



**Medical
Blueprints**

TALKING AUTISM: BOYS vs GIRLS REPORT #2693

BACKGROUND: Autism spectrum disorder (ASD) is a developmental disability that can cause significant social, communication and behavioral challenges. People with ASD may communicate, interact, behave, and learn in ways that are different from most other people. The learning, thinking, and problem-solving abilities of people with ASD can range from gifted to severely challenged. A diagnosis of ASD now includes several conditions that used to be diagnosed separately: autistic disorder, pervasive developmental disorder not otherwise specified (PDD-NOS), and Asperger syndrome. These conditions are now all called autism spectrum disorder. About 1 in 59 children has been identified with ASD, and it is about 4 times more common among boys than among girls. Studies have shown that parents of children with ASD notice a developmental problem before their child's first birthday. Concerns about vision and hearing were more often reported in the first year, and differences in social, communication, and fine motor skills were evident from 6 months of age.
(Source: <https://www.cdc.gov/ncbddd/autism/facts.html>)

AUTISM: BOYS VS. GIRLS: Between four and five times as many boys as girls are diagnosed with ASD each year. According to some researchers, the reason is that autism is an excessive expression of those aspects of brain development that are already pronounced in the male brain. The extreme male brain theory assumes that it is an overdevelopment in the male traits of cognition that causes ASD patients to over-systematize, leading to a breakdown of verbal and social capacities. Other studies have found correlations between fetal testosterone levels and ASD. Researchers in Canada undertook a genetic study of ASD patients and found that around one percent of the males tested had a mutation in a certain gene on their X-chromosome. If the mutation were found to be linked to ASD it could explain some of the preponderance of ASD among boys. Even more recently, scientists in Germany found a positive correlation between a thin cortex and the likelihood of an ASD diagnosis. Since women reliably have greater cortical thickness than men, this could indicate that the male brain is simply more vulnerable to whatever structural changes bring about ASD.
(Source: <https://www.appliedbehavioranalysisedu.org/why-are-boys-more-likely-to-have-autism/>)

POTENTIAL TREATMENT: A breakthrough in finding the mechanism and a possible therapeutic fix for autism and intellectual disability has been made by a University of Nebraska Medical Center researcher and his team at the Munroe-Meyer Institute (MMI). Woo-Yang Kim, PhD, associate professor, developmental neuroscience, led a team into exploring a genetic mutation that reduces the function of certain neurons in the brain. "This is an exciting development because we have identified the pathological mechanism for a certain type of autism and intellectual disability," Dr. Kim said. Recent studies have shown that the disorder occurs when a first-time mutation causes only one copy of the human AT-rich interactive domain 1B (ARID1B) gene to remain functional, but it was unknown how it led to abnormal cognitive and social behaviors. The next steps are to further refine the specific mechanism for autism and intellectual disability and to identify which of the many GABA neurons are specifically involved.
(Source: <https://medicalxpress.com/news/2017-11-breakthrough-potential-treatment-autism-intellectual.html>)

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