

Morning exercise to spark kids' learning

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For a small group of southern Ontario students, the fall term will involve more than literature and physics. Their schools are also trying to put more spark in their lives.

The students at two Niagara region schools are taking part in Sparking Life, a program that requires them to exercise vigorously for 20 minutes before sitting down in class.

Past test runs in the U.S. and Canada have shown that the program improves learning ability, boosts attention and motivation and manages behavioural problems.

Why sitting all day is bad for you

In today's technology-driven world, it is easy to forget that humans were born to be movers.

Human evolution has relied on movement, starting with our hunter and gatherer ancestors.

"[The] relationship between food, physical activity and learning is hardwired into the brain," says the Sparking Life organization website.

"[The] sedentary character of modern life is a disruption of our nature, and it poses one of the biggest threats to our continued survival."

Niagara's public and Catholic school boards, in co-operation with the region's public health department, are launching Sparking Life Niagara at the two schools as pilots for the rest of the region.

"If the pilots work, they will roll it out across the region, in all 12 municipalities," said Dr. Jessica Hopkins, Niagara's associate medical officer of health.

Sparking Life had its beginnings with Dr. John Ratey, a psychology professor at Harvard University who championed the idea in his 2008 book *Spark*.

The book traces the biological underpinnings of the program and points to a case in a Chicago high school where educators welcomed a version of it.

In one semester in 2007, a group of students who suffered from attention-deficit disorders at Naperville Central High School improved their reading and comprehension scores by 50 per cent more than fellow students who did not take part in the physical exercise program.

Attendance improved

Students who exercised before math class increased their problem-solving abilities by an average of 20 per cent compared to a two per cent average improvement for other students.

Disciplinary problems decreased by 67 per cent and teachers reported that attendance has improved.

In August 2011, teachers from the Niagara public and Catholic school boards travelled to a workshop by Ratey in Harwick, Mass.

The Niagara pilot project follows another Canadian experimentation with Sparking Life.

Saskatoon's City Park Collegiate was Canada's first school to implement the program. That experience with a Grade 8 class was described in a documentary called *Brain Gains* that was broadcast on CBC's *The National* in 2008.

Allison Cameron, a Grade 8 teacher at the school, decided to put her struggling students on a 20-minute cardiovascular exercising routine in language arts class, getting their heart rates into an optimal zone while reading or watching a documentary.

In math class, they headed into the weight room for strength-training while thinking about an arithmetic problem posted by Cameron.

The results astonished Cameron. Less than two months later, her students' attention sharpened and they were spending far more time on assignments without interruption.

'Significant changes'

"It's not just me. The staff were reporting significant changes with regards to academics and behaviour," said Cameron, who launched the program in January 2008 and is expanding it to other classes in her school.

Ratey, who runs the Sparking Life non-profit organization, which aims to restructure physical exercise practices at schools, argues that Sparking Life

differs from a regular gym class. He says it is a novel approach of exercise that moves away from the competitive sports approach to one that employs a wide range of play involving strenuous physical activity, usually aerobic and cardiovascular, for every student.

How Sparking Life works

Dr. John J. Ratey of Sparkling Life believes that vigorous exercise before sitting down to learn helps create a heightened state of attention and readiness for the brain to register and retain new information.

Elevating the heart rate to its maximum capacity by exercising recruits brain cells and rewires neurological connections in a way that prepares the brain to learn, Ratey says.

For some students who suffer from attention-deficit disorders, the benefits of Sparking Life are not just academic. Exercising can elevate brain chemicals, responsible for human emotions, to the optimal balanced levels.

While a traditional gym class takes up a whole period, usually going for 50 minutes, Sparking Life is only 20 to 40 minutes of individual exercise designed to elevate the heart rate up to 65 per cent of its maximum, and takes place in the first period of the day.

Ratey believes that the program offers a viable solution to the modern problem of "sedentarism," or sitting down too much, which he blames for obesity, lack of motivation and growing levels of depression, anxiety and attention-deficit disorder.

"It is vital to recognize these trends, and go back to a moving culture," he said in an interview with CBC News.

In simple terms, exercising gets the brain ready to receive information.

"It recruits many more brain cells than any other activity, and creates an environment that optimizes brain function," said Ratey. "It also provides the right environment for brain growth, which is the only way to learn."

The benefits, he said, are of two kinds: continual, in which the generally more fit people are better learners, and immediate, where a short period of exercise on a given day gets the heart rate up, hyping up the brain and optimizing its function.

Focus on behavioural issues

In Niagara, Sparking Life will run at Eastdale Secondary School in Welland and Lakeshore Catholic High School in Port Colborne.

Eastdale, which rated 700 out of 727 Ontario schools in the Fraser Institute's School Report Card last year, is interested in the academic performance benefits, while at Lakeshore, where the school rated 392 on the same Fraser Institute list, the focus is on behavioural issues like attendance.

"We have selected 20 kids from Grade 10," said Eastdale teacher Tracy McGarratt. "They were chosen on the basis of their struggle with reading and comprehension and their willingness."

Lakeshore Catholic is implementing the program in its Student Success Classroom, which consists of a group of 15 boys and girls from Grades 9 to 12 who have academic or behavioural problems.

"[Ratey's] workshop was the most worthwhile professional development opportunity I've ever been a part of," said Lakeshore Catholic administrator Josh Oort, who described how workshop participants tried the Sparking Life idea by doing simple moves like balancing acts and felt a surge of energy and concentration after.

To evaluate the success of the program, the school administration is carrying out literary and mathematics tests at the beginning and at the end of year. The public health department will hand out questionnaires dealing with social aspects, such as engagement in class and extracurricular activities, and measure fitness and weight.

"It's a great program, and we are hoping to expand it to other classes," said Oort.

"Fitness is contagious. Our students will then pass on this lifestyle to their friends and children."

CBC News will follow up with Eastdale's students at the end of the year to evaluate their experience.

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