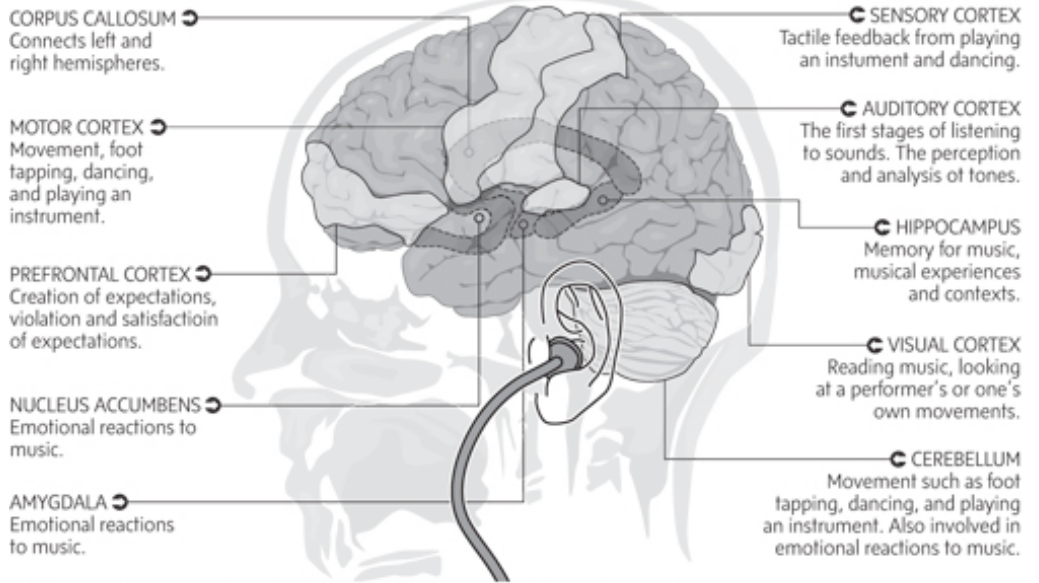


YOUR
BRAIN ON
Music
FUN FACTS
FROM "ARTS
WITH THE
BRAIN IN
MIND"
BY ERIC JENSEN

Music on the mind

When we listen to music, it's processed in many different areas of our brain. The extent of the brain's involvement was scarcely imagined until the early nineties, when functional brain imaging became possible. The major computational centres include:



MIKE FAILLE/THE GLOBE AND MAIL ◉ SOURCE: THIS IS YOUR BRAIN ON MUSIC: THE SCIENCE OF A HUMAN OBSESSION

- The arts enhance the process of learning. The systems they nourish - our integrated sensory, attentional, cognitive, emotional and motor capabilities - are the driving forces behind all other learning. The arts provide learners with opportunities to simultaneously develop and mature multiple brain systems.
- Frank Wilson (1999), assistant clinical professor of neurology at the University of California School of Medicine, says that learning to play an instrument connects, develops and refines the entire neurological and motor brain systems.
- The human brain appears to have highly specialized structures for music. Melodic contour has corresponding brain cells that process it. Researchers have found other cells in the auditory cortex that process specific harmonic relationships. The rhythmic, temporal qualities have been linked to a specific group of neurons in the auditory cortex.
- Music helps you think by activating and synchronizing neural firing patterns that orchestrate and connect multiple brain sites. The neural synchrony ensembles increase both the brain's efficiency and effectiveness. These key systems are well connected and located in the frontal, parietal and temporal lobes, as well as the cerebellum. The strongest studies support the value of music-making in spatial reasoning, creativity and generalized mathematical skills.
- Hearing selected sounds, playing an instrument and singing may improve our ability to make finer acoustic distinctions and related auditory refinements. These qualities can positively influence a variety of skills, especially listening and reading. The effects are a result of the physical reorganization and growth in brain areas that define and regulate these skills. Such improvement has lifelong implications, including a significant and lasting effect on our perceptual abilities.
- If there's a change in our behavior, there's a corresponding change in the physical nature of our brain. The presence of auditory cortical maps has been known for quite some time. New neural connections (synapses) are made when the brain is being enriched by novelty, challenge, repetition, feedback, coherence and having sufficient time to make changes.
- Playing an instrument can literally change the brain. The cerebellum, another area of the brain we know to be involved, particularly in keeping beat and rhythm, was larger in musicians (Schlaug et al., 1995b).