

Autism Spectrum Disorder

_Reviewed by Psychology Today Staff

Autism Spectrum Disorder (ASD) is a developmental disorder that involves impairments in social interaction and communication, challenges with [sensory processing](#), and repetitive behaviors. The term "spectrum" reflects the fact that symptoms vary across different individuals, ranging in type and severity.

ASD is an umbrella diagnosis in the [DSM-5](#), replacing the four pervasive developmental disorders described in the previous edition — [autistic disorder](#), [Asperger's syndrome](#), [childhood disintegrative disorder](#), and pervasive developmental disorder not otherwise specified. Individuals display ASD symptoms on a continuum, or spectrum, showing ranges of mild to severe symptomatology. Those on the mild-to-moderate end of the spectrum are sometimes colloquially referred to as having [Asperger's syndrome](#), though this is no longer a formal diagnostic category.

People with autism may appear indifferent and remote and can have difficulty forming emotional bonds with others. They may have unusual responses to sensory experiences — the noise of a leaky faucet, for example, might become extremely disruptive.

Autism is found in many different countries and across racial, ethnic, religious, and economic backgrounds. Its prevalence has been estimated at roughly 1 percent of the world population. In a study by the Centers for Disease Control and Prevention (CDC), 1 in 59 U.S. children were identified as having ASD. The earlier the disorder is diagnosed, the sooner a child can be helped through treatment interventions.

Symptoms

The [DSM-5](#) diagnostic criteria for [Autism Spectrum Disorder](#) include:

- Persistent deficits in communication and social interaction. These may include:
 - a lack of responsiveness during social interactions.
 - abnormalities in the use of gestures, eye contact, or facial expressions.
 - no interest in peers or difficulty understanding relationships.
- Restricted and repetitive behaviors and interests, such as:
 - specific movements or spoken phrases.
 - insistence on "sameness" and routines.
 - intense, limited interests in particular objects.

- low or high levels of sensitivity to the sensory environment, including sights, sounds, or smells.
- Symptoms are present early in a child's development and cause "clinically significant impairment in social, occupational, or other important areas of current functioning."

DSM-5 further describes three levels of severity for symptoms related to social communication and restricted, repetitive behaviors.

- Social communication
 - Requiring very substantial support: Severe impairments and limitations in social functioning, with minimal initiation of social interactions or response to social approaches by others.
 - Requiring substantial support: Deficits in communication and social interaction, with little initiation of social interactions and relatively little or abnormal response to social approaches by others.
 - Requiring support: Deficits in social communication, with difficulty initiating social interactions and responding to social approaches by others; may seem to have relatively little interest in social interaction.
- Restricted, repetitive behaviors
 - Requiring very substantial support: Inflexible behavior and extreme difficulty dealing with change; behaviors interfere with functioning in all contexts.
 - Requiring substantial support: Inflexible behavior and difficulty dealing with change; behaviors interfere with functioning in a range of contexts.
 - Requiring support: Inflexibility significantly interferes with functioning in one or more contexts; challenges with organizing and planning limit the ability to be independent.

Symptoms of ASD tend to become apparent during the second year of a child's life, and doctors can often make a diagnosis by age 2. In more severe cases, symptoms may be recognizable earlier in life, while people with relatively subtle symptoms may not be diagnosed until adolescence or adulthood. In practice, according to the CDC, most children are not diagnosed until after age 4. Many children who have ASD exhibit average to above average intellectual ability.

While behavioral challenges worsen during adolescence in some children who have ASD, according to the DSM-5, most show improvements in later childhood and adolescence.

In some individuals, symptoms are better explained as [Intellectual Developmental Disorder](#) or global developmental delay. Those who have challenges with social communication but do not

exhibit other symptoms of Autism Spectrum Disorder may better match the criteria for [Social \(Pragmatic\) Communication Disorder](#).

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[Understanding Behavioral Therapy for Autism](#)

[How Many Children Have Autism? Estimates Continue to Rise](#)

[What Autism Isn't](#)

Causes

The specific causes of autism are not fully understood, but research indicates that genes interact with aspects of the environment to determine whether an individual has autism. Recent evidence suggests that the disorder may be caused by random genetic mutations, as it is associated with advanced maternal and/or paternal age at conception; such mutations would likely account for the great variability of impairment and neural systems involved.

There is also evidence that the disorder may be caused by failure of embryonic brain cells to undergo normal patterns of migration during early development, affecting later brain structure and wiring of nerve-cell circuits that control social skills, language, movement, and other abilities.

A sex imbalance in the number of affected children (four times more males than females) suggests the disorder may also be related to fetal exposure to abnormally high levels of testosterone in utero; many of the traits of autism are said to reflect male cognitive and behavioral preferences, such as orientation to detail rather than the big picture, affinity for things rather than social experience, facility for math and numbers, and even linguistic impairment; children with autism can accumulate a large vocabulary without being able to sustain a conversation.

A belief that autism is caused by standard childhood immunization with mercury-containing vaccines persists despite many studies discrediting the link and retraction of the original research paper linking autism to immunization.

Treatment

There is no cure for ASD, but early treatment can help mitigate the challenges associated with it. The National Institute of Mental Health advises that there is not one best treatment for all cases of ASD, but medical professionals can confer with diagnosed individuals and their families to determine an approach that works.

Therapeutic and educational interventions can help people with ASD learn important social and practical skills and reduce harmful behaviors.

[Applied Behavioral Analysis \(ABA\)](#) focuses on improving specific behaviors—such as communication, hygiene, and competence in domestic or job-related tasks—and minimizing negative behaviors, such as self-harm. ABA may be practiced with both children and adults and with individuals whose symptoms range from mild to severe. Therapists can work within schools, homes, and/or community centers to evaluate and modify treatment as it progresses.

Among other forms of therapy that can contribute to treatment are occupational therapy (OT), which aims to improve a variety of skills needed for daily life, such as dressing, eating, and fine motor movements (e.g., writing or coloring); sensory integration therapy, which can help someone with ASD deal with aversive sensory input (i.e. sights, sounds, touch); and therapy types that focus on verbal and nonverbal communication skills.

While existing drug-based treatments do not address the primary symptoms of ASD, a doctor may prescribe medication to help alleviate challenges such as aggression, hyperactivity, anxiety, or depression.

References

Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
National Institute of Mental Health
Centers for Disease Control and Prevention
Autism Speaks
Child Mind Institute
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