

MOVEMENT AND LEARNING

by Rob Sweetland



MOVEMENT AND LEARNING

The Positive effects of Fitness on the the
learning brain

SCARY STATS CDC₍₂₀₁₁₎

- 65% of adults are overweight or obese (BMI > 25)
- 35.7% are Obese (BMI of over 30)
- Body Mass Index (BMI) = $\text{body weight} \times 703 / (\text{height in inches} \times \text{height in inches})$
- 11.3% (25.6 million) ages 20-65 have some type of diabetes
- 26.9% (10.9 million) people over 65 have some type of diabetes
- \$147 billion dollars were spent in 2010 on obesity related medical illness

SCARY STATS (CDC 2011) FOR CHILDREN

- 30% of grade school students are overweight or obese
- 17% are obese
- .26% of youth (215,000) have a type of diabetes

THE BEST NEWS

✓ **Obesity is 100% Curable!**

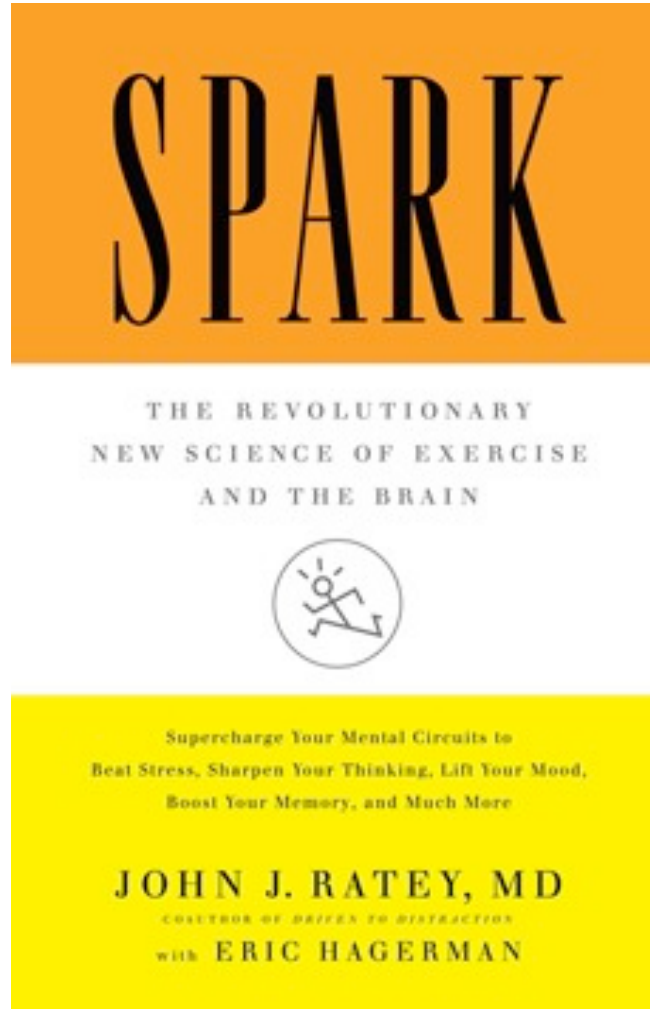
With Diet
and
Exercise
a person can heal
themselves
of this disease.

NEW RESEARCH

- What is Given - positive effects of exercise for the physical body.
- What we are finding through research - the positive effects mentally and emotionally.

SPARK

by Dr. John Ratey



SPARK



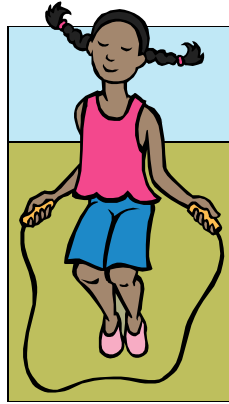
- Exercise is encoded in our genes.
- Humans - Hunter and Gatherers - were designed to move and play.
- What makes us move also makes us think.
- 3 basic types of movement correspond with the way information travels in the brain.
 - Crawl/Walk - Front to back
 - Rolling - Side to side
 - Jumping - Bottom to Top

CROSS LATERAL MOVEMENT



- When pairing up these 3 different movements - the brain's activity spreads across all parts.
- Any activity associated with moving across the mid-line of the body will help make new connections in the brain.
- Reading, writing, and problem solving require using parts through out the brain.

SPATIAL AWARENESS



- Improving the vestibular system.
- Spinning, balancing, jumping, rolling, turning all improve the vestibular system as well as spatial awareness.
- Without awareness a student struggles with: reading, organizing, understanding abstract math concepts, reproducing patterns and shapes.

WHAT HAPPENS IN THE BRAIN DURING EXERCISE?



RESULTS LIKE THESE!

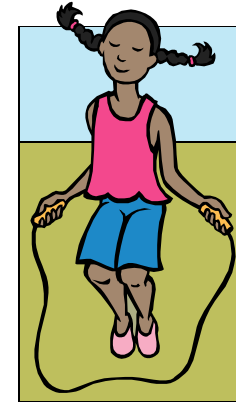


- New brain cells grown in the hippocampus (neurogenesis).
- Blood and glucose gets to the brain faster (Fuel)
- Activates BDNF - this is the “miracle grow” for the brain that nourishes and protects the neural pathways for learning
- Cerebellum grows with movement
- Endorphins are released, which improves self esteem and self worth
- Neurotransmitters work in harmony. A natural replacement for Ritalin and Zoloft!

WHAT DOES THAT ALL MEAN?

Exercise improves

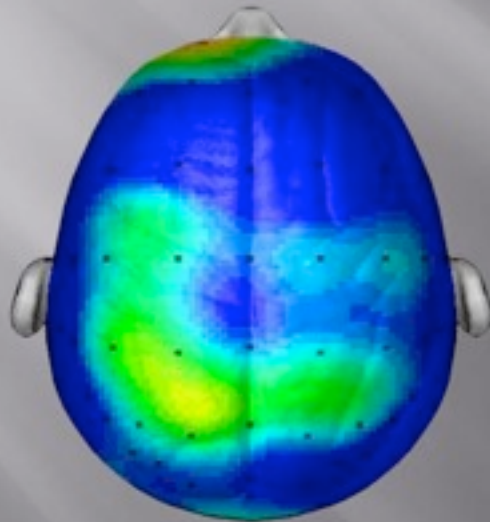
- ⊙ brain function efficiency
- ⊙ memory retrieval
- ⊙ cognition
- ⊙ academic performance
- ⊙ calms stress
- ⊙ social skills
- ⊙ mood and behavior regulation



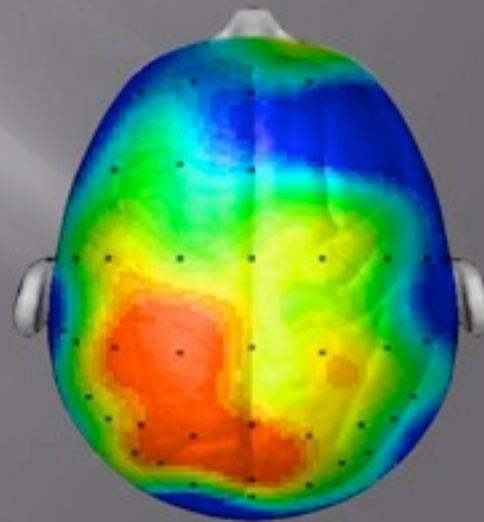
BRAIN ACTIVITY

Average composite of 20 students
brains taking the same test

BRAIN AFTER SITTING
QUIETLY



BRAIN AFTER 20 MINUTE
WALK

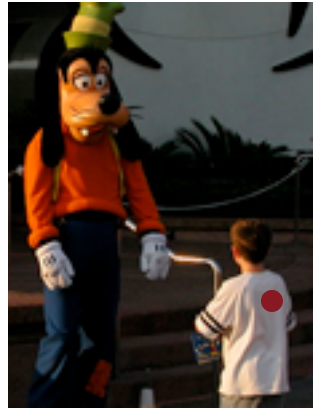


Research/scan compliments of Dr. Chuck Hillman University of Illinois

FITNESS VS. SITNESS

After sitting 15-19 minutes, the brain starts shutting down. The body is not moving, therefore it must be ready to sleep.

- Takes 38 seconds to switch from inactive to alert.
- One minute of physical activity provides positive benefits for up to 20 minutes.
- Heart rate (HR) in its target zone (200 - age) for 30 minutes provides benefits for 12-16 hours.
- Humans learn 10% more when standing as opposed to sitting.

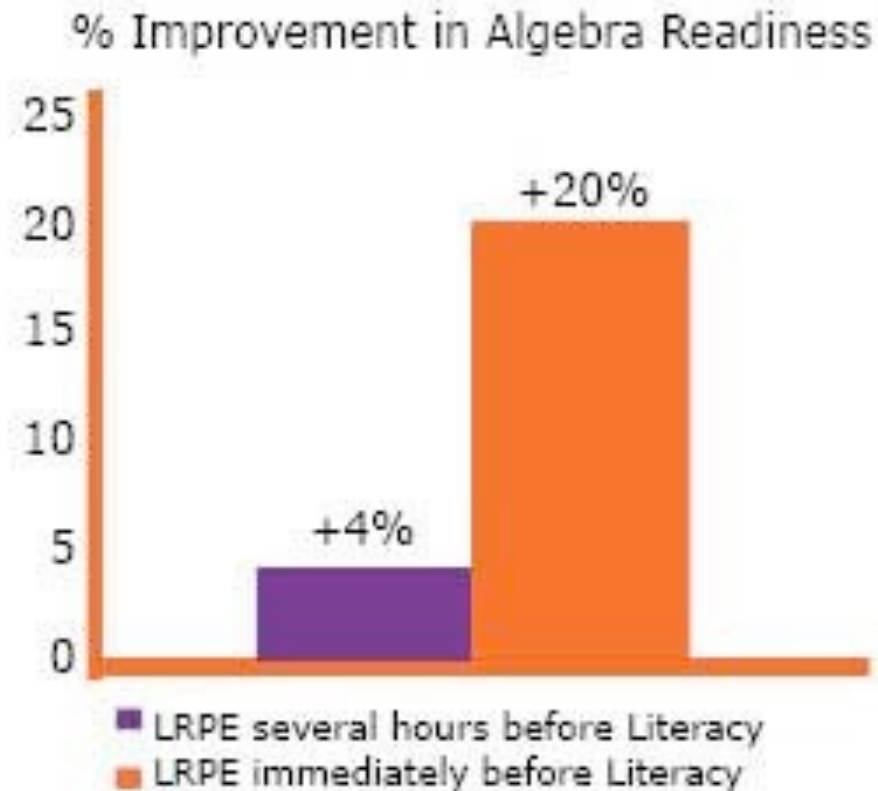


WE CAN PREPARE THE BRAIN TO LEARN

- Naperville, Illinois. Learning Readiness Physical Education.
- Students took a zero hour fitness class - right before their literature or math classes (toughest ones).

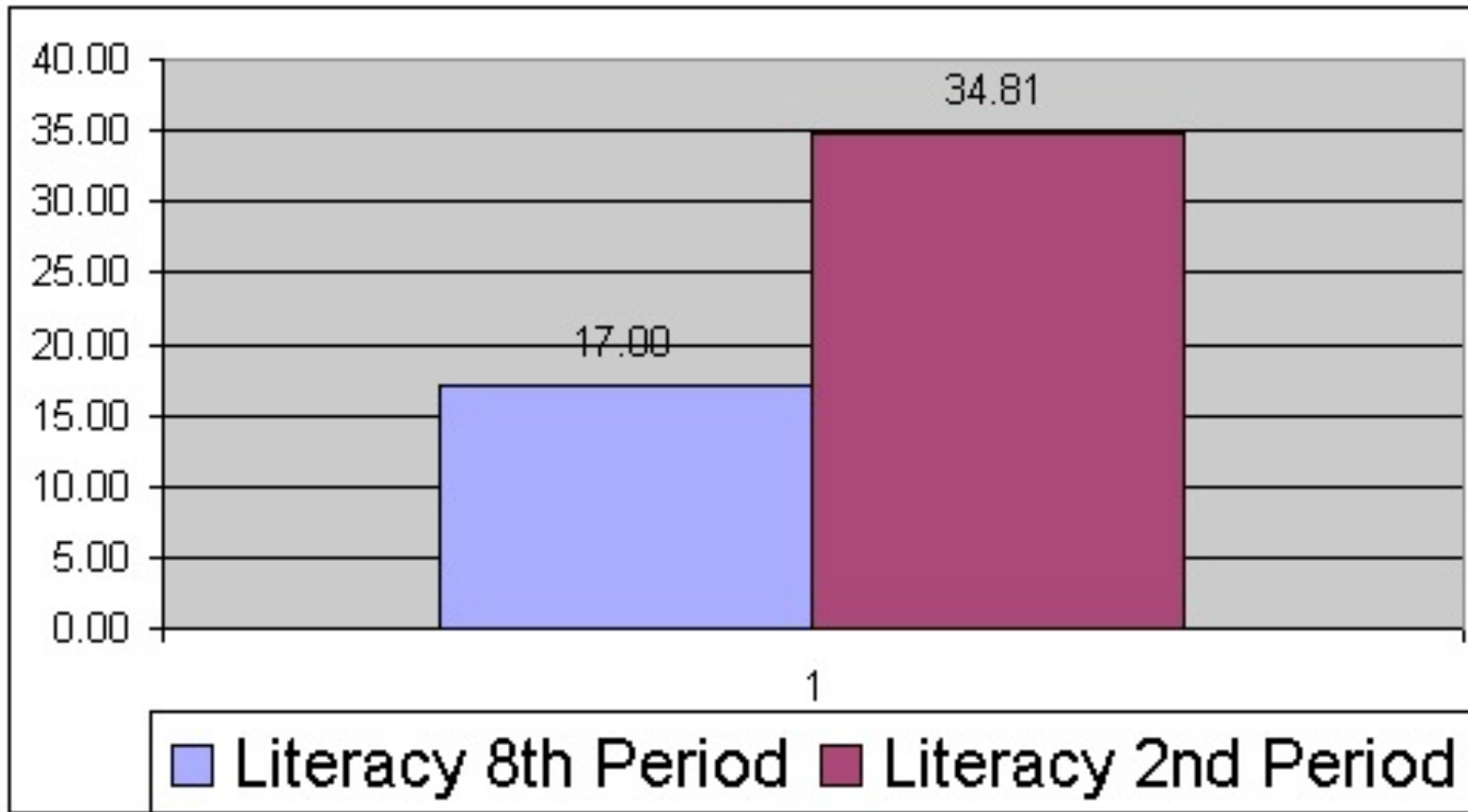
RESULTS OF LRPE

(LEARNING READINESS PHYSICAL EDUCATION)

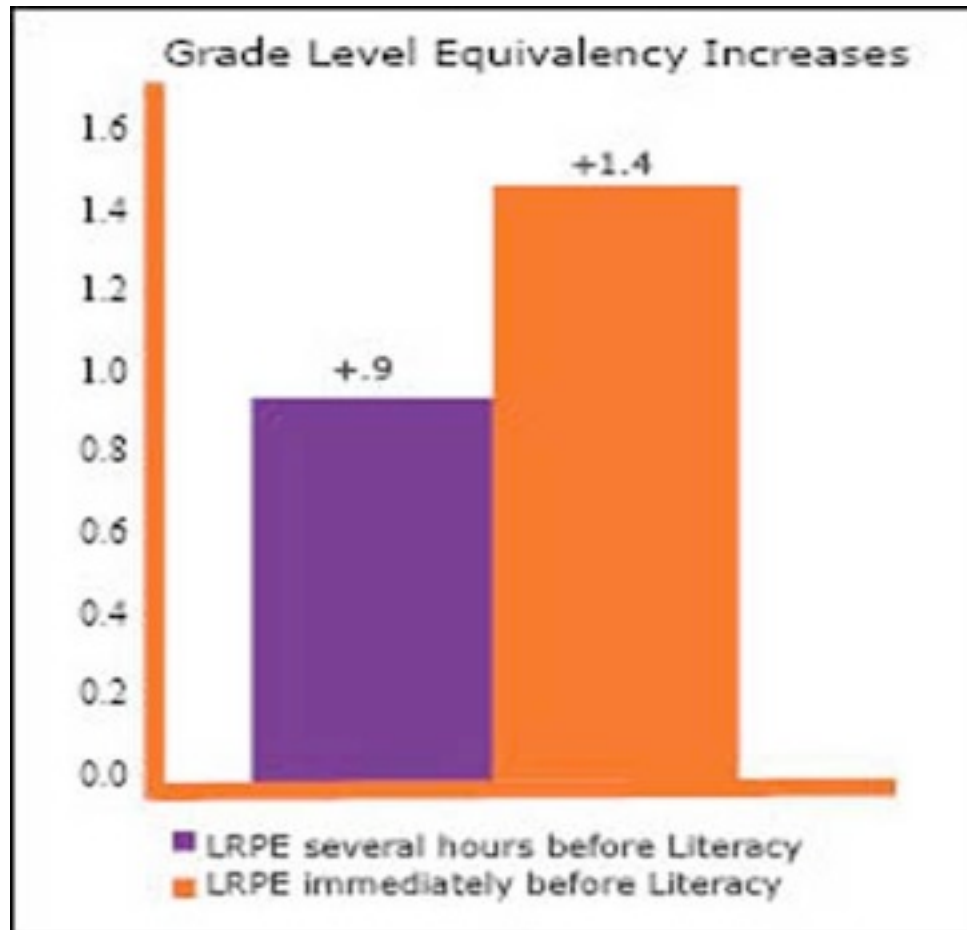


RESULTS OF LRPE

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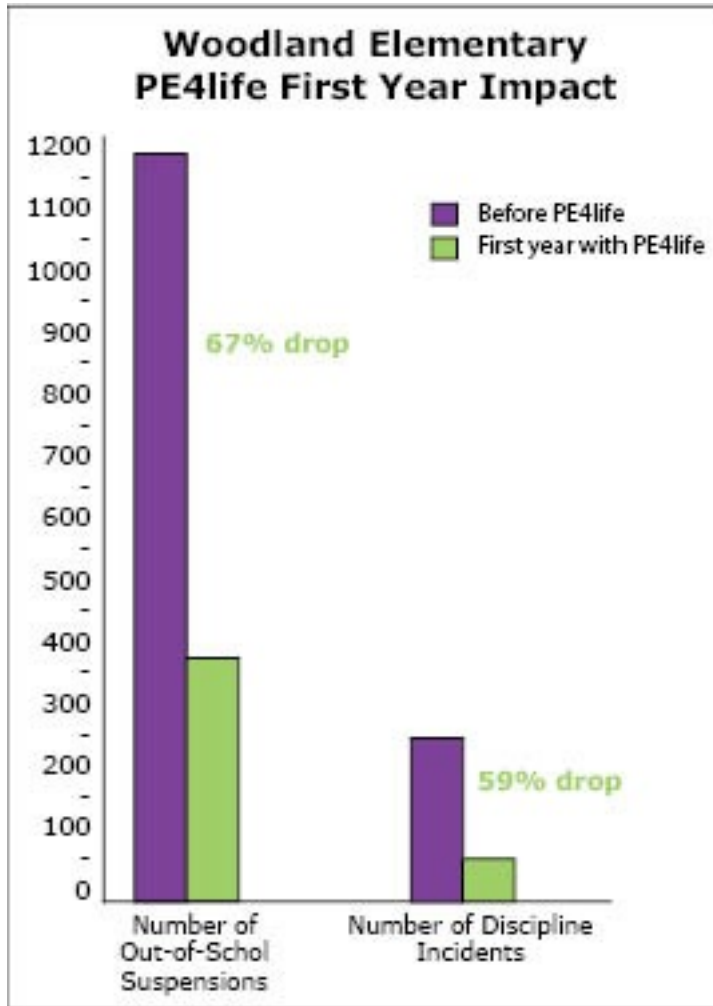
MORE RESULTS



QUALITY PHYSICAL EDUCATION

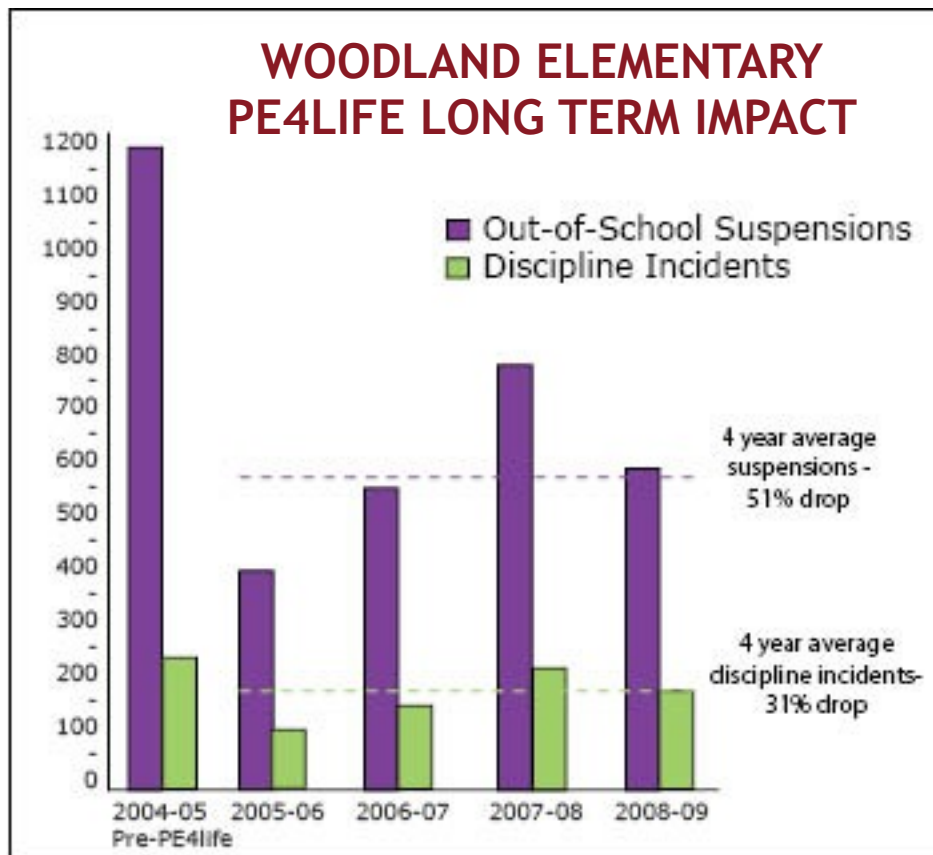
- Fitness classes that focus on a variety of opportunities to get a student into a target heart rate zone for 20-30 minutes.
- Schools are using climbing walls, stationary bikes, dance video games, kayaking, swimming, inline skating, and most importantly - Heart Rate Monitors. Students are not graded on skill as much as they are on attaining a certain heart rate.

PE4LIFE



EFFECTS ON BEHAVIOR

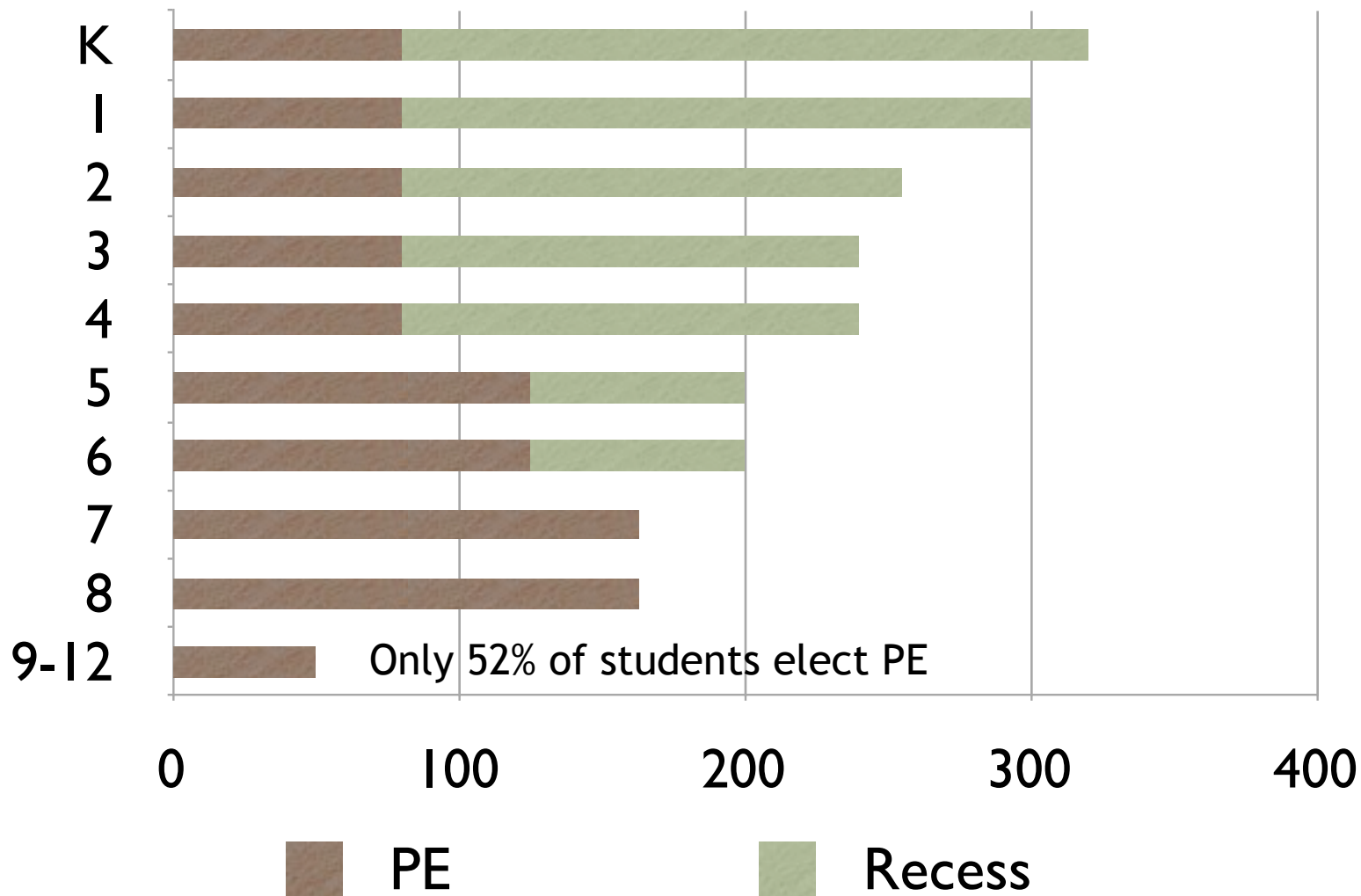
Woodland Elementary School, a K-5 school in the urban core of Kansas City, Missouri, integrated PE4life Core Principles into their program in the 2005-2006 school year. After just one year, the number of out-of-school suspensions dropped from 1177 to 392, that's a reduction 67%. The number of discipline incidents dropped from 228 to 94, a percentage of 59.



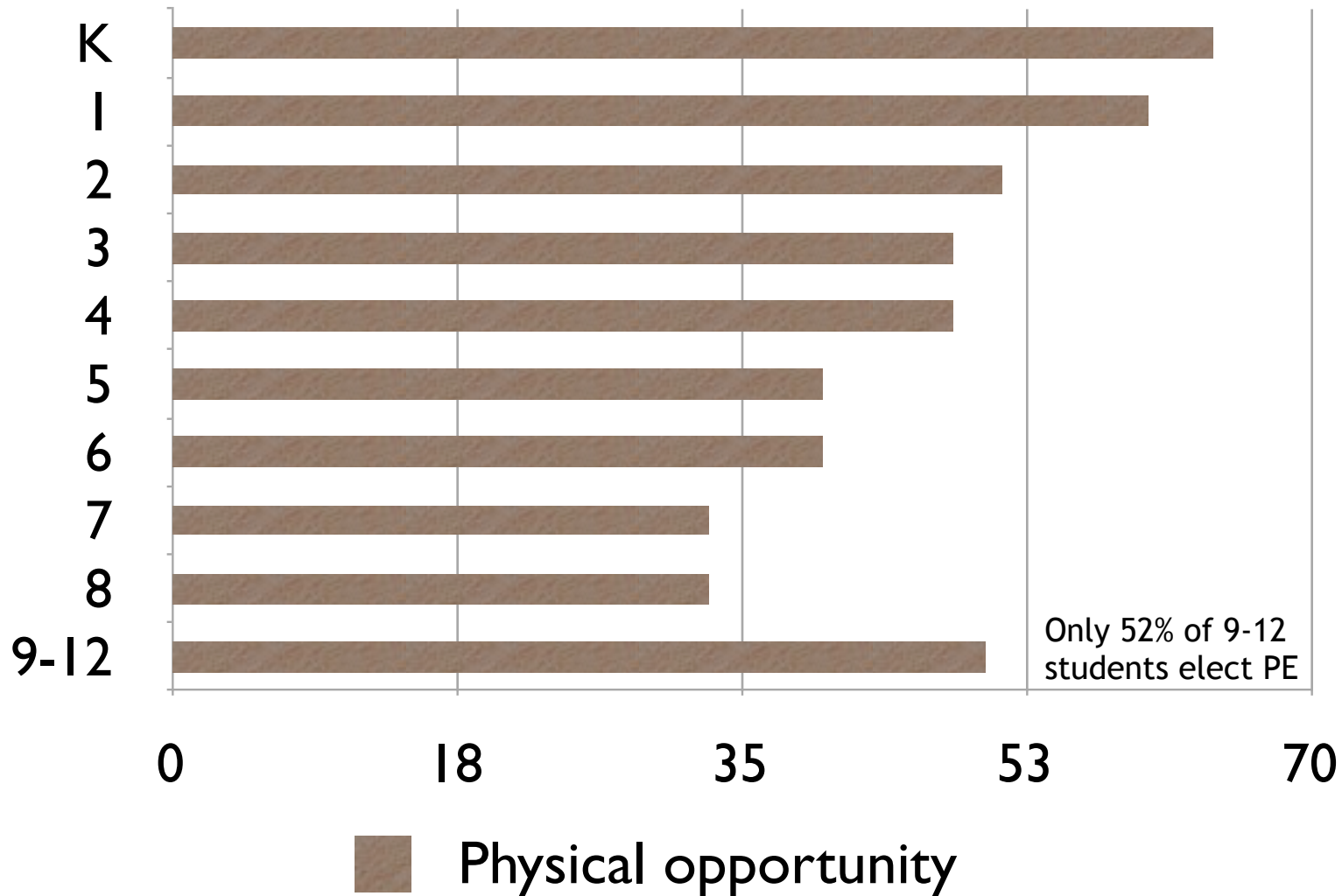
Sustained Discipline Decrease

- The average number of out-of-school suspensions over four years was 577, compared to 1,177 in 2004-2005, a 51% decrease.
- The average number of discipline incidents is now 157, compared to 228 the year before PE4life.

Total Number Of Physical Activity Minutes Per Week



Average Number Of Physical Activity In Minutes Per Day




WHAT TO DO?

- Classroom teachers schedule more activity during the day, brain breaks
- Schedule challenging subjects after peak exercise
- Add exercise labs
- Read SPARK

BRAIN BREAKS


- Classroom teachers can use short breaks to get students' blood flowing to the brain and improve alertness.
- Action based learning is another way to teach students concepts.
- Jean Blaydes Madigan - *Action Based Learning - Building Better Brains through Movement.*
- www.abllab.com
- Meaningful exercise can create new connections which allow students to learn different ways.

CLASSROOM IDEAS




Home Page

Energizing Brain Breaks




SMARTBoard Edition with Video Links


Link Index of Energizing Brain Breaks




Introductory Pages




How To Guide



Concluding Pages




Resources




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Individual Brain Break Picture Index




individual

Partner Brain Break Picture Index



partner

Group Brain Break Picture Index



group

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OTHER RESOURCES

- Jammin Minutes
- Action Based Academics
- Brain Gym
- SPARK
- Energizing Brain Breaks.com
by David Sladkey



ONLY CHANGE MAKES A DIFFERENCE



Sunday, May 13, 2012