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Study: There Seems to Be a Universal Brain Response to Music

By Lindsay Abrams



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PROBLEM: Divergent preferences aside, hearing music as *music*, and not **just noise**, is something we can (usually) agree on. What's going on in our brains that allows us to universally recognize it as something special?

METHODOLOGY: At Stanford University, nine men and eight women with no formal music training listened to obscure classical music (four symphonies by late-baroque composer William Boyce) while lying inside fMRI machines. The researchers used a type of imaging that let them examine all different areas of the brain over the entire time that the participants were listening to the recording.

To ensure that the brain activity they were mapping was in response to the music as a whole, and not just to one of its structural features, the researchers also had the subjects listen to altered versions of the symphonies: in one, all rhythm and timing was removed, and in the other, they were made atonal.

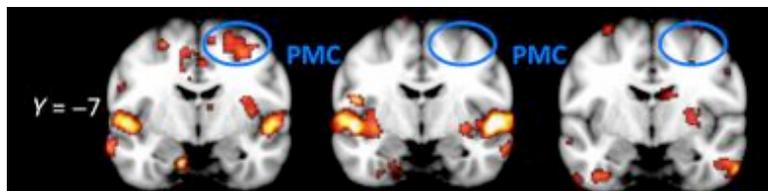


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RESULTS: During the nine and a half minutes that the subjects [the Phone](#) spent listening to the music in its unadulterated form, the researchers noted a "highly distinctive and distributed set of brain regions" that was synchronized between each them. In the music from which some of the elements that make it musical were removed, on the other hand, brain activity was markedly different from subject to subject.



One example of brain synchronization for the natural music, left, and its two altered forms

IMPLICATIONS: Different areas of the brain weren't just responding to auditory stimuli; if they had, the subjects' brains would have responded to the distorted symphonies in the same way they did to the "natural" music. This instead suggests that higher-level cognitive functioning immediately takes over when we listen to music, a process, the authors write, that "facilitates our collective social capacity for listening and attending to music." Regardless of how we may personally feel about what we're hearing, it would seem we're all hearing it in the same, "highly consistent" way.

"Inter-subject synchronization of brain responses during natural music listening" is published in [The European Journal of Neuroscience](#).

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