

SENSORY SYSTEMS: Anatomy and Physiology, Second Edition

Children with a sensory processing disorder may have an increased or decreased sensitivity to sensory input, such as light, sound, and touch. They may avoid or seek out sensory stimulation as a result.

What is sensory processing disorder? Sensory processing disorder is a neurological condition in children that can affect the way the brain processes information from the senses. People with sensory processing disorder may be extra sensitive to or not react to sensory input, depending on how they are affected. Examples of sensory input may include: light

sound

taste

touch

smell Children who have sensory issues may have an aversion to things that overstimulate their senses, such as loud environments, bright lights, or intense smells. Or, they may seek out additional stimulation in settings that don't stimulate their senses enough. Not a great deal is known about sensory issues or sensory processing disorder. More research is still needed. Keep reading to learn more about the potential causes and symptoms of sensory processing disorder and how sensory issues can be treated.

What is sensory processing? You may have learned about the five senses in elementary school, but the truth is, you experience the world with more than just your five senses. Sensory processing is typically divided into eight main types. They can include: Proprioception. Proprioception is the "internal" sense of awareness you have for your body. It's what helps you maintain posture and motor control, for example. It also tells you about how you're moving and occupying space.

Proprioception is the "internal" sense of awareness you have for your body. It's what helps you maintain posture and motor control, for example. It also tells you about how you're moving and occupying space. Vestibular. This term refers to the inner ear spatial recognition. It's what keeps you balanced and coordinated.

This term refers to the inner ear spatial recognition. It's what keeps you balanced and coordinated. Interoception. This is the sense of what's happening in your body. It may be best understood as how you "feel." This includes whether you feel hot or cold and whether you feel your emotions.

This is the sense of what's happening in your body. It may be best understood as how you "feel." This includes whether you feel hot or cold and whether you feel your emotions. Five senses. Lastly, there are the 5 common senses "touch, hearing, taste, smell, and sight. It's important to note that sensory processing disorder isn't officially recognized by the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5). There is a lack of

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research-based evidence to support diagnosing this disorder on its own. Many doctors and experts believe that sensory issues are actually a component of another condition or disorder, such as autism spectrum disorder. The term "sensory processing disorder" is more commonly used in the field of occupational therapy. But what is known about sensory processing disorder can help parents, healthcare professionals, and other caregivers understand the condition and provide support.

What are the signs and symptoms of sensory processing disorder? The symptoms of having sensory processing issues may depend on the way a child processes different sensations. Children who are easily stimulated may have hypersensitivity. This means they have an increased sensitivity to sensory inputs like light, sound, and touch. These sensations may bother them more, cause them to lose focus in the presence of too much sensory information, or cause them to act out. Children may also experience hyposensitivity. This means they may have reduced sensitivity to sensory output. The type of sensitivity someone experiences may largely determine what their symptoms are. For example, children who are hypersensitive may react as though everything is too loud or too bright. These kids may have difficulty being in noisy rooms. They may also have adverse reactions to smells. Sensory hypersensitivity may cause: a low pain threshold

appearing clumsy

fleeing without regard to safety

covering eyes or ears frequently

picky food preferences or gagging when eating foods of certain textures

resisting hugs or sudden touches

feeling that soft touches are too hard

difficulty controlling their emotions

difficulty focusing attention

difficulty adapting responses

behavior problems In contrast, children who are hyposensitive and experience reduced sensitivity crave interaction with the world around them. They may engage more with their surroundings to get more sensory feedback. In fact, this may make them appear hyperactive, when in reality, they may simply be trying to make their senses more engaged. Sensory hyposensitivity may cause: a high pain threshold

bumping into walls

touching things

putting things into their mouth

giving bear hugs

crashing into other people or things

not regarding personal space

rocking and swaying

What causes sensory issues in children? It's not clear what causes sensory issues in children, though researchers believe it may have something to do with the way the sensory pathways in the brain process and organize information. Sensory processing difficulties are common in autistic people. It's also not clear if sensory issues can occur on their own or if they are caused by another disorder. Some doctors and healthcare professionals believe sensory processing issues are a symptom of another issue rather than a diagnosis in itself. According to a 2020 review and a small 2017 study, sensory processing disorder may be related to prenatal or birth complications, which can include: premature birth

low birth weight

parental stress

alcohol or drug consumption during pregnancy Overexposure to certain chemicals and a lack of sensory stimulation in childhood may also be risk factors for developing sensory processing disorder. Possible abnormal brain activity could change how the brain responds to senses and stimuli.

Are sensory issues part of another condition? Many doctors don't believe sensory issues on their own account for a separate disorder. But what is clear is that some people do have issues processing what they feel, see, smell, taste, or hear. In most cases, sensory issues occur in children, but adults can experience them too. Many children with altered sensory processing are on the autism spectrum. Conditions or disorders connected to sensory issues can include: Autism spectrum disorder (ASD). Autistic people may have changes to the neural pathways in their brain responsible for processing sensory information.

Autistic people may have changes to the neural pathways in their brain responsible for processing sensory information. Attention deficit hyperactivity disorder (ADHD). ADHD affects the ability to filter out unnecessary sensory information, which can lead to sensory overload.

ADHD affects the ability to filter out unnecessary sensory information, which can lead to sensory overload. Schizophrenia. In people with schizophrenia, abnormal mechanisms in the brain's sensory pathway and in the way it creates and organizes connections between neurons can cause altered sensory and motor processing.

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may be another potential cause of sensory processing disorder, according to 2019 research . It's important to note, however, that children with ADHD experience hyperactivity for a different reason than children who have sensory issues. People who have ADHD may have trouble concentrating or sitting still. People with sensory issues may have trouble sitting still because they crave sensory interactions with the world around them, or are bothered by their environment.

How are sensory issues diagnosed? Sensory processing disorder isn't an officially recognized neurological condition. This means there is no formal criteria for a diagnosis. Instead, doctors, educators, or healthcare professionals who help children with issues processing sensory information work from what they see in the child's behaviors and interactions to determine how to best support them. Generally, these sensory issues are highly visible. In some cases, professionals may use questionnaires such as the Sensory Integration and Praxis Tests (SIPT) or the Sensory Processing Measure (SPM). Both of these tests can help healthcare professionals and educators better understand a child's sensory functioning. Sometimes, a child's doctor may be able to work with the child's school psychologist or special education educator to help them access in-school supports like occupational therapy. When to see a doctor If you suspect your child has sensory issues, these signs may indicate it's time to consult a doctor: The behavior interrupts everyday life. When it's difficult to carry on a normal day, symptoms may be severe enough to discuss with a doctor.

When it's difficult to carry on a normal day, symptoms may be severe enough to discuss with a doctor. Symptoms take a dramatic turn. If your child is suddenly having difficulty standing or moving at all, it's time to see a doctor.

If your child is suddenly having difficulty standing or moving at all, it's time to see a doctor. Reactions have become too difficult to manage. There's no quick help for sensory issues. However, you may be able to help your child learn to manage their behavior with the help of trained professionals.

There's no quick help for sensory issues. However, you may be able to help your child learn to manage their behavior with the help of trained professionals. The sensory issues affect their learning. If sensory overload or sensory processing makes it difficult for your child to learn at school, your doctor may be able to evaluate them for a related condition or work with school psychologists to help them get additional classroom support.

Questions to ask a doctor When visiting a doctor to discuss concerns about your child's sensory processing, be sure

to ask any questions you may have about your child's behavior and how you can best support them. Some questions you may want to ask include: Is there a diagnosis that can explain my child's behavior?

Can you recommend any therapy that may help?

Will my child's sensory processing issues go away as they get older?

How can I support my child at home or in different environments?

How can I support my child at school?

How can I help my child if they experience sensory overload?

What's the treatment for sensory issues? There's no standard treatment for sensory issues or sensory processing disorder. However, some options for therapy may help. Occupational therapy An occupational therapist can help a child practice or learn to do activities they normally avoid because of sensory issues. In school, therapists may also work with a child's teacher to better support their sensory needs in the classroom. Physical therapy A physical therapist can help develop a sensory diet. This is a regimen of activities that are designed to satisfy the craving for sensory input. This can include doing jumping jacks or running in place. Additional supports like weighted or sensory vests or scheduled sensory breaks may also help. Sensory integration therapy Both occupational and physical therapy are part of sensory integration therapy. This approach may help children learn ways to appropriately respond to their senses. It's designed to help them understand how their experiences differ so they can figure out a more typical response. While there are reports of people being helped by sensory integration therapy, its effectiveness hasn't been proven by research yet. Is treatment covered by insurance? Because sensory processing disorder is not an officially recognized condition, treatment may not be covered by insurance. Check with your insurance provider to see if therapy, such as occupational therapy, may be covered. If your child has sensory processing issues due to another diagnosed condition, treatment for that condition may be covered by insurance. Coverage can vary according to your specific plan, so be sure to check with your insurance provider.

Ways parents can help Parents can help their child with sensory processing issues by advocating for them so they can get the support they need. This may include: talking with a doctor or pediatrician about the child's sensory

processing

talking with the child's teacher and school support staff about the child's sensory processing

seeking out support, including occupational therapy and physical therapy

frequently checking in with their child about what they are feeling

teaching their child how they can let adults know if they need a break or are feeling overstimulated

supporting their child's occupational or physical therapy goals with practice

What's the outlook for kids with sensory issues? There's no cure for sensory issues. Some children may experience fewer issues with age, while others may just learn to cope with the experiences. There is currently not a lot of research on the outlook for children with altered sensory processing. There may be a connection to certain mental health conditions, but more research is needed. Some doctors don't treat sensory issues by themselves but rather target the symptoms during overall treatment for a diagnosed condition, such as autism spectrum disorder or ADHD. If you believe your child has problems processing what they perceive with their senses and has no other underlying medical condition, validated treatment options may be limited. Because it's not considered an official disorder, not everyone is eager to treat or speculate on treatments that haven't been reliably shown to be effective in changing behaviors.

Reference

[Methods in Behavioral Research \(B&B Psychology\) Standalone Book](#)

[Pathophysiology of Heart Disease: An Introduction to Cardiovascular Medicine](#)