Looking for the origins of music in the brain

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Music serves as a natural and non-invasive intervention for patients with severe neurological disorders to promote long-term memory, social interaction and communication. However, there is currently no plausible explanation of its neural basis for why and how music affects physical and psychosocial responses.

Origins of music perception in humans may have their foundation in animal communication calls, as evidenced here in non-human primates. Many speech sounds and animal vocalizations, for instance, contain components, commonly referred to as complex tones, which consist of a fundamental frequency (f0) and higher harmonics.

Using electrophysiological recording techniques to study the neuronal activities in the auditory cortex of awake monkeys, researchers at Georgetown University Medical Center's have shown neurons tuned to the fundamental frequencies and harmonic sounds, and such neural mechanisms of harmonic processing lay close to tonotopically organized auditory areas. They presented their findings at the 39th annual meeting Society of Neuroscience.

"The understanding of neural mechanism of 'innate' music features in non-human primates will facilitate an improved understanding of music perception in the human nervous system," explains Yuki Kikuchi, PhD, a research associate in the department of physiology and biophysics. "This will allow a neurobiological framework from which to understand the basis of the effectiveness of music therapeutic interventions."

Source: Georgetown University Medical Center (news : web)