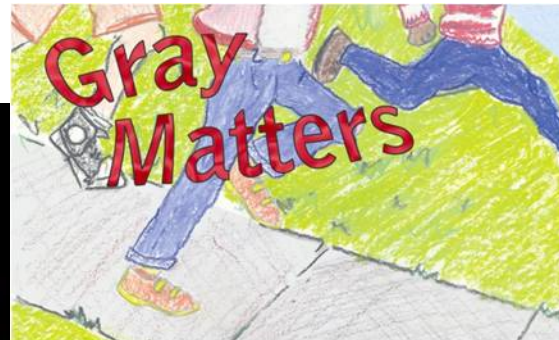


Welcome to

Learning in Motion:

Integrating Magic Into Every Classroom



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Gray Matters
www.kimbevill.com

Motor Skills Predict Academics

- ▶ Students with motor skill deficits have lowest academic scores

9 Year Longitudinal Study...

- ▶ Directed instruction on motor?
 - Successful intervention for underachieving students

Ericsson, 2012

Neurologists think we should address...

Neurogenesis...Through Physical Fitness

- ▶ Learning, memory, concentration and mood all affect academic performance!
- ▶ Physical activity enhances each...

Jacob Sattelmair and John Ratey, 2009

No eliminating P.E. and Movement?!

Students with recess report more attentive students, and better classroom behavior (Barros, 2009).

Schools with 15 minutes of recess have less bullying, more vigorous physical activity and smoother transitions to the classroom (Stanford University, 2012)

The American Association of Pediatricians recommend recess a necessary break from the demands of school (AAP 2012).

Physical Activity

- ▶ Improves academics, behavior and cognition
Singh et. al. 2012

...20 minutes of physical activity daily prevents
disease in children
Katz 2010

Physical Activity Predicts Standardized Test Scores

- ▶ The higher the physical fitness meant higher total SAT score regardless of socio-economic status

As BMI increases performance decreases

- ▶ Physically fit kids are on grade level and above
- ▶ Kids who are overweight underperform 8 to 10 points

Charles Hillman 2008

PA increases Attention and Academic performance

- ▶ 20 min of walking treadmill at 60% (oxygen processing)
- ▶ Better performance on the academic achievement test and used less executive function to do it

I have no control of ...OUT OF SHAPE

--Even ONE single, moderately-intense WALK improved the cognitive control of attention in children...regardless of fit or out of shape!

Physical Fitness allows US to Excel in International Comparisons!



While US students rank 18th in Science and 19th in Math

- ▶ An Illinois High School, Naperville finished 1st in the world in Science!
 - ▶ They finished 6th in the world in Math!
- 97% of Naperville students are fit

The Spark, John Ratey 2008



Movement Provides for Executive Function!

- ▶ **Planning** (for day, for retirement)
- ▶ **Cognition:** learning a language, using language, writing, reading, memory, reasoning...
- ▶ **Abstract thinking** (what if...)
- ▶ **Rule acquisition** (math, science, writing...)
- ▶ **Initiating *appropriate* actions**
- ▶ ***Inhibiting* inappropriate actions** (interruption)
- ▶ **Selecting *relevant* sensory information** (ME)
- ▶ **DECISION-MAKING**

1. ONE Walk for 20 minutes

- ▶ Increases innovation by 60%

Oppezzo & Schwartz

2014

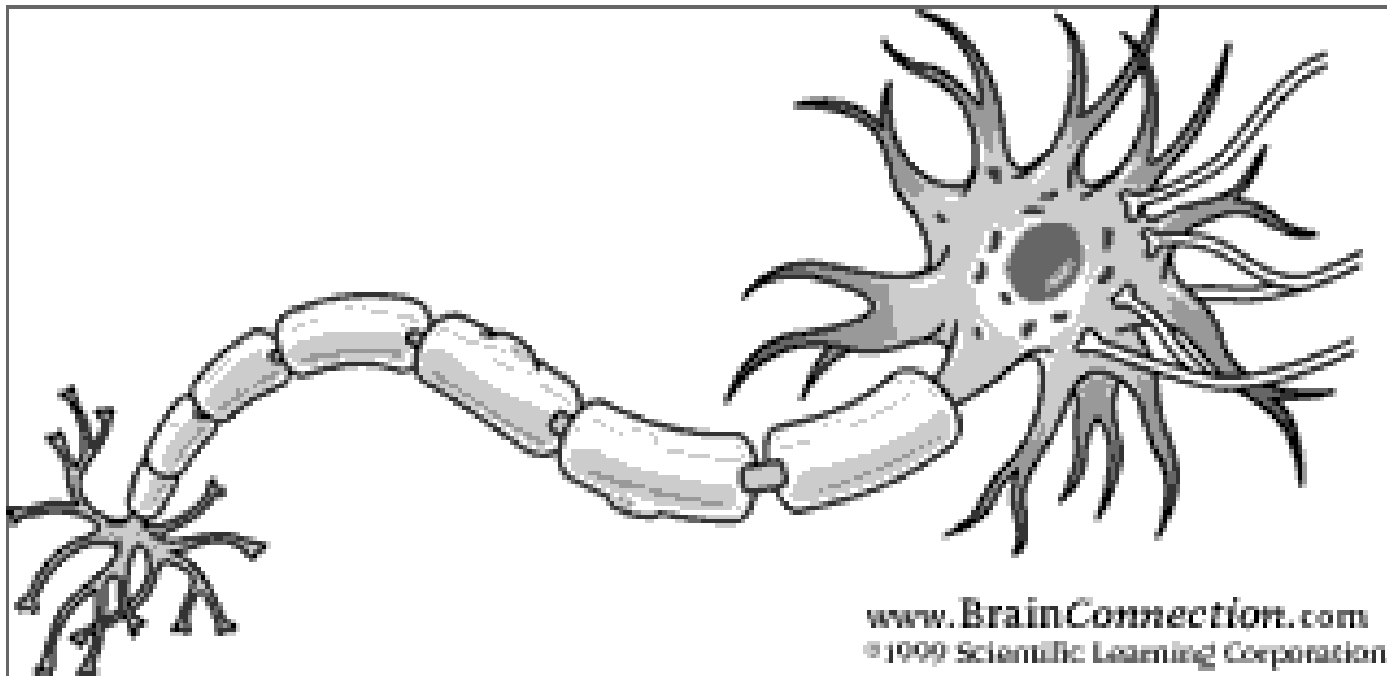
- ▶ Walk in “nature” can increase memory 20%

Bratman, Daily & Gross
2015

2. Move Every 20 Minutes

- ▶ Increases blood flow
- ▶ Allows for learning and memory
- ▶ Decreases discipline problems

3. TRAIN Why Movement is Magic!



The Effect...attention and learning

- ▶ Increased energy levels
- ▶ Improved storage and retrieval of information
- ▶ Overall good feeling

How Long?

3 minute energizer increases arousal,

5 minute break has longitudinal research

10 minute allows for arousal and then to return to a more sustainable level of energy

- 75 minutes 4 days a week increased reading, math and spelling! Donnelly 2009