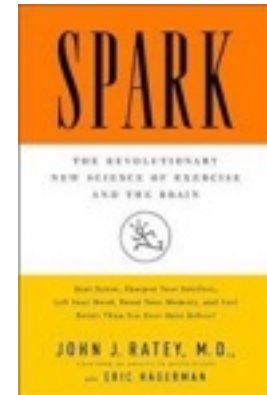


Move It, and Use It

How often do you feel worse after exercising or being active?

Do you remember when people would tell you not to hit your head because you only have a certain amount of brain cells?

Many people say “use it, or lose it” in regards to physical strength and physique which is true to a degree, but have you ever considered this for your brain? Your brain is the most energy demanding organ or “muscle” in the body, and for good reason. Similar to “beach muscles” that often receive a great deal of training attention, our brains need regular training too!



Today, we are going to focus on how exercise can do so much more than just help you *physically*. An overwhelming amount of evidence has shown the positive, and rather dramatic effects that regular physical activity can have on the brain. Much of this post will be based off of the highly recommended book, *Spark*, written by Dr. John Ratey, who specializes in psychiatry and is a professor at Harvard Medical School.

It turns out that humans are able to generate very important “ingredients” during exercise known as neurotransmitters and growth factors that are essential to making new neuronal connections in the brain. This process is known as “neurogenesis”, and it occurs frequently in an area of the brain known as the hippocampus. The hippocampus is a very important memory and learning center. So while we are not encouraging you to start hitting your head for fun, the old saying about having a “fixed” amount of brain cells or connections may not be entirely true.

Neurotransmitters are chemicals released from nerve cells and allow them to communicate with each other, along with the rest of the body. Some neurotransmitters and growth factors heavily influenced by exercise include:

- **serotonin**: responsible for the regulation of mood and impulsivity
- **dopamine**: involved in learning, reward (satisfaction), and attention
- **norepinephrine** (aka noradrenaline): amplifies motivation and attention
- **endorphins and endocannabinoids**: neurotransmitters that contribute to pain reduction and the infamous “runners high” during physical activity
- **BDNF** (brain derived neurotrophic factor): a growth factor nicknamed “Miracle-Gro” due to its ability to jumpstart the process of creating new nerve connections, and strengthening existing ones in the hippocampus

Regular physical activity (especially aerobic exercise) actually has the ability to naturally “balance” these neurotransmitters, as well as create more of these neurotransmitters and growth factors for the brain to utilize.

So...what does all this mean?

It means that by being physically active, we provide our brain with the ingredients it needs to be more effective at learning new things, improving memory retention, and enhancing mood. Think

of it this way: if we stop working out our muscles, they shrink. If we stop creating a nourishing environment for our brains to function, it can “shrink” too.

This is especially true when a lack of physical activity is combined with excessive stress. Studies from the University of Michigan have shown hippocampal shrinking is highly correlated with elevated levels of cortisol (stress hormone), as well as memory loss. Excessive stress inhibits the ingredients like BDNF from making new connections in the hippocampus, and can even reverse some of these connections.

Do you know what one of the best ways to manage stress is?

Yup, you guessed it.

Exercise.

Not only is physical activity excellent for managing stress, it can also be a very effective tool to manage many other common disorders that people have the misfortune of suffering from including: anxiety, depression, attention deficit disorders, addiction, and more. Ratey states in his book: “If exercise came in pill form, it would be plastered across the front pages, and hailed as the blockbuster drug of the century.”

Why do you feel so good after physical activity?

We are hoping that by you reading this post, you begin to understand the important role that the release of these neurotransmitters and growth factors play in making you feel better after a great workout. Beyond the pure science, it is extremely empowering and encouraging for many people to take control of their physical and cognitive health. **Simply put, you feel better because you are bettering yourself.** It is something you have complete control of, and can often set the tone for the day, or even week.

The bottom line: In today’s fast paced society, the last thing most people want to do is MORE. Our challenge to you from us at CCA is to try and incorporate physical activity into your daily routine, especially on those days where you are extra stressed out, very busy, or feeling down. More often than not, taking that half an hour away from the stressors or all of the work will actually provide you with a more productive, focused, and energetic day. Give it a try! In closing, here are 3 simple steps to keep your brain functioning optimally:

- 1) Be physically active daily. Try to make a minimum of 20-30 minutes of exercise part of your daily routine. A little is better than no exercise!
- 2) Always try to be learning something new, whether it is physically or mentally. Either way it is highly stimulating for the brain’s learning centers. If it is a mental task such as a class or lecture, exercising before creates a great opportunity for the brain to retain more information.
- 3) Get adequate sleep! The body undergoes the “rebuilding” and recovery processes at night. Shoot for 7-9 hours a night. Everyone is different, so find what amount of rest works best for you!