

FLORIDA
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HEALTH

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Rhythm test may sharpen concentration

Training program could counteract many neurologic, behavioral ills

By Susan Jenks
FLORIDA TODAY

Alexandra Engrand concentrates intently as she claps her hands, while tapping her left foot simultaneously to a sound only she can hear.

"Yes, it does bore me a little," she admitted, nodding shyly and adjusting her headset to the sounds.

But after recently completing a computer-based training program keyed to the repetitive ding-ding of a cowbell, the 9-year-old Melbourne girl is just 40 milliseconds off the beat, considered well within "the normal range" for her age group.

"When she first began therapy, she was too late or too early. She was all over the place," said Marianne Tierney, a speech-language pathologist, referring to Alexandra's earliest efforts to keep in sync with the bell on her hand-held sensor.

Now, after some 30,000 repetitions in 13 different exercises, not only is she much closer to the mark, but her school grades have improved dramatically, as have her standardized test scores, said Tierney, who works for HealthSouth Sea Pines Rehabilitation Hospital in Melbourne.



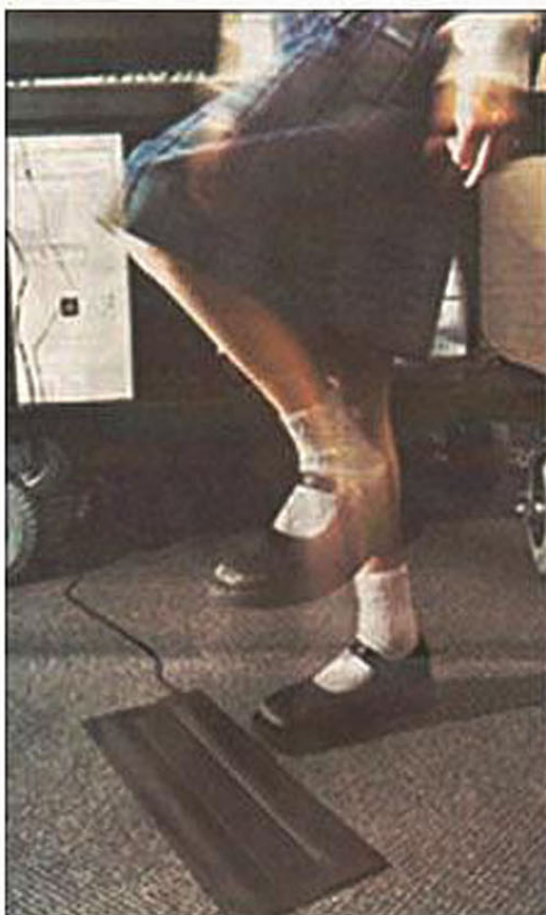
The fourth-grader's training tool is Interactive Metronome, a patented technology created by a Weston company of the same name, which uses rhythm and timing to measure and intervene in a variety of neurologic and behavioral conditions, including attention-deficit hyperactivity disorder, stroke and even Parkinson's disease.

The technology also is being used by such sports teams as the Miami Heat to improve players' concentration and enhance sports performance.

"It has helped, even though our record this year is not indicative of that, unfortunately," said Ron Culp, the basketball team's trainer. "But, I've been favorably impressed" by players' improved decision-making and focus, he said.

The company estimates some 1,200 to 1,400 practitioners nationwide use Interactive Metronome, mostly to help children, like Alexandra, who have developmental delays. Each session costs about \$100, or \$1,000 to \$1,500 for the program, which requires a prescription. Insurance coverage varies, and some insurance plans won't cover it.

See Rhythm, 2G



Alexandra Engrand, 9, has improved her coordination skills through the Interactive Metronome program at HealthSouth Sea Pines Rehabilitation Hospital in Melbourne. Patients synchronize hand and foot movements to a computerized "cowbell" heard through headphones.



The Miami Heat, led by Pat Riley, left, trained with Interactive Metronome Therapy to improve the team's concentration and game performance.

Interactive rhythm test may sharpen concentration

Rhythm, From 1G

Alexandra's diagnosis — a sensory-integration disorder — meant ordinary tasks like buttoning her blue jeans or riding a bike were extremely difficult, and she had trouble focusing in school, according to her mother, Caroline Engrand.

But "it's a very mild disorder," said Engrand, noting it once was known as "clumsy-child syndrome." And the rhythm training, which provides auditory cues to guide participants closer to the beat, has helped the Ascension Catholic School student focus and do better in class, restoring a sense of self-esteem.

"Basically, Alexandra was a D-kid in math," her mother said. "But she actually got an A and a B on recent math tests, and she's learning to focus on her work more. She's much more goal-oriented."

The scientific underpinning for Interactive Metronome draws on long-standing studies that show timing and a sense of rhythm are important to human development and functioning, according to Lee Jackson, a clinical and organizational psychologist and vice president of research for Interactive Metronome. When internal rhythm is out of whack, there often are developmental problems or brain injuries, he said.

"Timing and rhythmicity studies go a long ways back, some as far back as the mid-1800s," Jackson said. "We don't need to prove their importance. The question is: How do we improve timing? And this is where Interactive Metronome comes in."

Studies expand

What scientific data exist on the technology focuses mostly on attention-deficit disorder, the most common behavioral disorder in childhood. It includes a March 2000 study in the *American Journal of Occupational Therapy*, which found the rhythm-based program helped



"We found out she was able to handle difficult things without giving up, and she was able to do this for a full 37 minutes. That's how good her concentration became."

— Marianne Tierney, speech-language pathologist, referring to Alexandra Engrand's work with Interactive Metronome

boys ages 6 to 12 with attention disorders improve their focus, reduce aggressiveness and improve motor control, compared with boys who received no training.

But some experts think the study is too small to move the program from "alternative" status to mainstream practice just yet.

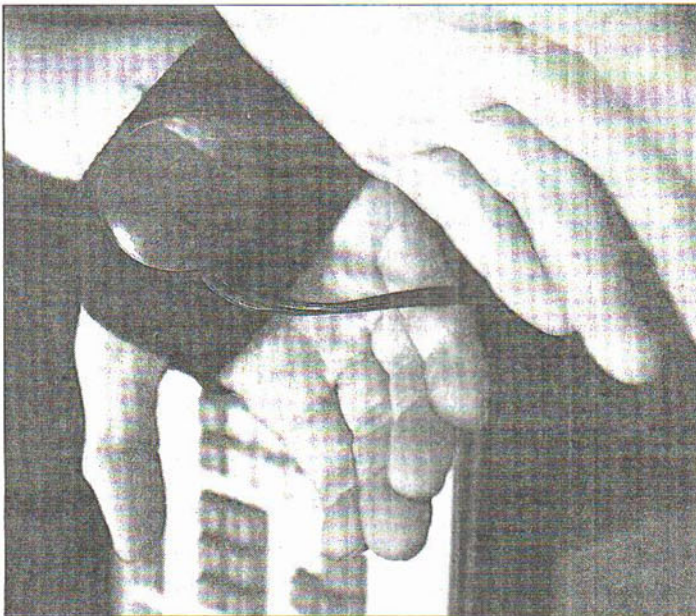
It still is viewed as "alternative only," said Dr. Peter Jensen, an expert in ADD and director of the Center for the Advancement of Children's Mental Health at Columbia University.

Jensen also said the concept "doesn't make sense to me right off." But, he added, "I'll certainly give credence to data from a well-designed study, which doesn't exist yet, as far as I know."

That may change soon.

Scott Kollins, an assistant professor in the department of psychiatry at Duke University, said he has been called in as a scientific consultant to Interactive Metronome for the purpose of designing a trial, involving several hundred children with attention-deficit disorders.

One group in the study will get medication for the disorder, while the other will get the medication plus Interactive Metronome. Symptoms of attention-deficit disorder include short attention spans, impulsive behavior and difficulty focusing and sitting still. "It's an interesting approach,"



Tim Shortt, FLORIDA TODAY
Electrodes attached to hands and feet measure reaction time on a computer in Interactive Metronome Therapy.

Carol Waters, executive director of the East Central Florida Memory Disorder Clinic, agreed.

"It makes sense" that when rhythm is corrected, it "puts people back on the right track," she said. "Also, any time we can get people to try new therapies post-stroke, I'm happy."

At Sea Pines, where Alexandra underwent treatment, the Metronome program is so new, she is the first patient to complete the course, which usually runs between three to five weeks. The rehabilitation hospital is one of 11 in-patient hospitals in the United States testing whether staying on beat, which requires intense concentration, carries over into academic performance, or, in the case of stroke patients, to everyday tasks, Tierney said.

Alexandra "was a learning experience for all of us," said Tierney, who describes the hand-foot exercises as the most difficult in the program. It requires Alexandra "to integrate both sides of her brain."

Along the way, there were few glitches, but several surprises.

"We found out she was able to handle difficult things without giving up, and she was able to do this for a full 37 minutes," Tierney said. "That's how good her concentration became."