

Expressive Therapies

Empowering individuals—those living with social, cognitive, emotional, physical, and/or spiritual needs—through music, art, and mental health therapies to improve health and well-being.

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Neurologic Music Therapy (NMT)

Neurologic Music Therapy, or NMT, is a research-based practice of 20 standardized clinical techniques that use music to treat cognitive, affective, sensory, language, or motor dysfunctions a client may have that affect the human nervous system. Research has shown that music is processed within and affects all areas of the brain, and therefore engagement in musical experiences can build skills in non-musical areas. NMT techniques are divided into 3 categories—sensorimotor, speech and language, and cognitive—and can be adapted to address a variety of client needs. In order to practice NMT, clinicians must be trained and educated in neuroanatomy, physiology, neuropathology, and the use of all 20 clinical techniques to address rehabilitation of neurological function in each of the domain areas. Below are some of the NMT techniques that are widely used with clients at Expressive Therapies in order to best support

learning and growth with evidence-based practices. Check out how our therapists are using cognitive, speech and language, and sensorimotor techniques to meet different needs. We've also provided links for research articles and further reading, should you be interested in more information!



Cognitive Techniques

Musical Attention Control Training (MACT)

MACT is defined as “structured active or receptive musical exercises involving precomposed performance or improvisation in which musical elements cue different musical responses to practice...attention functions”

(Thaut, 2005, p. 196). The intent of MACT is to practice and improve skills at different levels of attention, which include the following (in order of complexity): focused, sustained, selective, alternating, and divided. Focused attention involves simply directing your attention to one stimulus (such as playing one drum pattern while someone tries to distract you). Sustained attention involves the ability to concentrate over time (such as following changes in the volume or speed of playing). Selective attention involves directing your attention to one stimulus in the presence of additional stimuli (such as counting how many times one specific word is said in a song). Alternating attention involves switching between 2 stimuli (such as hearing 2 different patterns and matching when they switch from one to the other). Divided attention is sustaining attention to 2 stimuli at the same time (such as singing and playing a set pattern on an accompanying instrument simultaneously). In this image, you can see Music Therapist Jennifer demonstrating selective attention by playing the drum only during a set part of the song!



Musical Executive Function Training (MEFT)

MEFT is defined as “improvisation and composition exercises in a group or individually to practice executive function skills” (Thaut, 2005, p. 197). Executive function skills include organization, problem-solving, decision-making, reasoning, comprehension, initiation, inhibition or impulse control, adjusting, planning, and analyzing/evaluating. Building or putting together any kind of musical composition—live, recorded, improvised—requires a variety of executive functioning skills, such as organization of the different parts, problem-solving when things go “wrong” or work differently than expected, deciding what to use or not use, planning what will happen, initiating and ending the composition, and evaluating how it sounded after completion. Also, a great intervention addressing impulse control is leaving out a beat in a pattern, such as leaving out the third count in a pattern of four (e.g. 1, 2, -, 4). The boomwhackers in this picture are a great instrument for practicing organization, impulse control, and problem-solving skills!

Auditory Perception Training (APT)

APT focuses on building skills in auditory processing and supporting the integration of different sensory modalities (visual, tactile, and kinesthetic) during active musical exercises with the intention of improving one’s ability to differentiate between as well as coordinate different types of input. One intervention might look like playing melodies by reading symbolic or graphic notation (e.g. Songs in which each sound has a coordinating color). Others include matching the pitch of sounds (e.g. High to high, low to low), identifying if 2 patterns are the same or different, completing a specifically designated movement for each presented melody, or indicating where one segment of music ends and another segment begins.

Music in Psychosocial Training and Counseling (MPC)

MPC “uses musical performance to address issues of mood control, affective expression, cognitive coherence, reality orientation, and appropriate social interaction to facilitate psychosocial functions” (Thaut, 2005, p. 197). This technique incorporates mood vectoring as a major goal area, which can be described as practicing and exploring the change between different mood states through a musical lens, such as music making that moves from a representation of anger to peace, energy to no energy, anxious to calm, and so on (as well as the reverse of these). Our brains and bodies experience different moods or feelings in different ways—such as our bodies feeling physically stressed when our brains feel frustrated, or physically relaxed



when our brains feel happy—and MPC allows us to identify, recognize, and practice connecting these to our own reactions and experiences. There are so many different instruments that can be used to explore and express different feelings, like the “happy” and “calm” exploration on a tongue drum in this picture!

Musical Echoic

Memory Training (MEM)

MEM is a technique intended to help build skills in the retention of immediate auditory information that a person has just perceived until it can be processed more elaborately in working memory, as well as to support the holding of auditory information until a subsequent sound is heard which then assigns meaning to the first sound (as in rapid processing of speech and sequence). “Echoic” specifically refers to very quick, sensory memory and storage. In MEM interventions, one might practice listening to a song and then reporting back the last 1, 2, or 3 sounds/words that they heard. MEM can also include practice differentiating between 2 pitches played back-to-back which are extremely close in pitch and identifying if they were the same or different. The main goal of MEM is supporting development of immediate memory recall.

Speech and Language Techniques

Oral Motor and Respiratory Exercises (OMREX)

OMREX is a speech and language technique which addresses the improvement of articulatory control, respiratory strength, and function of the speech apparatus. In other words, OMREX is intended to support the development of a healthy speech mechanism, as opposed to the practice of speaking itself. Interventions specifically using wind instrument playing or sound vocalization (such as kazoos, harmonicas, or vowel/letter sounds like “ah,” “oh,” “ta,” or “so”) are used to support muscle control and respiratory control, and thus support development of speech abilities, as they help to shape awareness, to practice single movements, and to practice movement combinations of the jaw, lip, or tongue position.

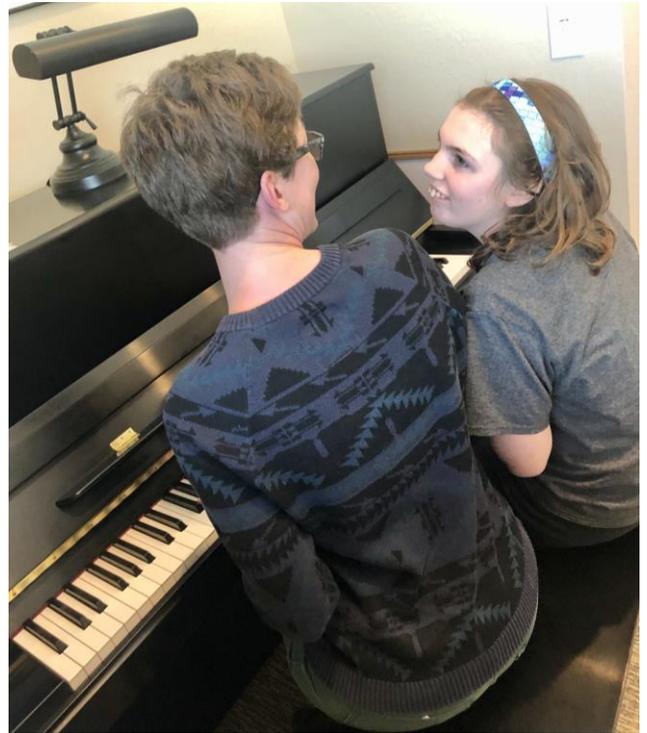
Academy of Neurologic Music Therapy and its Certificate

“The Academy of Neurologic Music Therapy was established in 2002 to advance the professional education and understanding of the scientific, evidence-based practice of Neurologic Music Therapy, and to facilitate the coordinated and cooperative efforts of Neurologic Music Therapists throughout the world. The Academy facilitates endeavors in the areas of continuing education, student training, research, information sharing, and reimbursement.”

-R. F. Unkefer Academy of Neurologic Music Therapy, Mission and Standards of Affiliation and Practice

Developmental Speech and Language Training Through Music (DSLTM)

DSLTM is defined as the 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. The goal of DSLTM, then, is to enhance and facilitate speech development at one or multiple different levels, which include: speech sounds, context of phrases/sentences (e.g. “Hello, my name is ____”), vocabulary development, and cognitive concepts. DSLTM interventions can be quite varied and may incorporate a variety of musical elements to support development of speech and language for individual use, social/interpersonal engagement, and education-related skills. In the picture here, Music Therapist Rachel is using singing with the piano to facilitate practice of speech in different contexts.



Symbolic Communication Training Through Music (SYCOM)

SYCOM utilizes musical exercises that stimulate and train appropriate communication behaviors, language pragmatics, speech gestures, and emotional expression through a non-verbal language system. Social interaction incorporates more than just talking to one another—the intent and goal of SYCOM is to build and enhance one’s understanding of the rules, function, and meaning of communication interactions, including those involved in a conversation. SYCOM interventions might focus on turn-taking (“I play the drum and you wait, then you play the drum and I wait”), following directions (“I lead and you follow, then you lead and I follow”), or musical conversations (“I play a line/question/statement, then you respond with a different musical line/question/statement”). SYCOM can also be verbal or non-verbal—the intent is to build functional communication behaviors, in whichever specific or combined format that may be. Communication behaviors can even be practiced via Teletherapy, like Music Therapist JoAnna is demonstrating here!



Rhythmic Speech Cuing (RSC)

RSC addresses speech rate control through auditory rhythm in order to improve temporal characteristics of speech, such as fluency, articulatory rate, pause time, and intelligibility of speaking. Our speech is naturally patterned or rhythmic, so the intent of RSC is to use the rhythmic aspects of music to support non-musical speech intelligibility. A metronome or a consistent tempo/pattern on a drum can be used as auditory cues for speech and then eventually removed, so that what is remaining can be

used without musical or rhythmic support (e.g. Clearly articulating with music/rhythm “how are you?” and then moving towards “how are you?” without any musical cues).

Therapeutic Singing (TS)

TS uses the many and varied elements of singing to facilitate initiation, development, and articulation of speech and language, as well as to increase functions of respiratory control. Rather than focusing on the speech apparatus specifically, as OMREX does, or prioritizing articulation and speech rate only, like RSC, TS ties together all functions of the voice in order to build synthesis and cohesion. TS might look like a vocal warm-up,



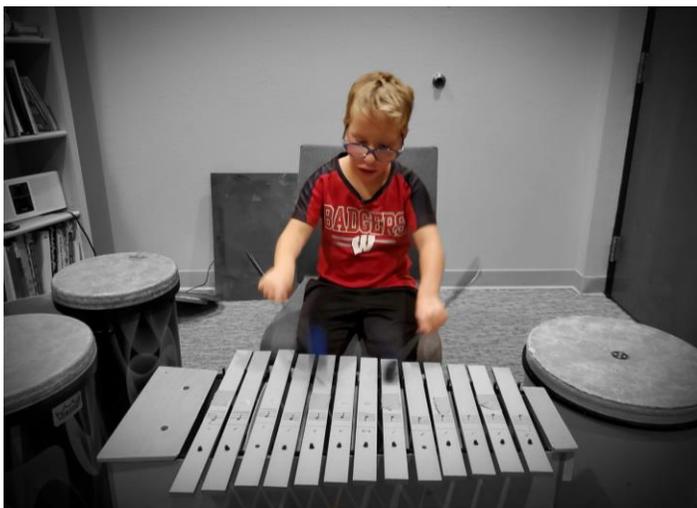
or perhaps structured and intentional altering of a preferred song in order to address and practice specific instances of difficulty. Through TS interventions, clients can practice timing, articulation, breath control, and more in a naturally occurring setting. Music Therapist Jennifer can be seen here leading a TS intervention!

Sensorimotor Techniques Patterned Sensory Enhancement (PSE)

PSE uses the rhythmic, melodic, harmonic, and dynamic elements of music to provide cues for movements that reflect the functional movements or motor patterns of activities of daily living. Examples of these movements might be waving hello/goodbye, reaching for nearby items, or use of a switch/tablet for communication purposes. Movements addressed through PSE are not necessarily or intrinsically rhythmic but can be matched to a musical pattern that reflects the trajectory of a movement or the action itself. A melody prompting a client to reach up in the air would move higher in pitch, whereas reaching down would then be cued by a melody moving lower in pitch. What kind of music sounds like skipping? What about marching? PSE matches the elements of music to the elements of a movement, which then allows for practice of non-musical functional movement.

Therapeutic Instrumental Music Performance (TIMP)

TIMP addresses motor rehabilitation and is focused on training or retraining functional movement skills through the incorporation of musical instruments in motor exercises. Practicing TIMP exercises also helps clients to overcome unhealthy compensation strategies while increasing strength, endurance, and motor control. To



practice balance and standing stability, a client might have two drums placed to either side and then shift their weight to a given rhythm in order to play on each side. To address upper extremity range of motion or flexibility, a client might practice reaching their arms in a specific direction in order to play chimes or cymbals. For lower extremities, clients might use purposefully placed tambourines or drums to motivate heel strikes or toe taps. The instrument used is motivating for practice of a given skill, and repetition of TIMP exercises supports healthy motor development and/or rehabilitation of functional movement. The young Badgers fan pictured here is practicing core strength and upper extremity coordination by playing specifically placed drums and a xylophone!

Research: Major Articles and Publications

For further reading and additional information about the practice and implementation of NMT techniques, check out the following!

<https://nmtacademy.files.wordpress.com/2018/05/asd-music-science.pdf>

https://nmtacademy.files.wordpress.com/2019/05/thaut-braunjanzen2019_chapter_neurologicmusictherapy.pdf

<https://nmtacademy.files.wordpress.com/2018/05/ras-pse-timp.pdf>

<https://nmtacademy.files.wordpress.com/2018/05/mpc-neural-processing-of-emotional-musical-and-nonmmusical-stimuli-in-depression.pdf>

Settings Where NMT is Applicable

A Board-Certified Music Therapist with an NMT certificate can practice Neurologic Music Therapy and its techniques in any setting where the needs indicated fall under one or more of the above domains: cognitive, sensorimotor, or speech and language. Settings can be private practices (like Expressive Therapies), community day centers, hospitals (rehab, trauma, oncology, end of life), rehabilitation centers, schools, and assisted living sites. We would love to hear any inquiries you have about NMT as a study or as a potential service for your environment! Expressive Therapies currently uses NMT in its practice in and out of the office.

THANK YOU FOR READING OUR NEWSLETTER!

We appreciate connecting with the community by sharing the specifics of music therapy and art therapy. If you have further inquiries, we highly recommend you visit our website at www.expressivetherapies.net, our Facebook page (Expressive Therapies), the American Music Therapy Association at www.musictherapy.org and the American Art Therapy Association at <https://arttherapy.org/>, or email us at info@expressivetherapies.net.

Take care and be well!

