

Music in speech equals empathy in heart?

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Some people are annoyed by upspeak: the habit of making a sentence sound like a question?

But actually, being able to change intonation in speech - as in upspeak - may be a sign of superior empathy?

A new study in the journal [PLoS ONE](#) finds that people use the same [brain regions](#) to produce and understand intonation in speech.

Many studies suggest that people learn by imitating through so-called mirror neurons. This study shows for the first time that prosody - the music of speech - also works on a mirror-like system.

And it turns out that the higher a person scores on standard tests of empathy, the more activity they have in their prosody-producing areas of the brain.

So increased empathic ability is linked to the ability to perceive prosody as well as activity in these motor regions, said authors Lisa Aziz-Zadeh and Tong Sheng of USC, and Anahita Gheytnchi of the Pacific Graduate School of Psychology.

"Prosody is one of the main ways that we communicate with each other," Aziz-Zadeh said.

In some cases, humans can't do without it, as in the case of a stroke victim who garbles words but can express emotion.

Or when talking to a pet: "If you have a pet, they basically are understanding your prosody," Aziz-Zadeh said.

She and her colleagues imaged the brains of 20 volunteers as they heard and produced prosody through happy, sad and other intonations of the nonsensical phrase "da da da da da."

The same part of the [brain](#) lit up when the volunteers heard the phrase as when they repeated it. It is called Broca's Area and sits about two inches above and forward of each ear.

The volunteers with the most activity in Broca's Area tended to score high on empathy measures. They also used prosody more frequently in daily speech.

It is not clear whether empathy brings about prosodic activity or whether frequent use of prosody can somehow help to develop [empathy](#) - or whether there is no cause and effect relationship either way.

More information: The study is available at [dx.plos.org/10.1371/journal.pone.0008759](https://doi.org/10.1371/journal.pone.0008759)

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