

Why movement is critical to learning:

Increased oxygen to the brain – The brain relies on blood to nourish it. The more blood that is available to the brain, the better able the brain is to think, reason, problem-solve and create. Aerobic activity increases and enhances the body's ability to transport blood (carrying oxygen) to the brain. Regular aerobic exercise is one of the best things to do for your brain.

More blood capillaries develop – With increase aerobic conditioning; the brain develops more blood capillaries. These capillaries branch out into the brain creating “blood flowing” pathways to more regions of the brain. This will provide the brain with increasing levels of oxygen and nutrients, which enables the brain to perform better. Regular aerobic exercise is one of the best things to do for your brain.

Movement develops more neural connections – The brain relies on neural connections (connections made between nerve cells) to send and receive information. This transmission of information is the brain's ability to think, learn, create, problem solve, etc. The more neural connections made the smarter the brain becomes in regards to processing information. When learning is linked to movement, more neural connections are made and greater learning takes place. Adding movement “anchors” the learning into the brain better than if no movement is used. If we want children to learn, we need to give them opportunity to move, touch, feel, and experience things in a hands-on approach. Learning is doing.

Regulates neurotransmitter - Exercise and physical activity helps release “brain-derived neurotrophic factors” (BDNF). BDNF is a natural substance within the brain that increases the ability of the neurons to send messages to each other. The more the BDNF floating around, the easier it is for the brain to process information. Exercise is the key in helping the brain produce BDNF.

Reduce Stress – Stress is one of the greatest influences on how students learn. Since many students are faced with different types of stressors (embarrassment, deadlines, expectation, etc.) daily, exercise is key in enabling the brain to regulate itself and deal with stress. With high levels of stress causes the adrenal glands to secrete cortisol into the blood stream. The production of cortisol causes the body to depress the immune system, tense muscles, increase blood pressure and form blood clots. Regular exercise helps to regulate the production of cortisol allowing the brain to function properly. Exercise reduces the very stress that inhibits the brains ability to function properly.

It is not hard to figure that movement, physical activity, and hands-on learning are essential to optimal brain function. The more one knows about the brain, how it works, and what affects it the more obvious it becomes that physical

education is an indispensable part of student's education. Physical Education is essential to learning.

Resource:

PE Resources – Brain-Compatible Physical Education Booklet: Play with the Brain. PE Publishing Company, 237 Beau Tree Drive, Wilmington DE. 19810. 2001