



## Interactive Metronome Yields Functional Improvements in a Child Diagnosed With CP

Amanda is a 10-year-old girl with Cerebral Palsy and a VP shunt due to hydrocephalus. She has a history of 8 shunt revisions. Amanda can print her name and the alphabet. She often fell down and was dependent for ADL's. Amanda was easily distracted and showed decreased attention and engaged in hand flapping.

Amanda started using Interactive Metronome (IM), in therapy. The IM program provides a structured, goal-oriented process that challenges the patient to synchronize whole-body exercises to a precise computer-generated reference beat. The patient attempts 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. At first, Amanda's scores indicated a Severe Deficiency in her timing and coordination.

Amanda participated in 35 therapy sessions using IM in 2 months. At the beginning, her hands were dissociative and she displayed severe auditory hypersensitivity. Amanda performed IM hand exercises while seated with fingers interlocked in a praying position and hitting the heel of her hands to maintain stability. She tried to hit the IM foot trigger on every other beat with her legs, but was unsuccessful. The IM difficulty was set at the lowest level, and the repetitions were kept between 50 and 300. With each session, Amanda's OT increased the task difficulty and added more repetitions to increase her endurance.

By Amanda's 7th session she was standing with a walker and hitting foot triggers every other beat with the therapist standing behind her to guide her hips. Amanda was becoming more aware of her surroundings and began

noticing changes in her environment. She was also able complete a full puzzle on her own for the first time. As more time passed with continuing IM sessions Amanda progressed to self-correction with her hand exercises.

At the completion of Amanda's IM training, her trunk and core stability as well as her equilibrium reactions were enhanced. In addition, her 4-point gait pattern and balance improved. Today, Amanda stands without her walker or crutches for support and no longer falls, even when distractions are present. She can swim easily and her handwriting dramatically improved. Amanda performs ADLs such as self-feeding, showering, getting into a vehicle and buckling herself in a car independently. Her mother noted that Amanda was helping put groceries away and performing light clean-up tasks around the house. Interactive Metronome has helped Amanda become a more functionally independent little girl.

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