



Exercising Our Minds



Getting our kids moving has benefits for their brains as well as their bodies, writes Michael Nagel.

People have known about the physiological benefits of exercise for many years. There is a plethora of research, both medical and scientific, that tells us that exercise is good for our bodies and physical wellbeing. Infomercials and shopping centres provide forums for the latest exercise equipment to enhance our bodies, while exercise gurus make millions through books, motivational speaking and the newest variations of aerobic activities provided through health clubs around the country. Recently, the Queensland Government jumped on the exercise bandwagon by implementing 'Smart Moves', requiring that, in curriculum time, all State-school students be provided with 30 minutes of physical activity of at least moderate intensity every day in primary school, and at least two hours of moderate-intensity activity every week in lower secondary school. This is very good news, and the Queensland Government should be applauded for institutionalising an activity that not only helps the bodies of its students, but also their minds.

A large number of recent studies have shown the remarkable effect regular exercise has on our brains and mental wellness. Interestingly, while parents earnestly believe that children learn more when they are in a classroom or at a computer than if they are engaging in a physical-education class or some other form of physical activity, there is now widespread recognition by health experts, developmental psychologists and neuroscientists that not only is physical activity vital for health, good sleep patterns, getting rid of excess energy, and socialisation, but it also enhances learning and academic outcomes. In essence, kids who play hard every day may be making

their brains, as well as their bodies, stronger. Increasingly, researchers are finding proof of the links between brain function and the positive effects of physical activity, and these links are evident throughout a person's life.

In the very earliest stages of life, a child's developing ability to become mobile is as much about neural strength as it is about physical prowess. The first few years of a child's life are critical for brain growth and maturation, and the body and brain work in tandem. As an infant begins to explore the world via crawling, and later through those first few steps, their brain is laying down important neural connections for such activities. In essence, the brain and the body grow together, and movement assists in hardwiring the brain. Moreover, as parents scurry around childproofing the house, many of them are not aware of the fact that movement milestones are the most obvious sign of neurological progress. As children grow, this process continues, and the road to a healthy body runs parallel to that of a healthy brain. Unfortunately, what is often essential in terms of cognitive development and learning is often invisible to the eye, and parents who equate academic achievement solely with classroom endeavour are, arguably, blind to the importance of physical activity.

Early-childhood educators and specialists have long known that physical activity and play are integral components of early learning and development. Indeed, most quality early-childhood-education programs focus on play as a key component of cognitive, emotional and social development. Physical activity and play offer young children opportunities to learn through the random



appropriation of bits and pieces of information. In the early stages of life, the brain is not always receptive to the carefully organised sequence of learning experiences found in the classrooms of older children. Some studies have even indicated that many children who are provided only limited opportunities to engage in physical activity, or who are unable to play spontaneously and investigate their world with their hands and bodies, have difficulty in developing mental abilities such as understanding abstract verbal concepts. Moreover, a relatively new field of neuroscientific and physiological research suggests the need for body movement and physical activity to build different forms of intelligence.

Contemporary research has also shown that children who do better academically, emotionally and socially throughout their school lives come from home and early-learning environments that provided a greater opportunity to explore the world through physical activity and play.

As we get older, physical activity does not wane in importance in relation to development and learning. From a physiological perspective, regular exercise increases the blood supply to the brain, thus giving it greater oxygen and energy supplies for better mental abilities. It is no coincidence that when you go for a long walk you often begin to have greater clarity of thought. Importantly, this does not happen when children, or adults for that matter, are sitting at a desk for extended periods of time. Think about the number of times you have found yourself yawning or losing concentration at your desk.

In addition, chemicals secreted by the brain during and after exercise enable it to deal better with stress and anxiety. This is incredibly important for young people in particular, given the fact that many of the important structures of the brain that mediate inappropriate emotional responses do not fully develop until the second decade of life. In other words, while adults may be able to counteract stress using the full capacities of the brain, physical activity provides children with a mechanism for navigating through stress and anxiety that counterbalances any limitations due to maturation and developmental timelines. Physical activity also offers an outlet for dealing with negative emotions that children experience.

So it is clear that physical activity is an important component of our mental health and wellbeing. But can exercise actually improve learning and contribute to academic success?

In 2007, researchers at the Medical College of

Georgia, led by Dr Catherine Davis, a clinical health psychologist, worked with 163 sedentary, overweight children aged from seven to 11 for a period of three months. All the children were given information about healthy nutrition and the benefits of physical activity, and were divided into three groups: a control group who did no physical activity after school, and two groups who did vigorous aerobic activity after school five days a week, one group for 20 minutes each day, the other for 40 minutes each day. Davis and her colleagues found that the children who played vigorously for 20 to 40 minutes a day showed improved 'executive function' (which includes organisational and decision-making abilities) as well as a possible improvement in maths achievement – along with a reduction in body fat and improved bone density. And the children who exercised for 40 minutes each day showed greater improvement than those who exercised for 20 minutes. According to Davis, "School systems need to know that to reach their achievement targets, they need to add physical activity to the school day rather than reduce it".

Other research has shown similar results to those arrived at by Davis and her colleagues by demonstrating positive links between exercise and cognitive capacities and strong associations between maths performance and aerobic fitness among primary-school-age children.

For those of us getting on in life, studies have also shown that executive function improves in older adults who become more physically active. The implications of this finding and of other research in the area suggest that any initiative to have students engage in physical activity every day is, pardon the pun, a step in the right direction.

Make no mistake, exercise not only changes the body, but also the mind. Neurologically speaking, as well as from a parent's point of view, half an hour of vigorous activity is far more beneficial than half an hour staring at a video screen playing the latest game! Moreover, sedentary schools and classrooms deserve as much attention from parents as test results and political agendas aiming to standardise education.

Finally, because adults also reap benefits from exercise, this is a great reason to get the family together for a jog, a walk, a kick of the football, or any other form of exercise. You, your family and your brain will be glad you did! ■

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