

Frog in your throat? Stress might be to blame for vocal issues

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Glossophobia, or the fear of public speaking, often comes up in lists of greatest fears. Such anxiety can often impact voice control leading to stammering or feeling like there is a "frog in your throat." A researcher from the University of Missouri has found that there is more to vocal issues than just feeling nervous and that stress-induced brain activations might be to blame.

Maria Dietrich, associate professor of speech, language and hearing sciences in the MU School of Health Professions, studies voice disorders. In a [pilot study](#), Dietrich expanded on the Trait Theory of Voice Disorders, often used in understanding functional voice disorders. She discovered that stress-induced [brain](#) activations could lead to voice disorders such as muscle tension dysphonia, a disorder from excessive or altered muscle tension in and around the voice box changing the sound or feel of one's [voice](#).

"For many, public speaking can be a stressful situation," Dietrich said. "We know that stress can trigger physiological changes such as muscle tension and that can impact our speech. The new findings will help researchers better understand the relationship between stress and vocal control and will allow us to pinpoint the brain activations that impact voices to identify better treatments for [disorders](#)."

For the study, [young women](#) who were pre-screened to participate were told that they had to prepare for a five-minute impromptu speech about why they were the best candidate for a job. The speech preparation test

served as a stressor while participants were asked to read sentences but were never prompted to give their speech. Researchers collected samples of saliva to test for cortisol, the body's main stress hormone, in intervals before the stressor until approximately 50 minutes after.

During the study, participants were asked a series of questions to assess their emotional state. Throughout the experiment, MRI scans were taken of the participants for the researchers to see brain activations and how they impacted speech with and without stressful speech preparation.

Dietrich found that there were differences in stress-induced brain activations related to [speech](#). Participants who exhibited higher cortisol responses also exhibited brain activity that impacted the larynx region in the brain and had lower scores on aspects of extraversion.

"Our findings are consistent with theories of vocal traits related to personality," Dietrich said. "Those who are more introverted are more likely to have stress reactions related to speaking and their brains are registering that stress, which could impact their vocal control."

Dietrich offers the following advice for those who feel stressed about public speaking:

- Don't worry about the audience not smiling. Just because people might not be reacting to your public address, it doesn't mean they are judging you.
- Present with an inner smile and remember to breathe. Taking a deep breath can go a long way to calm nerves.
- Acknowledge that feeling nervous is normal.

More information: Maria Dietrich et al, Limbic and cortical control of phonation for speech in response to a public speech preparation stressor, *Brain Imaging and Behavior* (2019). [DOI:](#)

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