

Vestibular Dysfunction and Sensory Processing

VESTIBULAR AND AUTISM SPECTRUM DISORDERS

What is Sensory Integration Dysfunction or Sensory Integration Disorder?

Information received through the senses like sight, hearing, touch, taste, and smell activate nerve cells in the brain and spinal cord. Collectively, these cells are called the central nervous system. Once activated, the central nervous system takes data received from the senses and organizes it. From the organized data, the brain forms perceptions which motivate behaviour or influence learning ability.

Sensory integration occurs when the brain sifts the incoming sensory information and forms preferences to focus in on. Integration is what creates appropriate behaviour responses and learning. The senses supply information which leads to knowledge. For example, when a child with autism spectrum disorder touches a hot stove, experiential memory can prevent him from doing it again. However, when incoming information is scrambled, the brain can't make sense of the data. Faulty perception results in sensory integration dysfunction.

Vestibular System Sensory Processing – Autism Sensory Issues Vary:

Autism sensory issues don't fit into a neat little package. There are many senses that can get scrambled during sensory processing and many variables within each sense itself. The signs of sensory processing disorder in children with autism can, therefore, range from one extreme to another within each system. Most individuals know about the senses of taste, sight, hearing, smell, and touch; but there are many more. One less recognized is the vestibular system.

The vestibular system provides the brain with information about movement and balance, as well as space and gravity. Its receptors are located inside the inner ear. This sensory processing system is responsible for helping an individual maintain balance and coordination. It also detects body-position changes. The vestibular system sorts out body speed and direction, and tells the individual if he, or something around him, is moving left or right, if something is horizontal or vertical, and what's upside down.

Vestibular Dysfunction of the Vestibular System in Children with Autism:

In children with autism, vestibular dysfunction is particularly important because information gathered from other senses is processed in relation to the vestibular system. For example, visual processing includes spatial awareness like depth perception which will be inaccurate when spatial data from the vestibular system is incorrect. Individuals with vestibular dysfunction have difficulty integrating space, gravity, balance, and movement information. These difficulties can result in autistic children being under-sensitive to movement, extra-sensitive to movement, or a combination of both.

Signs of Sensory Processing Disorder – Vestibular System Hypersensitivity

Those with vestibular system hypersensitivity are often intolerant of movement. Turning around too quickly or standing up can throw the body's equilibrium out of balance. These children often appear clumsy, do strange and bizarre things, or fear movement activities. Signs of vestibular hypersensitivity are:

- uncoordinated or awkward movements
- loses balance, stumbles, or falls
- bumps into furniture, walks into walls, or misses the doorway
- unable to do tasks that require timing or sequencing
- strong dislike for, or an aversion to, swings and slides
- difficulty learning how to climb or go down stairs
- difficulty learning how to climb or go down hills or inclines
- fearful of crawling or walking
- doesn't like unstable surfaces

Signs of Sensory Processing Disorder – Vestibular System Hyposensitivity:

Those with vestibular system hyposensitivity generally have an increased need for movement and crave lots of vigorous activity like:

- hanging their head off the edge of the bed
- twirling and spinning around
- jumping up and down, or jumping off of things; no fear of heights
- exaggerated rocking movements
- constantly on the go; tons of energy
- doesn't seem to be able to sit still; appears hyperactive

Autism and Stimming Behaviours Often Coordinate with Sensory Disorders:

Autism and stimming behaviours often coordinate with particular sensory integration dysfunctions and may be another key that helps distinguish hypersensitive individuals from those who need more stimulation. When a child with autism is hypersensitive he tends to use stimming movements that calm down his overly-excited vestibular system like gentle swinging or rocking. Individuals who crave excess movement are more likely to seek out strong stimulating experiences like spinning, jumping, or running around in circles.

Learning the Signs of Sensory Processing Disorder Can Help ASD Children:

Sensory issues affect most children with autism and are of vital concern to parents and teachers. However, the signs of sensory processing disorder can range from under-sensitivity to over-sensitivity, or anywhere in between. Behaviour intervention for young children with autism begins with awareness, but few know about sensory processing systems outside of the body's five well-known senses. Vestibular dysfunction is one of the most important sensory issues to learn about because the brain organizes many perceptions in relation to the vestibular system.

The information provided can be found at About.com and Vestibular Disorders Association

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