

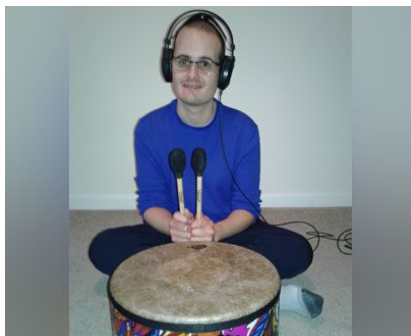
CASE REPORT

TRAUMATIC BRAIN INJURY
AND SPEECH AND LANGUAGE DELAY

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MILO

TRAUMATIC BRAIN INJURY AND SPEECH AND LANGUAGE DELAY



ABOUT MILO

Provider: Mary Fratianni, C-TLP, C-LE, C-TAVS, C-CBD

Client: Milo, Male, 19 years 6 months old

Clinical Diagnosis: Hypothalamic Hamartoma Brain Tumor (Excised 1999), Traumatic Brain Injury with Late Effects, Epilepsy, Generalized Mild Intellectual Disability, Speech-Language Delay

BACKGROUND

Milo was delivered at full term without complications. At 18 months of age, he was diagnosed with a Hypothalamic Hamartoma Brain Tumor and intractable seizures. Related behaviors included a high level of aggression and rather variable affect. Excision of the tumor was performed at twenty-nine months of age. During surgery, Milo suffered a third nerve palsy to his right eye during the excision.

At age four, he suffered a prolonged episode of status epilepticus that resulted in loss of tongue control, which produced significant oral motor issues. Milo's seizures are currently controlled with Lamictal XR.

All of Milo's developmental milestones were delayed. He received Early Intervention services in home until age three and was then transitioned to a special education pre-school program. Milo received physical, occupational, and speech therapies from age three to eight.

At age four and a half Milo's parents began a neurodevelopmental program with him, and initiated The Listening Program, a neuroscience-based music listening therapy. Milo has listened to numerous cycles of TLP, including the following TLP Core Programs: TLP Classic, Level One, Achieve and now inTime.

He completed over four cycles (extended and base schedules) of TLP prior to the age of ten as part of the neurodevelopmental program and had significant gains in auditory, speech/language, sensory, and fine/gross motor areas.

At age fourteen, Milo began using TLP Level One and subsequently completed over four cycles (base and condensed schedules) with positive improvements in sensory/motor, speech/language, and social/emotional areas.

Milo's voice is high-pitched, nasal, mechanical, and aprosodic. This combined with weak speech articulation skills with certain phonemic combinations, at times makes his speech unintelligible. At age fifteen, Milo completed a combination of TLP Achieve and the Learning Ears Program by Moyers Learning Systems, to help him with proper pitch, inflection, prosody, and articulation in his oral reading and general conversational skills. He completed this program with good results and has been able to generalize skills learned with minimal cuing.

Subsequent to the completion of the Learning Ears Program, Milo continued to complete over three cycles of TLP Achieve, following the condensed schedule.

Currently, Milo is disabled, and lives at home with his family. He is engaged in recreational and volunteer opportunities within his community. He loves classical music, and plays multiple instruments including the violin, mandolin, French horn, and saxophone. Milo has always struggled to keep time with the other players when playing instruments with a group; starting and stopping a beat or more behind.

He is also engaged in art classes with other young adults with various developmental and mental challenges, takes music lessons, engages in swimming, bowling, and running activities, volunteers on a local farm during the growing season, and continues homeschool studies five days a week.

He is behaviorally rigid and often becomes very upset by unexpected changes in schedule. He experiences anxiety with such changes and has trouble coping with fluid social interactions, humor, small talk, and normal sharing of interests with his peers.

Milo has completed inTime using the Waves Bone Conduction Audio System, following Protocol A, for 18 minutes, 1 time per day. The following information conveys pre/post assessment scores and observations as he progressed through inTime.

ASSESSMENTS

The **Test of Auditory and Visual Skills (TAVS) Quick Screen** was used to obtain Pre and Post inTime auditory skill measures.

Test of Auditory and Visual Skills® (TAVS) Quick Screen

	Age Norm	Pre - inTime December 2015	Post - inTime April 2016	Change
Temporal Order	75 ms	60 ms	54 ms	-6 ms
Fusion Threshold	8 ms	0.46 ms	0.01 ms	-0.45 ms
Auditory Motor	237 - 353 ms	360 ms	320 ms	-40 ms
Pitch Discrimination	1.0 - 4.5 ST	5.0 ST	0.5 ms	-4.5 ST
Duration Pattern	Not available for age 19	51 ms	29 ms	-22 ms

Parent and Provider Goals for Improvement:

1. Increased awareness of rhythm and timing in playing of musical instruments in a group setting and with accompanying music.
2. Speech cadence while maintaining good articulation
3. Daily activities involving rhythm and timing of fine & gross motor movement
4. Interaction and engagement with peers and others in daily activities
5. Increased frustration tolerance during daily transitions and changes in schedule
6. Decrease in overall anxiety

OBSERVATIONS

Cycle One

Weeks 1-4	<p>During the first two weeks, Milo showed significant trouble sustaining any rhythm for a three-minute duration through body percussion, voice, and/or drumming with hands or mallets. He consistently lagged behind by a beat or more. After one minute, he would quickly tire, and his rhythm would then become inconsistent. He also had difficulty with activities that required crossing the mid-line.</p> <p>By the end of the fourth week, Milo showed significant improvement in his ability to listen and repeat rhythms presented by the facilitator with body percussion, voice, and drumming activities. He also demonstrated gains in being able to sustain rhythms for a three-minute duration. Noticeable progress was made in his ability to cross the mid-line in gross motor activities. Milo was observed to have difficulty comfortably holding and manipulating the drum mallets during sessions.</p>
Weeks 5 - 8	<p>As Milo moved through the fifth week, progress continued in his awareness of rhythm and timing in body percussion. During weeks six and seven, listen-repeat speech activities including nursery rhymes and songs in 2/4 and 4/4 time were introduced. These activities focused on improving speech fluency while maintaining good articulation. Milo struggled to maintain good articulation while at the same time maintaining a steady rhythm.</p> <p>By the eighth week, Milo demonstrated huge gains in his ability to maintain and change rhythms in a complex rhythmic environment, in both body percussion and drumming activities. Milo also experienced improvement in his ability to keep his speech fluent while maintaining good articulation within a set rhythm pattern.</p>

Cycle Two

Weeks 9-12	<p>Listen-repeat speech activities continued. Voice activities in 3/4 time were added. Increased awareness of rhythm and timing in daily activities involving fine motor movement was observed as Milo completed various adult coloring activities in his art classes. Increased awareness of rhythm and timing in bowling, swimming, and running activities was also observed. His running became more organized as did his swim strokes. Milo's music teacher commented that Milo was more "on the beat" when playing duets and when playing to accompanying music than he was previously. Adults who had daily contact with Milo noted that his speech seemed clearer and more understandable.</p>
Weeks 13 - 16	<p>Milo continued to experience gains in motor control rhythm and timing with use of the Body Percussion Album. He was able to manipulate the drum mallets without difficulty and enjoyed not only drumming but clicking the sticks together to change tones within rhythms. In module 5 of the Body Percussion Album, complex gross motor activities involving crossing the mid-line were explored. Milo demonstrated increased stamina and the ability to maintain and change rhythms within a complex rhythmic environment.</p> <p>Milo also seemed to gain an increased awareness of others during daily activities. He began to open doors in advance of others in public places and began to help with group tasks without being asked or cued. He also demonstrated an increase in his frustration tolerance during daily transitions</p>

SUMMARY

As Milo progressed through the inTime program, increases in language fluency, asking questions, and recognizing the use of humor were observed. Milo's improved ability to find and sustain a rhythm within a musical piece has increased his confidence and ability to play more challenging music selections on his various instruments. His increased awareness of rhythm and timing has translated into improvements in overall motor planning in recreational activities as well as in transitional skills. Overall, he seemed happier in his daily activities.

Milo's Test of Auditory and Visual Skills (TAVS) Quick Screen scores showed improvement in all areas after two cycles of inTime. The inTime program has provided positive change in multiple areas for Milo. The unique flexibility of the inTime program addressed key rhythm and timing pieces he needed within the targeted areas of intervention. inTime allowed Milo to find a rhythm he was comfortable with; his home rhythm, and then encourage him to experiment and stretch it and his abilities with the knowledge that he could always return back to that home rhythm no matter what activity he was engaged in.

inTime has helped Milo in his overall life functioning; from speech/language and motor control, to social and emotional functioning.