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ONGOING RESEARCH

- University of Cincinnati: Hemiplegic Arm
- Medical College of Georgia: Parkinson's Disease
- Veterans Administration: Cognitive, Behavioral & Motor Skills (unimpaired & veterans with blast injuries)

EFFICACY OF TIMING & RHYTHM INTERVENTIONS

“To deal with time, humans have developed multiple timing systems that are active over more than 10 orders of magnitude with various degrees of precision. These different timing systems can be classified into three general classes (viz., circadian, interval, and millisecond timing), each associated with different behaviors and brain structures/mechanisms (Buhusi & Meck, 2005; Mauk & Buonomano, 2004). The fastest timing system (millisecond or *interval* timing), which is involved in a number of classes of human behavior (e.g., speech and language, music, motor behaviors, attention, cognition, etc.), is the most important timing system for understanding and diagnosing clinical disorders (and atypical development) and for developing and evaluating effective treatment interventions for educational and rehabilitation settings. (Buhusi & Meck, 2005; Ivry & Spencer, 2004; Lewis, 2005; Mauk & Buonomano, 2004; Overly & Turner, 2009)”

[Click here](#) to read this research report in full.

[Appendix A](#)

[Appendix B](#)

[Appendix C](#)

TEMPORAL PROCESSING & GAIT

Although "pre-gait" skills such as weight shifting, unilateral stance and limb advancement are important skills to achieve in order to walk, the only true way to practice walking is to walk. The smooth transition between phases of gait cycle is an integrated activity that is difficult to learn

through practice of individual parts. Utilizing the Gait Mate to reeducate a client's walking pattern is a goal-oriented approach that requires the client to solve a movement problem to successfully achieve the goal (accurate trigger hit). The client is not just responding to commands given by the therapist, but also organizing internal and environmental resources to alter motor output and accurately hit the trigger.

When using the Gait Mate, the goal may be to improve biomechanics, alter gait speed, or increase stride length. It is important to evaluate the client's current walking speed and set the initial tempo of the Gait Mate at a similar speed, often between 65-75 beats per minute. When a client has altered biomechanics, forcing them to walk at too slow of a pace can be extremely challenging and often results in further altering the client's gait pattern. Walking on the treadmill with the Gait Mate is a powerful tool as the repetitions can be set very high and the client can practice walking for several minutes. The therapist can use tactile cues to improve the client's gait pattern. Improvement in gait pattern will be rewarded with more accurate auditory biofeedback from the Interactive Metronome.

[Click here](#) for gait related resources.

Shelley Thomas, MPT, Director of Rehabilitation, Idaho Elks Rehabilitation Hospital.

TEMPORAL PROCESSING RESOURCES

[ADHD](#)

[Attention](#)

[Auditory Processing](#)

[Autism](#)

[Brain Injury](#)

[Dyslexia](#)

[Executive Functions](#)

[Intelligence](#)

[Memory/Working Memory](#)

[Mental Timing Theory](#)

[Motor Skills](#)

[Music](#)

[Processing Speed](#)

[Reading](#)

[Speech](#)