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# Recognizing voices harder for people with dyslexia

By | [Associated Press](#)



WASHINGTON – Pick up the phone and hear, "Hey, what's up?" Chances are, those few words are enough to recognize who's speaking — perhaps unless you have dyslexia.

In a surprise discovery, researchers found adults with that reading disorder also have a hard time recognizing voices.

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The work isn't just a curiosity. It fits with research to uncover the building blocks of literacy and how they can go wrong. The eventual goal: To spot at-risk youngsters even before they open "Go, Dog, Go!" in kindergarten — instead of diagnosing dyslexia in a struggling second-grader.

"Everybody is interested in understanding the root cause of dyslexia, so we can intervene early and do something about

it," says Massachusetts Institute of Technology cognitive neuroscientist John Gabrieli, senior author of the study published last week in the journal Science.

Dyslexia is thought to affect 8 percent to 15 percent of Americans, who can have great difficulty reading and writing. It's not a problem with intelligence or vision. Instead, it's language-based. The brain struggles with what's called "phonological processing" — being able to distinguish and manipulate sounds, like "bah" and "pah," that eventually have to be linked to written letters and words.

A graduate student in Gabrieli's lab wondered if dyslexia would impair voice recognition as well. After all, subtle differences in pronunciation help distinguish people.

How to test that? Previous studies have shown it's easier to recognize voices if they're speaking your own language. So the researchers recruited English-speaking college students and young adults, half with dyslexia, half without. They watched animated characters — like a clown, a mechanic, a soccer player — speaking either English or Chinese, to get familiar with how they sounded.

Then came the test, to match a voice to its character. The volunteers correctly identified the Chinese speakers only about half the time, regardless of whether they had dyslexia. But when they heard English speakers, people with dyslexia still were right only half the time — while the non-dyslexics did far better, identifying 70 percent of the voices correctly.

That provides further evidence of dyslexia's strong link to phonological impairment.

Perhaps more importantly, it's a cleverly designed project that begs the question of whether voice recognition is a problem in young children, too, says Florida State University psychology professor Richard Wagner, who studies how to identify dyslexia early.

Gabrieli says he plans to test 5-year-olds.

Today, researchers know that children who are more phonologically aware when they enter kindergarten have a better shot at easy reading. One way to check that: See how they're able to delete sounds from words — ask them to quickly say "cowboy" without the "boy." Wagner says a child who answers such tasks correctly probably is developing fine. One who fails doesn't necessarily have problems but merely could have misunderstood or not wanted to play along. He says more clear-cut methods are needed.

Differences in brain-processing show up even in infants, says Patricia Kuhl of the University of Washington, who studies how babies learn language.

A colleague in her lab tested how well babies could distinguish "ah" and "ee" sounds between ages 7 months and 11 months of age. Those who did best wound up with bigger vocabularies and better pre-reading skills, such as rhyming, by their fifth birthdays. That doesn't mean they'll go on to experience dyslexia, but it does show how very early development can play a role in reading-readiness.

But Kuhl says the voice-recognition study has broader implications for brain science. It shows that for split-second recognition, the brain's social-oriented right side works together with the speech-perception region of the left brain.

People with dyslexia apparently are missing out on some of that interaction.

That interaction, too, begins to appear early. At age 7 months, babies listening to recordings of their native language can recognize if there's a change in speakers, but they miss that speaker change if they're listening to a foreign language, she says. Scientists now have to figure out that neural wiring to learn how it goes awry.

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EDITOR'S NOTE — Lauran Neergaard covers health and medical issues for The Associated Press in Washington.



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**Conversation**

