

# Music: A Way to Cure Memory Diseases?



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## INTRODUCTION

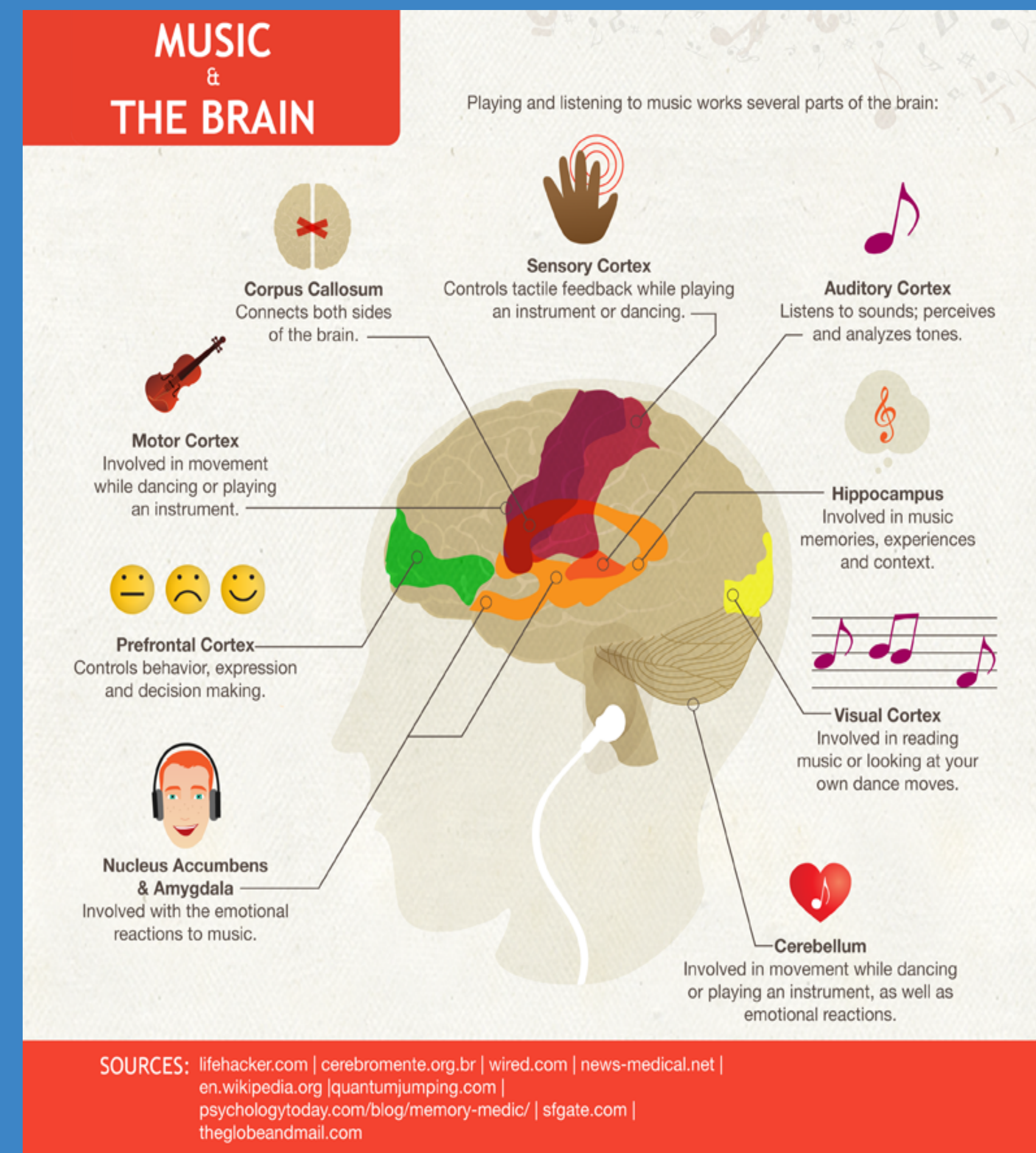
The brain: one of the most unknown organs in the body, yet one of the most studied. In this day and age, neurodegenerative diseases have taken over hospitals and medical centers, puzzling doctors, nurses, and even patients. For example, Alzheimer's Disease, a chronic neurodegenerative disease, is the sixth leading cause of death in the United States. The biggest question is, if there is a way to possibly slow down the debilitating symptoms and effects of any type of memory disease through musical exposure.

## BACKGROUND AND SIGNIFICANCE

Arguably one of the saddest things that can happen to a human is when they lose their memory. Memories make up a person's identity, so when that is lost, not only are they losing a part of themselves but from a physiological standpoint, their brain is physically decaying. An article written about music in the Alzheimer's Foundation of America depicts musical associations and the sound of music in relation to daily activities. It mentions how unfamiliar music to the patient can be beneficial, because it may not carry any emotions or previous memories. Unfamiliar music therefore, could be the best choice in relation to wanting new responses, such as relaxation, among Alzheimer patients. The angle my research will take is looking at music and its effects on memory in the bigger picture, and perhaps find preventative measures.

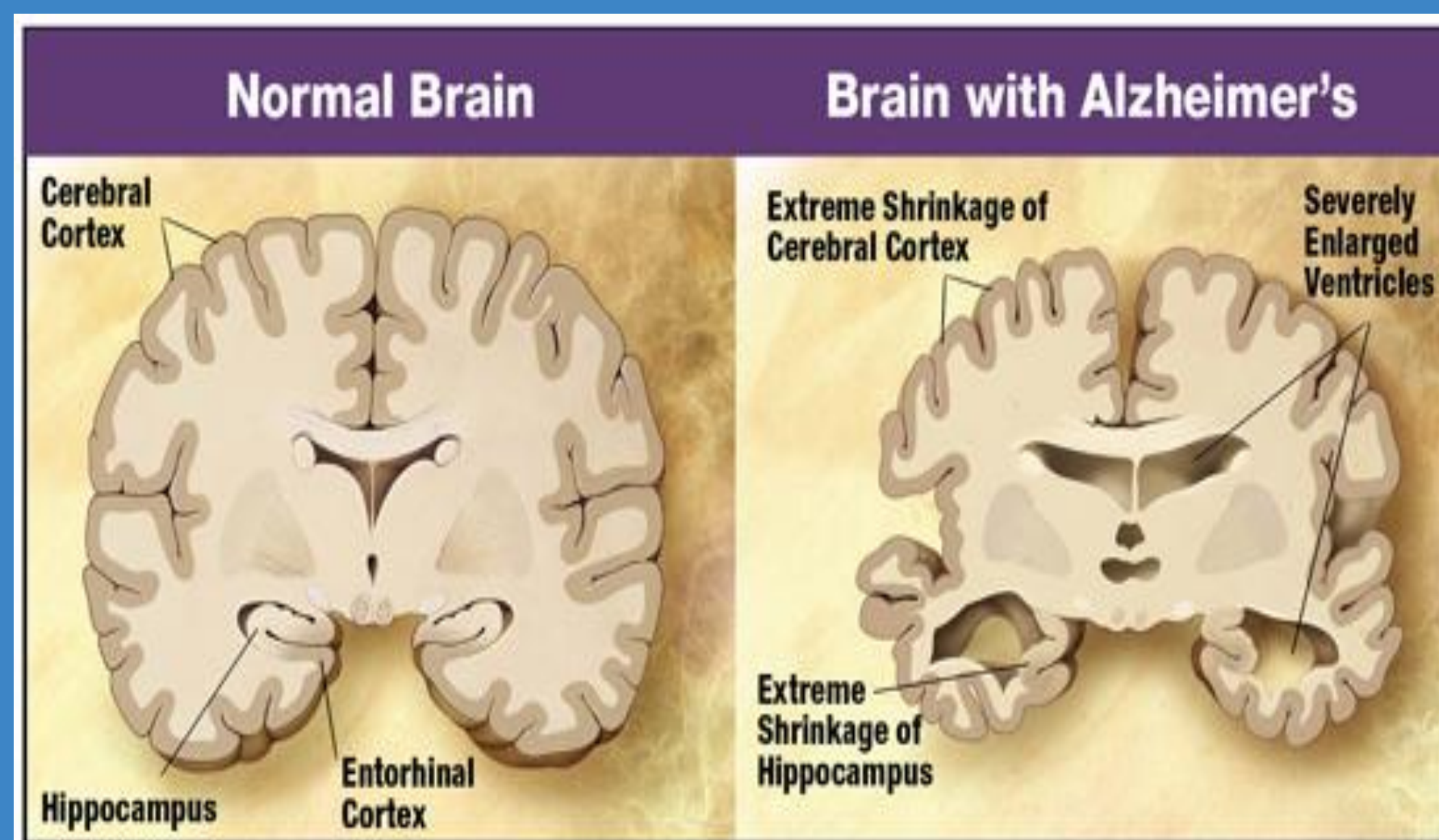
## RESEARCH METHODOLOGIES

The theory I will be testing is whether or not music affects the memory, and if so, in what magnitude. I will be collecting data from pre-existing sources. These types of sources are mainly online journal articles that contain research done about memory related to music, and specific memory diseases related to music (like Alzheimer's).



## DATA AND ANALYSIS

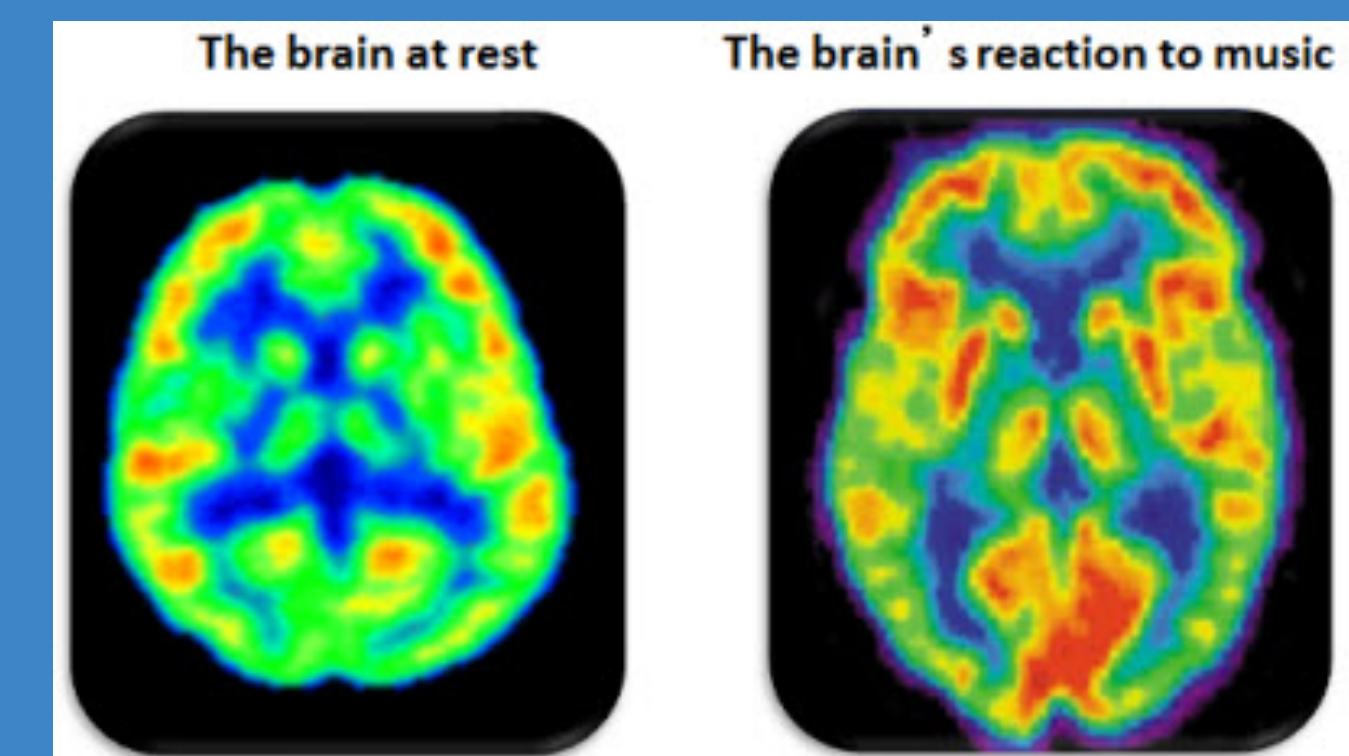
- ★ Melodic Intonation Therapy to rewire language skills. Using melody to shift brain's language centre from the left hemisphere to the right one.
  - Real Life Example: US Congresswoman Gabrielle Giffords shot in her left skull. Awoke from a coma unable to speak, but she could sing.
- ★ While listening to music under an MRI scanner, there are two distinct neural pathways processing the transition from a noisy MRI room, to listening to music with noise cancelling headphones. There was a striking difference between activity levels in the left and right sides of the brain during this transition. The right hemisphere was more active.
- ★ Music may reduce agitation and improve behavioral issues. In the late stages of Alzheimer's, a person may be able to tap a beat or sing lyrics to a song from childhood.
- ★ Music can improve emotional well being. It also decreases agitation, heart rate. These natural endorphins are triggered as a result to produce positive attitudes and relaxed muscle joints.
- ★ Children taking music classes can strengthen connections between the two hemispheres but only if practiced diligently. Professional musicians who started playing before the age of 7 have an unusually thick corpus callosum.
- ★ Sometimes, a piece of music becomes associated with an event from a person's life. Hearing that piece of music evokes memories of the original experience.



## EXPLAINING TERMS

Melodic Intonation Therapy: therapeutic process used by music therapists and speech language pathologists to help patients with communication disorders (caused by damage to the left hemisphere of the brain)

Corpus Callosum: the bundle of axons that serves as an information superhighway between the left and right sides of the brain.



## ACKNOWLEDGEMENTS / REFERENCES

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