

Why Personal Fitness?

- Students will have one less class to worry about in terms of homework thus allowing more time to work/study for core classes (the classes that matter most for college admissions).
- Students will have more free time to pursue other interests thus reducing likelihood of school induced stress/anxiety.
- Personal Fitness is the best way for multi-sport athletes to participate in all the sports they love while simultaneously improving strength and athleticism.
- It is FUN!

The impact of exercise on academic/cognitive performance

Key takeaways from *Educating the Student Body: Taking Physical Activity and Physical Education to School* (<https://www.ncbi.nlm.nih.gov/books/NBK201501/>)

- Evidence suggests that increasing physical activity and physical fitness may improve academic performance and that time in the school day dedicated to recess, physical education class, and physical activity in the classroom may also facilitate academic performance.
- Available evidence suggests that mathematics and reading are the academic topics that are most influenced by physical activity. These topics depend on efficient and effective executive function, which has been linked to physical activity and physical fitness.
- Executive function and brain health underlies academic performance. Basic cognitive functions related to attention and memory facilitate learning, and these functions are enhanced by physical activity and higher aerobic fitness.
- Single sessions of and long-term participation in physical activity improve cognitive performance and brain health. Children who participate in vigorous- or moderate-intensity physical activity benefit the most.
- Given the importance of time on task to learning, students should be provided with frequent physical activity breaks that are developmentally appropriate.

Citation: Institute of Medicine. 2013. *Educating the Student Body: Taking Physical Activity and Physical Education to School*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/18314>.

John J. Ratey, MD, is an Associate Clinical Professor of Psychiatry at Harvard Medical School and an internationally recognized expert in Neuropsychiatry.

Below are summaries and excerpts from his book ***Spark: The Revolutionary New Science of Exercise and the Brain***.

A 3-month exercise regimen increased blood flow to the part of your brain focused on memory and learning by 30%:

In his study, Small put a group of volunteers on a three-month exercise regimen and then took pictures of their brains. By manipulating a standard MRI machine's processing— essentially zooming in and cocking the shutter open— he captured images of the newly formed capillaries required for nascent neurons to survive. What he saw was that the capillary volume in the memory area of the hippocampus increased by 30 percent, a truly remarkable change.

Being in good shape increases your ability to learn. After exercise people pick up new vocabulary words 20% faster.

One of the prominent features of exercise, which is sometimes not appreciated in studies, is an improvement in the rate of learning, and I think that's a really cool take-home message," Cotman says. "Because it suggests that if you're in good shape, you may be able to learn and function more efficiently."

Indeed, in a 2007 study of humans, German researchers found that people learn vocabulary words 20 percent faster following exercise than they did before exercise.

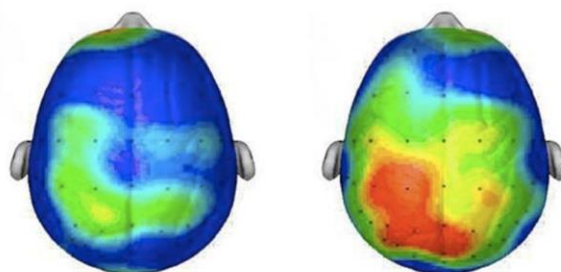
Sweating for about a half hour increases cognitive flexibility.

A notable experiment in 2007 showed that cognitive flexibility improves after just one thirty-five-minute treadmill session at either 60 percent or 70 percent of maximum heart rate... Cognitive flexibility is an important executive function that reflects our ability to shift thinking and to produce a steady flow of creative thoughts and answers as opposed to a regurgitation of the usual responses.

Office workers who exercised at lunch were more productive, less stressed and had more energy.

In 2004 researchers at Leeds Metropolitan University in England found that workers who used their company's gym were more productive and felt better able to handle their workloads. Most of the 210 participants in the study took an aerobics class at lunchtime, for forty-five minutes to an hour, but others lifted weights or practiced yoga for thirty minutes to an hour. They filled out questionnaires at the end of every workday about how well they interacted with colleagues, managed their time, and met deadlines. Some 65 percent fared better in all three categories on days they exercised. Overall, they felt better about their work and less stressed when they exercised. And they felt less fatigued in the afternoon, despite expending energy at lunchtime.

Composite of 20 student brains taking the same test



After sitting quietly

After 20 minute walk

ResearchScan compliments of Dr. Chuck Hillman University of Illinois

Brain activity comparison (Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2667807/>)