

September 21, 2012

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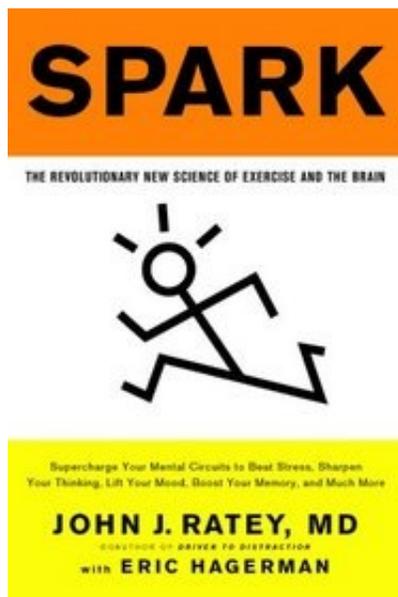
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## [Q and A from the I-Brain Conference Part III: Exercise and the Brain](#)

April 19, 2011 By [Ann Holm](#) [Leave a Comment](#)



Exercise releases a substance that is "Miracle Grow for the Brain", according to John Ratey, an expert on the effects of exercise on optimal brain functioning. The release of *brain-derived neurotrophic factor (BDNF)*, in effect, fertilizes brain cells to keep them functioning and growing, as well as spurring the growth of new neurons. This was one of the several benefits of exercise that Dr. Ratey shared at the Learning and Brain Conference I attended recently. We were designed to move and yet our culture has evolved to the point where we sit more often than we exercise. Tight clothes, lethargy, high blood

pressure, diabetes, and heart disease aren't the only threats from inactivity. Our brains pay the price too.

Our ancestral brains and bodies were used to walking/running 10-14 miles per day. We kept active because we were searching for food or avoiding a threat. Our brains benefited from this exercise. When we move, 3 important brain chemicals, serotonin, dopamine, and norepinephrine are released and the organism becomes patient, optimistic, focused and motivated. From an evolutionary context, these are the qualities that make it possible for man to zero in on its prey (food). Likewise, when an individual gets consistent and sufficient exercise in today's world, these same neurochemicals help him or her keep a stable mood, focus on tasks, meet challenges and engage in purposeful activities. The more we exercise, the more nerve synapses in the brain are primed to be alert to these chemicals making these beneficial states of mind available to us.

Another benefit of exercise is that it regulates the stress hormone cortisol. The brain and body need a certain amount of cortisol to respond to stress but excessive levels of cortisol has a toxic effect on neurons. The neuronal connections erode in the presence of high and unrelenting levels of cortisol, causing difficulty with learning and memory. The hippocampus structure in the brain is the way station that bundles new and stored information together making learning possible. This structure is highly sensitive to the effects of cortisol. It is also a structure that benefits from BDNF, the chemical that nurtures neuronal growth. Exercise attenuates the damaging effects of cortisol and at the same time, increases the growth of new brain cells via the action of BDNF.

Who do you think has the highest math and science scores in the world? An Asian country? We know it's NOT the United States. We aren't even in the top 10. It's Finland. The typical school day in Finland has 45 minute class periods followed by 15 minutes of compulsory exercise. Students don't use these 15 minutes to check cell phones and laptops. They go to the gym or step outside to throw a few snowballs. The best time to learn new information and have it stick is after a period of physical activity.

The take-away:

- 1. Exercise every day not only to stay physically fit but to stay mentally fit. The same activity can provide multiple benefits. What an efficient use of time!**
- 2. Keep challenging your mind so your brain takes advantage of its readiness to learn something new as a result of exercising.**

After the conference, I purchased Dr. Ratey's book *Spark* that covers this topic. He makes the case that if you can't find the motivation to exercise for the sake of your body, it is certainly a good idea to move for the sake of your brain. This is a highly readable book that will inspire most couch potatoes to get moving once and for all!



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Answering your questions about Type, Brain Science and Coaching

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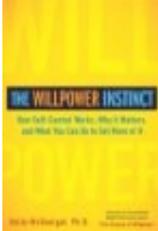
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SEP 25 Tue	6:00 pm The Neuroscience of Personality- Implications for Coaching @ The Marsh
OCT 4 Thu	7 Ways to Increase Your Will Power (Entrepreneur's Forum at Cleary University) @ Cleary University
OCT 18 Thu	9:00 am Introduction to MBTI/ St. Mary's University @ St. Mary's University

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## Recommended Books



[The Willpower Instinct](#)  
Kelly McGonigal  
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