

How Can Exercise Improve Learning?

Dear Parents,

We send our children to preschool to prepare their minds for learning more complex concepts in school. However, we should also take account that preparing them to be physically fit right now can also greatly help them succeed in academics. Physical exercise has some of the following benefits:

- Kids are more prepared to learn
- Senses are heightened
- Focus and movement are improved
- Students are less fidgety and tense
- The desire to succeed in school is increased
- They feel more invigorated and motivated

Exercise improves learning on 3 levels:

1. It optimizes your mind-set to improve alertness, attention and motivation.
2. It prepares and encourages nerve cells to bind to one another which is the cellular basis for logging new information.
3. It spurs the development of new nerve cells from stem cells in the hippocampus.

Most of us have heard that ‘exercise improves learning’. This statement is now backed by research. One of them is John Ratey’s book *SPARK: A Revolutionary Science of Exercise and the Brain*. Another research claiming that physically fit kids are smarter was done by Texas school research. This article will discuss Ratey’s book whose ideas were indirectly supported by the TEXAS school research done on over 2.5 million kids.

Spark explains the results of a case study about Naperville Central High School in Chicago. Central is implementing a program called Zero Hour PE. The objective of the program is to determine whether working out before school gives the students a boost in reading ability and in increased skills in additional subjects. This program is supported by emerging research showing that physical activity sparks biological changes that encourage brain cells to bind to one another. Neuroscientists agree that exercise provides an unparalleled stimulus, creating an environment in which the brain is ready and willing to learn. The students at Central are prepared to learn through rigorous exercise. The difference between the PE at Central and other schools is that, at Central, the essence of PE is fitness instead of sports. They instruct students how to monitor and maintain their own health and fitness. They are taught a lifestyle. The students develop healthy habits, skills, sense of fun, and knowledge of how their body works. They want to produce individuals that are hooked on physical activity instead of settling in front of the TV.

Statistics show that children who exercise regularly are likely to do the same as adults. Central took the TIMSS (Trends in International Mathematics and Science Study) test and scored #1 in Science and #6 in Math in the world. They believe that fitness plays an important role in student’s academic achievements.

Unfortunately, there is a tendency for some people to look down on PE subjects. They think that because PE is not an academic subject, they don’t need to spend too much time on it. The results of the Texas research will change this negative thinking. Not only did it show that exercise is good for the students, it also showed that those who are physically fit are also smarter and perform better in academic subjects. Central’s PE focuses on learning how to be physically fit and eating healthily and not just team sports which have a lot of inactivity (eg waiting for the ball to come your way in soccer). Unfortunately, only 6% of US high schools offer a daily PE class. In addition, children spend 5.5 hours in front of a screen of some sort a day. Lack of PE in school and too much screen time increases our youth obesity problem. Seattle Learning Center aims to follow the same techniques used by Central to encourage children to be physically fit. We will do this by offering PE 4-5 times a week for our students.

There are a number of studies presented on the correlation between physical fitness and academic achievement:

- California Department of Education said that in the last 5 years, students with high fitness scores also have high test scores. In addition to this, the organization PE4LIFE claims that the schools in the inner city that are in partnership with them, reduced its disciplinary problems by 67%.
- Another proof is the study of Charles Hillman and Darla Castelli that measured electrical activity in the brain. The electroencephalogram (EEG) showed more activity in fit kid's brain indicating that more neurons in attention were being recruited for a given task.

Ratey claims that the brain is an adaptable organ in the parlance of the neuroscientist. Neurotransmitters, carry our signaling and are elevated by exercise and drugs. BDNF brain derived neurotrophic factor. Neurotrophins such as BDNF build and maintain cell circuitry, the infrastructure of the brain itself. It nourishes neurons like fertilizer. More exercise=more BDNF=more nourishing for neurons=smarter kids.

- In a 2007 study of humans, German researcher found that people learn vocabulary words 20% faster following exercise than they did before exercise. Levels of BDNF is correlated to rate of learning, people with less BDNF have learning difficulties.

The brain needs to be worked out to perform better according to a Harvard study. Brain cells grow back, and they found evidence of this published in a 1998 seminal paper called Neurogenesis. Exercise produces new cells. BDNF is unleashed when we get our blood pumping. If we are not moving there is no real need to learn anything.

We can conclude from the above researchers that the benefits of exercise are extremely valuable for both us and our children. Our bodies are designed for aerobic exercise (eg from martial arts, gymnastics, and most sports), which leads to optimum brain development. By helping our children develop a strong educational and physical foundation, we will guide them to become physically fit, life-long learners.

Thank you for reading this article. We truly hope you and your family will benefit from it, and please feel free to share it with others. If you have any questions about this article, please just let us know.

Kindest Regards,
Lily Talley

References:

[Spark: The Revolutionary New Science of Exercise and the Brain](#) by John J Ratey