

What's New in Autism Research

Autism continues to be a much discussed topic in mental health, medicine, education, and social media. The number of persons identified as autistic continues to climb, at least in the United States. There are now school classes devoted exclusively to autistic children, support groups for autistic adults, and a myriad of self-help books for autistics, their families and friends. Yet one of the biggest questions about autism these days is how to define it. There are numerous scales and diagnostic guides available, with overlapping but not identical criteria for diagnosis, which sometimes results in persons with the diagnosis who do not seem to have much in common. As one famous clinician noted, "If you've seen one autistic child, you've seen one autistic child."

This variability has led the American Psychiatric Association to redefine autism as a spectrum disorder, with basically two broad dimensions: impaired social interactions and restricted, repetitive interests. Along this continuum are people with high IQ's and people with low IQ's, people without language and people who speak fluently, people with movement disorders and people without them, people who are sensitive to sounds and others sensitive to tastes, or texture.

So what accounts for such variability within a single diagnosis? In March of this year (2017) the International Convention of Psychological Science in Vienna, Austria shed some light on that question. Dr. Thomas Bourgeron Ph.D., a geneticist at the Pasteur Institute in France, presented his research on the genetics of autistic disorders. His team looked for genetic commonalities among hundreds of persons with various autistic features. As might be expected for a spectrum disorder, they found that some ASD's had one or more variants of the same gene, while others with the disorder had single variants of several genes. Some of these variations were linked to specific behaviors (such as flicking fingers) and some to sensitivities (such as to loud noise). Several were on the X chromosome, which means mothers can pass the traits to their sons without having the traits themselves (mothers have two copies of the X chromosome while their sons only have one).

Dr. Bourgeron's team also looked at tens of thousands of DNA samples from the general public, obtained from people who paid to have their genomes sequenced by the genetic company 23&Me. These participants also agreed to take an online version of the Reading the Mind in the Eyes Test, which taps into a skill that is difficult for many autistic persons. They found a variety of genes that contributed to differences in scores on this test, again suggesting that some aspects of autism have many different genes contributing to them.

After identifying several specific gene variations in persons diagnosed with autism, Dr. Bourgeron's team examined what biological functions are affected by these genes. Some are important in the development and structure of synapses, which are the junctions between neurons in the brain and nerves. Synapses in the inner ear are implicated in transmitting sound, which may explain why some persons with ASD are so sensitive to noise or certain kinds of sounds.

Another way to examine the biological functions of these genes is to make them dysfunctional or knock them out in other animals, such as mice, and then observe their behavior. Videos of the “knock-out” mice revealed striking differences in their activity level, social interactions, and vocalizing compared to normal mice.

So what conclusions can we draw from these genetic studies? First, the genetic underpinnings of autism may not be identical for everyone with the diagnosis. Second, there are likely to be many genetic variations that contribute to the various aspects of autism. Third, many persons who don’t meet criteria for autism probably have gene variants that contribute to autism. Fourth, human beings are not the only creatures to display autistic features. Fifth, there is yet no well-defined genetic pattern of gene variations that result in the hallmarks of the disorder. Finally, because there is so much variation in the genetic profiles of persons with ASD, there may be no single genetic “cure” for it.

It is important to remember that many people share partial symptoms of psychiatric disorders. Likewise many people without diagnosable conditions carry genetic variants that contribute to psychiatric disorders. Future research will help us understand not only which genes are linked to disorders such as autism but also how they affect everyone else.

If you are interested in your own autistic tendencies, check out these two online tests:

Read the Mind in the Eyes Test at

<https://www.questionwritetracker.com/quiz/61/Z4MK3TKB.html>

Autism Spectrum Quotient Test at

[Autism Spectrum Quotient - Psychology Tools](https://psychology-tools.com/autism-spectrum-quotient)

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