What is Autism?

*Autism spectrum disorder* (ASD) and *autism* are both general terms for a group of complex disorders of brain development characterized, in varying degrees, by difficulties in social interaction, verbal and nonverbal communication and repetitive behaviors. Though there are strengths and unique abilities associated with the disorder, autism is most often defined based on “deficits” and “symptoms” because the definition from the *American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders* (DSM) is science-based and the manual is used to describe disorders for diagnosis. With the May 2013 publication of the fifth edition of the DSM (commonly referred to as the DSM-5), all autism disorders were merged under one umbrella diagnosis of ASD. Previously, they were recognized as distinct subtypes, including autistic disorder, childhood disintegrative disorder, pervasive developmental disorder-not otherwise specified (PDD-NOS) and *Asperger Syndrome*. Individuals with well-established diagnoses of these disorders prior to the publication of the DSM-5 should now be given the diagnosis of autism spectrum disorder.

Under the current DSM-5, there are two domains where people with ASD must show persistent deficits. They include:

1. **persistent social communication and social interaction**
2. **restricted and repetitive patterns of behavior**

More specifically, people with ASD must demonstrate deficits (either in the past or in the present) in social-emotional reciprocity, nonverbal communicative behaviors used for social interaction, as well as deficits in developing, maintaining and understanding relationships. In addition, they must show at least two types of repetitive patterns of behavior including:

- stereotyped or repetitive motor movements
- insistence on sameness or inflexible adherence to routines
- highly restricted, fixated interests
- hyper- or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment

The DSM-5 also added an additional category called *Social Communication Disorder* (SCD). This allows for a diagnosis of disabilities in social communication, without the presence of repetitive behavior. SCD is a new diagnosis and much more research and information is needed to better understand it. There are currently few guidelines for the treatment of SCD. Until such guidelines become available, treatments that target social-communication, including many autism-specific interventions, should be provided to individuals with SCD.

To read the whole DSM-5 criteria, please visit [autismspeaks.org/dsm-5](http://autismspeaks.org/dsm-5).
How Common is Autism?

While no studies have been able to confirm the prevalence rate for adults and more research is needed, autism statistics from the U.S. Centers for Disease Control and Prevention (CDC) released in March 2014 identify around 1 in 68 American children as on the autism spectrum – a ten-fold increase in prevalence in 40 years. Careful research shows that this increase is only partly explained by improved diagnosis and awareness. Studies also show that autism is four to five times more common among boys than girls. An estimated 1 out of 42 boys and 1 in 189 girls are diagnosed with autism in the United States.

ASD affects over 2 million individuals in the U.S. and tens of millions worldwide. Government autism statistics suggest that prevalence rates have increased 10 to 17% annually in recent years. There is no established explanation for this continuing increase, although improved diagnosis and environmental influences are two reasons often considered.

What Causes Autism?

Not long ago, the answer to this question would have been, “we have no idea.” Research is now starting to deliver the answers. First and foremost, we now know that there is no one cause of autism, just as there is no one type of autism. Over the last five years, scientists have identified a number of rare gene changes or mutations associated with autism. Research has identified more than 100 autism risk genes. In around 15% of cases, a specific genetic cause of a person’s autism can be identified. However, most cases involve a complex and variable combination of genetic risk and environmental factors that influence early brain development. In other words, in the presence of genetic predisposition to autism, a number of non-genetic or environmental influences further increase an individual’s risk.

“Half my life was a long hard struggle where ‘I was not playing with a full deck’ in terms of negotiating the world before my diagnosis. After my diagnosis, ‘the light bulb went on’ and I found a huge population just like me with the same struggles. At this point, my life started falling into place and over time, after my diagnosis, I gained a much better understanding of myself and the world around me.”

- Paul Nussbaum

Some factors that have been identified to increase the risk of autism include parental age, extreme prematurity, difficulties during birth, mothers exposed to high levels of pesticides and air pollution. It is important to keep in mind that these factors, by themselves, do not cause autism. Rather, in combination with genetic risk factors, they appear to modestly increase risk.