

# Exercise and Educating Your Child

Derek Pugh



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## Exercise is a Brain Compatible Education strategy.

In fact, having regular exercise is a no-brainer. The brain uses 20-30% of the oxygen taken into the body anyway, but increasing the blood flow increases the food, especially glucose, and oxygen supply to the brain. What food does is supply the energy and building blocks required by the cells for efficient functioning and growth – a process that produces

toxic waste. What oxygen does in part is to grab the toxic ‘free radical’ electrons produced in cellular chemistry and get them out of the system in the form of carbon dioxide. Exercise, as John Medina puts it, “boosts the mind” - it pumps in the good stuff and clears out the bad at a faster rate.



Our brains learn and grow because we interact with the world. Our perception of what is around us and physical activity have direct influence on the brain’s structure and function. Both mental stimulation and physical exercise improve brain function and they actually protect against cognitive decline. Everyone should have 20 minutes of exercise each day just for healthy brain function at least, plus a break for exercise every 30 minutes while studying.

Our brain is in a continual process of adapting and “rewiring” itself. Even when we’re old, we can grow new neurons. Doctors say most age-related losses in memory come from inactivity and a lack of mental stimulation. This means we must exercise it and use it or lose it, and there’s no better time to start than right now.



Here's a brain exercise you can start with. Change hands! Whatever you're doing right now, change and use your other hand. It's hard – computer mouse movements, page turning, teeth brushing whatever, your brain is so used to doing them the same way there's no challenge anymore. Lawrence Katz, a neurobiologist at Duke University invented the term *neurobics* for this sort of exercise. It means doing normal everyday things a different way to exercise the brain – everything from shopping at a

different supermarket than usual, to dressing or bathing with your eyes closed and communicating without words for an entire dinner party. And you can try combining your senses– try listening to rain whilst smelling flowers or tapping your fingers.

You can think strong too. In Cleveland scientists found that if you think about making a muscle strong through imaginative movement after a few sessions it actually increases in strength. Some people improved the strength of their little fingers by as much as 35% just by thought.

I like the analogy of the brain as a muscle. It's been shown that grey matter becomes more dense after learning a new skill – like a muscle, but it also it drops back or atrophies after a while if it's not used. Also just like a muscle. We need to ensure we exercise this muscle early on and challenging the brain throughout life is essential to maintaining its fitness. It's well known that older people need to keep active – learn a language, play bridge, do anything to prevent their brains going

into neutral. Bingo playing by oldies in England was shown to be an exercise when its players remained more mentally sharp than the non-players in the study.

In Chicago they found that the reading habits of the under eighteens were a key predictor of their cognitive abilities later in life. Reading is good for your health. TV is not.

Most authors in this field recommend walking as an excellent sort of brain exercise. Walking is not strenuous, but it increases blood circulation and therefore oxygen and glucose supplies to the brain. Studies show that cerebral blood vessels grow after exercise.

In elderly people the risk of a stroke is more than halved even with just 20 minutes walking a day. Physical exercise has a protective effect on the brain and its mental processes, and may even help prevent Alzheimer's disease. Based on exercise and health data from a Canadian study of 5,000 men and women over 65 years of age, sedentary individuals were twice as likely to develop Alzheimer's, compared to those with the highest levels of activity. Dr Michel Valenzuela says there are three keys to cognitive health – cognitive activity (learning new things), social activity (relating to others) and physical activity. All three are needed for healthy brain function.

Does reading this depress you? Not to worry, because exercise also decreases depression and helps the cognitive abilities of both men and women. All you need to do for this is exercise three times a week for 30 minutes.

This is great food for thought. If we start life active and maintain regular mental and physical exercise throughout our lives it's

clear we're more likely to remain cognitively sharper than the couch potatoes next door.

## **The Role of Schools**

Schools can help develop life long exercise habits in their students. Children need to be a part of mentally and physically challenging education for all their schooling. One follows the other, so in a crowded curriculum a school which sidelines physical subjects for pure academia does so at their peril. Schools are places where we train brains and exercise is as much for the brain as body.

Exercise changes in-class behaviour for the better too. Children who run around and play hard before class are more likely to participate well in a class for up to several hours afterwards. As exercise also stimulates nerve growth and affects the nervous system by setting off the hormones serotonin and dopamine, which make us feel calm and happy, perhaps it should be a prerequisite before any lesson. When children are calm and happy they will learn more as their entire nervous systems are working at a higher level.

There are, of course, many other factors other than exercise which come to play in the mind of a child as he or she goes through schooling. Sleep, breakfast and diet and hydration for example, and external factors such as home life, stress, abuse and trauma can all have a critically negative effect on learning. However, if we want learned, intelligent, adaptable and healthy children exercise is one of the pillars upon which to build them.



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*Derek Pugh is an experienced Principal and teacher in both Australian and International Schools. He now runs workshops in Brain Compatible Education for students, teachers, parents and corporate groups worldwide. Workshop participants discover the*

*latest in neuroscience and why knowledge of the brain is a powerful tool in education; the 'SEWBaD model' of preparation for learning; what brain 'plasticity' means to education; individual learning profiles and how to use them for effective learning and teaching; how to teach or learn efficiently; and models of brain operation and function.*

*He is the author of "The Owner's Guide to the Teenage Brain"*

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