

## Vigorous exercise affects the brain, learning process and student behavior; current school PE programs need re-examination

*What Naperville provides is a powerful case study on how aerobic activity can transform not only the body but also the mind. It also happens to be a wonderful template for reshaping our society.*

*- Dr. John Ratey, author of SPARK and co-founder of the Sparking Life movement.*

**Scientific fitness studies document academic improvement linked to movement and exercise generating worldwide interest in the Sparking Life movement**

*“Your goal is to run your fastest mile...your average heart rate should be above 185.”*

Those are the instructions offered to the Naperville Central High School freshmen students participating in the New P.E. – an hour before classes to give these kids a boost in reading ability and in the rest of their subjects.

Two girls named Michelle and Krissy pass by, shuffling along side by side. A kid with unlaced skateboarding shoes finishes his laps and turns in his watch. His time reads eight minutes, thirty seconds. Next comes a husky boy in baggy shorts. Nine minutes. When Michelle and Krissy finally saunter over, Krissy holds up her digital watch for the P.E. teacher. Ten twelve.

What the teacher doesn't say is “It looked like you two were really loafing around out there!”

The fact is, they weren't. When he downloads Michelle's heart rate monitor, he'll find that her average heart rate during her ten-minute mile was 191, a serious workout for even a trained athlete. She gets an A for the day.

**Vigorous exercise BEFORE learning helps create a heightened state of attention**

The kids in this program, hearty volunteers from a group of freshmen required to take a literacy class to bring their reading comprehension up to par, work out at a higher intensity than Central's other P.E. students. They're required to stay between 80 and 90 percent of their maximum heart rate. “What we're

really doing is trying to get them prepared to learn, through rigorous exercise,” says the P.E. teacher Neil Duncan. “Basically, we’re getting them to that state of heightened awareness and then sending them off to class.”

The notion that it might be supported by emerging research showing that physical activity sparks biological changes that encourage brain cells to bind to one another. For the brain to learn, these connections must be made; they reflect the brain’s fundamental ability to adapt to challenges. The more neuroscientists discover about this process, the clearer it becomes that exercise provides an unparalleled stimulus, creating an environment in which the brain is ready, willing, and able to learn. Aerobic activity has a dramatic effect on adaptation, regulating systems that might be out of balance and optimizing those that are not — it’s an indispensable tool for anyone who wants to reach his or her full potential.

### **The New P.E.**

The trend in American public schools of cutting physical education in favor of increasing study time in math, science, and English is an effort to help students pass tests dictated by the No Child Left Behind Act. Only 6 percent of U.S. high schools offer a daily physical education class. Meanwhile, ***global scientific fitness studies show that exercise and movement improve academic performance.***

In one of his last public interviews before his untimely death earlier this year, P.E. trailblazer Phil Lawler of Naperville, IL elaborated on the changing state of modern physical education programs.

“If it were not for Physical Education failing in the United States, there would be no need for a “New P.E.,” noted Lawler. Lawler stressed the disconnect between school funding priorities and student health and fitness, aptly stating that “schools are not funded or evaluated if kids are healthy...now that’s a major roadblock...there’s no pressure on administrators.”

### **Exercise improves student learning, memory, mood and behavior**

Lawler recalled that his own transformation toward a “New P.E.” model did not begin in earnest “...until I really started working with Dr. John Ratey, and when we found out that physical activity affected the brain and the learning process, AND physical activity would also affect student behavior.” Lawler saw this behavioral component as a central tenet that can be used to rally necessary support from administrators and funding sources to effect positive change “...because behavior relates back to academic performance.”

The results attained by Phil Lawler and his associates in Naperville speak volumes. Gym class has transformed the student body of 19,000 into perhaps the fittest in the nation. Among one entire class of sophomores, only 3 percent were overweight, versus the national average of 30 percent. **Their New P.E. program has also turned those students into some of the smartest in the nation.** In 1999 Naperville's eighth graders were among some 230,000 students from around the world who took an international standards test called TIMSS (Trends in International Mathematics and Science Study), which evaluates knowledge of math and science. In recent years, students in China, Japan, and Singapore have outpaced American kids in these crucial subjects, but Naperville is the conspicuous exception: when its students took the TIMSS, **they finished first in the world in science and sixth in math.**

Overall, however, our nation's schools have a long way to go. As noted by New York Times editorialist Thomas Friedman, author of *The World Is Flat*: the education gap between the United States and Asia is widening. Whereas in some Asian countries nearly half of the students score in the top tier (of the TIMSS), only 7 percent of U.S. students hit that mark.