Five Reasons Why Physical Activity is Critical to Learning

Reason #1
The number one reason physical activity is critical to learning is because physical activity increases blood flow to the brain. The brain relies on blood to nourish it with oxygen. The more blood, and thus oxygen, that is available to the brain, the better able the brain is to think, reason, problem-solve, and create. It doesn't take a rocket scientist to figure out that aerobic activity, such as running, increases and enhances the body's ability to transport blood, thus carrying much needed oxygen to the brain. The more aerobically fit a person is, the better he or she is at supplying oxygen to the brain.

Reason #2
The number two reason physical activity is critical to learning is because physical activity helps to develop neural connections. The brain relies on neural connections to send and receive information. This transmission of information is the brain's ability to think, learn, create, and problem-solve. The more neural connections that are made, the more efficient the brain becomes at processing information, which basically makes you smarter, in a sense. We currently use less than one percent of one percent of our brain's total capacity. To use more of the brain's capacity we need more neural connections. When learning is linked to physical activity (meaning you do something instead of just watching something), more neural connections are made and greater learning takes place. Adding movement to a lesson helps to "anchor" learning in the brain better than if no movement were used. If we want kids to learn, we have to give them opportunities to move, feel, touch, and experience things in a hands-on manner (which is what we do in PE class!). Forget about trying to get kids to sit and learn. Learning is doing. Everything else is just information.

Reason #3
The number three reason physical activity is critical to learning is because physical activity helps increase the size and number of blood capillaries in the brain, thus creating more potential for blood to travel to critical areas faster and more efficiently. When a person exercises, blood flow to the brain is increased (see Reason #1 above). This increase in blood flow has to have a place to go when it arrives in the brain. Blood capillaries are forced to expand in size and number to accommodate the increased blood flow. The greater the person's aerobic capacity, the greater the number and size of capillaries. These capillaries branch out into the brain, creating "blood-flowing" highways. These new highways provide the brain with increasing levels of oxygen, fuel, and nutrients, which enables the brain to perform better.

Reason #4
The number four reason physical activity is critical to learning is because physical activity helps reduce stress. Too much stress affects learning and too little stress affects learning. Typically, students receive too much stress in the school environment. Stress within school comes in many forms. The most common stress comes in the form of: embarrassment; sarcasm; unrealistic deadlines or expectations; humiliation; lack of resources; punishments; rewards; threats; bribes; and bullying. Many students are faced with these types of stressors on a daily basis. To counter stress it's important for students to engage in daily exercise and physical activity to help the brain regulate itself and deal with the stress. In addition, high levels of cortisol, a neural transmitter secreted into the blood stream when stress levels are high, causes the body to depress the immune system, tense large muscles, form blood clots, and increase blood pressure. Regular physical activity helps combat these issues, allowing the body to regulate the production of cortisol, therefore reducing the possibility that stress will harm the body.

Reason #5
The number five reason physical activity is critical to learning is because physical activity can stimulate the release of the body's natural motivators (Jensen, 2000). The brain is filled with neurotransmitters.
The job of these chemicals is to regulate brain function based on the brain's needs. Production of serotonin and dopamine, two of the brain's chemicals, increases with physical activity. How important are these two chemicals to learning? Serotonin is a mood stabilizer. It enables an individual to remain calm and able to think rationally. Dopamine increases energy, alertness, and mood to an enjoyable level. Physical activity therefore becomes a catalyst to promote positive attitudes and motivation. In addition, increased production of serotonin and dopamine within the brain helps to decrease the levels of cortisol, a chemical which causes the brain to focus on negative expectations, as well as other stress increasing chemicals. Once again, this is a NO-BRAINER...exercise and physical activity is something the brain needs if it is to function properly and learn at a high level.


**Body of Knowledge**

- The brain accounts for about 2% of the body's weight, but consumes about 20% of the body's energy.
- A mouse brain has about 5 million brain cells. A human brain has about 100 billion brain cells.
- The brain uses about 8 gallons of blood per hour, or 192 gallons per day.

The brain uses 20% of all the oxygen that comes into the body.

**Quotes:**

Learning is experience. Everything else is just information.

-Albert Einstein

Your body is the baggage you must carry through life. The more excess baggage, the shorter the trip.

-Arnold H. Glasow

What we learn with pleasure we never forget.

-Alfred Mercier

The most sensitive, most delicate of instruments... the mind of a little child.

-Henry H. Richardson