

Physical Activity Enhances Learning

Moving and thinking are connected

The largest area of the brain is the cerebrum, which is the thinking part of the brain, but it also has an area that controls the voluntary muscles.¹

The cerebellum is an area of the brain commonly linked to movement because it controls balance, movement and coordination, and plays a role in thinking.¹

Physical activity is necessary for efficient brain functioning²

When a person is active, the number of breaths taken each minute increases and breathing becomes deeper. Blood, now rich with oxygen, moves through the system more quickly. This increase in oxygen to the brain improves focus and concentration. When one is sitting for a long period of time:

- Blood pools in the hip area
- Breathing becomes shallow and slow
- Less oxygen enters the blood stream, thus less blood reaches the brain

Brain function is less efficient after long periods of sitting, and as a result, one's learning and performance can suffer. In addition, under these conditions it is increasingly difficult to collect and remember additional information. The hippocampus, which receives and temporarily stores all explicit information, shuts down when it receives too much information.³

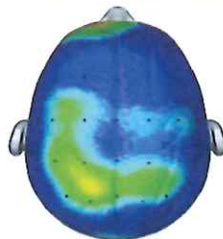
To optimize learning, combine a 20-minute learning segment with 2-5 minutes of movement.⁴

Physical activity maximizes brain functioning:

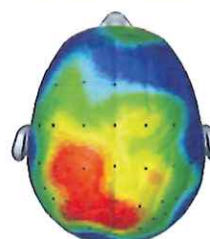
- Exercise prepares the brain to receive and retain additional information.²
- Movement stimulates growth and greater connections between nerve cells.⁵
- In a recent study, 10 elementary school students walked for 20 minutes while another 10 sat quietly. Then, all 20 students took the same test.

Average Composite of 20 Students Taking Same Test

Brain after sitting quietly



Brain after 20 minute walk



Research/scan Dr. Chuck Hillman University of Illinois, 2009

Conclusions indicate a single bout of moderately intense aerobic exercise (e.g. walking) improves the cognitive control of attention as a contributing factor for increasing **attention** and **academic performance**. These data suggest that single bouts of exercise may be necessary for effective functioning across the lifespan (see above brain scan image).⁶

“One of the best ways to maximize the brain is through exercise and movement,”

-Dr. John Ratey, renowned brain researcher⁷

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- 5 Hannaford C. *Smart Moves: Why Learning Is Not All In Your Head*. Arlington, VA: Great Ocean Publishers; 1995.
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- 16 Centers for Disease Control and Prevention. (2010). *Association between school-based physical activity, including physical education, and academic performance*. Atlanta, GA: U.S. Department of Health and Human Services; 2010.

HealthMPowers Classroom Integration

THE CHALLENGE

The SHAPE fitness assessment results for 2013-2014:

- Only 19% of Georgia students were able to achieve the Healthy Fitness Zone (HFZ) for all five FitnessGram® assessments¹
- 24% of Georgia students were unable to achieve the HFZ for any of the FitnessGram® assessments¹

THE SOLUTION

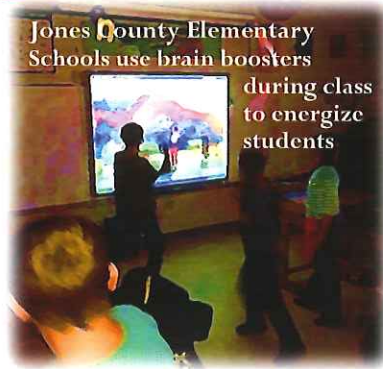
The CDC recommends children get at least **60 minutes** of physical activity every day.²

Schools can help achieve this goal by promoting a Comprehensive School Physical Activity Program (CSPAP), which includes:

- **Classroom integration**
- Recess
- Before and after school activity
- Quality physical education
- Staff engagement
- Family/community engagement

BEING PHYSICALLY ACTIVE IN SCHOOL

- ✓ Improves academic scores (reading, math, spelling and composite)³
- ✓ Improves classroom behavior^{4,6}
- ✓ Increases concentration^{4,6}
- ✓ Increases time on task^{4,6}
- ✓ Reduces risk of depression^{4,6}
- ✓ Improves cardiovascular fitness and muscular strength³
- ✓ Reduces likelihood for developing many diseases (e.g. type II diabetes)³



Jones County Elementary Schools use brain boosters during class to energize students

Integrating physical activity into the classroom can help improve **concentration**, **behavior** and **academic** performance. This integration can act as an efficient **transition** between subjects, an **energy booster** or as a method of **teaching/reinforcing** academic **concepts**.

Regular physical activity is not only important for health, but it also enhances **student learning**.

Turn this...



into this!



Little time



Little/no cost

Susan O. Stripling Elementary School



Classroom physical activities were reported to be fun, easy to do and did not interfere with learning as shown by **higher test scores** than in a control group.⁶

Physical activity prepares the brain to learn

- In an active student, oxygen-rich blood rapidly moves through the body. **This movement stimulates growth and greater connections between nerve cells.**⁷
- In-class physical activity breaks can be integrated into subject areas or provided as transition from one subject to another. They can last between **5–20 minutes** and occur all at one time or several times throughout the day.⁹
- Even a short break from focused concentration allows the brain to consolidate information for **improved retention**, retrieval of **memory** and to benefit to benefit **cognitive development.**^{8,9}

Classroom physical activity positively affects behavior and academic scores

- Eight out of nine studies found positive associations between classroom-based physical activity and indicators of academic performance (increased **time on task**, reduced **fidgeting**, improved **concentration** and improved **reading, math, spelling and composite scores**).²

HealthMPowers Staff Engagement

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Educators practice a "walk and talk" strategy at a Power Up for 30 training in Valdosta, GA.

In a national survey, **51%** of teachers reported **gaining weight** after entering the career-field. The **top contributors** to their weight gain were **sedentary roles** and **time constraints** that lead to unhealthy behaviors that make it difficult to stay fit.⁷

A school wellness program supports healthy behaviors and improves health outcomes of staff. These programs can focus on general health **education**, health **coaching**, weight management, **health fairs**, medical **screenings**, **on-site fitness** opportunities and more.⁸

Physical Activity Opportunities for Staff Engagement

Before/After School Exercise Videos



Exercise with Students



Before/After School Walking Club



Walk and Talks (Faculty Meetings/Planning Time)



School-Wide Fun Run/Walk



Dancing with Teacher Fundraiser



*Physical activity is a cost-effective way to **support** educators and their **health**, improve **job satisfaction** and provide **positive role models** for students.*

The entire school benefits from staff engagement in physical activity¹⁴

Employee benefits:⁹

- Increased wellbeing, self-image and self-esteem
- Improved coping skills for **stress** and other factors affecting health
- Improved health status
- Lower out-of-pocket costs for healthcare services (e.g., reduce premiums and deductibles)
- Increased access to health promotion **resources** and social support
- Improved **job satisfaction**
- Safer and more **supportive** work **environment**

Employer benefits:⁹

- Lower health care and disability costs
- Enhance employee productivity
- Decrease employee **absenteeism**
- Decrease rates of illnesses and injuries
- Improved employee **morale**
- Improved employee **recruitment** and **retention**
- Increased organizational commitment and creation of a **culture of health**

HealthMPowers

Before / After School Programs

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Lewis Elementary School

Early Morning Physical Activities



Before and after school programs provide excellent opportunities for students to **increase physical activity outside of the regular school day**.

These programs typically are conducted within the school setting or in combination with a community program.

It is recommended that before and after school programs allocate **at least 20% of their time to physical activity**⁷ with at least half of this time being devoted to moderate to vigorous physical activity.

Facility Joint-Use Agreement



Active Transport to and from School



Physical Activity Clubs



Yargo Elementary School

Before/After school physical activity fulfills an important role in students' social development

- According to one study, providing ADHD students with 30 minutes of moderate to vigorous physical activity before school **improved** school day **social** and **behavioral** functioning as noted by daily teacher ratings.⁸
- 75% of surveyed teachers reported students are more **confident** and **happier** following participation in the Build Our Kids' Success (BOKS) before school program.⁹

Before/After school physical activity positively affects student fitness, academics, and classroom behavior

- Yargo Elementary School's Physical Education teacher created a **morning physical activity program** for 5th grade students in response to her school's eye-opening fall semester Fitnessgram results. As a result, the average 5th grade student showed a **ten-lap** increase in **PACER** scores and **increased** their **CRCT scores** in 4 of 5 subject areas (Reading, English/Language Arts, Math and Social Studies) from the previous year.^{10,11}
- Approximately 280 out of 557 surveyed teachers reported students participating in the BOKS before school program as having **improvements** in **readiness to learn**, **ability to concentrate**, **ability to control impulses** and **engagement** in class discussions.⁹