The Daytona Beach News-Journal
THE INDEPENDENT VOICE OF VOLUSIA & FLAGLER COUNTIES

December 19, 2007

School: Bell and clapping repetition helps challenged kids

By KELLY CUCULIANSKY
Staff Writer

NEW SMYRNA BEACH -- Clank. Clap. Clank. Clap. Ryan Langdon becomes one with the cowbell, clapping in time to get his beat down to the millisecond.

With headphones wrapped around his ears, the 9-year-old bobs his head between cowbell tones to help him fixate on the metronome beat. Scores on the computer screen in front of him track his timing with the beat, but unbeknownst to the fourth-grader, the repetitious movements are helping him develop new neural pathways in his brain.

More than 36,000 repetitions later, he and his parents and teachers see results. As one of the first youngsters to use the Interactive Metronome program at Sacred Heart Catholic School, Ryan is part of a growing group of students exercising their brains to improve concentration and processing efficiency.

"It's helped me a lot in school," said Ryan, whose teachers report he is more attentive and focused.

The key for success in this brain-based treatment program is the repetitive motions triggered by the sound of the cowbell. They help the brain form new connections to repair or remodel itself through a process called neuroplasticity.

People with developmental disorders and those recovering from brain injuries use Interactive Metronome in therapy. Children with learning disabilities, such as Attention Deficit Hyperactivity Disorder, may also find it improves their focus but anyone can benefit from it, school clinician Sharon Neitzey said.

Football players with the Miami Dolphins and the University of Notre Dame use it to increase mental processing and it's also been known to improve golf swings. But at Sacred Heart, "it's totally revolutionizing education," Neitzey said. "(Children) are just finding all kinds of improvements in their thinking skills."

The private school began offering the brain-based treatment program, developed in the 1990s, this year after a local family made a donation to help buy two $3,000 Interactive Metronome machines.

TESTS SHOW IMPROVEMENT

The school's program is best suited for children at a developmental age of 7 or 8.

Before starting the therapy, children take a cognitive test that measures their fluency in reading and math to compare to a second test at the end of treatment.

Agreeing to the program is a big commitment, Neitzey said, because the average user does about 12 to 15 one-hour sessions over the course of about five weeks.

Almost a dozen youngsters have been hooked up to the metronome at the school, which includes a hand and floor pad sensor that measures the accuracy of the user's response to the reference tone and shows results on a computer screen.

There are 13 exercises that involve a combination of clapping, tapping the hand sensor and stepping in time to the beat with one foot, and shuffling both feet onto the floor pad sensor. While it may be difficult to fathom how synchronized tapping can improve your brain's ability to process information, studies back up anecdotal evidence that the metronome works.

Some who are sold on it now were skeptics initially.

Before seeing the results of his research with student users at a Broward County high school in 2003, psychologist Gordon Taub had his doubts about the program.

"It didn't make any sense to me," recalled Taub, University of Central Florida's coordinator for the School Psychology Program, who also conducted another study in 2007 funded in part by the Interactive Metronome. But the results tell the story.

After a short stint using Interactive Metronome, teenagers at the school showed a sharp one-year improvement in reading fluency scores. Even more interesting to Taub and his colleagues, there were gains in the students' ability to solve problems in mathematics.

It's an important point because most learning seems to be domain-specific, said Kevin McGrew, an educational psychologist and director of the Institute for Applied Psychometrics, a private consulting company in Minnesota.

Performance improvement through interventions don't typically transfer to other domains of knowledge, such as math and reading.

"That's kind of like the Holy Grail that you're looking for," he said.

McGrew, who serves on the Interactive Metronome's scientific advisory board, said it seems to help the brain's executive function, which helps people focus and divide their attention.

"It doesn't make you smarter; it doesn't give you more knowledge, but you're better able to manage, focus and concentrate better," said McGrew, a visiting professor in educational psychology at the University of Minnesota.

'MORE IN SYNC'

While the program is new to Sacred Heart, educational gains are already evident in improved Iowa Tests of Basic Skills scores, Neitzey said. It's also visible in children's behavior; those who have used it seem less hyper and more committed to their schoolwork.

Before starting the metronome academic program in August, Ryan wasn't as focused as he is now.

"He was just a very busy boy, so this just helps him stay on task a little bit better," said his mother, Renee Langdon.

Other changes include being more speed-coordinated on the basketball court, improved memory and even a difference in the way he talks.

"He carries on conversations that are a lot more descriptive, more detailed," Langdon said.

Neitzey said Ryan responded well to the treatment because he has a competitive personality. "He was so excited about improving his scores."

The more on time the child is with the reference tone, the better the score. Visuals on a computer screen provide feedback that shows how close the user is to the tone. As the user progresses, guide tones can also be used to provide positive or negative feedback.

"Once you get it down, you lower your score and that's very rewarding because you're doing it in milliseconds," said Eddie Romo, a Father Lopez High School student and former Sacred Heart pupil who participated in the program in February.

It takes about six months to see the full, permanent effects of the treatment.

For Romo, 18, who has severe learning disabilities, the changes he's seen have helped him avoid taking medication.

"I see a huge difference now with my reading," Romo said, describing it as more eye-to-brain coordination. "I read as fast as I can comprehend; it (is) more in sync."

kelly.cuculiansky@news-jrnl.com

Local Providers

Sacred Heart is the only school in the area that offers the Interactive Metronome program to its students. Prices for students depend on scheduling. School clinician Sharon Neitzey administers the program to members of the public for about $950.

· One doctor with Halifax Health Medical Center in Daytona Beach is evaluating the potential use on patients with neurological disabilities in rehabilitation.

· Clinicians with Easter Seals in Daytona Beach have used it in occupational therapy for several years, for children with ADHD and autism.

· At Florida Hospital in Orange City, the technology is being used in speech-language, physical and occupational therapy. Program packages for performance improvement are available to the general public without physician referral.

Prices vary for each provider. For a list of local providers or for more information about the Interactive Metronome, visit the company's Web site at www.interactivemetronome.com.

SOURCE: News-Journal research

How it Works

Al Guerra, vice president for Interactive Metronome Inc., said treatment helps the brain process messages more fluently by exercising the key portions that are responsible for timing and communications. "It just gets you to a new level of function."

The program stimulates the part of the brain that controls attention, known as the cingular gyrus, the basal ganglia which translates thought into movement and the cerebellum, which controls basic human functions.

"When you're doing (Interactive Metronome), all three (parts) of the brain are active and communicating with each other," he said.