NEUROLOGIC MUSIC THERAPY

Carol Shively Mizes, MT-BC
Board Certified Music Therapist
Neurologic Music Therapy Fellow
Coordinator, Arts Therapies
Department of Arts in Medicine
The MetroHealth System
NMT Definition

The therapeutic application of music to cognitive, affective, sensory, language and motor dysfunctions due to disease or injury to the human nervous system.

NMT is based on neuroscientific models of music perception and music production and the influence of music on changes in non-musical brain and behavior function.

(Thaut and Hoemberg, 2014)
Rhythmic Auditory Stimulation

RAS is an NMT technique used to facilitate the rehabilitation, development and maintenance of movements that are intrinsically biologically rhythmical. This primarily refers to gait. Arm swing is also rhythmical. RAS uses the physiological effects of auditory rhythm on the motor system to improve the control of movement in rehabilitation of functional, stable and adaptive gait patterns in patients with significant gait deficits due to neurologic impairments.

(Thaut, 2005)
Parameters of Gait - Progress

**Cadence** (steps per minute)
Baseline = 88  
Final = 99

**Velocity** (feet per minute)
Baseline = 98  
Final = 154

**Stride Length** (distance between one heel strike and the subsequent heel strike of same foot)
Baseline = 2.24  
Final = 3.1
Progress in Bar Chart Form

Baseline: Cadence, Velocity, Stride Length
Final Results: Cadence, Velocity, Stride Length
Mark – Rhythmic Auditory Stimulation Results - 15 min/day

- Cadence
- Velocity
- Stride Length
Albert’s Test for Neglect

A. Albert's Test

B. Albert's Test in a patient with right-sided neglect
Music can boost mood and cognition after stroke.

Studies have shown that music listening during early post-stroke stage can enhance cognitive recovery and prevent negative mood.

**Verbal memory** and **focused attention** improved significantly more after music treatment.
Melodic Intonation Therapy for Aphasia

MIT is a therapy technique that uses melodic and rhythmic elements of intoning (singing) phrases and words to assist in speech recovery for patients with aphasia. Functional phrases or brief statements/utterances are sung or intoned by the patients.

This technique engages the undamaged right brain to compensate for the damaged left brain.

MIT has been modified over the years to be more efficient and less cumbersome.
Arcuate Fasciculus

This is a bundle of axons or fiber connections that connects 3 areas of the brain: Temporal, parietal and frontal lobes.

The auditory system with the motor system with the executive functioning or planning/cognitive system.

The AF is critical in the recovery of speech and motor skills.
The Musician’s Brain – Does It Recover from Trauma Better Than Others?
Carol Shively Mizes, MT-BC
cmizes@metrohealth.org
The MetroHealth System