

## High-tech ticker helps user keep beat, stay on task

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(Front Page Headline)



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### **Inventor's unique Interactive Metronome helps patients with ADD and other problems focus on what they're trying to do.**

James Cassily left the world of rock 'n' roll because the beat had gone bad.

He loved producing records with the likes of Bob Seger and Teegarden and VanWinkle, and mixed sound for Janis Joplin and the rock band Toto. But the heavy metal groups and disco acts of the late 1970s left him flat.

So the Detroit-born son of a Teamster's Union organizer decided to take his electrical engineering talents elsewhere. He plugged into the cable and satellite TV business.

But the Grand Rapids resident wasn't happy. In 1989, Cassily began working with the beat again. It was different this time.

Instead of mixing sound for hit records, he started tinkering with a music-based technology that a decade later promises to revolutionize treatment of such conditions as Attention Deficit Hyperactive Disorder, autism and cerebral palsy.

It's called an Interactive Metronome -- a high-tech version of the constantly ticking tool that helps musicians improve their timing.

Cassily's patented computer-based therapy is being formally unveiled this week in his Grand Rapids clinic after years of development.

"This thing works. I'm sure of it," said Cassily, 55, after running patients through their paces at the Cassily Clinic on East Beltline Avenue near Burton Street SE.

"I'm talking about tapping into the brain's time clock with this," he added. "Everything is a matter of timing."

He has drawn the financial backing of a top former Amway Corp. executive and the support of doctors, psychologists, therapists and parents. They all agree: This wild-haired, fast-talking man from West Michigan is on to something.

"I think this is going to be a helpful tool for therapists all over the country as they work with people, especially children, who have a hard time getting on task," said Jeanetta Burpee, director of an occupational therapy clinic near Philadelphia.

"The metronome helps put the body on automatic while allowing the mind freedom to think, focus and then act," said Burpee, whose clinic is independently researching the technology.

Simply put, trainees use a combination of head phones and hand and foot sensors to coordinate movements to electronic beats generated by a computer.

### **Inventor's unique Interactive Metronome helps patients with ADD**

A stack of studies have been submitted to a variety of scientific publications. One, involving more than 50 Grand Rapids-area boys with Attention Deficit Hyperactive Disorder (ADHD), will soon be published in the American Journal of Occupational Therapy.

Betty Hasselkus, editor of the American Journal of Occupational Therapy, said reviewers found "the study is rigorous and the findings have implications of interest to occupational therapists."

ADHD is typified by restlessness and the inability to focus attention. The study -- developed by independent psychologists -- found significant improvement in the boys' abilities. It is the professional recognition Cassily has been waiting for.

"We've been working on this thing for 10 years," said Cassily, who moved to West Michigan in 1984.

"I've always had a knack for electronics," he said, sitting in an office decorated with photos of him with rock stars whose records he produced. "But I never thought I'd come up with something like this."

### **Tears of joy as boy walks**

Thomas Eggleston was working as chief operating officer of Amway Corp. when he met Cassily. Eggleston brought his son, Jimmy, to Cassily for training on the Interactive Metronome to help him learn the piano. But the young boy had more difficult challenges than fingering out "Chopsticks." He was born without one leg and had other disabilities.

"Meeting and working with Jim was life-changing for our family," said Eggleston, now executive vice president for e-commerce for Florida-based Auto Nation, a national firm that sells used cars.

This was in 1994, just as Cassily was perfecting the Interactive Metronome. At that time, he had only glimpsed its applications.

One thing led to another with Jimmy. After several 50-minute training sessions, Cassily took the therapy to another level. He created a remote-control headset to help the boy walk on a new prosthetic leg.

The child took a few faltering steps in the basement, leaning on a walker. But the beat pumping through earphones made a difference. Soon, he was outside kicking a soccer ball.

"Once Jimmy got aligned to the beat, he was able to walk on his own," said Eggleston, now an investor in the business. "We all started crying."

Cassily proceeded slowly. He wanted to test different situations, hoping to compile studies to convince the scientific community.

## **Staying focused in school**

In 1996, he and his trainers used the treatment on more than 40 special-education students in Kentwood Public Schools.

The goal: To see if they could focus their attention better on school work after several hours of the therapy.

"All of the students improved in their ability to respond and follow directions, some of them very significantly," said Lois Shepard, Kentwood's assistant superintendent for curriculum and instruction.

A 1998 study of 585 children by the Effingham, Ill., school district also showed a correlation with performance on the Interactive Metronome and how well the children did in school. This was a way of showing the metronome can be used to help diagnose learning disabilities.

"This is one of the most innovative and surprising matters I've ever worked on," said Fred Burkhart, the Grand Rapids lawyer who helped Cassily obtain patents from the U.S. Patent Office.

Burkhart, a patent attorney for more than 20 years, has a personal reason for his support. His son, Eric, went through the training about two years ago.

Battling ADHD, Eric had a terrible time with his classes at Breton Downs Elementary School in East Grand Rapids.

But after slipping on the earphones and learning to synchronize his hands, something subtle happened in his brain. His ability to focus grew, his attitude improved and his IQ actually went up 20 points, his father said.

"It's hard to say exactly if it was the metronome, but my son is a much more serious and cooperative student," Burkhart said.

The study that will soon appear in the American Journal of Occupational Therapy involved 56 boys diagnosed with ADHD. They were split into three groups: one that received no treatment; one that played non-violent video games, and a third group that got 15 hours on the metronome.

Those who had no treatment did not improve, those on the video games showed some signs of better focus and attention, and the third group showed significant improvement, said Robert Shaffer, a Grand Rapids psychologist and assistant professor of pediatrics at Michigan State University's College of Human Medicine.

"This study is only the start. But it seems to show the metronome may prove to be an entirely new approach to treating the problem of ADHD," said Shaffer, who helped develop the study and was lead author of the research paper.

### **'I can pay better attention.'**

Lavonne Tuinstra's son, Jeremy, was part of the study.

"It was unbelievable what has happened to him," she said. "His grades have gone up in school. He can look people in the eye. I'm not sure how it works, but it does."

Jeremy, 12, a fifth-grader at Calvin Christian Elementary, has been able to go off the Ritalin he had been taking to control attention problems, said his mother.

Her other son, Ryan, has gone through the treatment as well.

"I like it," said Ryan, also 12. "It helps me to shoot a basketball straighter. And I can pay attention better."

Both Jeremy and Ryan were at the Cassily Clinic one recent afternoon. Technicians worked with them in small rooms containing the computerized metronome, headsets, foot pads and hand buttons.

Into their ears were piped sounds -- the metronome beat sounded like the beat from an agogo, a type of bongo. The guide sounds changed and moved from one side to the other in their headphones, telling them exactly how far ahead or behind the beat they were. The boys were grooving in the zone.

The theory is this technology exercises a part of the central nervous system that deals with motor planning and sequencing, said Dr. Stanley Greenspan, the Director of the Interactive Metronome Scientific Research Board and a former program director at the National Institute of Mental Health.

"Jim Cassily has come up with a therapy that offers us a new and useful window into the way the nervous system works," said Greenspan, now a Clinical Professor of Psychiatry and Pediatrics at George Washington University and one of the authors of the ADHD study.

Currently, more than 50 clinics have purchased the software and are using the metronome with their patients. Aside from those with ADHD, they include patients with cerebral palsy, Down syndrome and brain injury.

Some clinics are working with people who have Parkinson's disease as well as various hearing and speech problems.

### **Rhythm in the brain**

Cassily was walking excitedly back and forth across his office one recent morning, talking a mile a minute and dreaming big dreams.

He spoke about the 8-year-old with whom he had worked many years ago, before the computerized metronome. This boy was a friend of Cassily's son, Josh.

Cassily would take the kid's hands, and made sounds with his own mouth whenever the kid was off beat, and the sounds helped the boy learn to be more accurate.

He was trying out his idea that there is a rhythm in the brain that can be touched and trained through sound. "That kid is now going to graduate from Michigan Tech at the top of his class. But back then he was really distracted. He just couldn't keep up," Cassily recalled.

As the studies start to come out and more clinics begin to use the metronome, Cassily maintains a grateful attitude. What started with rock 'n' roll has moved into a therapy to heal minds. It also may earn him and his investors a fair amount of money.

"This is the most important thing I've ever worked on," he said. "I could have blown it and just stuck it on the shelf. But that didn't happen."