

Disability Awareness Begins With You



Sensory Integration Dysfunction

Q: What is Sensory Integration Dysfunction?

A: Sensory Integration is the neurological process of organizing the information we get from our bodies and the world around us. It is a complex blending and interpretation of information that helps us function and perform daily activities. Along with our senses of sight, hearing, taste, smell and touch we have two more that tell us about our body. One is the proprioceptive system that gives us our sense of our body position when our eyes are closed. The other is the vestibular system that helps us figure out how our body is moving even with our eyes closed. All of these systems work together to tell us what is going on inside and outside our body.

Sensory Integration Dysfunction is a disorder where the brain has difficulty taking in, sorting out and/or connecting information from the surrounding world. Some symptoms include overly/under sensitive to touch, movement, sights or sounds, easily distracted, inability to unwind or calm self, speech delays and delays in academic achievement.

It's important to realize that the vestibular and auditory systems work together as they process sensations of movement and sound. These sensations are closely intertwined, because they both begin to be processed in receptors of the ear.

Audition, or hearing, is the ability to receive sounds. We are born with this basic skill. We can't learn how to do it, either we hear, or we don't. The ability to hear does not guarantee, however, that we understand sounds. We are not born with the skill of comprehension; we acquire it, as we integrate vestibular sensations. Gradually, as we interact purposefully with our environment, we learn to interpret what we hear and to develop sophisticated auditory processing skills. Some auditory processing skills include the following:

- **Auditory discrimination** - differentiating among sounds
- **Auditory figure-ground** - discriminating between sounds in the foreground and background
- **Language** - the meaningful use of words, which are symbols representing objects and ideas.

Language is a code for deciphering what words imply and how we use them to communicate. Language that we take in, by listening and reading, is call receptive. Language that we put out, by speaking or writing, is expres-

sive. Language and speech are closely related, but they are not the same. Speech is the physical production of sound. Speech skills depend on smoothly functioning muscles in the throat, tongue, lips, and jaw. The vestibular system influences motor control and motor planning that are necessary to use those fine muscles to produce intelligible speech.

Because the vestibular system is crucial for effective auditory processing, the child with vestibular dysfunction frequently develops problems with language. How do these problems play out? Here are some common characteristics of children with poor auditory-language processing:

- May seem unaware of the source of sounds and may look all around to locate where the sounds come from.
- May have trouble identifying voices or discriminating between sounds, such as the difference between bear and bore.
- May be unable to pay attention to one voice or sound without being distracted by other sounds.
- May be distressed by noises that are loud, sudden, metallic, or high-pitched, or by sounds that don't bother others.
- May have trouble attending to, understanding, or remembering what she reads or hears. She may misinterpret requests, frequently ask for repetition, and be able to follow only one or two instructions in sequence.
- May look to others before responding.
- May have trouble putting thoughts into spoken or written words.
- May talk off topic, e.g. talk about his new shirt when others are discussing a soccer game.
- May have trouble closing circles of communication. i.e. responding to others questions and comments.
- May have trouble correcting or revising what he has said in order to be understood.
- May have weak vocabulary and use immature sentence structure (poor grammar and syntax).
- May have difficulty with reading (dyslexia), especially out loud.
- May have trouble making up rhymes and singing in tune.
- May have difficulty speaking and articulating clearly.
- May improve her speaking ability after she experiences intense movement. Moving activates the ability to speak.

These children have nervous systems that do not always process that sensory input is "coming in" to the brain. They are under-

responsive to sensation. As a result, they seek out more intense or longer duration sensory experiences. Some behaviors that can be observed are:

- Hyper-activity as they seek more and more movement input
- Unawareness of touch or pain, or touching others too often or too hard (may seem aggressive)
- Engaging in unsafe behaviors, such as climbing too high
- Enjoying sounds that are too loud, such as TV or radio volume

Sensory Avoiding

These children have nervous systems that feel sensation too easily or too much. They are overly responsive to sensation. As a result, they may have "fight or flight" responses to sensation, a condition called "sensory defensiveness." Some behaviors that can be observed are:

- Responding to being touched with aggression or withdrawal
- Afraid of, or becomes sick with movement and heights
- Very cautious and unwilling to take risks or try new things
- Uncomfortable in loud or busy environments such as sports events, malls
- Very picky eater and/or overly sensitive to food smells

What is the Treatment?

The **Sensory Integration and Praxis Test** (SIPT) is a nationally standardized test battery which assesses children four to ten year of age for sensory integration dysfunction. Occupational Therapy (OT) is used to treat Sensory Integration Dysfunction. The goal of OT is to enable children to take part in the normal "occupations" of childhood - such as playing with friends, enjoying school, eating, dressing and sleeping - which are often problems for these children. Each child is provided with an individualized treatment plan. Direct treatment often occurs at a Children's Hospital or in a private practice setting. Therapists sometimes also consult at home or school. Parents are directly involved in treatment sessions so that they can learn more about their child and, together with the therapist, can figure out how to incorporate their family's priorities into treatment. The overall goals of Occupational Therapy are to improve Social Participation, Self-Esteem, Self-Regulation and Sensory-motor Abilities.

For more information:

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