

**Neurologic Music Therapy**  
**Techniques and Definitions**

from

Thaut, M. H. (2005). *Rhythm, Music and the Brain*.

New York and London: Taylor and Francis Group

## *Sensorimotor Rehabilitation*

**Rhythmic Auditory Stimulation (RAS)** is a neurologic technique used to facilitate the rehabilitation of movements that are intrinsically biologically rhythmical, most importantly gait. 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 neurological impairment. RAS can be used in two different ways: 1) as an immediate entrainment stimulus providing rhythmic cues during movement, and 2) as a facilitating stimulus for training in order to achieve more functional gait patterns (Thaut 2005)

**Patterned Sensory Enhancement (PSE)** is a technique which uses the rhythmic, melodic, harmonic and dynamic-acoustical elements of music to provide temporal, spatial, and force cues for movements which reflect functional exercises and activities of daily living. PSE is broader in application than RAS, because it is (a) applied to movements that are not rhythmical by nature (e.g., most arm and hand movements, functional movement sequences such as dressing or sit-to-stand transfers) and (b) it provides more than just temporal cues. PSE uses musical patterns to assemble single, discrete motions (e.g., arm and hand movements during reaching and grasping), into functional movement patterns and sequences. PSE cues movements temporally, spatially, and dynamically during training exercises (Thaut et al. 1991).

**Therapeutic Instrumental Music Performance (TIMP)** is the playing of musical instruments in order to exercise and stimulate functional movement patterns. Appropriate musical instruments are selected in a therapeutically meaningful way in order to emphasize range of motion, endurance, strength, functional hand movements, finger dexterity, and limb coordination (Elliot 1982, Clark and Chadwick, 1980). During TIMP, instruments are not typically played in the traditional manner, but are placed in different locations to facilitate practice of the desired functional movements (Thaut 2005).

## *Speech and Language Rehabilitation*

**Melodic Intonation Therapy (MIT)** is a treatment technique developed for expressive aphasia rehabilitation which utilizes a patient's unimpaired ability to sing, to facilitate spontaneous and voluntary speech through sung and chanted melodies which resemble natural speech intonation patterns (Sparks et al. 1974). When using MIT with aphasia, the emphasis is to increase the linguistic or semantic aspects of verbal utterances (Thaut 2005)

**Musical Speech Stimulation (MUSTIM)** is the use of musical materials such as songs, rhymes, chants, and musical phrases simulating prosodic speech gestures to stimulate non-propositional speech. This technique uses the completion or initiation of over learned familiar song lyrics, association of words with familiar tunes, or musical phrases to elicit functional speech responses (Basso et al. 1979). For example, spontaneous completion of familiar sentences is stimulated through familiar tunes or obvious melodic phrases (e.g., "You are my .....", or "How are you .....?") (Thaut 2005).

**Rhythmic Speech Cuing (RSC)** is the use of rhythmic cuing to control the initiation and rate of speech thru cuing and pacing. The therapist may use the client's hand, a drum, or possibly a metronome to prime speech patterns or pace the rate of speech. This technique can be useful to facilitate motor planning for a patient with apraxia, to cue muscular coordination for dysarthria, or assist in pacing with fluency disorders (Thaut 2005).

**Vocal Intonation Therapy (VIT)** is the use of intoned phrases simulating the prosody, inflection, and pacing of normal speech. This is done through vocal exercises which train all aspects of voice control including: inflection, pitch, breath control, timbre, and dynamics. An example would be to sing a five note scale and gradually move the starting pitch up or down by half steps with a child who has a limited pitch range in their normal speaking voice. This exercise could be further expanded by adding a functional sentence i.e., "Let's go out and play (Thaut 2005).

**Therapeutic Singing (TS)** is a technique which involves the unspecified use of singing activities to facilitate initiation, development, and articulation in speech and language as well as to increase functions of the respiratory apparatus. Therapeutic singing can be used with a variety of neurological or developmental speech and language dysfunctions (Glover et al. 1996, Jackson et al. 1997, Thaut 2005).

**Oral Motor and Respiratory Exercises (OMREX)** involves the use of musical materials and exercises, mainly through sound vocalization and wind instrument playing, to enhance articulatory control and respiratory strength and function of the speech apparatus. This technique would be used with such populations as developmental disorders, dysarthria, and muscular dystrophy (Hass and Distenfield 1986).

**Developmental Speech and Language Training Through Music (DSLTM)** is the specific use of developmentally appropriate musical materials and experiences to enhance speech and language development through singing, chanting, playing musical instruments, and combining music, speech and movement (Thaut 2005).

**Symbolic Communication Training Through Music (SYCOM)** is the use of musical performance exercises using structured instrumental or vocal improvisation to train communication behavior, language pragmatics, appropriate speech gestures, emotional communication in nonverbal language system, that is sensory structured, has strong affective saliency, and can simulate communication structures in social interaction patterns in real time (Thaut 2005).

## *Cognitive Rehabilitation*

**Musical Sensory Orientation Training (MSOT)** is the use of music, presented live or recorded, to stimulate arousal and recovery of wake states and facilitate meaningful responsiveness and orientation to time, place, and person. In more advanced recovery of developmental stages, training would involve active engagement in simple musical exercises to increase vigilance and train basic attention maintenance with emphasis on quantity rather than quality of response (Ogata 1995).

**Musical Neglect Training (MNT)** involves active performance exercises on musical instruments, which are structured in time, tempo, and rhythm, with an appropriate spatial configuration of instruments to focus attention to neglected or unattended visual field. Musical Neglect Training may also involve receptive music listening to stimulate hemispheric brain arousal while engaging in exercises addressing visual neglect or inattention (Hommel et al. 1990; Frasinetti et al. 2002; Anderson and Phelps 2001, 305-309).

**Auditory Perception Training (APT)** is the use of musical exercises to discriminate and identify different components of sound, such as time, tempo, duration, pitch, timbre, rhythmic patterns, as well as speech sounds. Integration of different sensory modalities such as visual, tactile, and kinesthetic input are used during active musical exercises such as playing from symbolic or graphic notation, using tactile sound transmission, or integrating movement to music (Bettison 1996; Gfeller et al. 1997; Heaton et al. 1988).

**Musical Attention Control Training (MACT)** involves structured active or receptive musical exercises, using pre-composed performance or improvisation, in which musical elements cue different musical responses in order to practice sustained, selective, divided, and alternating attention functions (Thaut 2003)

**Musical Mnemonics Training (MMT)** is the use of musical exercises to address various memory encoding and decoding/recall functions. Immediate recall of sounds or sung words using musical stimuli may be used to address echoic functions. Musical stimuli may be used as a mnemonic device or memory template in a song, rhyme, chant, or to facilitate learning of nonmusical information by sequencing and organizing the information in temporally structured patterns or chunks (Deutsch 1982; Gfeller 1983; Wallace et al. 1994; Claussen 1997; Maeller 1996).

**Associative Mood and Memory Training (AMMT)** involves musical mood induction techniques to instate a) a mood congruent mood state to facilitate memory recall, or b) to access associative mood and memory function through inducing a positive emotional state in the learning and recall process (Bower 1981; Dolan 2002)

**Musical Executive Function Training (MEFT)** is the use of improvisation and composition exercises in a group or individually to practice executive function skills such as organization, problem solving, decision making, reasoning, and comprehension, within a social; context that provides important therapeutic elements such as performance products in real time, temporal structure, creative process, affective content, sensory structure, and social interaction patterns (Dolan 2002).