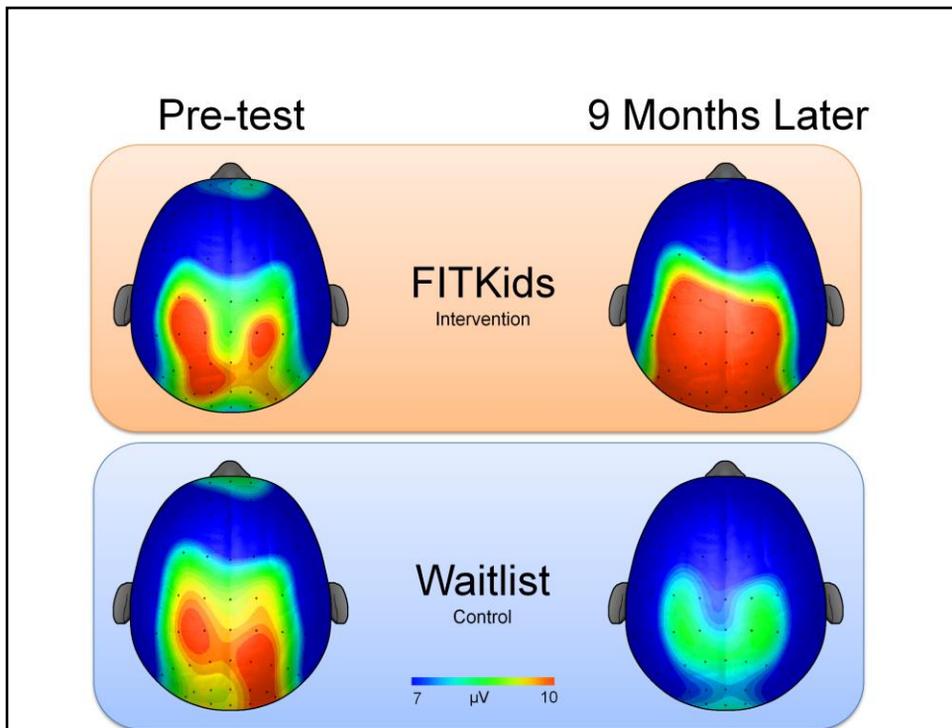


Hillman, C. H., Pontifex, M. B., Raine, L. B., Castelli, D. M., Hall, E. E., & Kramer, A. F. (2009). The Effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children. *Neuroscience*, 159, 1044-1054.

- *The color is positive neural activation in that region of the brain
- * The color blue is little or no activation in that region of the brain

Talking points:

- In this research study 20 children completed the same cognitive task, identifying the direction of letters on a computer screen
- Ten children did 20 minutes of walking then took the test, while ten sat for 20 minutes and then took the test
- Those children who walked, responded faster, had a greater allocation of working memory, and made fewer errors than those who sat for 20 minutes

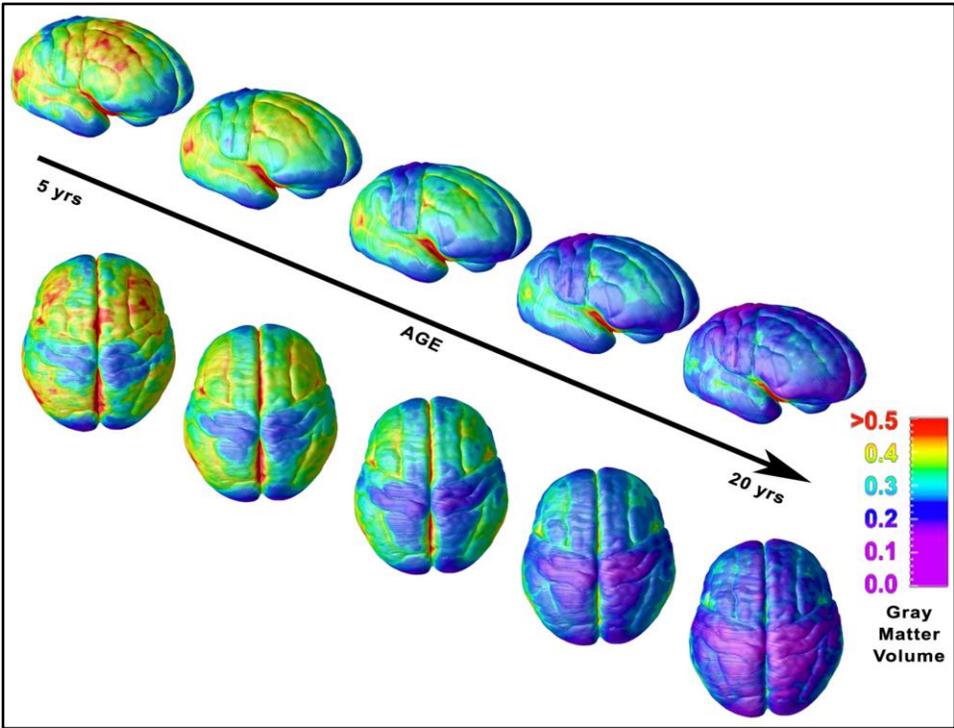


Pontifex, M. B., , O’Leary, K. C., Raine, L. B., Chien-Ting, W., Drollette, E. S., Castelli, D. M., & Hillman, C. H. (2010). The beneficial effects of fitness training on neurocognitive function in preadolescent children. Presented at the 58th Annual Meeting of the American College of Sports Medicine, Denver, CO.

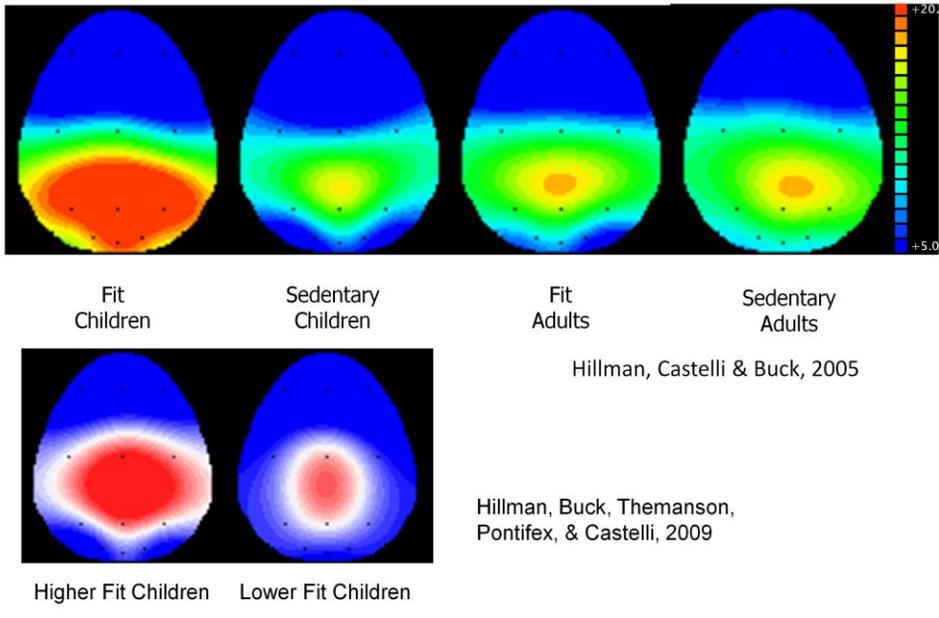
- *The color is positive neural activation in that region of the brain
- * The color blue is little or no activation in that region of the brain

Talking points:

- Fifty children completed a recognition task on a computer
- Of those 50, 25 participated in a 9-month physical activity afterschool program, while 25 went home after school
- Those that participated in the afterschool program engaged in 75 minutes of physical activity each day
- Those who had participated in the program improved their performance, while those who did not participate actually had lower scores



Neural Activation



- Published data from the research team with whom Dr. Castelli is working, indicate that there is increased brain activation in physically fit children. In other words, fit children have improved attention, which elicits superior performance on cognitive tasks.