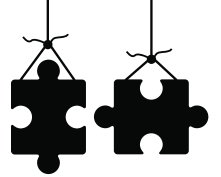




# Right the Wrongs of Sedentary

The desk-based learning of public schools  
might be more harmful than helpful

*By Brad Johnson*



*“Physical fitness is not only one of the most important keys to a healthy body, it is the basis of dynamic and creative intellectual activity.”*

*— John F. Kennedy*

With the decrease in physical education and recess time over the past 30 years, several disturbing trends have emerged. First is the issue of obesity: The Centers for Disease Control and Prevention reports that 1 in 3 children in the U.S. is overweight or obese—double the figures from the 1980s. From 2000 to 2009, incidences of adult-onset (Type 2) diabetes in children and teens increased 30 percent.

Diagnoses of children with ADHD have also skyrocketed in recent years. In the 1990s, the use of psychostimulants such as Ritalin shot up 700 percent, and the U.S. now consumes nearly 90 percent of the world’s supply of such drugs. There are 5.7 million children age 6–17 who have been diagnosed with ADHD. If these stats were related to an infectious disease, we would declare it a full-blown epidemic. Instead, we call it education as usual.

Is it any wonder that children are bored, off-task, disruptive, or otherwise disengaged when all they do is sit at desks and listen to lectures or work on assignments with little physical activity involved? From kindergarten through high school, students spend most of their academic lives at a desk. A classroom in which students quietly work at their desks might appear to be ideal, but the amount of time we subject children to a seated position is almost inhumane.

### **The Brain-Body Connection**

Beyond the obvious health-related issues, research suggests that sedentary education might be the reason that students’ creativity and intelligence are hindered throughout their formative years. In one longitudinal study, Howard Gardner (of Gardner’s Multiple Intelligences fame) found that all 20 members of a group of children up to age 4 operated at a genius level, while only 10 percent of the same group of children did so by age 20. What happened? Public education.

Until the age of 4, children are continually playing and learning in a state of constant motion. But when they enter school, the focus shifts to uniformity, control, following rules, and sitting at a desk. We are shortchanging our students when it comes to overall education and student

# Education

# Brain-Boosting Activities

Try the following to help kids burn off excess energy and focus on learning:

- Give students a five- to 10-minute break every hour to stand, stretch, or even do a physical activity video with Go Noodle or YouTube.
- Have a mat in back of the room where students can do sit-ups, planks, or other exercises if they get restless during class. About two minutes of physical activity will help them refocus.
- Play music during transitions to allow students to move around and work off pent-up energy. Let them come up with dance moves to learn that become part of the transition time.
- Include simple games such as pickup sticks during instruction. Occupational therapists recommend pickup sticks for improved cross-dominance (using left and right hand).

achievement. So, what is it about movement and learning that is so important, anyway?

First, physical activity improves brain elasticity, which allows children to learn more easily. Second, there is evidence that contact with the natural environment has a calming effect on children. And third, exercise releases endorphins (neurotransmitters that produce a feeling of well-being) that make children feel more relaxed. Finally, the part of the brain that processes movement also processes learning. So when students are sitting still, the learning process is actually hindered rather than enhanced.

Several studies offer evidence that years of fine motor exercise allow brain reorganization and nerve growth. Physical movement such as standing, stretching, walking, or marching can help the brain focus. If students feel drowsy, for instance, they should be allowed to stand at the back of the room for up to two minutes and stretch on their own.

When I taught middle-level science classes, I would always have the students moving. I would let the students stand by their desks, sit on the

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floor, or lie on the floor, even when taking notes. If a student had excess energy, I would let them do pushups in the back of the class. This became the norm for the classroom quickly, so there were few behavior issues.

Changes in body position help develop the vestibular system (inner ear and balance), alter blood chemistry, and develop core muscles. And physical activity—especially core strength and balance exercises—helps develop the executive function part of the brain where new learning is processed. Executive function includes cognition, organization, focus, emotional regulation, and the ability to multitask, all of which help students succeed academically.

Sadly, only 1 in 12 students has the core strength and balance of students from the 1980s, and trends in achievement are not much better than fitness levels. In 2000, the average U.S. score in reading on PISA tests was 504, but by 2015, it had dropped to 497. Math scores declined from an average of 483 in 2003 to only 470 in 2015. Even with increasingly targeted strategies and more technology, our scores have declined; sedentary education could be the cause.

## Tech's Effect

Over the past 20 or 30 years, Americans have become infatuated with technology to the point that we think every child must have a device and that gadgets will be the great equalizer in education. But those declines in scores might point to technology as being more culprit than cure.

When we examine the countries that lead the world according to PISA scores, we see a stark contrast. In Finland, students are given 15 minutes of recess not just once or twice a day, but every hour. Finnish officials told *Politico* that they don't need laptops and iPads to get to the top of international education rankings. When morning classes begin, smartphones disappear. The students—some of the highest-achieving in the world—cut graph paper and solve equations using clunky plastic calculators. Teachers prefer hands-on



## CONSIDER THIS

The CDC's National Survey of Children's Health says that 6.1 million children and adolescents had been diagnosed with ADHD in 2016, up from 4.4 million in 2003. And incidences of adult-onset (Type 2) diabetes in children and teens increased 30 percent from 2000 to 2009. Visit [www.cdc.gov/ncbddd/adhd/data.html](http://www.cdc.gov/ncbddd/adhd/data.html) for more details.



learning methods, using chalkboards rather than smartboards.

Similarly, South Korea wanted to immerse its schools in technology a few years ago, but realized that too much tech might not be good for students. Schools limit the amount of class time spent on computers, and they haven't seen a drop in test scores.

### Classroom Management

When surveyed, teachers typically say that classroom management is the toughest part of teaching. We have all been trained in different methods to manage behavior. Many say that relationships, expectations, and consistency are key to behavior management. But behavior has less to do with teachers' actions than it does with the students themselves.

If a student is constantly rocking, swaying, or tapping a pencil or foot, it doesn't mean they don't care about rules and expectations; it means they are children who have lots of energy. As I mentioned above, the executive function area of the brain is responsible for regulating emotions, organizational skills, focus, and for multitasking—traits that influence a student's ability to behave in class.

Imagine a principal walking by a classroom at the end of the day and seeing students slouched over in their desks, tapping a pencil or a water bottle. His or her first thought might be that the teacher is not engaging or that the lesson is boring. The reality is that neither may be true; instead, students might lack the core strength to sit up and focus on the lesson.

### The Research Says

Over the past three decades, we have seen tremendous increases in ADHD diagnoses and the numbers of overweight and obese students, alongside a decrease in achievement measured by international test scores. This is a recipe for disaster. A physically active classroom could turn these trends around.


What are the effects of adding more physical activity to the academic classroom? Mark Benden, director of the Ergonomics Center at Texas A&M, has dozens of schools using pilot programs to make classrooms more active. His research shows many benefits: There has been a decrease in ADHD medication among the students in his classrooms; body mass index among overweight students in active classrooms showed significant decreases. Executive function and working memory showed

## Key Takeaways

- The brain works best when used in tandem with the body.
- Children are designed to be moving and active.
- Active and fit children perform better academically.
- Exercise releases endorphins, which help children feel better and relax.
- Multiple intelligences and genius are magnified through movement and creative learning.
- Increased physical activity is a great classroom management tool.
- Sedentary education is the greatest disservice we have done to children in the last generation.

significant improvement, leading to improved academic achievement.

Physical activity also showed positive results in alternative schools. One class of students with behavior disorders and learning disabilities began using treadmills and stationary bikes at the beginning of class. Within four months, students took less medication, behavior improved, and students improved their average by one full grade in reading, writing, and math.

These results reinforce the idea that the traditional, desk-centered, sedentary classroom must be redesigned to better suit students' needs. It can even be as simple as giving students a "brain break" every 15 minutes to stand and stretch, or offering stability ball seating, pushup mats, and other accessories. To increase student focus, on-task behavior, achievement, and general well-being, include physical activity in the classroom. It's time to get students out of their seats and learning on their feet! 

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**Brad Johnson** speaks about education, fitness education, school administration, and leadership, and is co-author of *Learning on Your Feet: Incorporating Physical Activity Into the K-8 Classroom*.