

AAIDD Presentation details.

Areas of medicine that MT is used:

Aspects of well-being that MT benefits:

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|---------------------|--------------------|------------------------------|
| 1. Mental health/ | 1. Receptive | 4 Types of Music Therapy (?) |
| 2. Emotional health | 2. Re-creational | |
| 3. Physical health | 3. Compositional | |
| 4. Social Skills | 4. Improvisational | |
| 5. Cognitive health | | |
| 6. Motor skills | | |

Areas of Medicine served by MT: Conditions MT can help one manage:

1. Dementia/Aging/Alzheimer's – neurodegenerative diseases
2. **Traumatic Brain Injury** -Use of music therapy during rehabilitation has shown to yield statistically significant improvement in one's stride length, and executive function outcome. MT is used to stimulate speech, movement, and cognitive emotions. It allows people to express emotions, promote insight and awareness, strengthens the neuropathways to restore memory, attention concentration, and multitasking. (www.defense.gov)
3. **Stroke** – MT helps to facilitate motor and speech rehabilitation, it helps attenuate dysphagia and aphasia, improves cognition and motor function, it helps alleviate negative moods, and accelerates neurological recovery in stroke patients. According to a 2022 journal, approximately 16 million people suffer from a stroke worldwide per year, of whom 5.7 million die and 5 million become disabled.
4. **Parkinson's Disease**- Motor, Speech, Voice, PsychoSocial (thought and behavior symptoms) skills and mood: MT improves gait, balance, speech and mood, addresses bradykinesia, and freezing of gait. Rhythmic Auditory Stimulation – using a metronome or live music to help a person move faster, slower, overcome freezing, or change gait patterns.
5. **Cancer** – use during various phases/ stages of treatment
6. **Autism Spectrum Disorder** – cognitive, social and expressive communication skill development
7. **Mood Disorders**- music therapy has been shown to be an effective mood regulator. Play music, talk about the lyrics, the tone and it's impact on one's mood, self-esteem etc.
8. **Anxiety Disorders** – 3-3-3- technique. When anxiety gets escalated, name three items you can see, three things that you hear, and move 3 parts of your body. This is to distract one from the item causing anxiety. "Weightless" by Marconi Union was specifically composed to reduce anxiety, stress, and blood pressure. It was developed in collaboration with sound therapists. Music Therapy helps with anxiety by it's impact on breathing and heart rate.
 - a. 5-5-5 technique: inhale for 5 seconds, hold for 5 seconds, and exhale for 5 seconds. This is a grounding technique that helps one to engage their senses to focus on the present moment.
9. **Pain Management** (Acute & Chronic)

10. **Substance Use disorders – SUD-** is a chronic and often re-lapsing disorder targeting multiple interacting neural circuits in the brain, and often associated with a cluster of cognitive, physiological, and behavioral symptoms.
11. **Labor & Delivery** – Soundbirthing Music Therapy- use music usually during the last trimester to support their physical and emotional needs in every stage of labor and delivery. Music is used to calm, comfort, block discomfort and focus breathing for the mother. Music therapy has effectively significantly decreased the mother's anxiety and discomfort responses, decreases the need for analgesic medications during birth and generated overall positive feelings about the birthing process. The use of music therapy during labor & delivery was most effective in supporting breathing (rhythmic), remaining calm, remaining focused and discomfort management. The music therapy also enhanced the initial family bonding with the infant immediate postpartum period.
12. **Physical Rehabilitation/Therapy (PT)** – Music provides timing, rhythm, and a pace by which to engage in PT activities (movement)
13. **Occupational Therapy (OT)-** MT will make goals geared to improve skills that OTs frequently work on such as pincer grasp, palmar grasp.
14. **Presurgical Anesthesia** – music therapy can reduce patients' anxiety before going into the operating room. This reduces the amount of required anesthesia, thus reducing the risks of "going under" and "coming out" of surgery.
15. **Alzheimer's Disease** – AD is currently the most widespread and fatal progressive neurodegenerative disorder among the elderly. AD comprises 60%-80% of all Dementia cases with a current estimate of 55 million worldwide. It is projected to grow to 153 million by 2050! AD is a progressive disease that begins 15-20 years before the presentation of clinical symptoms. We argue that, because AD begins decades before the presentation of clinical symptoms, music interventions might be a promising means to delay and decelerate the neurodegeneration in individuals at risk for AD, such as individuals with genetic risk or subjective cognitive decline. (National Library of Medicine) 7/18/2022

While passively listening to music, AD patients can recall memories from their lives in greater detail. Controlled group studies have shown the benefits of music on AD patients on verbal encoding, autobiographical recall, performance on tests of cognitive and behavioral function, enhancements in self-consciousness, and improvements in trait anxiety and depressive symptoms. (MEAMS – music-evoked-autobiographical memories)

In a more condensed summary, MT is used in managing Alzheimer's in areas such as reminiscence, memory recall, social skills, muscle memory, motor skills, motor coordination

16. **Debridement Procedures** – pain management: during wound treatment. Distraction from the procedure(s).
17. **Dialysis** – articles National Kidney Foundation & Complementary Therapies in Medicine report that **Dialysis patients with Chronic Kidney disease** showed a significant reduction in depression symptoms and better QOL (quality of life) results, with significant differences in functional capacity, pain, general health, vitality, mental health, symptom and problem list, and overall health improvement
18. **Aphasia** – MIT- melodic intonation therapy- In experiments using transcranial magnetic stimulation to disrupt speech and singing, it was learned/suspected that the neural circuitry for

singing is more diffusely located, and thus harder to disrupt, than the highly localized speech centers in the left hemisphere. For this reason, singing is a very constructive tool to use with aphasia and dysphagia recovery.

A Generalized List of Music Therapy Benefits:

19. Helps one to relax- by activating the limbic system
20. Helps one explore their emotions
21. Reduces anxiety or depression
22. Ease the stress level
23. Regulates one's mood
24. Strengthens communication skills
25. Improves speaking and language skills
26. Builds social skills
27. Strengthens self confidence
28. Helps one develop self coping skills
29. Helps one develop problem solving skills
30. Reduces perceived levels of pain
31. Improves physical coordination, motor functions and movement – provides tempo and structure for movement.
32. Improves one's quality of life
33. Improves mood – by increasing the level of endorphins in the brain.
34. Increases endurance. Especially in the last 30 minutes of dialysis.
35. **Medical** Helps with surgery recovery by lowers the heart rate, reduces the anxiety level, lowers the pain level, thus leading to less opioid use. Patients that listened to music had a significant reduction pain the day after surgery (@19% reduction). Self -reported anxiety levels were reduced by 2.5 points or 3%. Patients who listened to music used less than half the amount of morphine on the first day after surgery compared to those who did not listen to music on the first day after surgery. (.758 mg vs 1.654 mg). Lower heart rate: those who listened to music experienced a lower heart rate (4.5 fewer beats per minute) compared with patients that did not listen to music.
36. **Surgery:** Music can help ease the transition from the waking up stage to a return to normalcy and may help reduce stress in that transition. (American College of Surgeons, 2024)
37. **Emergency Rooms:** Music therapy is increasingly used in the emergency rooms for the primary roles of reducing pain and anxiety, enhancing relaxation, and for helping patients to develop healthy coping skills.
38. Listening to music has been proven to release endorphins, which are chemicals in the brain that can reduce pain and stress and improve one's mood. This can help improve symptoms of mental health disorders, like anxiety and depression, and increase feelings of well-being.
39. Music and movement can also help people diagnosed with **eating disorders** by allowing them to express their feelings in different ways, both verbal and non-verbal. IT can also help advance awareness and acceptance of the body and improve emotional intelligence overall , so one can face things head on and heal. (www.healthpartners.com)

40. Music helps with **neuroplasticity**, the brain's ability to rewire itself to deal with pain. It can reduce pain, decrease pain interference in everyday life and take attention away from one's pain during:

- a. Addiction treatment
- b. Cancer management
- c. Medical procedures
- d. Short term health conditions
- e. Chronic health conditions.

41. **Alzheimer's Disease (AD): HOW SUCH IMPACT OCCURS FROM MUSIC**

Stimulation of Neurogenesis – the generation of new neurons and neuroplasticity (e.g. structural changes in the brain, including the formation of new synapses) A meta-analysis showed that music-evoked emotions can activate the anterior hippocampal formation, and it is tempting to speculate that such activation might also stimulate neurogenesis. In AD patients, such music-evoked neurogenesis may lead to a deceleration of atrophy in anterior hippocampal formation, and perhaps to a reversal of loss of hippocampal volume. The anterior hippocampus plays a role for social bonding and attachment-related emotions. Music Therapy may be effective in activating anterior hippocampal formation.

Music also **stimulates the release of dopamine**- the brain's reward hormone.

Music-evoked emotions can reduce stress and give rise to physiological changes **through activation of the autonomic nervous system**. Music can also influence the neuroendocrine stress response and modulate immune system activity (e.g. modulate the release of cytokines). The Promise of Music Therapy for Alzheimer's disease: A Review -

Where can I find a music therapist for intervention with my medical procedure/treatment?

1. www.CBMT.org- on the website they have a segment "find a therapist". It finds a therapist in your area by way of zipcode. It asks you to enter the zip code where you live. This can be a good match or a restricted match according to location. In my case, I live in Bellaire, a small town within Houston which is a HUGE city.
2. www.amta.org
3. Memorial Hermann
 - a. One hospital that has been using music therapy is Memorial Hermann. How many of you know of Memorial Hermann? A few years ago, they took over TIRR, which is a very famous rehabilitation facility. On their website, they mention that they have 10+ years of research and evidence of music therapy's effectiveness when used with PT, OT, and Speech Therapy. The music therapists' they use are not only Board Certified, but also Neurologic Music Therapists. This extra credential means that they have attained a number of hours of study of neurology along with the board certification.

Some facts that they list on their website include:

Music therapy's rhythmic stimulation may normalize a patient's gate cadence, velocity and stride length when used with physical therapy.

Music therapy addresses verbal expression when co-treating with speech therapists .

Music therapy addresses coping and adjusting issues using song writing and lyric analysis.

Music therapy uses music as a mnemonic cue in orientation and learning strategies for memory deficits.

4. Texas Children's Hospital: Music therapy services include:
 - a. Active music engagement
 - b. Developmental stimulation through music
 - c. Movement to music
 - d. Music videos and audio recordings
 - e. Patient- or infant- directed singing
 - f. Songwriting
 - g. Therapeutic music instruction

These interventions can facilitate the following therapeutic outcomes:

- h. Decreased stress and anxiety
 - i. Decreased pain perception
 - j. Improved self concept and confidence
 - k. Legacy building and memory making
 - l. Opportunity for developmental/academic advancement
 - m. Parent and caregiver psychosocial support
 - n. Positive and normalized social experience
5. UT Southwestern Medical Center (Simmons comprehensive cancer center)- Dallas
 - a. At the Harold C Simmons comprehensive cancer center, board certified music therapists help patients reduce the disruption of cancer in their life. In addition to our state-of-the-art medical care, we offer music therapy, which has been shown to improve well-being and quality of life during and after cancer treatments.
 - b. Common goals:
 - i. Social/Emotional- Improve quality of life and relaxation, decrease feelings of isolation, encourage emotional expression, support patient and their family spiritually, promote positive communication and memory sharing with caregivers and family, build community as a family or with other patients and staff in the clinical setting.
 - ii. Physical /Physiological- reduce pain and nausea, muscle tension, and anxiety, helps regulate blood pressure and breathing rate, supports one through/during painful or anxiety provoking procedures.
6. Baylor Scott & White in Irving, TX
7. Houston Methodist Hospital- music therapist works with the cardio-pulmonary unit
8. Houston Methodist Hospital- Neonatal unit. MTs work with premature infants to help with stabilizing the baby's heart rate, blood pressure, body temperature and increase the appetite/feeding/nutritional intake.