

John Ratey, an expert on brain function and exercise, on his [website](#).

Find out more about his book, "Spark: The Revolutionary New Science of Exercise and the Brain", at [amazon.com](#).

EDITED EXCERPT FROM INTERVIEW WITH DR. JOHN RATEY

Learn more about Harvard University psychiatrist Dr. John Ratey, an expert on brain function and exercise, on his [website](#).

Find out more about his book, "Spark: The Revolutionary New Science of Exercise and the Brain", at [amazon.com](#).

EDITED EXCERPT FROM INTERVIEW WITH DR. JOHN RATEY

The first way

The first big way that exercise is very important for (students at City Park Collegiate in Saskatoon) is that it helps address the systems of the brain; the attention system, the impulse control system, the memory and learning system, and the part of the brain that's involved with learning and memory, the part of the brain that's what we call the executive functioning area of the brain, or the frontal cortex. Exercise really activates this area of the brain. So what you see, and what you get, are people who are sharper. They're more attentive, they're less impulsive, they're less fidgety. They can sustain their attention longer, and it promotes their ability to sort through information and take it in.

The second way

The second big way that exercise works on the brain is it promotes the internal environment of the brain, of our hundred billion nerve cells that are swimming around in this soup, if you will. Exercise causes a release of all kinds of good things that are known as neurotransmitters, as hormones, as growth factors that actually make our cells more ready to do their job. And our brain cells' major job, in terms of learning and memory, is to change - adapt we call it. And that means grow. Exercise promotes the best optimal environment for us to do this, to change and grow.

The third way

The third way that exercise helps with learning and with the brain to grow and to learn better, is it promotes a process which we call neurogenesis, or growing new brain cells. There's nothing that we know of that does that better than exercise. We do it anyway, and there are drugs and there are ways of increasing it when we stress our brains, by learning or by stressing them in a variety of ways, that promotes the growth of new brain cells. However exercise does this better than anything else that we know of.

Conclusion

So the three ways help the learner learn better. We improve the environment for the cells to grow and change and cement in the information. And we also add more brain cells specifically in the area of the brain that has to do with learning and memory, an area called the hippocampus, which we think of as Grand Central Station for memory. And this is the area that adds cells every day anyway. When we learn, we add more cells, but when we exercise, we add many, many more cells than any other activity that we're aware of. Exercise is the best stimulus for the brain to be ready to learn and grow. Now the biggest problem with our new world, with the cyberworld, is it allows us to sit. We are a sedentary culture. The top ten reasons why we die are contributed to greatly from our sedentary living. Also, by not moving, by sitting, our brains are not as active, and they start to erode much quicker. Just for instance, if middle-aged people are sedentary, and they begin to exercise three to four times a week, they will stave off cognitive decline later in their life by ten to fifteen years. And some studies suggest that if they do this, they will cut the risk of Alzheimer's disease in half, just if they begin to get moving. Now for our kids, it's even more important that they try to optimize their brains as much as possible, so that they can be much more well adjusted and ready to take on the new information that they are presented.