NEWS

Sight may mix with sound in autism brains

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People with autism may use visual areas of the brain to process sounds, which could help explain why they have trouble with this task. Researchers presented the unpublished findings yesterday at the **2016 International Meeting for Autism Research** in Baltimore.

The researchers also found that people with autism have slightly more difficulty than controls quickly distinguishing a high note from a low one.

Together, the findings suggest that people with autism cannot readily distinguish between two tones because they recruit the wrong sensory region in the brain for the task. Alternatively, they may be recruiting visual regions to compensate for weak activity in the brain regions that process sound, says R. Joanne Jao Keehn, a postdoctoral fellow in **Ralph-Axel Müller**'s lab at San Diego State University, who presented the findings.

Jao Keehn and her colleagues performed functional magnetic resonance imaging on 16 children and teenagers with autism, aged 8 to 18 years, and 16 controls of similar age and intelligence quotient. While in the scanner, the children heard a sequence of 36 tones — which lasted for two seconds each — some high-pitched and others low-pitched.

They then watched a screen displaying a series of rectangles containing a black circle in either the top or the bottom half. For both experiments, the children were told to press one button to indicate that the stimulus was 'high,' and another if it was 'low.' Interspersed with the tones and rectangles were neutral stimuli: Either two seconds of silence or an empty rectangle.

Seeing sound:

The children with autism correctly chose the pitch of the tone about 83 percent of the time, compared with 93 percent for controls. By contrast, both groups performed well, in the mid-90 percent range, on the visual task.

The researchers then looked at activity in the visual cortex when the children heard the tones, compared with the silent periods. As expected, the visual cortex shut down in the typical individuals when they listened to the sounds.

By contrast, this region became more active in the participants with autism when the tones were played. A direct comparison of the two groups revealed that the difference in activity is localized to a part of the visual cortex called the left lingual gyrus.

This sensory crossover tracks with autism severity, as measured by the Autism Diagnostic Observation Schedule: The participants with higher scores on this test were more likely than those with lower scores to have active visual brain regions when detecting sounds.

The finding suggests that people with autism have unusual sensory processing even during basic tasks, says Jao Keehn. The results may help to explain why these individuals often experience **unusual sensory sensitivities**.

*For more reports from the 2016 International Meeting for Autism Research, please **click here**.*

REFERENCES:

1. Jao Keehn R.J. *et al. Autism Res.* Epub ahead of print (2016) **PubMed**