Daily **Life**

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BIRDBRAINED SCIENCE: Get on my wavelength



Two women talking and working out together outside. Studies show that people interacting with each other display matching brain activity. PHOTO COURTESY OF PEXELS.COM

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Have you ever had someone say to you, "We're on the same wavelength!" or something along those lines (I haven't, personally, because my thoughts are just so incredibly unique and out there that no one could ever possibly be on my wavelength, but I imagine you're not like me)? Turns out, there's a neurological component to this saying.

Most neuroscience research is conducted on individuals, so lot of the time when we think of brain activity, we think of it as an individual process. This makes sense, especially if two people are in different environments: if one night I'm working while my friend is out partying, it seems pretty obvious that our brains are going to be doing different things. But what if instead of my friend (Jordan) leaving me alone in my suffering, we were sitting together and talking? If we were in the same place, at the same time, having the same conversation and experience, would our brains still be doing their own separate things?

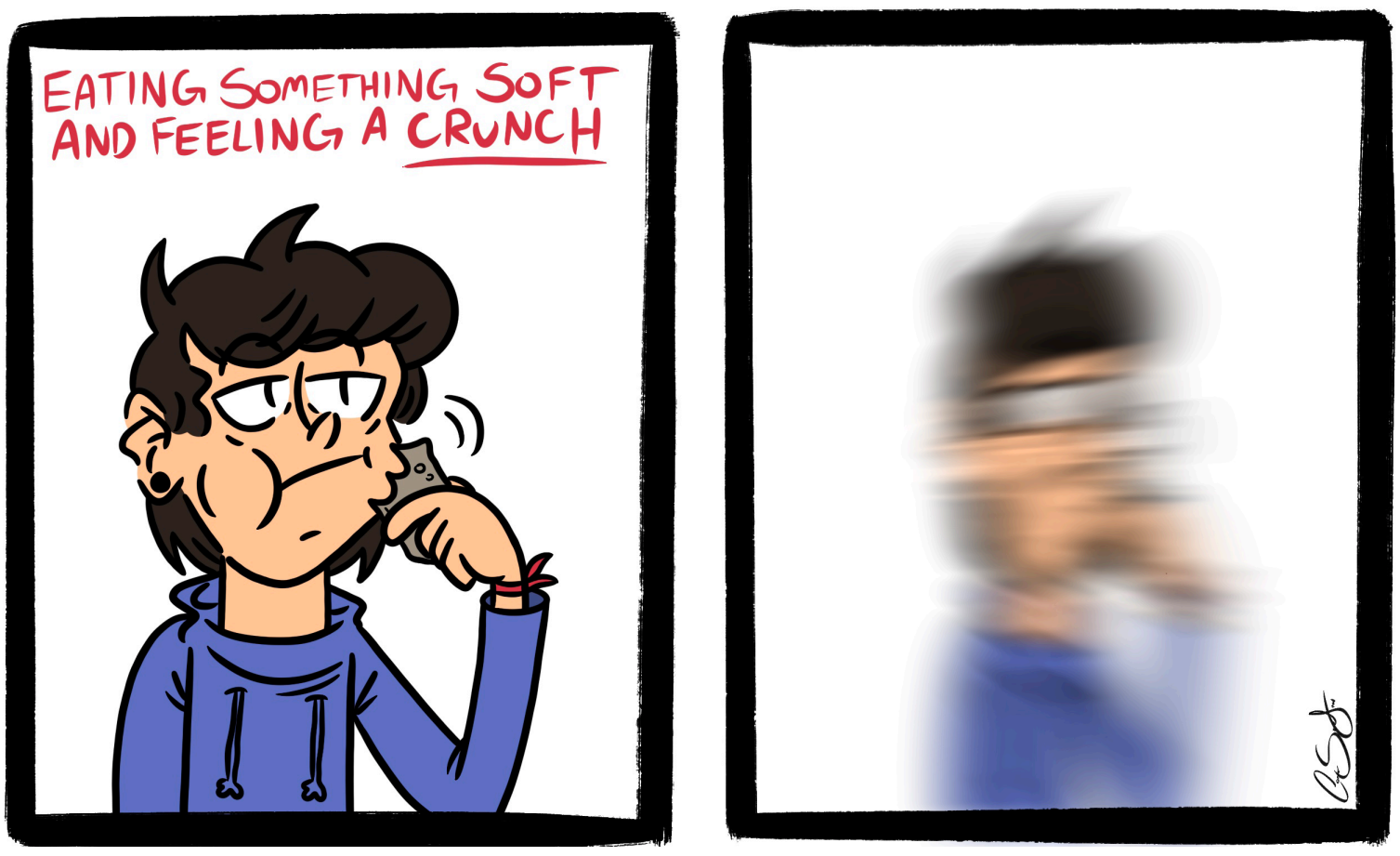
Neural coupling, also known as "mirroring," is when people interacting with each other display matching brain activity. This happens in a variety of contexts, like between a teacher and a student, between someone telling a story and someone listening or between a musician and their audience — but no matter what the exact situation is, the common thread is that people are communicating and connecting, and the neuronal patterns in their brain are reflecting that connection. In other words, they are literally synced up. And the more synchronized the patterns are, the more effective the connection seems to be.

This was demonstrated in a 2010 study where participants were placed into a Functional Magnetic Resonance Imaging machine to record their brain activity and assigned the role of either a speaker or a listener. Speakers verbally told a story using either Russian or English, while listeners (who only understood English) heard a recording of a speaker's story. When hearing a story in English, a listener's brain activity more or less mirrored the speaker's brain activity (although there were some time delays, probably to account for processing and comprehension time). But overall, the more closely the patterns were mirrored, the more engaged listeners were, and the better listeners understood the story.

Neural coupling and the strength of it goes beyond storytelling; it applies to social contexts of every kind. In a 2019 study, participants were shown videos of a violinist performing. The more participants enjoyed the music, the more closely their brain activity matched the violinist's. And a 2020 study found that teammates who show stronger inter-brain synchrony also perform better as a team.

But this phenomenon isn't limited to human interactions, or even just interactions between members of the same species. A 2024 study found that dogs and humans also display neural coupling in certain brain regions during interactions like petting and eye contact. Additionally, dogs with Shank3 mutations (which seem to be the dog version of autism), do not exhibit as much neural coupling during these interactions, further suggesting that neural coupling is a marker for successful social connection.

So whenever you're connecting with someone, your brains are copying each other. Brain-wise, imitation really does seem to be the sincerest form of flattery. And in that event, thank you, because by reading my article and my thoughts, your brain waves are (hopefully) matching mine. That's right, this was all just a really elaborate ruse to get you to connect with me. See you all next week!



comic by connor szrejna, staff artist