SHOW ME THE DATA

- An extensive collection of over 2000 research studies that support Action Based Learning collected over 20 years
- Medical University of South Carolina study
- Physical Activity, School Performance May Be Linked
- Do Students Think Better on Their Feet
- How Can We Increase Kids Attention Spans
- <u>Chamberlayne Elementary Video</u>
- FIT Kids Time in Target Zone and Cognitive Performance Dr. Darla Castelli and Dr. Charles Hillman et al
- <u>Exercise boosts brain function (Dr. John Medina)</u>
- <u>Exercise improves cognition (Dr. Robert Sylwester)</u>
- <u>Exercise strengthens memory (Dr. John Ratey)</u>
- Exercise prepares the brain to learn (Dr. John Ratey)
- <u>Exercise regulates behavior (Dr. John Ratey)</u>
- Exercise weakens the ill effects of poverty (Dr. Eric Jensen)
- Exercise can positively change the brain (Dr. John Ratey)
- Exercise helps boost BDNF to alleviate symptoms of ADHD (Dr. Michael Hopkins)
- <u>Aerobic Exercise increases learning processes (Dr. Charles Hillman) 2013</u>
- Physical Fitness Improves Language Skills (Dr. Charles Hillman) 2014
- <u>Obesity Impacts Academic Success (Dr. Charles Hillman) 2014</u>
- Family Focus: Students stay active while learning at one school in Charlotte
- Program in Springdale adds exercise to academic
- Action Based Learning Lab Opens at Marshall School
- Lone Grove ABL LAB in the news
- SUPER School ABL in Indianapolis
- Jefferson Elem ABL LAb in the News
- <u>Carlos ABL Kinesthetic classroom in the news</u>
- <u>Action Based Learning Unit Grundy Center Elementary</u>
- St Gregory in Tyler Found ABL to help behavior and learning

★ Highlighted Journal Article

Fredericks CR, Kokot, SJ & Krog S. <u>Using a developmental movement programme to enhance academic</u> <u>skills in Grade 1 learners.</u> South African Journal for Research in Sport, Physical Education and Recreation. January 2006. 28 (1): 29 – 42.

The relationship between motor proficiency and reading ability in Year 1 children

K. Cacciotti, K. Davies, R. Orr Published 2018

Background: Movement and physical activity is crucial to brain development and has a positive impact on the ability to learn. With children spending a large portion of their time in the school setting, physical activity and the development of motor skills in this environment may not only impact their overall development but may also influence their learning. The aim of this study was to investigate relationships between motor proficiency and reading skills in Year-1 children. Results: Significant negative relationships were obtained between Year-1 children's total motor proficiency and silent reading ability (r = -.53 to -.59, $p \le .01$). While not significant for female students, the relationships were significant and strongly correlated for male students (r = -.738 to -.810, $p \le .001$). Children with low-average English grades demonstrated a strong positive relationship between motor proficiency and pre-reading skills, essential to functional reading (r = .664., p = .04 to r = .716, p = .04). Conclusion: For children with low-average English grades, the strong, positive relationship between motor proficiency and pre-reading skills suggests that this population may benefit from additional motor proficiency skills. Blending of motor skills within the English curriculum may benefit both of these sub-groups within a classroom environment

Developing the brain through movement

Janet K. Hoag Published 2015

Movement has long been seen as facilitating learning. Recent research in neuroplasticity tells us the brain is a dynamic organ capable of change and that movement can affect executive function. This paper proposes to explore the relationships between movement, motor function and executive function in typical primary children. The role of primary reflexes in motor function and executive function is examined. A research study is proposed. The purpose of the study is to find if a specific movement program can facilitate the integration of primary reflexes, thus aiding in motor function, and the affect this may have on executive functioning in children in the primary grades. Results could have implications in the early years for practices that may lay a strong foundation for healthy neurodevelopment, responsible for executive function such as reading and selfregulation. Key Terms: neuroplasticity, movement, executive function, reading, self-regulation, motor function, primary reflexes, early years, learning.





According to the University of Illinois, "Only 10 percent of secondary students learn best through auditory methods, but 80 percent of instructional delivery is auditory."

EXERCISE FUELS NEUROGENESIS — THE CREATION OF NEW BRAIN CELLS

CHILDREN PERFORM BETTER IN ACTIVE LEARNING CLASSROOMS- EXERCISE IMPROVES OVERALL COGNITIVE DEVELOPMENT.

STUDENTS ENGAGE 12% MORE DURING CLASS JUST BY STANDING

STUDENTS IN ACTIVE CLASSROOMS SHOW IMPROVED CONCENTRATION, PERFORMANCE, MEMORY AND SKILLS SUCH AS SEQUENCING, FOLLOWING DIRECTIONS, AND CRITICAL THINKING

ACTIVE CLASSROOMS SHOW HIGHER ATTENDANCE LEVELS AND DRASTICALLY REDUCED REFERRAL RATES

ADEQUATE PHYSICAL EXERCISE BRINGS POSITIVE CHANGE IN MOOD, AND LOWER LEVELS OF STRESS. IT ALSO HELPS IN DEVELOPING SOCIAL SKILLS. THE CHILDREN IN KINESTHETIC CLASSROOMS ACTUALLY GET ALONG BETTER. IN ACTIVE LEARNING ROOMS, THE NUMBER OF BEHAVIOR PROBLEMS/REFERRALS DRASTICALLY DECREASES.

STUDENTS WHO ARE INACTIVE FOR LONG PERIODS SHOW HINDERED COGNITIVE DEVELOPMENT. THE RESULT - POOR PERFORMANCE, MEMORY, AND LIMITED ATTENTION SPAN.

KINESTHETIC CLASSROOMS SET CHILDREN UP FOR A LONG TERM, HEALTHY LIFESTYLE. KC CREATES AN IDEAL ENVIRONMENT TO MOTIVATE CHILDREN, AND MAKE LEARNING ENJOYABLE.

EXERCISE GETS OXYGEN AND GLUCOSE TO THE BRAIN FASTER, BOOSTING BRAIN PERFORMANCE CHILDREN NEED ATLEAST 60 MINUTES OF EXERCISE A DAY IN ORDER TO DEVELOP AND FUNCTION AT THEIR HIGHEST LEVEL. KINESTHETIC CLASSROOMS SOLVE THE PROBLEM OF REDUCED PE/RECESS TIME

Don't believe it? Ask the Researchers at CDC, Columbia University, the New York City Health Department and Department of Education, the Universities of Illinois, West Virginia, Texas A&M and California. They've all published research that stands behind the need for physical education in the school system.



The Brain Lights Up With Exercise



Sitting Quietly

Walking

The picture above is independent research by Dr. Charles Hillman (University of Illinois Urbana). See how the brain is 'on fire' and ready to learn. And, this is just the side effects from walking. Higher intensity exercise will produce a sharper brain, which is even more ready to learn. For More Information Click Here.



The Chart to the left reflects the correlation between increased physical activity and increased academic scores. This research was accessed from **PhitAmerica and is** based off of 3 million children in schools in California & Texas.

High Fitness Scores = High Academic Scores



LEADING EXPERTS ON PHYSICAL ACTIVITY AND LEARNING SAY...



"Exercise is Miracle-Gro for the brain" John Ratey, MD Harvard Medical School



"They perform better on academic tests following single bouts of exercise" Charles Hillman Ph.D., University of Illinois

"The more vigorous the physical activity, the greater the cognitive benefits" Dr. Darla Castelli University of Texas

"Exercise gives students an advantage to learn" Jean Blaydes Madigan Action Based Learning



PHIT KIDS * HEALTHIER & SMARTER

The above information was accessed via PhitAmerica. <u>For more information please click</u> <u>here.</u>

For More Research Studies Proving why "Physical Activity Results In Improved Academic Performance" See Below or <u>Click Here.</u>

- University of Illinois "Physically Fit Kids Have Beefier Brains"
- <u>University of Illinois Urbana</u> "How Exercise Can Boost Young Brains"
- Dartmouth "12 minutes of exercise improves attention and reading comprehension"
- Purdue University "Kids working out get better grades"
- Medical University of South Carolina "P.E. actually helps academic scores"
- <u>University of Hindenburg</u> "More physical activity improved school performance"
- <u>Dundee University</u> "Moderate to vigorous exercise boosts academic performance"
- <u>Strathclyde University</u> "Regular exercise improves children's academic results"
- <u>University of Western Australia</u> "Physical activity enhances children's learning"
- Pediatrics & Adolescence Medicine "Let kids play They do do better in school"



- American Academy of Pediatrics "Quick activity breaks reset kids' brains"
- Society of Behavior Medicine "School-based physical activity improves academics"
- Elsevier Higher aerobic fitness is associated with improved cognitive functions"
- Journal of Applied Measurement "Video exercise impacts learning process"
- Furman University, Legacy Charter School "Daily PE Improves Fluid Intelligence 75%"

KEEP THE DATA COMING

Click On The Links Below For More Research:

Data on Kinesthetic Classroom Desk study in TX

Kids Who Move While Learning May Absorb More, Study Says

Texas A&M Study Proves Benefits of Standing and Movement Desks

Lack of Exercise Impairs Students - Lancaster Online Report

Overview of Kidsfit Kinesthetic Classroom News Clip

A Neat Way To Keep Fidgety Kids Focused - Montreal Families

Kinesthetic Classroom Management/Classroom Management and Control for tables

Bethel Elementary and Junaluska - Elementary Implementing Kinesthetic Classrooms

Frequently Asked Questions - What Are The Teachers Saying?

No Excuses- A Documentary

Exercise Is Proven To Increase Grades!

What is Kinesthetic Learning? Defining Kinesthetic Learners



VIDEO GALLERY SCHOOL SPOTLIGHTS



Less Class Time 's Health study: One group of 2nd and 3rd graden ver an extra 90 minutes of exercise per week, an she extra recess. Even though the first group loo on classroom time with the extra 90 minutes of exercise, this had no negative consequences

More Recess

0

their score s who discore the student of the studen

Dec 21, 2020 Case Studies Review - The Link between movement and

learning



Dec 21, 2020 Action Based Learning Spotlight



Dec 08, 2020 Rappahannock, VA

https://www.abllab.com/blogs/abl-faq

TEACHER RESOURCES GRANTS AND FUNDING



Dec 21, 2020 Research and Data Supporting Action Based Learning Feb 17, 2020 Planning Your ABL Implementation Feb 17, 2020 Grant Finder Tools for Teachers



SPARK: The Revolutionary New Science of Exercise and the Brain by Dr. John Ratey

Neurochemistry

Norepinephrine: stimulating effect, fosters alertness, important regulatory role in long-term memory and learning. Optimal levels stimulate a sense of wellbeing, even a euphoric effect in stressful situations. Faci-litates improved attention, energy, drive and vigilance; improved emotions & mood; fosters sleep & dreaming; improved self- esteem; improved perception; improved cellular learning.

Dopamine: vital to movement, attention, cognition, motivation, and pleasure, also addiction.

Serotonin: associated with a variety of important centers, including those that control appetite, memory, sleep, and learning. Serotonin is closely associated with feelings of well being. Many pharmaceuticals designed to fight depression, bipolar disorder, and other mood-related conditions function by stimulating serotonin production or inhibiting its uptake.

Aerobic exercise balances these & other neurochemicals in the brain.

Exercise and the Brain

COGNITION: Exercise improves our ability to learn and in fact makes us smarter. Helps form positive "channels" in the brain. "Neurons that fire together wire together."

Neurotransmitters

Neurons are specialized cells in the brain that receive and transmit messages through biochemicals called neurotransmitters.

Neurotransmitters synapses, between neurons, and attach to receptors. Drugs can alter mood or behavior by blocking these receptors. neurotransmitter reuptake receptor

- Naperville, Illinois transformed a school district with exercise (daily 45 minute aerobic PE classes). In 1999, their eighth-graders were sixth in math and first in science, ahead of China, Japan, and Singapore. Only 3% of their sophomores are overweight, 1/10th the national average and 66% reduction in out of school suspension days and 59% reduction in discipline incidents.
- · CA Dept. of Ed correlated achievement scores with fitness rankings: fit kids performed twice as well. (p.21)
- German research showed people learned vocabulary words 20% faster after exercise. (p.45)

STRESS: Too much stress can sever connections between neurons. Exercise counteracts this break down by increasing blood flow to the brain and creating a surge in protective neurochemicals. (Susan, p. 57)

- Stress = threat to the body's equilibrium; a challenge to react, a call to adapt. "Fight-flight" activation w/o either fight or flight is toxic. Exercise increases BNDF; protects neurons against cortisol (stress hormone); hippocampus damage ameliorated.
- Leeds Met. U.(p. 83): 65% of 210 workers did better in peer interaction, time mgmt, and meeting deadlines on days they exercised 30-60 min.

MOOD: ~18% of adult Americans experience depression. Studies show exercise is better than drugs like Zoloft in reducing depression. It elevates endorphins, boosts dopamine, & regulates all of the neurotransmitters targeted by antidepressants. (Bill, p. 113)

Bill: exercised to lose weight; became happier too.

HORMONAL FLUCTUATIONS: Exercise helps women by toning down the negative consequences of hormonal changes & enhances the positive effects.

AGING: Exercise can also help stave off memory loss and Alzheimer's and keep the mind sharp. New research illustrates that women who exercise decrease their chances of dementia by 50%.

- Recovered 100 Duke U.: p.122 SMILE/ Zoloft Partially Recovered 90 Relapsed 80 Zoloft vs Exercise after 10 months: 70 60 50 40 30 20 10 0 Medication Exercise Combination
- If your brain isn't actively growing, then it's dying (p. Exercise Medication Combination 223). Study showed those who exercised maintained blood flow in the brain of retirees while those who didn't showed exercise a significant decrease.

%

- Exercise rallies dopamine production, which diminishes with age.
- Exercise strengthens cardio system, regulates fuel(insulin), reduces obesity, elevates stress threshold, lifts mood, boosts immune system, fortifies bones, boost motivation, fosters neuroplasticity. (p233ff)



*Ratey, J., Dr. (n.d.). SPARK: The Revolutionary New Science of Exercise and the Brain. Retrieved December 29, 2016, from http://www.glgc.com/goodstuff/Ratey%20SPARK%201page.pdf

Movement is good for the brain and body because it:

- Activates BDNF (a protein that is stored in large muscles), the Miracle Gro™ for the brain which nourishes and protects the neural pathways for learning. Neural pathways are how information is sent to and from the brain.
- Grows new brain cells (neurogenesis) in the learning and memory center of the brain (hippocampus)
- · Grows new brain cells in the learning and memory center
- Anchors learning when more of the senses are involved to increase the executive function of the frontal lobe. The frontal lobe is like the CEO of the brain. It's where decisions are made!
- Gets the brain's fuel (oxygen and glucose) to the brain faster, boosting brain performance
- Engages static (holding one position) and dynamic (balance while moving) balance to put the brain and body into focus and attention
- Crosses the three midlines(see illustration) of the brain and body to aid in coordination of movements and thoughts by organizing, integrating and energizing the brain's hemispheres. it also improves focus and attention
- Uses repetitive gross motor movement (crawling/walking, jumping, pedaling, turning) to aid the brain in putting patterns into a sequence. Our brains look for patterns in everything we do.
- Movement such as gestures, actions and motion actually help us understand a concept better—the mind is not only connected to the body, but that the body influences the mind- this is called embodied cognition
- Puts the brain and body back into hormonal balance which also regulates mood and behavior. Being in balance is better for learning.





SOUTH CAROLINA: MEDICAL UNIVERSITY OF SOUTH CAROLINA (MUSC)

Double-Digit Percentage Hike in Test Scores for Students in 'Brain Rooms' – Charleston, SC

A major academic innovation in Charleston, SC is the creation of 'Brain Rooms,' which are being used in six elementary schools, one middle school, and one high school. In each school, the 'Brain Room' is a traditional classroom, but the children are in constant motion while learning – doing push-ups, performing sit-ups, walking on a treadmill, sitting on a balance ball, or working out on an elliptical machine.



"In the 'Brain Rooms,' we just exchanged desks," said Dave Spurlock, the coordinator for health, physical education, ROTC, athletics, and district wellness for the Charleston School District. "Instead of a static approach to learning, we are using a kinesthetic approach. We are proving that you must move to learn."

At just one of the elementary schools, grades and test scores for students who were healthy and active increased by 13% to 48%, depending on the class.

"The story in Charleston, South Carolina about how physical activity is being aggressively used in the

classroom setting is remarkable," said Jim Baugh, founder of PHIT America. "Every school district in America should follow their lead. It's time for all school district leaders in this country to 'wake up and smell the roses' when it comes to the importance of physical activity. Students who receive daily PE in school have a greater chance of higher test scores in class."

"The results speak for themselves," said Spurlock. "Physical activity truly enhances academic achievement, but it goes against the prevailing attitude in education which requires our students get more seat time." Spurlock knows that the more students move, the more they learn.

In addition to the work being done in the 'Brain Rooms' in Charleston, researchers from the Medical University of South Carolina Children's Hospital performed a study at one of Charleston's low-scoring elementary schools in SC Children's Hospital order to



determine how implementing a daily physical education program that incorporated classroom lessons would affect student achievement. The study targeted first through sixth graders. In this experimental program, the children were given 40 minutes of P.E. each day at school (Monday through Friday). Prior to this test, the children were given 40 minutes of P.E. each week! The conclusion of the study was that more time spent outside of the classroom doing P.E. actually helped academic scores. Prior to the study, 55% of the elementary students were reaching their academic testing goals. After the study, 68.5% of the students from that elementary school were reaching their academic testing their academic testing goals.

"More studies are needed, but there is growing substantial evidence that this kind of physical activity may help academic behavior, cognitive skills, and attitudes," said Dr. Carly J. Scahill, DO, pediatric resident at the Medical University of South Carolina Children's Hospital.

P. (2013, July 18). FOUR BREAKTHROUGH STUDIES: PHYSICAL ACTIVITY REAPS REPORT CARD RESULTS. Retrieved December 29, 2016, from <u>http://www.phitamerica.org/News_Archive/</u> <u>More_Sweat___Better_Academics.htm</u>

