



# Active Kids Are Smart Kids

*How Physical Activity Improves Brain and Cognitive Functions*

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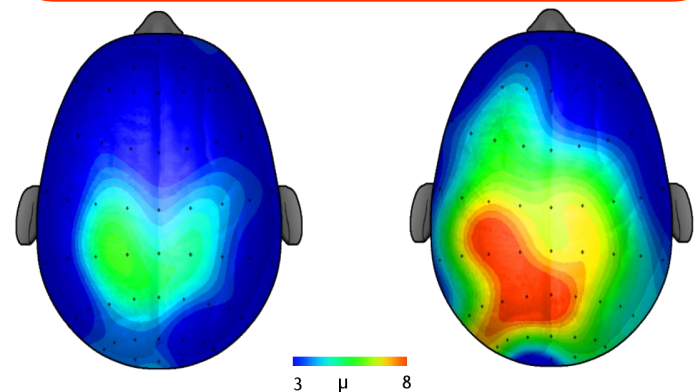
**We** know that physical activity has great health benefits for our children. But did you know that children who are more physically active have better academic performance, memory and attention? It's true! They are more focused, stay on task, have better recall and short term memory.<sup>1</sup> However, being physically active means more than just "running around" and "playing outside". Yes, running, jumping and swimming, often called cardio-respiratory activities or "cardio" are important for the heart. However, activities that focus on perceptual motor development and fundamental movement skills are also important. While, both cardio and motor skill activities improve overall brain function, they activate children's brains differently so we need each of these to plan and make decisions from simple to most complex.<sup>2</sup> Physical activity can affect how we learn, remember, problem-solve, and pay attention.<sup>3</sup>

## CARDIO PHYSICAL ACTIVITY

Cardio activities that increase the heart rate and breathing such as walking, running, dancing, skipping and jumping, have been shown to increase blood flow and oxygen to the brain and improve brain function. Researchers Hillman et al (2009) found that children with only 20 minutes of walking showed improved brain activity and performance on academic achievement tests and response accuracy.<sup>4</sup>



Cardio activities increase blood flow and oxygen to the brain and improve brain function



After 20 minutes of **Sitting Quietly**

After 20 minutes of **Walking**

*Used with permission, Hillman et al. (2009). Neuroscience, 159, 1044-1054*

The picture above shows stimulation that occurs in the brain with just 20 minutes of walking. This brain stimulation is caused by the enhanced oxygen flow to the brain which in turn re-charged the brain to learn more efficiently. Keep in mind the blue indicates lower brain activity while the red indicates higher brain activity.<sup>1</sup>



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## MOTOR SKILL PHYSICAL ACTIVITY

Motor skill physical activities are those that involve higher levels of coordination, balance and reaction time such as balancing on an unstable surface or bouncing a basketball. A study performed by Koutsandréou et al (2016) showed that bouts of these types of activity led to improved concentration and attention tasks than those without specific skills such as simple running.<sup>2</sup> They also found these activities helped to enhance working memory, and verbal learning and memory. Another study Budde et al (2008) showed that delivery of actual physical activity lessons (structure activity), such as physical education class, in children ages 5-13 generally resulted in improvements in academic achievement by improving attention and concentration.<sup>5</sup>

In order to perform a variety of movements, children need to have opportunities to perform basic fundamental movement skills such as hopping on one foot, spinning around and balancing as well as building perceptual motor skills that help them connect the brain to the body. Remember, young children need to be taught these skills. We can't rely on them to learn on their own.

*Young children need*  
**OPPORTUNITIES**  
*to build skills that*  
*connect the*  
**body to the brain**

*Follow the leader!*



## BRAIN BREAKS

After sitting for long periods of time, it is important that children get up and move! Take a short walk, or do some dancing and then freeze when the music stops. These are often called *Brain Breaks!* These are short bouts of physical activity that help reset the brain and get the blood and oxygen flowing more rapidly to the brain and body! Children should never be sedentary for longer than 60 minutes at a time. In fact, many researchers suggest doing brain breaks after 30 minutes of being sedentary.

Brain Breaks can be done with minimal



to no equipment or preparation and should be fun and engaging. They should include cardio activities as well as motor skill development such as crossing the midline of the body and challenging the brain to utilize both sides. Examples include [Follow the Leader](#), [Red Light Green Light](#), [Count My Moves](#) or [Treasure Hunt!](#)

## REFERENCES

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