

Evidence found of link between gut microbe deficiency and autism spectrum disorder

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A team of researchers affiliated with a host of institutions in China has found evidence of a gut microbe deficiency in children who develop autism spectrum disorder (ASD). In their paper published in the journal

Science Advances, the group describes their study of gut microbes in ASD children and what they found.

Prior research has suggested that problems with the gut microbiome may be behind the onset of ASD in affected children, but what those problems might be has remained a mystery. In this new effort, the researchers may have taken another step toward solving that mystery.

The work involved collecting [stool samples](#) from 39 children diagnosed with ASD, and also from 40 children who did not have the disorder. But because large gut biome differences are common between people, the researchers were careful to choose children for the study who would normally have similar biomes due to age, where they lived and other factors. Each of the stool samples were subjected to metagenomic sequencing to determine if there were noticeable differences between the children with ASD and those who did not have it.

The team focused most specifically on 18 microbial species that have previously been linked to ASD. In so doing, the team found differences in the ratios of detoxifying enzymes in the children with ASD compared to those who did not. Feeling they were onto something, the team further tested another 65 children with ASD and found the same results. They suggest that ASD likely develops in [children](#) due to a [gut microbiome](#) impact on the detoxification process in the gut. And this, in turn, allows environmental toxins to enter the bloodstream where they injure mitochondria in [brain cells](#), leading to symptoms related to ASD.

The researchers acknowledge that more work is required, but also suggest that it might be possible to create a therapy that assists in the detoxification process, thereby heading off the onset of ASD—or better yet, to overcome the elements that lead to detoxification problems in the first place.

More information: Mengxiang Zhang et al. A quasi-paired cohort strategy reveals the impaired detoxifying function of microbes in the gut of autistic children, *Science Advances* (2020). [DOI: 10.1126/sciadv.aba3760](https://doi.org/10.1126/sciadv.aba3760)

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