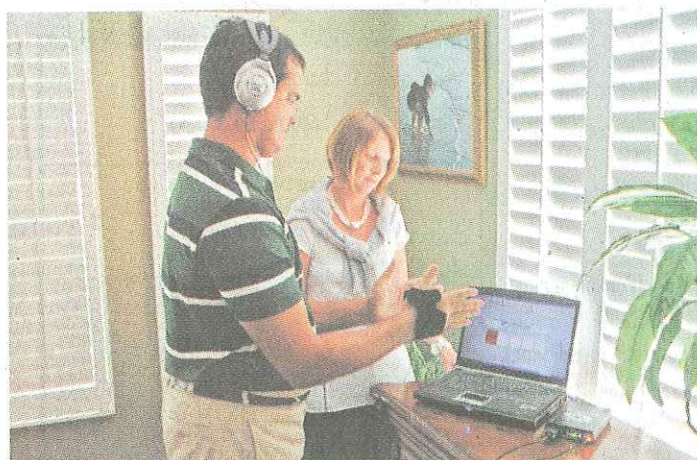


# Interactive Metronome



**F**inding consistent, reliable tools to enhance treatment outcomes can be challenging. After learning about the Interactive Metronome® (IM) at a brain injury conference, I immediately began thinking how the program could help my patients with traumatic brain injury, stroke, Parkinson's disease and epilepsy stay focused for longer periods of time.

**The Interactive Metronome provides auditory and visual feedback.**

The IM program provides a structured, goal-oriented process that challenges patients to synchronize hand and foot exercises to a precise computer-generated reference tone heard through headphones. Cognitively, patients attempt to match the rhythmic beat with repetitive motor actions. A patented auditory-visual guidance system provides immediate feedback measured in milliseconds, and a score is provided.

My previous exposure to adults and adolescents with neurological impairments and subsequent specialization in the area of cognitive rehab enabled me to break down a patient's performance into cognitive components. I then determined the deficits and addressed the root of the problem. My success stemmed from training patients to use compensation strategies, memory prosthetics and routine schedules, as well as training caregivers how to interact with their loved one in home, school, social and work environments. It's important to cue patients with cognitive impairments properly and to promote and enforce compensation strategies and problem-solving as they transition to new environments or tasks.

When my clinic received an IM unit, I worked with a neuropsychologist to coordinate one-hour pre- and post-neuropsych batteries for patients to examine areas such as attention, working memory, executive function and processing speed. I gathered standardized assessment measures such as speech, language and cognitive batteries to gauge progress and developed a functional assessment tool to help establish goals and measure real-world progress.

The immediate results seemed positive. More patients appeared to be recovering function in naming, auditory and visual comprehension, thought organization, memory, executive functioning

and processing speed without directly addressing these skills in therapy. These observations were validated by examining trends in assessment data.

Research on temporal processing underscores the impact of IM on speech, language and cognitive abilities. One study clarified the integral role that mental timing plays in these areas.<sup>1</sup> The study helped me grasp the idea that performing movements in synchrony with a beat can improve speech, language, cognitive and behavioral functioning. According to the authors, people process time over 12 orders of magnitude. The most sophisticated mental timing is critical for speech, language, motor control and coordination. Interval timing is imperative for executive functions.<sup>1</sup>

IM addresses temporal processing at both of these levels. The brain appears to calculate time constantly to generate intelligible speech, process rapidly changing acoustical information, organize thoughts, and keep information in working memory without interference from distractions.

IM has changed my treatment approach for the better. Now I can emphasize functional recovery rather than simply train people on compensation strategies. ■

## Reference

1. Mauk, M., Buonomano, D. (2004). The neural basis of temporal processing. *Annual Review of Neuroscience*, 27: 307-40.

Amy Vega previously was on staff at Bayfront Medical Center, in St. Petersburg, FL, and is now in private practice.

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