

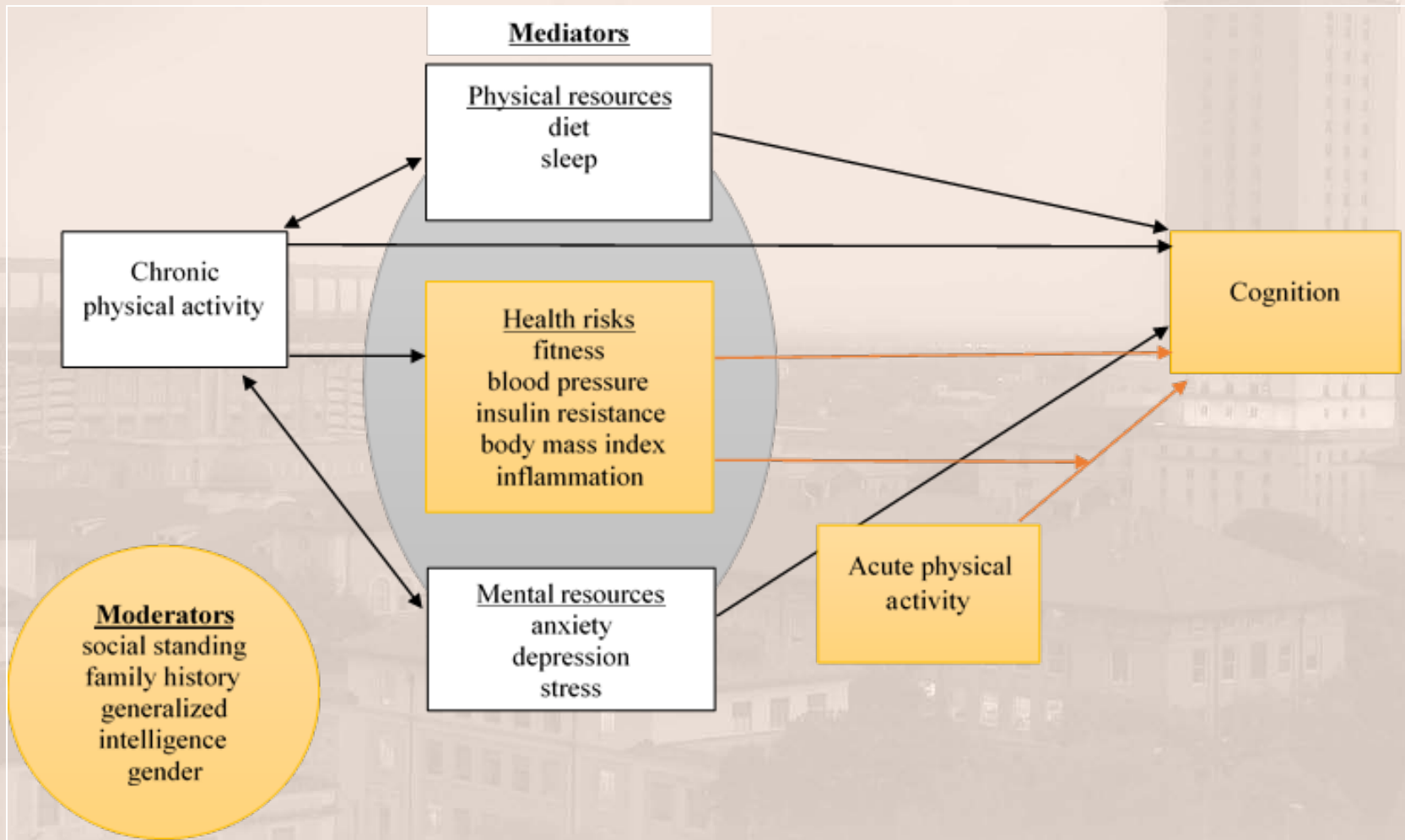


# Fake & Alternative News: 50M Not So Strong?

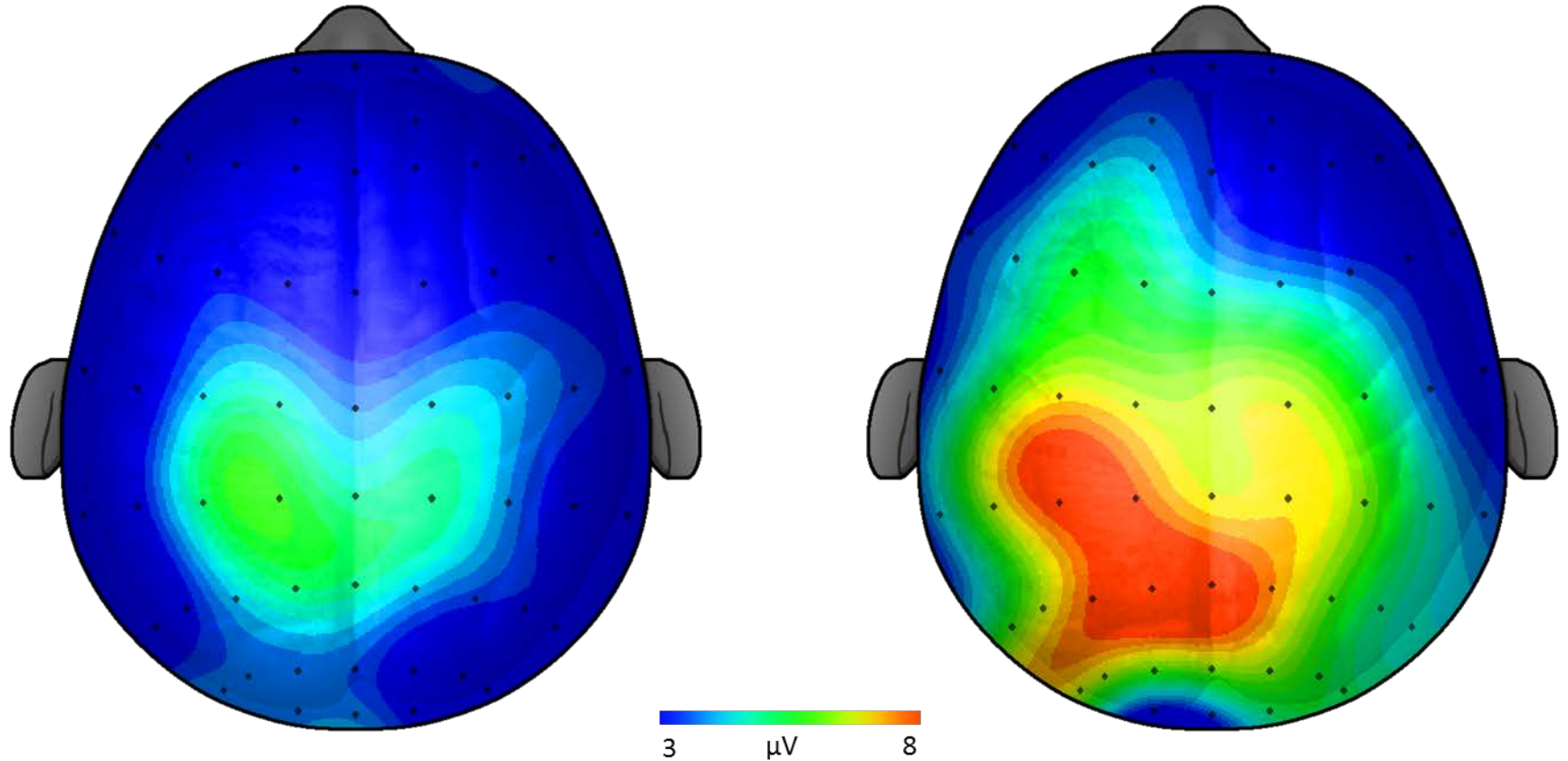
Darla M. Castelli, PhD

University of Texas at Austin

# Health-Cognition Relationship in Children



# What are you look at in this picture?



After 20 minutes of  
**Sitting Quietly**

After 20 minutes of  
**Walking**

# Facts & Falsehoods

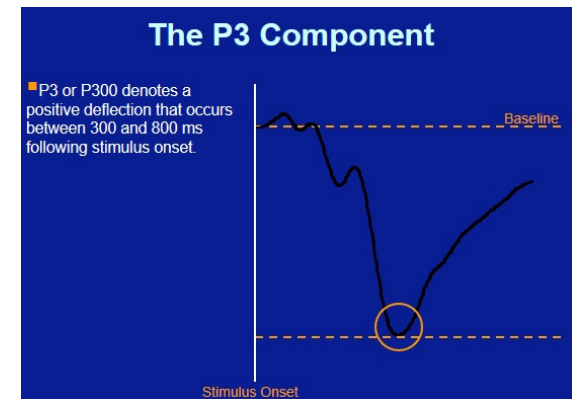
## Facts

- Moderate physical activity **increased neural activation**
- Maximal learning time is **AFTER** physical activity
- P3 latency is shortened (children and older adults **respond faster** after MVPA)
- Too much PA can cause cognitive **fatigue**



## Not so true

- This **NOT blood flow**, because it was measured by using an EEG
- Exercise **does not grow brain cells!**
- Maximal learning time is **NOT during exercise**





ACTIVE LIVING RESEARCH

Promoting activity-friendly communities.



RESEARCH BRIEF

## Active Education: Growing Evidence on Physical Activity and Academic Performance

# RWJF: Active Living Research



## active kids learn better

physical activity at school is a win-win for students and teachers

GRADES:



STANDARDIZED TEST SCORES:

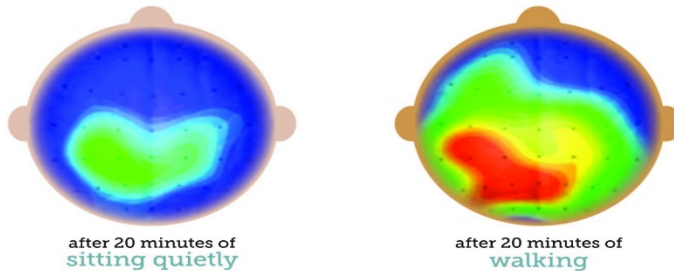


JUST ONE PHYSICALLY ACTIVE LESSON CREATES:



## physically active kids have more active brains

BRAIN SCANS OF STUDENTS TAKING A TEST:

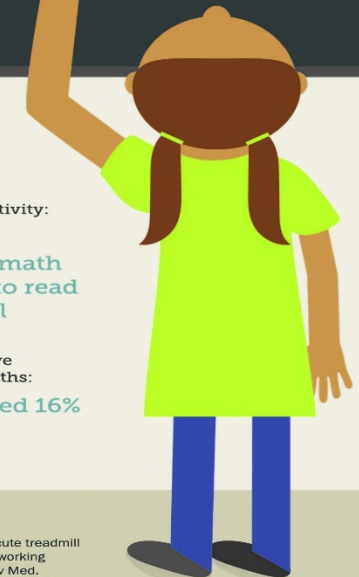


Red areas are very active; blue areas are least active.

MORE RESULTS:

after 20 minutes of physical activity:  
students tested better in reading, spelling & math and were more likely to read above their grade level

after being in a physically active afterschool program for 9 months:  
memory tasks improved 16%

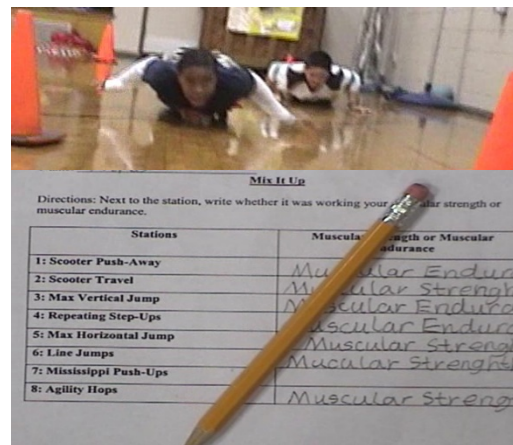
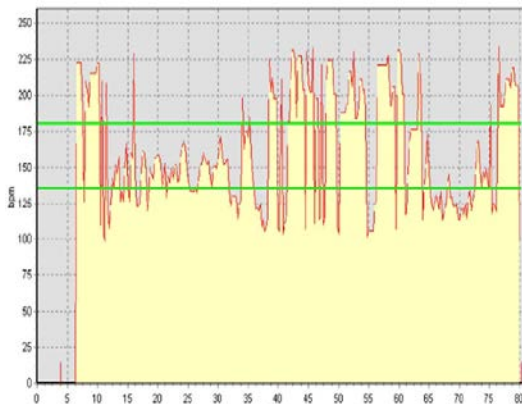
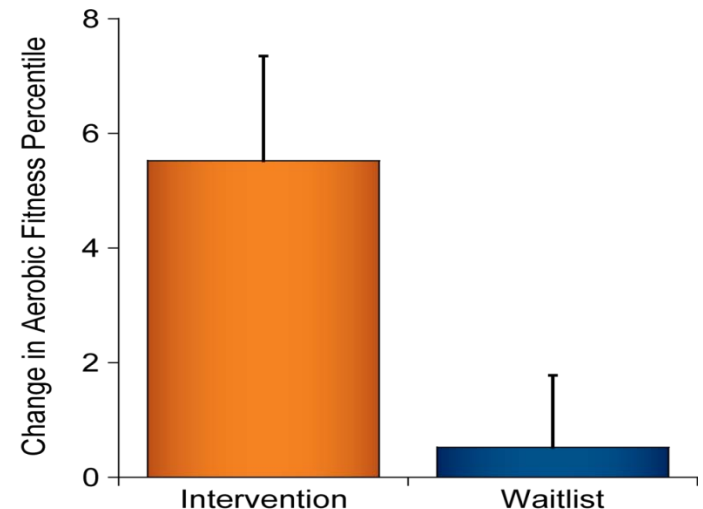
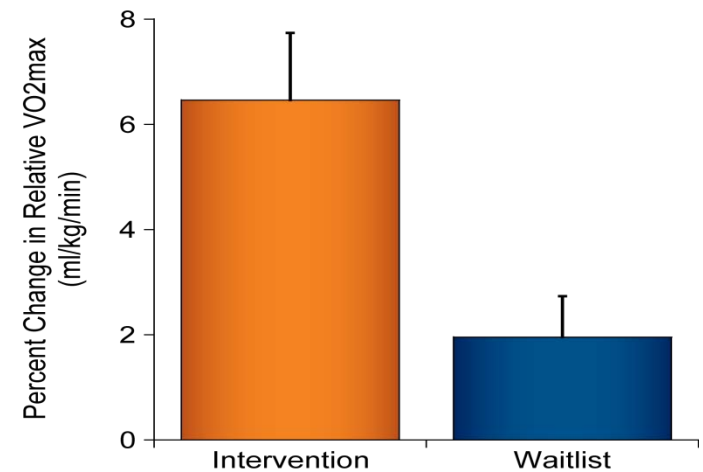


SOURCES: Donnelly J.E. and Lambourne K. (2011). Classroom-based physical activity, cognition, and academic achievement. *Prev Med.* 52(Suppl 1):S36-S42. Hillman C.H. et al. (2009). The effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children. *Neuroscience.* 159(3):1044-1054. Kamijo K. et al. (2011). The effects of an afterschool physical activity program on working memory in preadolescent children. *Dev Sci.* 14(5):1046-1058. Kibbe D.L. et al. (2011). Ten years of TAKE 10: integrating physical activity with academic concepts in elementary school classrooms. *Prev Med.* 52(Suppl 1):S43-S50. Nelson M.C. and Gordon-Larson P. (2006). Physical activity and sedentary behavior patterns are associated with selected adolescent health risk behaviors. *Pediatrics.* 117(4): 1281-1290.

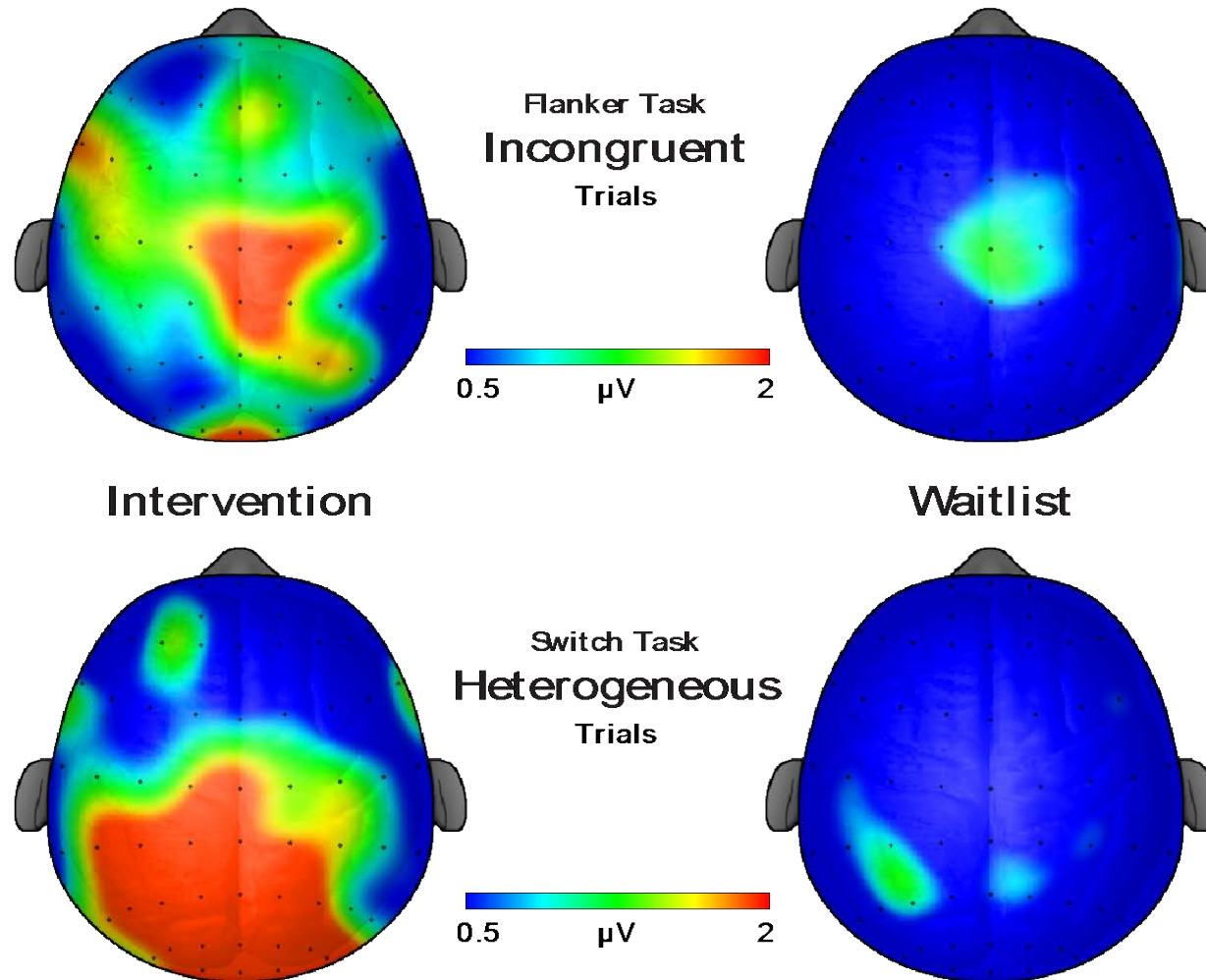
Learn more about why active kids learn better and how schools can help at [activelivingresearch.org/activeeducationbrief](http://activelivingresearch.org/activeeducationbrief).

# The FITKids Randomized Trial

- After-school PA program on 150 of the 170 day school year
- 221 Children
  - (Rx = 109, Control = 112)
- FITKids participated in >70 mins of intermittent MVPA per session



# Change in P3 Amplitude





# Facts & Falsehoods

## Facts

- **Physical fitness** has a strong relationship with academic achievement
- The **type of physical activity** matters (e.g. aerobic, dance)
- The **type of cognitive task** matters (e.g. attention, memory, cognitive flexibility)
- The cognition and physical activity relationship is **complex**

## Not so true

- Physical activity has a positive but **weak** relationship with academic achievement
- Regular participation in physical activity **does NOT make you smarter**

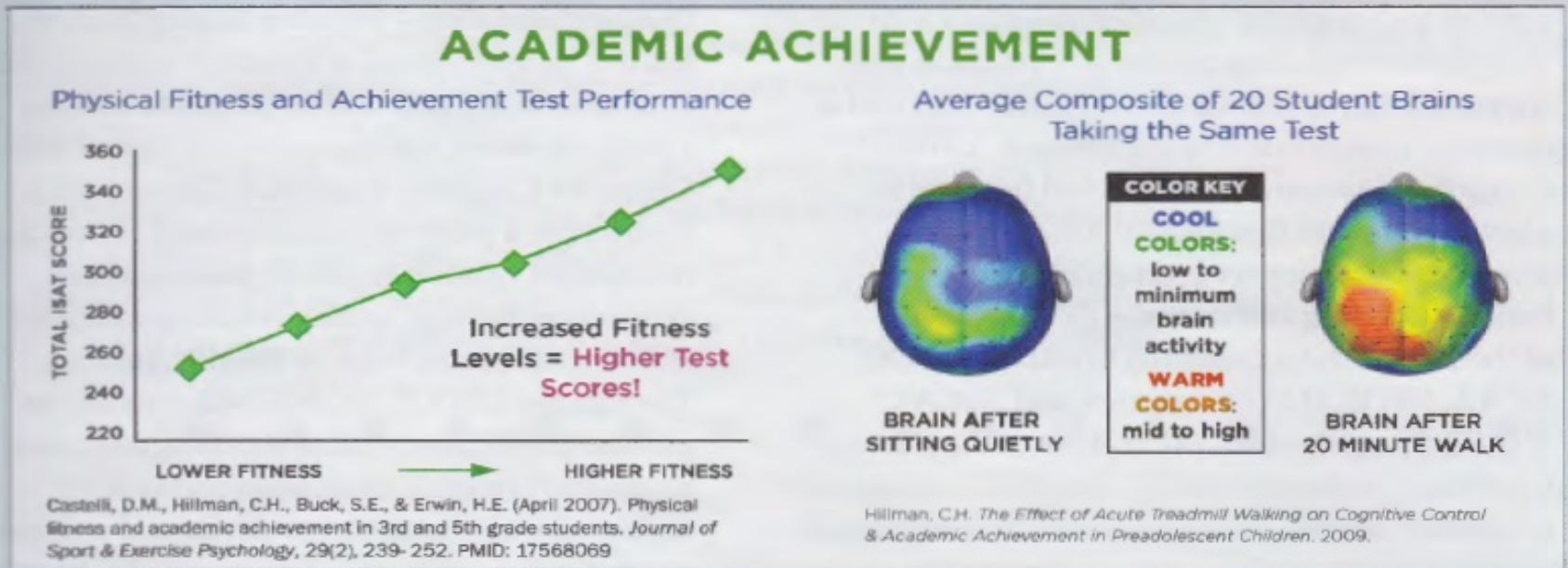


# Even Credible Sources Make Mistakes

## Correction

The citation on the chart that appeared on page 15 of the Fall 2016 issue of *Momentum* was incorrect. Here is the correct citation, and below is the corrected graphic:

Castelli, D.M., Hillman, C.H., Buck, S.E., & Erwin, H.E. (April 2007). Physical fitness and academic achievement in 3rd and 5th grade students. *Journal of Sport & Exercise Psychology*, 29(2), 239-252. PMID: 17568069



# In sum...

- Present information from reliable sources (e.g. Centers for Disease Control and Prevention [\[CDC\]](#))
- Collect and display data of your own students
  - Get help from the district office or a math teacher
- Use accurate messaging that is relevant to administrators
  - Educate other about falsehoods



Questions?



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