Mind-Body Connection

Nurturing the health and wellness of school-age children

POTTSTOWN AREA
Health & Wellness
FOUNDATION
Promoting Healthy Living

eBook Series

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Introduction

Students may soon count jumping jacks during math class. Or, practice breathing techniques before important tests. Or, play a game of Simon Says in science. A growing body of research on the positive impact of physical activity on the brain demonstrates the powerful brain-body connection, especially for students. It keeps young minds focused and alert. In fact, there is substantial evidence that physical activity can have an impact on cognitive skills, academic behavior and test scores. A bonus is that these movement activities and breaks require little time, preparation or resources for teachers.

Maintaining a Brain-Body Connection

Thomas Jefferson said, "*A strong body makes the mind strong.*" It's an impactful statement that resonates today, especially when it comes to the connection between brain and body. Research backs up that connection by making direct correlations between the amount of our daily movement and how our brains work.

Without question, schools that offer more physical activity for students see increases in academic success. That means more than traditional gym classes which, incidentally, are rapidly being sacrificed across the country in an effort to save money.

A challenge toward adopting a smart and healthy lifestyle is that sedentary habits develop earlier and earlier in today's technology-driven world. It seems that too many activities compete for our children's attention. What wins is often what keeps them stationary. The question remains: How do we begin to develop healthy habits that will follow us into adulthood?

How It Works

The relationship between food, physical activity and learning is hardwired into the brain's circuitry.

John J. Ratey, MD

According to recent research in the field of neuroscience: As you exercise, your muscles contract and release chemicals that travel to the brain, stimulating the release of a protein called BDNF (brain-derived neutrophic factor). As John J. Ratey, MD, Harvard psychiatrist and author of *Spark: The Revolutionary New Science of Exercise and the Brain*, puts it, BDNF "serves as Miracle-Gro for the brain, fertilizing brain cells to keep them functioning and growing."

Words of Wisdom

Dr. Missie Patschke, principal of Upper Providence Elementary School, calls the connection between brain and body an untapped resource. She says, "At Upper Providence, students who have movement incorporated into their day truly do better on both their learning tasks and their life tasks."

Leslie Ruffo, a teacher at Upper Providence Elementary School, concurs, suggesting that the benefits for her nine- and ten-year-old students are obvious. "Students that age generally have short attention spans," explains Ruffo. "After every ten minutes, it's really important to get them up and moving—something to allow them to get the 'fidgets' out and re-focus on the tasks at hand."

www.youtube.com/missionhealthyliving

Learn more about the benefits of classroom-based physical activity, including improved cognitive skills, academic behavior and test scores.

The Brain Effect

What happens in our brains when we exercise?

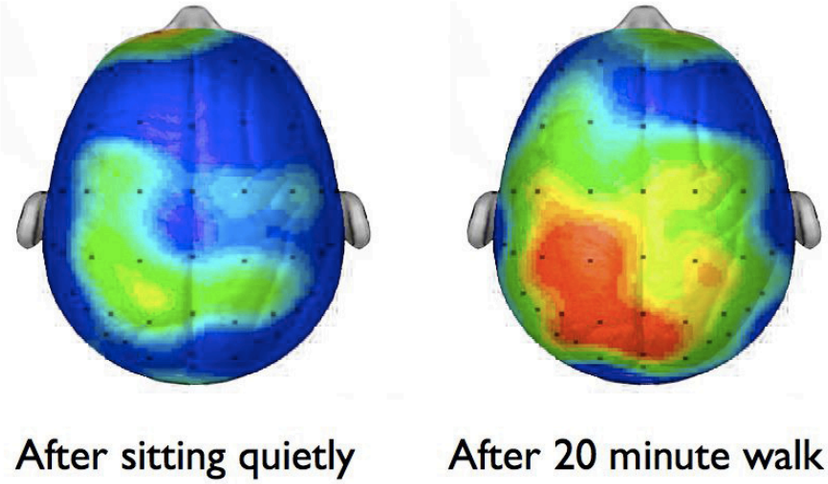
Physiological Changes in Our Bodies

- Improved attention
- Improved information processing, storage and retrieval
- Enhanced coping and positive affect
- Reduced sensations of craving and pain
- Improved mood motivation and resilience

Biological Effect of Physical Activity

- New brain cells are created (Neurogenesis)
- Increased cerebral capillary growth
- Increased blood flow
- Increased oxygenation
- Enhanced production of endorphins, dopamine, serotonin and norepinephrine
- Enhanced neurotransmitter levels

Composite of 20 student brains taking the same test



After sitting quietly After 20 minute walk

Research/Scan compliments of Dr. Chuck Hillman University of Illinois

Benefits of Regular Physical Activity

Last year, only 29% of high school students participated in at least 60 minutes of physical activity per day, according to a survey conducted by the Centers for Disease Control and Prevention. Unfortunately, that's a statistic further backed up by the fact that participation in physical activity declines as people age.

The benefits in favor of regular physical activity can't be ignored and should be nurtured early on. Those benefits include:

- Maintaining healthy bones and muscles.
- Reducing the risk of developing obesity and chronic diseases, such as diabetes.
- Promoting psychological well-being, while lowering feelings of depression and anxiety.
- Potentially improving academic performance, including concentration and attentiveness in the classroom.

Why encourage these good habits as early as possible? Because adults benefit from a brain-body connection too! How?

- During exercise, new brain cells are produced.
- The same factors that reduce risk for cardiovascular disease and diabetes also reduce the risk for developing dementia, Alzheimer's and Parkinson's disease.
- Older adults with the highest levels of exercise have a 20% lower chance of being cognitively impaired on tests of memory and intelligence.
- Exercise counters the aging process because it slows down the natural decline of the stress threshold of neurons in the brain.
- Exercise sparks connections and growth among your brain's cell networks by increasing blood flow/volume, regulating nutrients in the brain and encouraging neuron activity, which grows new brain cells.

Easy Activities in Class—and at Home

A question that's often asked is: *How can parents encourage physical activity to continue at home?* And that doesn't include their ability to text at record speeds! Here are six simple things to strive toward each day:

1. Get at least 30 minutes of physical activity—walk, bike, swim, garden, dance, housework, etc.
2. More is better! Daily physical activity can be in shorter increments such as 10 minutes at a time, but it must add up to at least 30 minutes.
3. Physical activity is best in the mornings or before doing something intellectually challenging.
4. Sleep 8 hours every night.
5. Maintain proper nutrition. That equals lean protein, fruits and vegetables, whole grains and low-fat milk.
6. Start your morning with a healthy breakfast.

Following the Lead

For school districts, a well-documented success story has been Naperville Central High School, located just outside of Chicago, IL. Their approach to physical activity has been a case study for the nation—one that showcases improved test scores and grassroots leaders for a movement that many educators hope takes hold in more schools.

At Naperville, physical activity finds its way into the classroom, where students are constantly kept on the move. As Paul Zientarski, chairman of the Physical Education Department at Naperville, said, in a piece printed by ABC News, "What we're trying to do here is jumpstart their brain."

That's a mission shared by the President's Council on Fitness, Sports and Nutrition—a group that seeks to "empower Americans of all ages, backgrounds and abilities to adopt a healthy lifestyle through regular physical activity, participation in sports and healthy eating."

Following the Lead—in Pottstown

The importance of incorporating physical activity at the high school level is playing out in the Pottstown School District as well, as faculty put more emphasis on student health and wellness.

"Exercise helps stimulate brain cells. It helps improve focus and memory. As a result, children are better equipped to absorb and retrieve information when needed," said David Genova, Wellness Coordinator for the Pottstown School District. "Because a lot of teachers understand these needs, our teachers are incorporating one to two minute brain breaks and energizers in the classroom. The idea is just to get up out of your chair and start moving around."

Nancy Kupferschmidt is a Physical Education teacher for the Pottstown School District. Just this past year, the District started The Heart Rate Program, funded by the Pottstown Area Health and Wellness Foundation. "Your watch keeps track of how many beats per minute your heart is beating during exercise," said Kupferschmidt. "The watch shows you how hard you're working. Students see and know what a good workout feels like."

It's important to recognize that taking small steps in the classroom—even if it's simply a two minute brain break—can have a profound impact on students and their performance.

www.youtube.com/missionhealthyliving

Listen to how area schools are making the brain-body connection work on a local level.

Commitment for a Lifetime

It takes time to develop smart and healthy behaviors, though it only stands to reason that teens who build good habits now will carry them into adulthood. That includes making and keeping a brain-body connection, often through the guidance of their schools and their role models at home. A few encouragements toward creating new healthy habits and making them last, include:

Keep it Simple:

You can't change the world in a day! By establishing attainable goals, you're setting yourself up for success. That applies to teens as well, who can quickly get overwhelmed in the competitive climate known as high school.

Accept Imperfection:

Nobody's perfect. But, there is a lot of pressure put on individuals to succeed (either by others or by self). Hold yourself to high standards, but understand that there will be a few peaks and valleys along your journey.

Make a Commitment:

If you start exercising your brain and after 20 minutes still can't focus on trigonometry? It's okay! But don't give up. Give yourself a chance to see measurable changes in your behavior.

By putting good habits in place early, it is easier to sustain physical activity into adulthood. In essence, you are developing a culture of wellness—one that will not only benefit you, but also those who will look to you as a role model.

Resources to learn more:

Spark: The Revolutionary New Science of Exercise and the Brain by John J. Ratey, MD, www.sparkinglife.org

Play: How It Shapes the Brain, Opens the Imagination and Invigorates the Soul by Stuart Brown, MD, www.nifplay.org

Action Based Learning™ concepts by Jean Blaydes, www.abllab.com

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About The Foundation

The Pottstown Area Health & Wellness Foundation's mission is to enhance the health and wellness of area residents, providing education, funding and programs that motivate people to adopt healthy lifestyles. Visit www.pottstownfoundation.org for more information about the Foundation. Discover Pottstown area's online community at www.missionhealthyliving.org to learn and share information on how to lead a healthier life. You can also follow Mission Healthy Living on Facebook and Twitter.

More Info:

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