

Do songbirds hold key to stuttering?

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A team of Michigan State University scientists will investigate the brain and behavior of the zebra finch in the first in-depth study of whether stuttering stems from a lack of rhythm. Credit: Michigan State University

A tiny Australian songbird may hold the answer to discovering the biological source of stuttering, which affects 3 million Americans and is notoriously difficult to treat.

A team of Michigan State University scientists will investigate the brain and behavior of the zebra finch in the first in-depth study of whether

stuttering stems from a lack of rhythm.

J. Devin McAuley, the project's lead investigator, believes stuttering is caused by the brain's inability to process rhythm, or an internal beat, when speaking. The theory is supported by the fact that stutterers often lose their stutter when singing or when speaking along with a [metronome](#), which provides that much-needed beat externally.

"Rhythm is central to vocal learning," said McAuley, associate professor of psychology. "And because [zebra finches](#), like humans, are vocal learners, they have tremendous potential to serve as a model for the rhythm processing that occurs in the brain."

The study is supported by the Grammy Foundation, which, along with the Grammy Awards, is run by the California-based Recording Academy.

The project includes studies with both songbirds and children. McAuley said the researchers have collected preliminary data that for the first time shows rhythm processing-related differences between children who stutter and those who don't. That line of research will continue.



Zebra finches could hold the key to finding the biological source of stuttering. The male finch, right, learns to sing early in life. The female, left, does not sing. Credit: Michigan State University

Studying the zebra [finches](#) in a laboratory setting will allow the researchers to learn even more, which could include pinpointing which [parts of the brain](#) are responsible for processing rhythm.

Zebra finches learn to sing in their first three months of life. Only males sing, and they sing the same song for their entire [adult life](#), said Juli Wade, a project investigator who has researched the zebra finch for more than 20 years.

The project is in the early stages, but may eventually involve raising [songbirds](#) under conditions that will induce stuttering – and then figuring out ways to eliminate it.

Ultimately, the research could lead to advances in treating stuttering. Children who [stutter](#) face lifelong struggles that can affect academic achievement and lead to negative psychological and social consequences.

"If we can understand the areas in the brain associated with stuttering, then therapies can potentially be developed to alleviate the disorder," said Wade, professor and chair of the Department of Psychology.

Provided by Michigan State University

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