

Music & Your Brain



MUSIC THERAPY STRATEGIES TO BOOST OUR BRAINS

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What You Will Learn



- What is music therapy?
- Who is a music therapist?
- How does music affect the brain?
- How can you use music in your daily lives?

What is Music Therapy?



Music Therapy is...

- Evidence-based
- Addresses functional, non-musical goals
 - Physical
 - Cognitive
 - Social
 - Emotional
 - Behavioral
- Uses musical elements to modify behaviors



Who are Music Therapists?



- Bachelor's Degree at accredited program
 - Curriculum
 - ✦ Music – therapy, theory, history, instrument proficiency, ensemble experience
 - ✦ Anatomy and Physiology
 - ✦ Psychology
 - Clinical Practicum
 - ✦ Conduct supervised sessions with variety of populations

Who are Music Therapists? (cont.)



- **Internship**
 - 6 months – year
 - Leading individual/group sessions
- **Board Certification Exam**
 - Music Therapist, Board Certified (MT-BC)

Musical Experiment



Iso-Principle



- Matching client's internal tempo and modifying as necessary
- Example
 - Reducing need for additional sedatives in pre-operative settings



Neurologic Music Therapy



- Advanced training for experienced music therapists
- For people with neurological issues (survivors of stroke, Parkinson's, Traumatic Brain Injury, etc.)
- Very research-based
- Same goals as PT, OT, speech therapists

Ultimate Goals of Music Therapy



- ... is to keep you as strong and independent as possible
- All goals are functional and lead to this end.

Possible Goals for Stroke



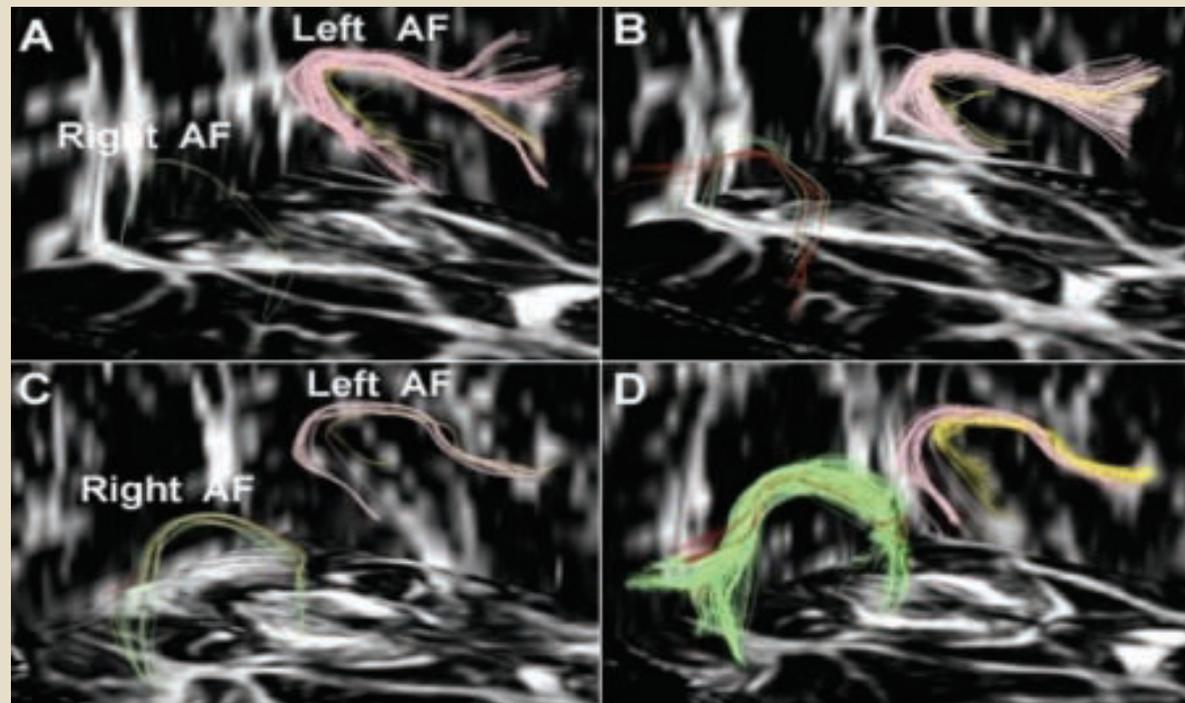
- Improve gait, endurance, and balance
- Improve expressive/ receptive language, effective communication
- Maintain or increase strength through exercise that is enjoyable with your favorite music
- Increase use of affected side of body for ADLs
- Attention, Executive Function

Music's Partnership with Brain



“The brain that engages in music is changed by engaging in music.” Dr. Michael Thaut, PhD., Neurologic Music Therapist

- Entrainment
- Plasticity
- Memory
- Wan, 2010



NMT Motor Goals are addressed through



- Rhythmic Entrainment:
 - When you “lock in” to a rhythm and the rhythm helps you move better
 - Examples of entrainment
 - Ex. with metronome

Entrainment Research



- Entraining by tapping to a metronome has been shown to affect an array of areas in the brain, especially the basal ganglia, cerebellum, and different cortical areas (Molinari, Leggio, DeMartin, Cerasa, & Thaut, 2003).
- After 3 trials, survivors of stroke showed improved weight bearing stance time on paretic side and stride symmetry (Thaut et al, 1993)
- 6-week RAS walking program significantly increased gait speed, stride length, and weight-bearing time on the paretic leg compared to conventional physical therapy (Thaut et al., 1997).
- Entrainment used for relaxation, motor movements including speech, attention and engagement

Other Motor Goals



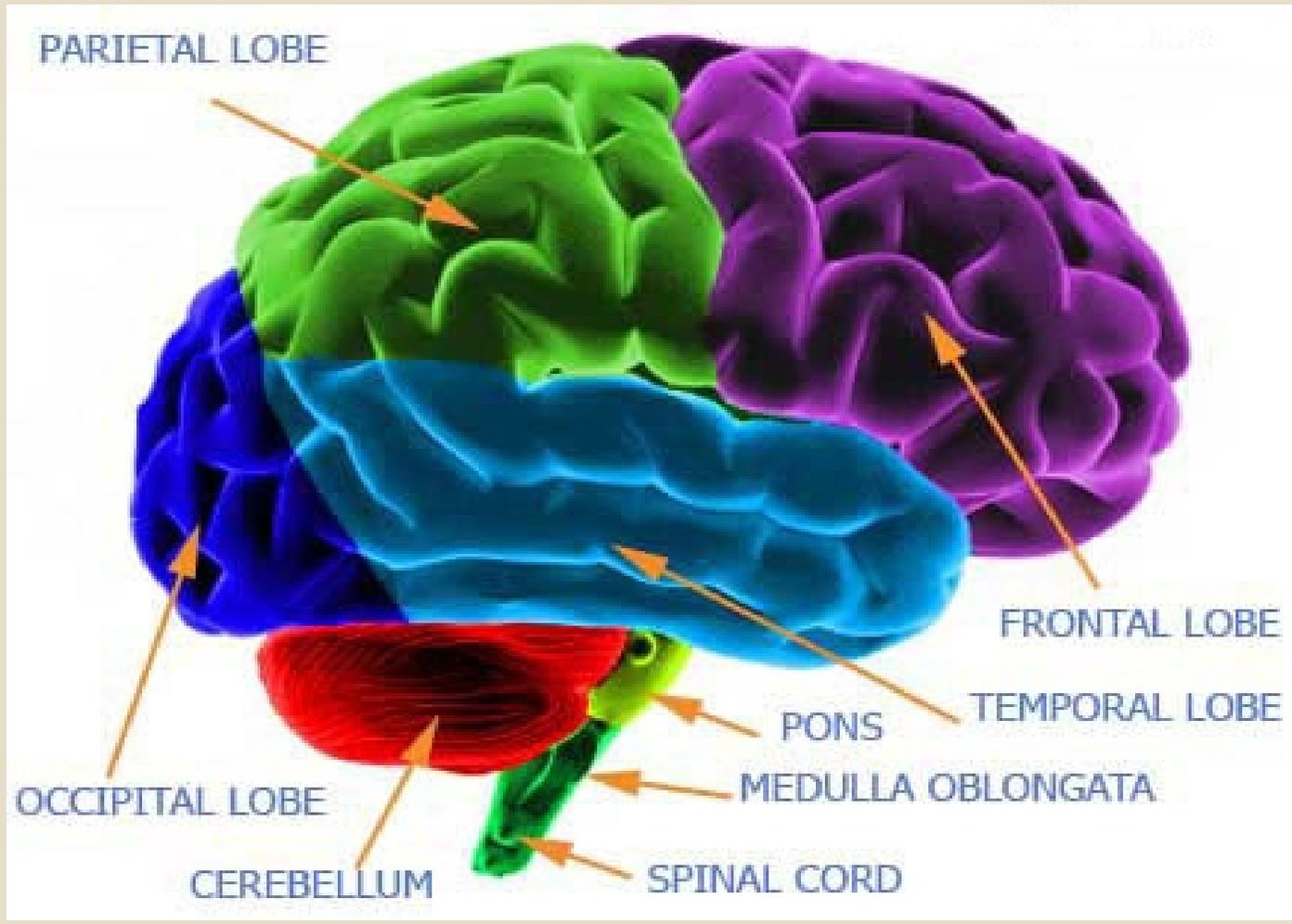
- Use instruments to replicate PT and OT goals/ exercises
 - Bicep curl
 - Range of motion
 - Swaying
 - Foot taps

Speech and Language

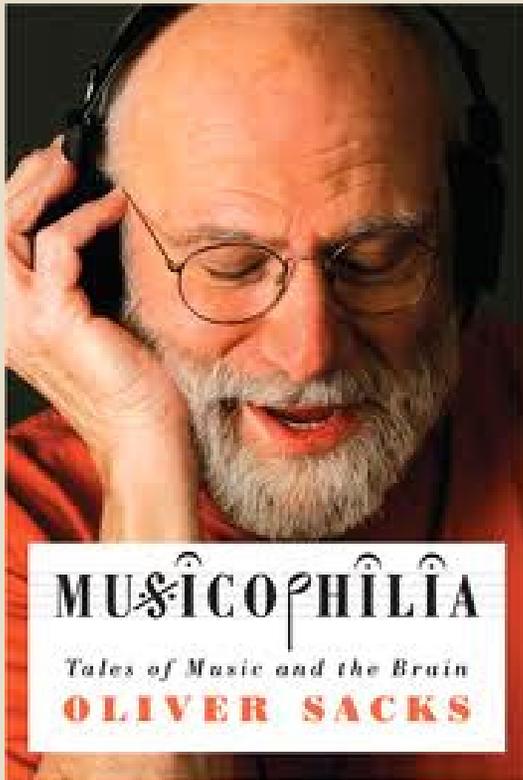


- Rhythmic Speech Cueing
- Melodic Intonation Therapy
- Singing – automatic speech
- Vocal Exercises

Where Music is Processed



Making Music Work for You



- Use a Walkman or iPod
 - Music to walk to
 - Music for listening
- Singing – to exercise your vocal cords, your breathing, change mood

Boosting Power



- Attention
 - Focused
 - Selective
- Memory
 - Chunking
- Executive Function
 - Rhythm is important

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Vroooom!

And Even More References



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