

# Exercise is good for the brain

**Psychiatrist John Ratey, author of 'Spark: The Revolutionary New Science of Exercise and the Brain,' says it improves cognitive performance.**

By Shari Roan

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March 17, 2008

WHEN he became a psychiatrist in the 1970s, John Ratey didn't expect to evolve into an exercise buff. But today, the Harvard University professor and expert in attention-deficit hyperactivity disorder calls exercise the single most important tool people have to optimize brain function.

If you get your body in shape, he says, your mind will follow.

Ratey describes the emerging research on exercise and the brain in a book, "Spark: The Revolutionary New Science of Exercise and the Brain," which was published in January by Little, Brown.

His theory is straightforward: Humans evolved as physical creatures. When they're lulled into sedentary lives, their bodies -- and their brains -- get flabby from lack of physical exertion.

Exercise, particularly aerobic exercise, can improve cognitive performance, soften the effects of stress, help fend off addiction-related cravings and tone down the negative consequences of women's hormonal changes, Ratey says. When it comes to psychiatric disorders, he calls exercise "one of the best treatments we have."

**Explain why you titled the book "Spark."**

We're talking about the brain and changing it. Exercise is adding the spark to the brain. It gives energy to the brain.

**We've heard that exercise increases neurotransmitters such as dopamine and serotonin. But what is brain-derived neurotrophic factor and why is it so important?**

It is a very key linchpin for me and for the neuroscience community. In the '90s, we learned in a big study [by UC Irvine neuroscientist Carl Cotman] that exercise is one of the factors that delayed the onset of cognitive decline. That surprised a lot of people and no one knew how to account for it. The assumption was that exercise didn't act on the brain. We also knew there was a thing called BDNF -- brain-derived neurotrophic factor [a protein that helps build and maintain the cell circuitry in the brain]. Another study [also by Cotman] showed exercise elevates BDNF. It truly is Miracle-Gro for the brain.

**Why does aerobic activity and complex motor activity, such as martial arts or dance, produce different effects in the brain?**

The more complicated the exercise, the more challenging it is. You're challenging the learning and focusing parts of your brain as well as doing the aerobics. It optimizes the brain to learn.

**Which is better to do?**

The ideal exercise plan would include both exercise that keeps you learning and [exercise that] keeps you moving -- and keeps the challenge up. Challenge is something that we should all be striving for. It's the key to a long and healthy life.

### **Is walking helpful for the brain?**

Even moving a little bit, such as walking very slowly, causes some increase in heart rate, and it does help. But volume and intensity are different. If you're going to do one, limit the volume and increase the intensity. . . . Intensity is important for the benefits to the brain. Most of the studies showing the benefit of exercise on depression were of people doing brisk walking. That might be at 65% to 75% of maximum heart rate. But that really is the level where you're just beginning to get a benefit.

### **Why is morning the best time to exercise?**

I think morning is such a good time because it helps you start the day off correctly. Your attention system is turned up and on. But you're still going to get quite a bit of benefit from exercising in the evening.

### **You recommend exercise for depression, anxiety and addictions. But telling someone who is addicted or depressed to exercise sounds as if it's trivializing the problem, doesn't it?**

It might. I certainly would consult a physician first if you're depressed or if you need someone watching you. I'm not opposed to medicine at all. I think what is revolutionary is the new science that exercise may be the best second treatment you can use -- in conjunction with whatever treatment you're already doing. Exercise improves cognitive behavior therapy and it's a good partner to antidepressant and anti-anxiety medications.

### **Why does exercise help people with ADHD so much?**

It is a very useful tool for ADHD. They may focus better and be less impulsive. People feel less like they have to move [making them less fidgety]. With exercise, you've changed things in the brain.

### **How big an effect can regular aerobic exercise have on cognitive decline related to aging?**

The evidence on the benefits of exercise on cognitive decline really started the whole ball rolling. It has been studied so much. It certainly has a big impact, delaying cognitive decline by as much as seven to 10 years. It plays a huge role in maintaining and regaining cognitive function.

### **So exercise is the best thing to do if you're worried about memory loss and cognitive decline during aging?**

No. 1 is exercise. No. 2 is learn and connect with other people. The ideal prescription is to do the exercise with someone. A social event has a positive effect with exercise and learning.

### **If it lifts mood and increases energy and helps us think better, why do so many people hate exercise and quit?**

That is the biggest problem. Fifty percent of people who start exercise end up dropping it after six months or so. It does require planning, consideration and work. I tell people to make a commitment with a loved one, friend or neighbor. Often, that kind of social obligation can help get people started. That is probably the best way to begin. But it would be ideal if there were people to check on you and get you out of the house every day.

### **Understanding its physical benefits hasn't gotten a lot of people to exercise. Will knowledge of the brain benefits carry more meaning -- and more motivation?**

That is exactly my point. If people were aware this was such good medicine in so many ways and gets you in a steady state mentally, more people would likely start and stick with an exercise regimen. But look at the studies that show exercise is as effective as antidepressants. It makes news for a day, and it's gone. It's like we've gotten into thinking we need a pill, not just for mood, for everything. Exercise is simple, but, oh boy, it really takes a commitment. That's why we need to tell people about the evidence that exercise benefits the brain and the body.

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