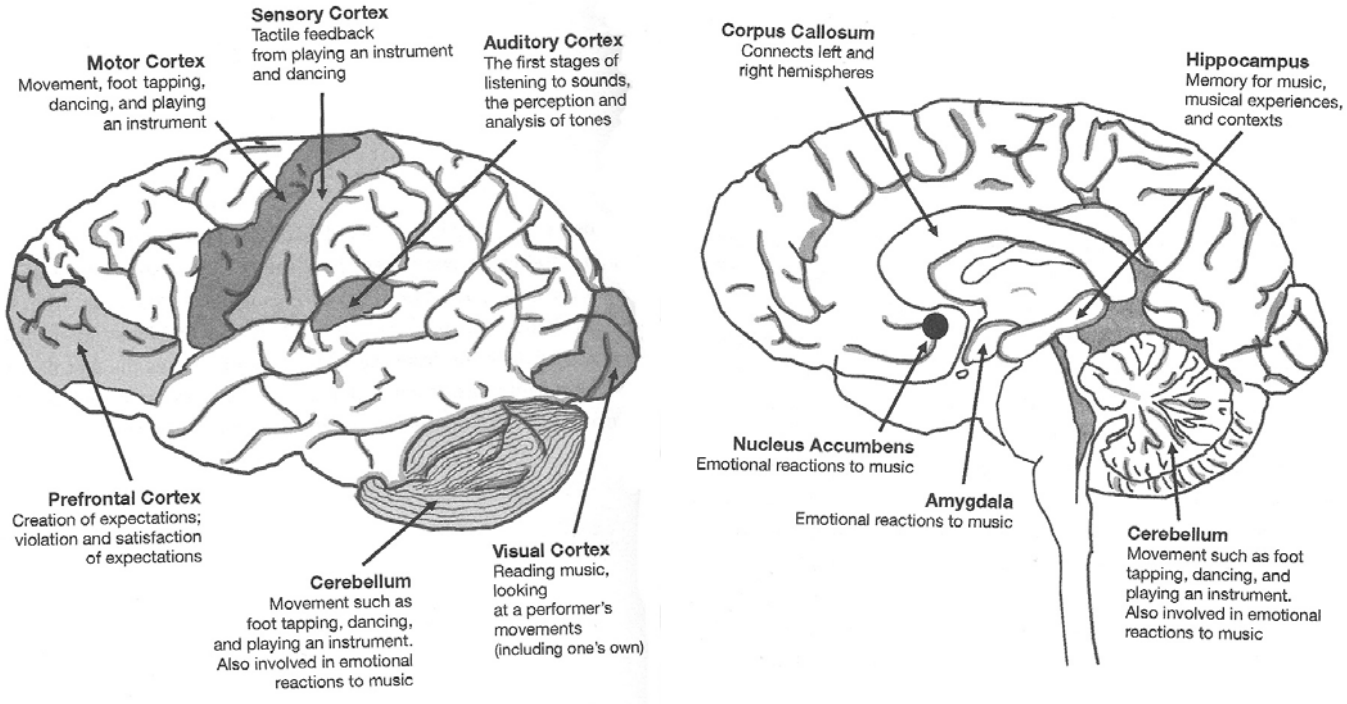
Brain Processing of Sound Signals:

Signals from basilar membrane in cochlea sent to various areas of the brain – at the frequenc(ies) of the acoustical signals incident on the ears (!!!). From recent technological advances – development of functional Magnetic Resonance Imaging (fMRI) – researchers have learned that a many areas of the brain simultaneously process these sound signals – underscoring the importance hearing (& music) to human beings. If interested in learning more about this, the recently-published book "*This is Your Brain on Music – the Science of Human Obsession*" by Daniel J. Levitin is *highly* recommended – see his website: http://www.yourbrainonmusic.com/

Auditory signals transmitted to the brain via auditory nerves undergo much additional processing in the brain.

* Speech sounds: mostly processed in *left* hemisphere of brain.
* Music sounds: mostly processed in *right* hemisphere of brain.
* Separate processing centers for consonance (human-like sounds) & dissonance (not human-like sounds)!
* Musical/sound/voice memories stored in ***several*** areas of the brain – explains robust retentivity / longevity/stability of acoustical/sound-type memories!



Because many areas of the brain process sound signals, there are also many possible ways for brain to malfunction. Again, researchers have learned a great deal on this via fMRI studies over the past decade. If interested in this subject, the recently published book "*Musicophilia – Tales of Music and the Brain*" by Oliver Sacks, MD is *highly* recommended – see his website: http://musicophilia.com/