NEWS

Brains of people with autism may be enlarged throughout life

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The brain enlargement commonly seen in toddlers with autism may persist into adolescence and adulthood, suggests one of the largest studies to measure brain volume in people with the condition. Researchers presented the unpublished results today at the **2016 Society for**

Neuroscience annual meeting in San Diego.

A spate of studies from the past decade suggest that some people with autism **have larger-than-average brains as toddlers**, but this difference **disappears during adolescence**.

The new study calls this trend into question. The researchers used magnetic resonance imaging (MRI) to scan the brains of 254 people with autism and 223 controls. The participants range in age from 6 to 25 years, and have intelligence quotient (IQ) scores between 47 and 158.

All of the data come from the same scanner and were analyzed in the same way, minimizing any **distortions in the data** due to variation between machines and methods.

The researchers found that brain volume is nearly 3 percent greater, on average, in people with autism compared with controls. This difference does not change significantly with the age of the participants.

“We see a persistent brain size difference, and the trajectory is not changing in this age range,” says **Lisa Yankowitz**, a graduate student in **Robert Schultz**’s lab at the University of Pennsylvania in Philadelphia, who presented the findings. “It’s not as though we’re only seeing this because the young kids are bigger — we just do not see evidence for normalization happening across this age range.”

Conflicting results:

The researchers also found that brain volume increases with IQ in controls — a well-known finding that has **previously been reported** — but this relationship is absent in the autism group. “For some reason, despite having this greater neurobiological computational space, the kids with [autism] aren’t able to leverage that into increased cognitive processing ability,” Yankowitz says.

This result may help to explain why the new findings are at odds with those from previous studies. In the other studies, IQ scores of the autism and control groups may have differed, which might have masked any differences in brain volume. “If you have a low-IQ [autism] sample, and a high-IQ typically developing sample, which is pretty typical of these kinds of studies, then you’ll see no difference in brain volume,” Yankowitz says.

The researchers found that the increased brain volume in the autism group is driven in part by an increase in gray matter, the cell bodies of neurons. They found that people with autism have increased gray matter volume in the temporal lobes, which process social stimuli such as language and faces, and in the frontal lobe, which is involved in thinking and decision-making.

The autism group also shows some regions with an increased volume of white matter, which is made up of nerve fibers. These regions include the cerebellum, which controls movement, as well

as the temporal lobes.

*For more reports from the 2016 Society for Neuroscience annual meeting, please **click here**.*