Scientists discover more clues to stuttering

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(HealthDay)—A blend of brain circuits are altered in people who stutter, new research indicates.

Using an imaging technique that looks at brain cell metabolism, scientists learned that changes in areas involved in speech, attention and emotion are all linked to stuttering.

Stuttering is characterized by involuntarily repeating certain sounds, syllables or words when speaking.

The imaging method used for the study is known as proton magnetic resonance spectroscopy (MRS). "It is a fundamental measure of the density of [nerve] tissue in these circuits that seem to not have developed properly," said study author Dr. Bradley Peterson. He's director of the Institute for the Developing Mind at Children's Hospital Los Angeles.

"Moreover, the [extent] of the abnormalities seems to relate to the severity of stuttering as well," he added. "This provides an important road map to developing interventions."

Typically beginning between the ages of 2 and 5, stuttering affects about 1 percent of the world's population, according to the National Stuttering Association. More boys than girls are affected, but as many as 80 percent of preschool children who stutter eventually outgrow it. Various forms of speech therapy can improve the condition.

Peterson and his team performed proton MRS imaging on the brains of 47 children and 47 adults, including people who stuttered and people who didn't.

The researchers found that affected brain regions linked to stuttering included a speech-production network; the so-called default-mode network, involved in regulating attention; and the emotional-memory network, involved in regulating emotion.

Unlike prior research, which used an imaging technique known as

functional MRI, this first-of-its-kind study "provided a different window of information into the brain," said Peterson. He's also director of the division of child and adolescent psychiatry at the Keck School of Medicine of the University of Southern California.

"This really did corroborate what we anticipated to find," he said. "I was surprised, though, how robust the findings were. I think this modality of imaging is a very powerful one."

Jane Fraser, president of The Stuttering Foundation of America, noted that prior research had also established a connection between stuttering and emotions, such as anxiety.

"So there's nothing new here, but what's interesting is that this is a new view of it," she said. "People are beginning to see that the entire brain takes part" in stuttering.

Fraser took exception to the research's designation of stuttering as a "neuropsychiatric" disorder, contending instead that it's a developmental disorder, since eight of 10 children affected eventually outgrow the condition.

"I think one of the messages is that early intervention is important," Fraser said. "The other is, don't think your child is stuck with something, no matter what it is, because we know with the plasticity of the brain there's a great deal of hope."

The research was published online recently in the *Journal of the American Medical Association*.

More information: The Stuttering Foundation offers tips to parents for talking with their child about stuttering.