

September 20, 2012

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Harvard's Dr. John Ratey "Sparks" a Revolution: Exercise Makes You Smart

By Hope Katz Gibbs

Be Inkandescent magazine

Plato said: "In order for man to succeed in life, God provided him with two means, education and physical activity. Not separately, one for the soul and the other for the body, but for the two together. With these two means, man can attain perfection."



And so begins Dr. John Ratey's breakthrough book, *Spark: The Revolutionary New Science of Exercise and the Brain*.

"We all know that exercise makes us feel better, but most of us have no idea why," says Dr. Ratey, a clinical professor of psychiatry at Harvard Medical School, whose books in addition to "Spark" include "Driven to Distraction," "Shadow Syndromes," and "A User's Guide to the Brain."

"We assume it's because we're burning off stress or reducing muscle tension, or boosting endorphins," he explains.

"But the real reason we feel so good when we get our blood pumping is that it makes the brain function at its best ... I often tell my patients that the point of exercise is to build and condition the brain."

Ratey believes that in this age, when we spend so much time in front of our laptops, it's easy to forget that we are "born movers."

"Ironically," he says, "the human capacity to dream and plan and create the very society that shields us from our biological imperative to move is rooted in the areas of the brain that govern movement."



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In fact, he shares, as we adapted over the last half million years, our thinking brain evolved from the need to hone motor skills. "We envision our hunger-gatherer ancestors as brutes who relied primarily on physical prowess, but to survive over the long haul they had to use their smarts to find and store food."

As a result, Ratey insists, the relationship between food, physical activity, and learning is hardwired into the brain's circuitry.

But here's the rub.

We no longer hunt and gather, and our sedentary lifestyle poses one of the biggest threats to our survival. Consider these statistics:

- 65 percent of our nation's adults are overweight or obese.
- 10 percent of the population has Type 2 diabetes.

"We are literally killing ourselves, and it's a problem throughout the developed world," Ratey tells us. "What's even more disturbing, and what virtually no one realizes, is that inactivity is killing our brains—physically shriveling them."



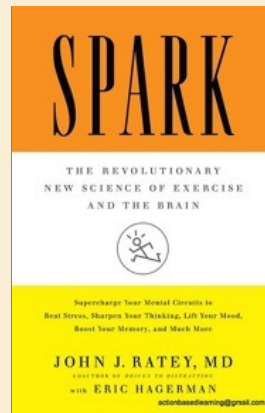
Welcome to the Revolution

In his 300-page hardback, Ratey offers 10 chapters to help us reconnect our bodies with our minds so that we can create better, healthier lives for ourselves, and for our children.

He begins with a case study on exercise and the brain, sharing a physical education program conducted in Naperville, Illinois, in 1999—the spark that inspired Ratey to write his book.

It also inspired Katherine Tullie, creator of BOKS Kids, to start an organization that got gobbled up by Reebok International as its newest nonprofit outreach program. [Click here to read more about that.](#)

Following is a Q&A that *Be Inkandescent* magazine had with the professor when he was at the [Renaissance Weekend](#) to talk about ADD, anti-aging, and the impact of exercise on reducing the incidence of Parkinson's and Alzheimer's disease. We thank him for taking the time from his busy schedule to tell us about his exciting research.



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Be Inkandescent: For more than 15 years, you have been educating people about their brains. What is your goal for helping readers understand how exercise breaks down barriers and makes us smarter, more clever, and physically healthier?



Dr. Ratey: My goal is for people to finally recognize that the science behind the exercise movement means something. I have spent three months in Asia, where they actually believe in science, which is nice because here in the US, where there are 50,000 school districts—too many are driven by their own long-held inner beliefs about what makes people smart rather than the proven scientific connection between exercise and brain development.

So my mission is to re-educate people, and get them to recognize that we're animals with brains and that our bodies are important extensions of our bodies, and we have to work with both. It's more of an issue of preparing the student to learn, and the employee to be less stressed and more motivated to do the work. They are looking for new information to do things.

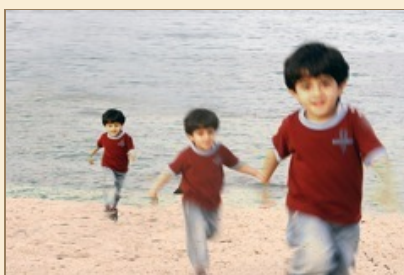
Be Inkandescent: In the introduction to your book, you tell us about the Naperville Central High School study that inspired you to write "Spark." What was it about the study that amazed you most?



Dr. Ratey: That was my "ah-ha" moment. At the high school, I found 3,500 kids who weren't overweight, certainly no one was obese, and that's because they spent at least one period a day engaged in moderate to strenuous activity.

They were excited, interested in learning, and their performance on cognitive tests was amazing. This school was number one in the world in science, and number six in math. And that's without studying for hours a night, as student do in many Asian countries. I was compelled to explore this more.

Be Inkandescent: If you could talk directly to American parents, what are the three things that you would tell them about keeping their kids healthy and active?



Dr. Ratey: First, I'd encourage them to get their kids to play, and love doing it,



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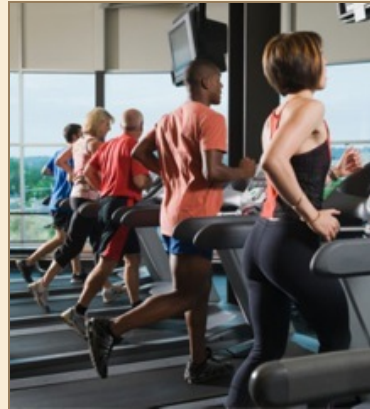
The Value of Bringing Business Opportunities Into the Classroom

wealth

without worrying about having to succeed. Especially when they are young, this is really important. Little ones need to play with other kids in interactive physical ways. They need to be encouraged to make up games, lose, and get back up and play again.

Second and third things go hand-in-glove: I'd love for them to support the child's own exercise program by exercising themselves. This will not only make everyone in the family feel better, it'll also help the kids do better in the school, and the parents do better in the workplace. If they can be active and play and exercise together, that's wonderful.

Be Inkandescent: In Chapter 2, you explain that Darwin taught us that learning is the survival mechanism we use to adapt to constantly changing environments. Scientists tell us that to achieve that goal, the brain is constantly being rewired. How can we learn to be our own "electricians"?



Dr. Ratey: The brain actually changes as we get more fit. The immediate experience of exercise prepares the brain to rewire, or learn. And that is not evident to most people, who might say it's a waste of time to exercise, or just for athletes.

Also, the variety of engaging in different forms of exercise is important, because it's good for the brain to mix things up. I'm encouraged by the growing popularity of Zoomba, which incorporates dance and movement in a fun way. It's great for older people, especially, who are reluctant to get up and exercise. What's amazing is that not only do their bodies look better, they are happier.

Be Inkandescent: In Chapter 3, you talk about toxic stress, and how it threatens the body's biological equilibrium. Can you explain why, and how we can inoculate ourselves?



Dr. Ratey: My ah-ha moment here was that there is a difference between normal stress—which can be good because it motivates us—and toxic stress, which is the kind that doesn't go away. The toxic stuff is what we need to stay away from.

And it's not easy because there are some things that induce constant worry, like when our 401K became 101Ks. The good news is that exercise enables us to challenge ourselves down into every cell. And when you do, you actually reset the stress point so that it gets increasingly difficult to get stressed out.

This is what we call a meta-involvement of the body, where it then takes more of a stressor to turn on the stress response. And, you also build responses to future stresses by making more antioxidants. Consider this helping the janitorial service that



Financial Planning for a Diverse Population

cleans your cells. When you get the blood flowing, and the hormones and other chemicals going through exercise, you end up better prepared to cope and manage your lives. It's not magic. It's science. And all you need to do is get up and move around. A lot.

Be Inkandescent: You also talk about how exercise counteracts depression. How is that possible, and what can we do?

Dr. Ratey: We've known about this forever. [Hippocrates](#) talks about it at length, especially when he says: "If you feel depressed go take a walk; if you still feel depressed go take a longer walk."



Antidepressants are curious because we think we're changing the brain's chemistry when we take them. The science shows us that exercise does the same thing. And, we're moving our paradigm of what is depression in terms of the fact that the brain stops working well.

By exercising, we're improving the brain's plasticity. And while it's hard to get depressed people to get up and move because, well, they are depressed, you have to sell them on the value of it. Once they get it, they go with it.

Be Inkandescent: How much do they need to exercise?

A study at the University of Texas showed that if you burn 1,600 calories per week by exercising, it would have an impact on your mood scores. The research continues, of course, but right now that's the best data we have.

Be Inkandescent: Tell us what your research has uncovered about the biological connections between the body and the brain, especially when it comes to aging.

Dr. Ratey: We know that everything that aging does for the brain, exercise reverses. Playing Sudoku and doing crossword puzzles is great, but the Mayo Clinic found that in the 1,600 people they studied on the topic, it's not nearly as effective as exercise.

The reason is that exercise improves the cognitive decline, and that's evident in the Alzheimer's patients they studied. Research also shows us that if you exercise regularly throughout your life (getting your heart rate up to 75 percent of the maximum—which is 220 beats/minute minus your age), four times/week for 30 minutes (or three times/week for 40 minutes) that you have a 45 percent less chance of developing Alzheimer's. The odds are even better even if you can exercise daily. If everyone could do that, we'd cut the cost of health care dramatically.

Be Inkandescent: If readers can take away one big idea from your book, what would you like it to be?

Dr. Ratey: That we were meant to move. We need to recapture that truth in our everyday lives. I know that our wonderful computers are incredibly seductive and mesmerizing, and it's tough to pull ourselves away. But we are animals, and are made to move. Chronically. For centuries, we moved when we worked. Now that we don't, we need to find ways to get up and off our butts. Not only will we feel and look better, we'll be healthier and

smarter.

For more information, visit www.johnratey.com. To order your copy of "Spark," click [here](#).

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