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Autism spectrum disorder

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Overview

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Autism spectrum disorder is a condition related to brain development that impacts how a person perceives and socializes with others, causing problems in social interaction and communication. The disorder also includes limited and repetitive patterns of behavior. The term "spectrum" in autism spectrum disorder refers to the wide range of symptoms and severity.

Autism spectrum disorder includes conditions that were previously considered separate — autism, Asperger's syndrome, childhood disintegrative disorder and an unspecified form of pervasive

developmental disorder. Some people still use the term "Asperger's syndrome," which is generally thought to be at the mild end of autism spectrum disorder.

Autism spectrum disorder begins in early childhood and eventually causes problems functioning in society — socially, in school and at work, for example. Often children show symptoms of autism within the first year. A small number of children appear to develop normally in the first year, and then go through a period of regression between 18 and 24 months of age when they develop autism symptoms.

While there is no cure for autism spectrum disorder, intensive, early treatment can make a big difference in the lives of many children.

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Symptoms

Some children show signs of autism spectrum disorder in early infancy, such as reduced eye contact, lack of response to their name or indifference to caregivers. Other children may develop normally for the first few months or years of life, but

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then suddenly become withdrawn or aggressive or lose language skills they've already acquired. Signs usually are seen by age 2 years.

Each child with autism spectrum disorder is likely to have a unique pattern of behavior and level of severity — from low functioning to high functioning.

Some children with autism spectrum disorder have difficulty learning, and some have signs of lower than normal intelligence. Other children with the disorder have normal to high intelligence — they learn quickly, yet have trouble communicating and applying what they know in everyday life and adjusting to social situations.

Because of the unique mixture of symptoms in each child, severity can sometimes be difficult to determine. It's generally based on the level of impairments and how they impact the ability to function.

Below are some common signs shown by people who have autism spectrum disorder.

Social communication and interaction

A child or adult with autism spectrum disorder may have problems with social interaction and communication skills,

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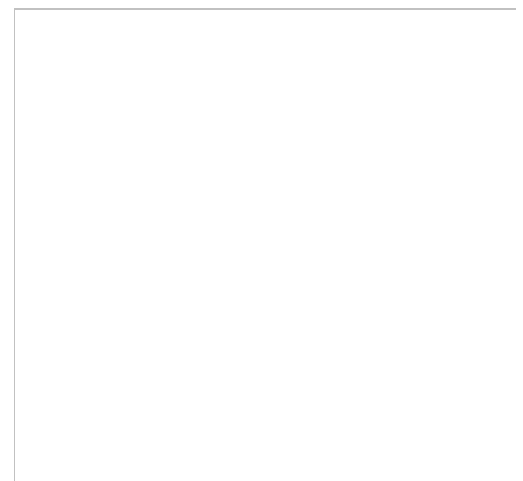
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including any of these signs:

- Fails to respond to his or her name or appears not to hear you at times
- Resists cuddling and holding, and seems to prefer playing alone, retreating into his or her own world
- Has poor eye contact and lacks facial expression
- Doesn't speak or has delayed speech, or loses previous ability to say words or sentences
- Can't start a conversation or keep one going, or only starts one to make requests or label items
- Speaks with an abnormal tone or rhythm and may use a singsong voice or robot-like speech
- Repeats words or phrases verbatim, but doesn't understand how to use them
- Doesn't appear to understand simple questions or directions
- Doesn't express emotions or feelings and appears unaware of others' feelings
- Doesn't point at or bring objects to share interest
- Inappropriately approaches a social interaction by being passive, aggressive or disruptive

- Has difficulty recognizing nonverbal cues, such as interpreting other people's facial expressions, body postures or tone of voice

Patterns of behavior

A child or adult with autism spectrum disorder may have limited, repetitive patterns of behavior, interests or activities, including any of these signs:

- Performs repetitive movements, such as rocking, spinning or hand flapping
- Performs activities that could cause self-harm, such as biting or head-banging
- Develops specific routines or rituals and becomes disturbed at the slightest change
- Has problems with coordination or has odd movement patterns, such as clumsiness or walking on toes, and has odd, stiff or exaggerated body language
- Is fascinated by details of an object, such as the spinning wheels of a toy car, but doesn't understand the overall purpose or function of the object
- Is unusually sensitive to light, sound or touch, yet may be indifferent to pain or temperature

- Doesn't engage in imitative or make-believe play
- Fixates on an object or activity with abnormal intensity or focus
- Has specific food preferences, such as eating only a few foods, or refusing foods with a certain texture

As they mature, some children with autism spectrum disorder become more engaged with others and show fewer disturbances in behavior. Some, usually those with the least severe problems, eventually may lead normal or near-normal lives. Others, however, continue to have difficulty with language or social skills, and the teen years can bring worse behavioral and emotional problems.

When to see a doctor

Babies develop at their own pace, and many don't follow exact timelines found in some parenting books. But children with autism spectrum disorder usually show some signs of delayed development before age 2 years.

If you're concerned about your child's development or you suspect that your child may have autism spectrum disorder, discuss your concerns with your doctor. The symptoms associated with the disorder can

also be linked with other developmental disorders.

Signs of autism spectrum disorder often appear early in development when there are obvious delays in language skills and social interactions. Your doctor may recommend developmental tests to identify if your child has delays in cognitive, language and social skills, if your child:

- Doesn't respond with a smile or happy expression by 6 months
- Doesn't mimic sounds or facial expressions by 9 months
- Doesn't babble or coo by 12 months
- Doesn't gesture — such as point or wave — by 14 months
- Doesn't say single words by 16 months
- Doesn't play "make-believe" or pretend by 18 months
- Doesn't say two-word phrases by 24 months
- Loses language skills or social skills at any age

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Causes

Autism spectrum disorder has no single known cause. Given the complexity of the disorder, and the fact that symptoms and severity vary, there are probably many causes. Both genetics and environment may play a role.

- **Genetics.** Several different genes appear to be involved in autism spectrum disorder. For some children, autism spectrum disorder can be associated with a genetic disorder, such

as Rett syndrome or fragile X syndrome. For other children, genetic changes (mutations) may increase the risk of autism spectrum disorder. Still other genes may affect brain development or the way that brain cells communicate, or they may determine the severity of symptoms. Some genetic mutations seem to be inherited, while others occur spontaneously.

- **Environmental factors.** Researchers are currently exploring whether factors such as viral infections, medications or complications during pregnancy, or air pollutants play a role in triggering autism spectrum disorder.

No link between vaccines and autism spectrum disorder

One of the greatest controversies in autism spectrum disorder centers on whether a link exists between the disorder and childhood vaccines. Despite extensive research, no reliable study has shown a link between autism spectrum disorder and any vaccines. In fact, the original study that ignited the debate years ago has been retracted due to poor design and questionable research methods.

Avoiding childhood vaccinations can place

your child and others in danger of catching and spreading serious diseases, including whooping cough (pertussis), measles or mumps.

Risk factors

The number of children diagnosed with autism spectrum disorder is rising. It's not clear whether this is due to better detection and reporting or a real increase in the number of cases, or both.

Autism spectrum disorder affects children of all races and nationalities, but certain factors increase a child's risk. These may include:

- **Your child's sex.** Boys are about four times more likely to develop autism spectrum disorder than girls are.
- **Family history.** Families who have one child with autism spectrum disorder have an increased risk of having another child with the disorder. It's also not uncommon for parents or relatives of a child with autism spectrum disorder to have minor problems with social or communication skills themselves or to engage in certain behaviors typical of the disorder.

- **Other disorders.** Children with certain medical conditions have a higher than normal risk of autism spectrum disorder or autism-like symptoms. Examples include fragile X syndrome, an inherited disorder that causes intellectual problems; tuberous sclerosis, a condition in which benign tumors develop in the brain; and Rett syndrome, a genetic condition occurring almost exclusively in girls, which causes slowing of head growth, intellectual disability and loss of purposeful hand use.
 - **Extremely preterm babies.** Babies born before 26 weeks of gestation may have a greater risk of autism spectrum disorder.
 - **Parents' ages.** There may be a connection between children born to older parents and autism spectrum disorder, but more research is necessary to establish this link.
-

Complications

Problems with social interactions, communication and behavior can lead to:

- Problems in school and with successful learning

- Employment problems
- Inability to live independently
- Social isolation
- Stress within the family
- Victimization and being bullied

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Prevention

There's no way to prevent autism spectrum disorder, but there are treatment options. Early diagnosis and intervention is most helpful and can improve behavior, skills and language development. However, intervention is helpful at any age. Though children usually don't outgrow autism spectrum disorder symptoms, they may learn to function well.

By Mayo Clinic Staff

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Jan. 06, 2018

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