida, April 20, 2006. Department of Pediatrics, Medical College of Georgia, Augusta, GA

FIGURE 1. Shift From Passive Fear to Active Coping in the Brain^a

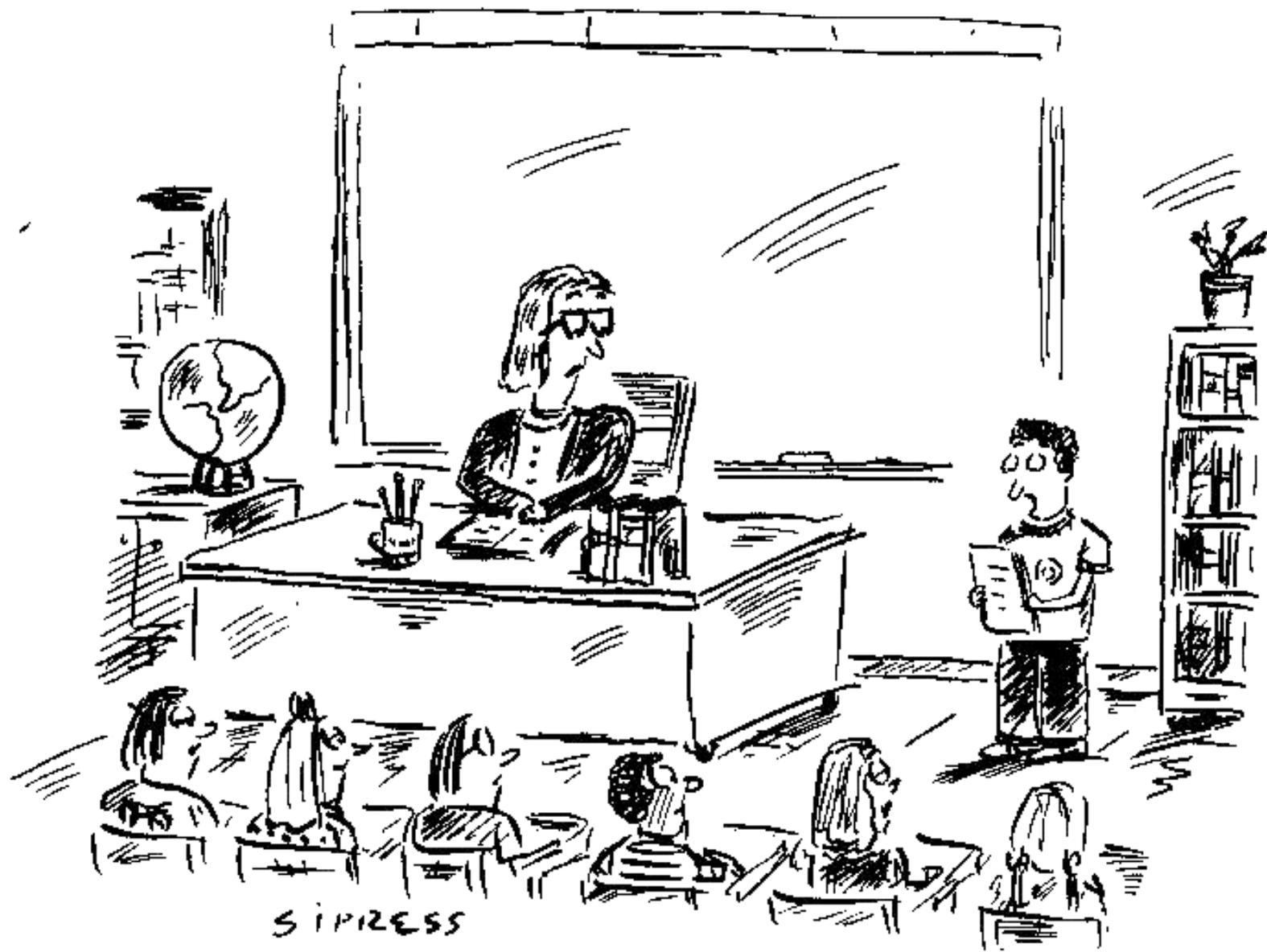


Fear- start a constellation of fear responses in the brain to include freezing, activating sympathetic system and eventually a full blown stress response- neuroendocrine. The amygdala- the fear button -- is heavily involved with learning, called 'limbic tagging' basically makes the encoding process easy. The lateral nucleus integrates the outside stimuli to unconditioned response of the person. If lateral is allowed to go to the central nucleus of the amygdala - you get activation of brain stem areas -- that deal with catatonic freezing, response, and also 2. Start the sympathetic nervous system. 3. And hit the hypothalamus to start the stress response-releases of ACTH CRH ->Cortisol. So you are left in the panic mode and sit and stew and traumatize the self again and again. This can be shifted basal nucleus or the activating centers for movement- this is a reciprocal process that goes from bottom up to top down- so by getting some movement going this draws the energy through the basal nucleus and away from the full blown fear catatonic panic-- just think of a person who just has heard some horrific news, they immediately get up and start to move- walk away from it or pacing aimlessly around and away from the news bearer. Not just NO-Don't tell me that -- rejecting it for a while to slowly incorporate it without turning into a bowl of jelly and moving to help deal with the news more successfully

Time In versus Time

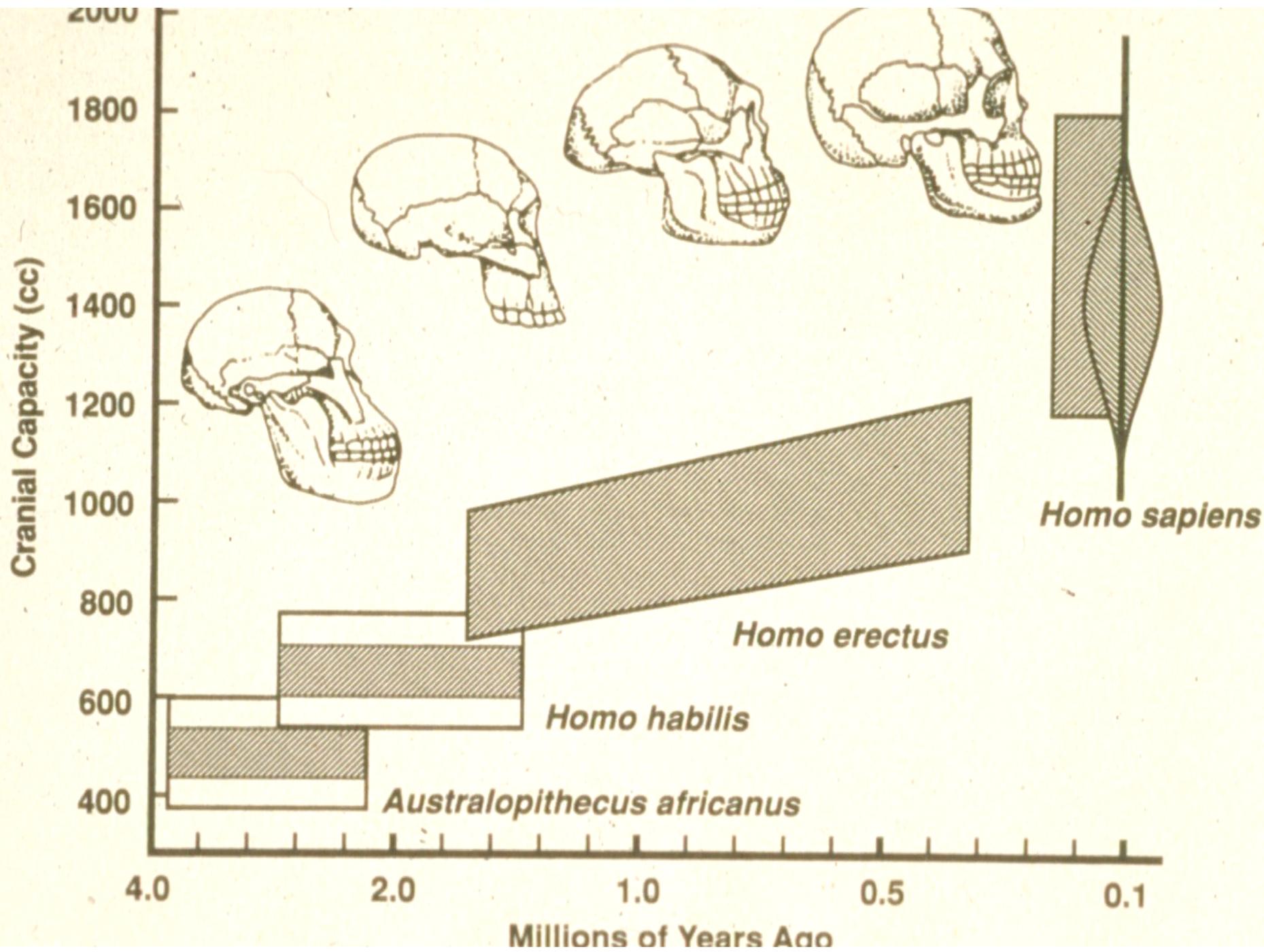
Out





"GameBoy: A Memoir of Addiction," by Ronald Markowitz.

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In a recent study 33% of children with ADHD had Coordination Problems



Math Balls

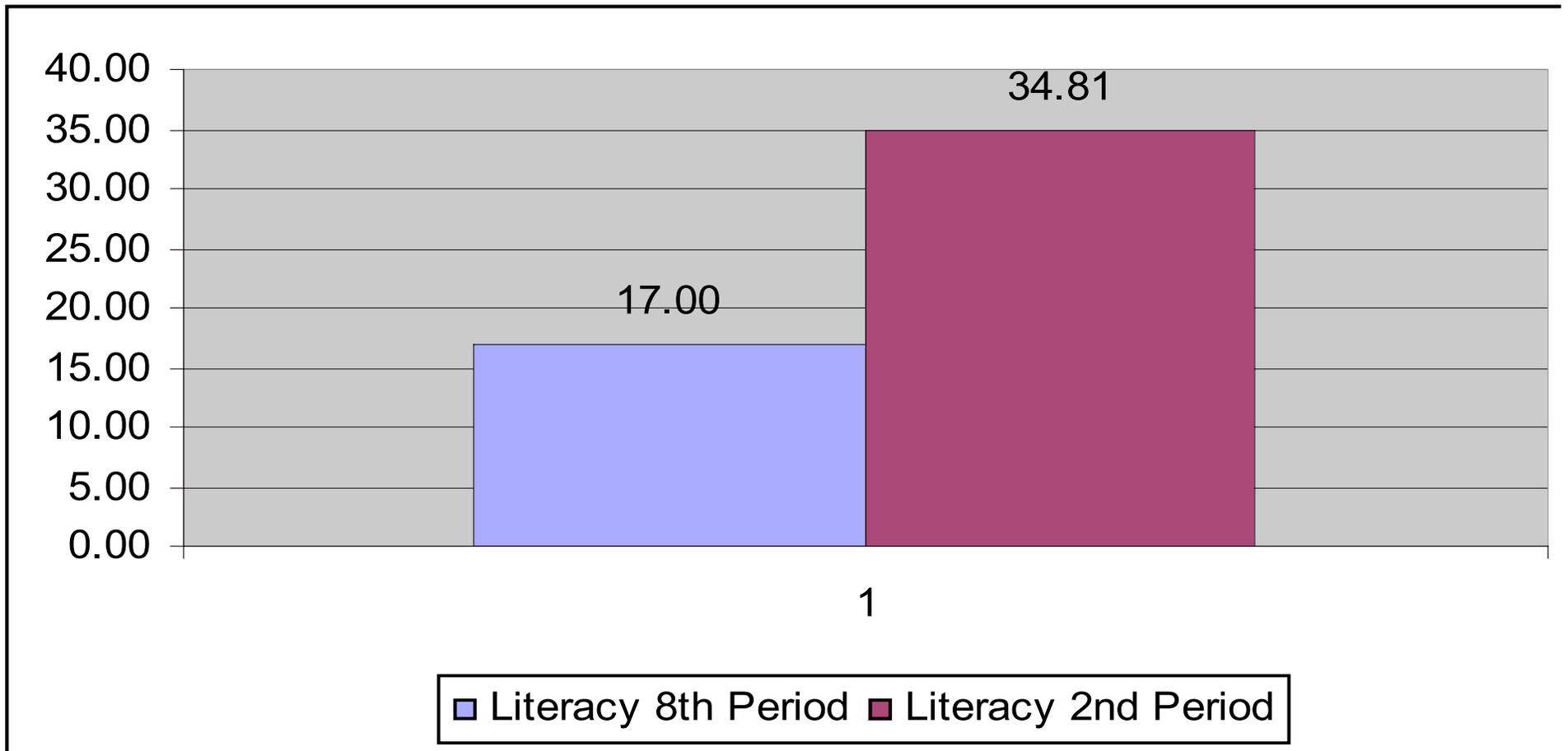


Colorado teacher Lisa Witt studied a dozen of her sixth-grade students in 2001 to demonstrate the benefits of the balls to a skeptical principal. Video studies of the students showed improved posture, more time spent on task and less squirming while they sat on the balls, she told the newspaper. “People are not meant to sit still.”

Mrs. Raabe’s fifth-grade class in Charlotte, North Carolina recently embraced ergonomic innovation in an attempt to increase attention spans and facilitate good posture. The classroom is now a sea of motion in which children bob and weave, sway and bounce their way through lessons perched atop brightly colored fitness balls.

Turns out, the balls do have a wellness significance. A Mayo Clinic study found that the balls can be used to burn calories, in effect attacking the growing problem of childhood obesity. With the balls, fidgety students or those with attention deficit disorder have an outlet for their excess energy. Concentration increases for everyone because of the noise reduction. And physical conditioning is improved because of the work involved in staying on top of the ball.

Naperville 2007 results



Comparing Nelson Denny improvements for 9th graders in reading readiness classes. Blue are students who took special PE but had reading class 8th period; while those having their class immediately following special PE improved twice as much. The weak conclusion drawn from this is that special PE had a greater effect on learning if the students took the class immediately after PE.

Education

Neuromyths

- People have right or left brain orientation
- Most students have one learning style, which the teacher should focus on
- A commercially produced curriculum can enhance brain function for all learners.
- Critical periods **limit learning new skills**

STUDIES OF STUDIES

- **Etnier 1997** In 135 Studies **+ Positive +**
Association between PE and Cognitive performance.
Colcombe 2003



- 18 Studies
Effects of Exercise on Cognitive Function / Older Adults

Aerobic Exercise + Strength Training = Best Results
Sibley 2003 Better than aerobic exercise Better than just strength training
+ Positive +
30 minutes ++ of Exercise Produced the Greatest Benefit



PHYSICAL EDUCATION & GRADES

- Field 2001 - PE Positively Impacts GRADES
- Coe 2006 –

The More Vigorous...The Better

- OH – 2003 : 6000 Korean Students
Grades 5, 8, 11
PE Positively Associated With GPA

Does More PE Time Reduce Academic Performance?

NO!!

- **Shephard 1984** - Trois - Rivieres Project
Canada No association with increased time in
PE &
 a drop in performance on reading and
math scores.
- **Dwyer 1983** - Australian Study
 No decline in Scores or Grades
- **Pellegrinin 1995** :

Cognitive Ability as a Function of Exercise Intensity times Duration

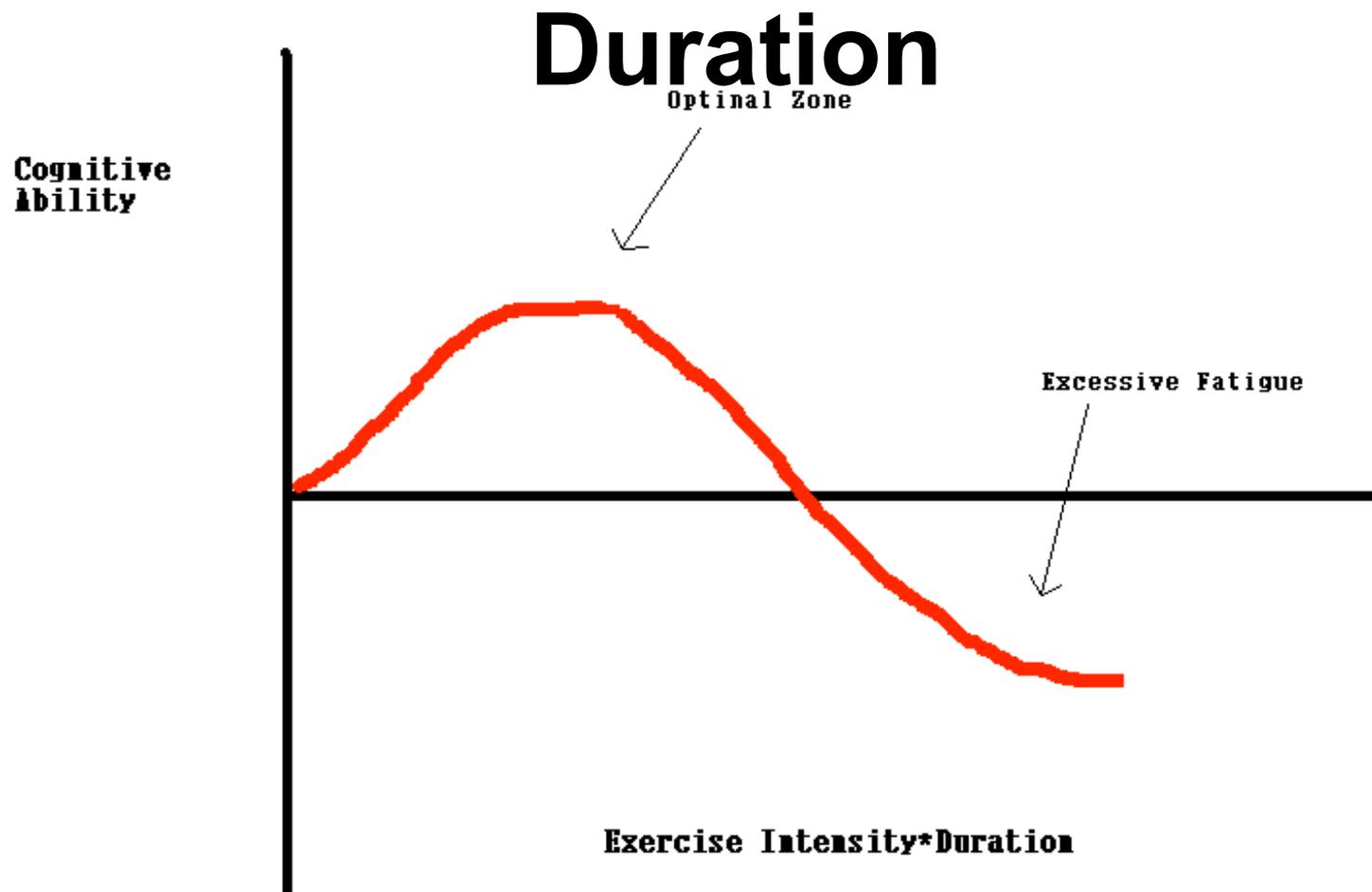
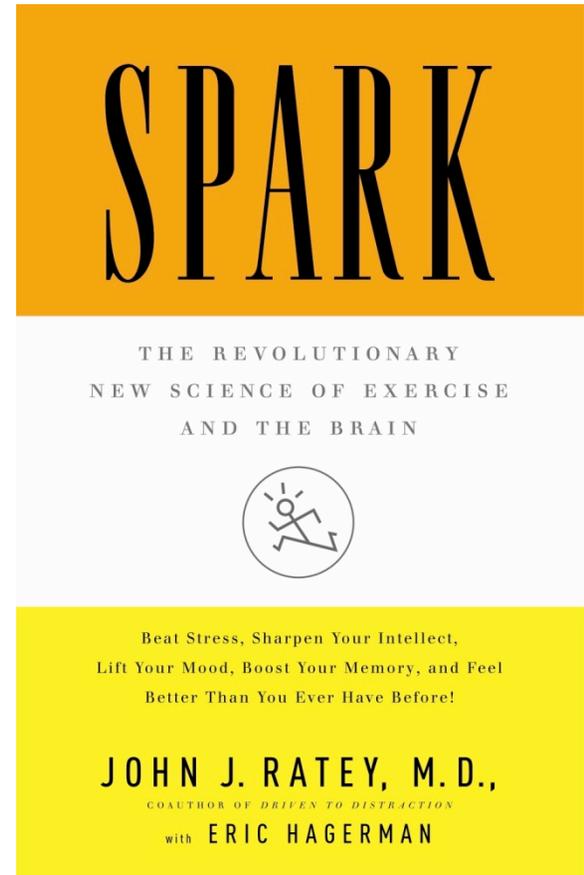


Figure 1: Proposed curve for the relationship between exercise intensity x duration and cognitive ability, as measured immediately following an exercise session.

ANOTHER EXAMPLE OF SHAMELESS SELF- PROMOTION

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www.JohnRatey.com



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YOUR STAFF TOO