

Timing Is Everything

Interactive Metronome gives everyone good time

BY LAUREL FISHMAN

Fonnmhor is the ideal "guinea pig" to undergo Interactive Metronome's high tech training program. "Right away at the first testing, it lets you know who's dragging and who's rushing, pinpointing it by milliseconds," says Curt Tramel, vocalist, guitarist and bouzouki player for the Celtic band. Technical proficiency and exceptional timing are essential to creating Fonnmhor's music, a blend of fast-tempo, melodically intricate traditional Irish music mixed with contemporary rock rhythms.

But while Interactive Metronome was originally conceived as a method to help musicians improve their time, now this computer-powered timing technology is making an amazing difference for children with attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD), autism, cerebral palsy, and other physical disabilities and learning problems. Students of all ages are experiencing improved academic achievement, focus, concentration, coordination and motor skills by using Interactive Metronome. Training on the invention also benefits the performances of pro athletes.

"When you're playing, there's always a part of your brain that's thinking about tempo and rhythm," says Tramel. "After using IM, I can put my mind on 'auto pilot' and concentrate on singing and playing." Or as IM inventor Jim Cassily, a former producer for Atlantic Records who has also worked with Bob Seger and Janis Joplin, puts it, "As long as you don't think about it, you 'cook.'"

So just what is IM, and how does it work? The concept behind IM builds upon its predecessor, the traditional metronome, invented nearly 200 years ago to measure and maintain tempo — but not to teach timing. With the metronome, a musician has to teach himself timing, figuring out where his playing tempo is in relation to correct time.

Cassily's idea was to take away that precondition. When he made his first version of IM in 1993, he built a box with a processor chip in it that analyzed how closely hand claps and toe taps could match a beat. After analyzing accuracy of response, this then-named Time Machine instantaneously created a sound that moved left to right — using altered pitches, changing phase and tone — to indicate whether responses were early or late.

Cassily had discovered that if the feet were trained, it helped the hands, so he incorporated both with his innovation. Yet he ultimately found, "It's not about hands or feet. It's about learning to control your own mind, control the concentration."

In the early stages, Cassily was held back by the limitations of existing technology. "Building it was really tough," he recalls. "It had to be

fast, and computers weren't fast enough." At that time, Microsoft guaranteed only 20 milliseconds' accuracy for its DirectX, which ran the computer audio.

Today's IM system utilizes state-of-the-art technology with headphones, hand and foot sensors and interactive exercises, and its accuracy is better than a half-millisecond. All the core timing and sound functions are now in a separate master control unit. In response to a repetitive reference beat, participants press the sensors and attempt to match beat while receiving visual and auditory feedback.

In more than 800 clinics, hospitals and other facilities throughout the United States and Canada, more than 1,000 practitioners administer IM Training to help patients systematically improve motor coordination and concentration. Occupational, vocational and speech therapists,

child psychologists and educational specialists give IM Training to address a variety of challenges related to timing and attention.

In the first IM study involving children with ADHD, all participants experienced breakthroughs in different areas, with greatest improvement in behavior. Last summer, hundreds of students at elementary and secondary schools across the country took IM Training. Test scores showed increases of more than two grade levels in reading fluency and an average of 1.36 grade level improvement in math fluency, the measure of speed and accuracy in solving problems.

Dozens of schools, as well as several colleges and universities nationwide, have added the IM system to their curriculum. After a trial program, St. Thomas Aquinas High School in Fort Lauderdale, Fla., became the first U.S. high school to offer IM Training to its entire student body.

Athletes and the military have also benefitted from IM. Underway are several more studies, including one to improve high school band conductors' performance. Preliminary study results are showing progress for patients with Parkinson's disease, characterized by tremors causing shaky hands. "They're back to writing their own checks," Cassily smiles.

Meanwhile, Tramel and his band members are musical role models for thousands of special-ed children undergoing IM Training. Cassily is proud his invention is being used to help kids who need it the most, and he is working on a portable, cost-effective unit that won't require clinic visits — making it practical for musicians to use.

Cassily believes that through the use of IM, musicians would have no more of need tape loops or computers to capture the groove. "Everything is in the cook," he says. "It's all a matter of time." ☺



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