

NEWS

# Imaging study hints at compensation in verbal teens with autism

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Adolescents with autism who have good verbal skills show enhanced structural connections in brain regions involved in processing and integrating sounds. The findings hint at a compensatory mechanism in these individuals.

Researchers presented the unpublished results today at the **2016 Society for Neuroscience annual meeting** in San Diego.

Specifically, they reported, these adolescents with autism show enhanced white matter pathways — the long neuronal projections that make connections between distant brain areas.

Up to 30 percent of people with autism are nonverbal or minimally verbal, but **only a handful of brain imaging studies** have included these individuals, says Jenn Segawa, a postdoctoral researcher in **Frank Guenther**'s lab at Boston University who presented the work.

"It's very difficult to get these children in the scanner," Segawa says. Children with poor communication skills have an especially **difficult time lying still** and following instructions.

Segawa and her colleagues scanned the brains of 9 adolescents with autism and varying degrees of language impairment. One of the participants is nonverbal, two of them have fewer than 5 words, and the remaining six participants speak between 5 and 10 words.

The researchers also scanned 5 adolescents with autism and good verbal skills, and 11 typical controls, all between 13 and 20 years old.

The researchers found no difference in the **degree of head movement** in the scanner among the different groups.

Compared with controls, adolescents with autism have weak white matter pathways connecting regions in the left hemisphere of the brain involved in planning and forming the mouth movements needed for speech. All of the participants with autism show this feature, but it is especially pronounced in the language-impaired adolescents.

In the right hemisphere of the brain, adolescents with autism who have good verbal skills show stronger white matter pathways in areas involved in processing and integrating sounds than either of the other groups.

These robust connections may represent a mechanism that allows some people with autism to compensate for the weak pathways in the left hemisphere, the researchers say. The findings suggest that strengthening the ability to process and integrate sounds may help improve speech in language-impaired people with autism.

*For more reports from the 2016 Society for Neuroscience annual meeting, please [click here](#).*