The Male Brain And Exercise



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Chinuch SECTION

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Neurologists say boys need to move. Brain researchers say that boys need to exercise to reach their full potential. Moving is how boys learn to solve problems, the way they play, the way they communicate and the way they remember the things they learn.

You don't have to be a brain science researcher to know that when boys are little their lives are all about action and adventure. Boys are programmed to make things move, and watch things move.

Scientists used to think this "boy behavior" was the result of socialization, but they now know that the greater motivating factor for boys needing to move is biologically wired into the male brain.

Researchers studied boys and girls to see how they solved math problems and how long it took them. When the boys were solving the math problems they would swing their legs back and forth or wiggle their feet. When the boys were asked to explain how they solved the math problems, they squirmed, twisted, turned, and gestured with their hands and arms to explain how they got the answer. The boys were able to solve the problems more quickly than the girls and a lot of their speed was attributed to the movements the boys used to solve the math problems. (Maybe this explains why boys "shuckle" when they learn.)

Girls didn't move as they solved the problems and although their math scores were about the same as the boys, it took their brains longer to calculate the problems. Unlike girls, boys create memory best with the assistance of movement. Male and female brains are different from the moment of conception. Although the cells and neurons are the same in boys and girls, boys learn things differently than girls.

When boys exercise, their brains work more effectively. Boys who exercise perform better on tests, retain what they've learned and are calmer, more patient, and less stressed.

It was once believed that a person was born with a certain amount of neurons in the brain and that is what they had for life. Now it is known that new neurons can be created and exercise is one of the best ways to get them.

Exercise influences learning directly, at the cellular level,



Girls wil be girls, right from the start.

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improving the brain's potential to log in and process new information. According to the researcher Dr. Carl Cotman, "One of the prominent features of exercise, which is sometimes not appreciated in studies, is an improvement in the rate of learning… Studies suggest that if you're in good shape you will be able to learn and function more efficiently."

What does exercise do to help with learning? Scientists do not have all the answers yet but they have discovered that there is a chemical in the brain called brain-derived neurotrophic factor (BDNF) that helps with memory. BDNF gives the synapses in the brain the tools they need to take in information, process it, associate it, remember it, and put it in context. BDNF is created when people exercise. Studies have shown that when people were given a list of words to memorize after exercising, they retained the information better and could recall the words better than the group given the words to memorize without exercising first.

After exercise a person has about three hours to use this chemical to create a new memory. What does this mean? If a person jogs or takes a 20 minute brisk walk and then learns some vocabulary words, he or she will be able to remember them better.

A notable experiment in 2007 showed that cognitive function improves after just one 35-minute session on a treadmill.

We used to think that the brain was a mass of tissue that basically stayed dormant, but now we know that the brain is more like play-doh. It is an adaptable organ that can be molded by input in much the same way as a muscle can be sculpted by lifting barbells. The more you use it, the stronger and more flexible it becomes. Brain flexibility is an important function that reflects our ability to shift thinking and to produce a steady flow of creative thoughts. The brain works like all the other parts of our body: use it or lose it. For the brain to reach its full potential, we now know that not only is reading and studying important, there is another critical ingredient, and that is physical exercise. Exercising without learning is not going to build intelligence, but learning without exercising will not allow the brain to reach its full potential, especially for boys!

In a yeshivah in upstate New York, there were two eighth grade rebbis. One insisted that his students play vigorous basketball or another sport for a half hour before opening their Gemaras in the afternoon. The other discouraged sports and wanted the boys to memorize Mishnayos or review what they had learned during the half-hour mid-afternoon break. Which class do you think covered more Gemara and knew it better? I'll leave you with that… You may want to make sure your son's rebbi reads this article!

Please note: Exercise can and does benefit girls too, although perhaps in a different way than boys. Lack of exercise in girls has detrimental effects as well, but not necessarily inability to retain or process information learned. ■

Sara Chana Silverstein is a mother of seven, a lactation consultant, registered herbalist and classical homeopath. She currently writes regular columns in many national magazines and has recently been interviewed on shows such as CBS and NBC news. Visit her website, sarachana.com, for more information on birth, breastfeeding and children's health.

