CALIFORNIA CHILDCARE HEALTH PROGRAM

Health & Safety Notes

Difficulty in Processing and Organizing Sensory Information (Sensory Integration Dysfunction)

CHILDCARE HEALTHLINE

Sensory Integration is the ability to take in information provided by all the sensations coming from your body and the outside world, and to make sense out of it. Sensory Integration is necessary in order to be able to interact socially, to develop motor control, and to learn. Sensory Integration occurs in the brain. We tend to think of the senses as separate, but they work together to give us a dependable view of the world. We depend on good integration of our sensory functions to carry out our daily activities.

What is Sensory Integration Dysfunction?

Difficulty in processing and organizing sensory information, called Sensory Integration Dysfunction (SID), interferes with a child's ability to:

- learn,
- to achieve important developmental milestones
- to have healthy social relationships with caregivers and other children
- to feel good about themselves

Children with SID have normal intelligence. SID occurs in 5 to 15% of children.

Disorders in this area can affect our ability to function, but also often go unrecognized. In young children, problems with processing sensory information are often seen as behavior problems. Children with Sensory Integration Dysfunction (SID) may suffer from anxiety, depression, poor self-esteem and social isolation. It is important to identify these children early and provide early intervention to avoid the emotional and developmental effects of the disorder.

There are actually six senses

In addition to the five we were all taught about in school (sight, smell, sound, taste and touch) there also is another sense that we are not consciously aware of. This sense is called proprioception (pronounced PRO-pree-o-SEP-shun) and is our "position" sense, The ability to maintain balance depends on information that the brain receives from three different sources—the eyes, the muscles and joints (proprioception), and the vestibular organs in the inner ears. Proprioception helps us keep track of where our body parts are in space and what they are doing without our having to look at them or think about it.. For instance, when you close your eyes, how do you know where your right hand is? Children with proprioception problems may have problems with awkwardness, stiffness, or appear weaker than other children. They cannot feel where their body is in space. They must actually look at a body part to see where it is. Movement requires conscious effort and can be hard work.

The vestibular system or organ of balance

Proprioception works with the vestibular system, a fluid filled network within the inner ear, and is responsible for the sensation of balance and motion. Vestibular sensations provide information about where the head and body are in relation to the ground. Children with vestibular problems may dislike movement (think of how it feels to be seasick) or, at the other extreme, crave it, like the child who spins constantly. They may also have problems getting from one position to another or starting and stopping movement. They may have problems planning and carrying out actions.

What are the signs and symptoms?

Sensory problems are highly variable in different children and can range from mild to severe. Typically, children with SID have inconsistent responses to sensory information. They may be oversensitive to some types of sensory experiences and undersensitive to others, or even oversensitive to an experience one day and undersensitive to the same experience another day. For instance, a child may be hypersensitive to the feeling of lotions or other slimy substances on her skin and cry uncontrollably or act out when sunscreen is applied or her hair is shampooed, while also being hyposensitive to hard or

abrasive surfaces which she seeks out over and over again, even if it results in physical harm. It is like having a "volume control" for sensory experience that doesn't work properly and the child's threshold for response is either too low or too high. For example, the child may hear a police siren from blocks away and start to shriek. Children with SID may also have difficulty screening out sensory information that they don't need. These children are very distractible because they don't know what incoming sensory information is important to pay attention to and what should be "background," and best ignored, in order to attend to the task at hand. For instance, the child who cannot hear the teacher give a direction because he is listening to the sound of the sprinklers outside. All of this can be confusing for parents and caregivers. It may look like a behavioral problem or just a child's "quirky" personality rather than a problem with how a child's brain is "wired."

What causes Sensory Integration Dysfunction?

SID may occur with another diagnosis like autism or Attention Deficit Hyperactivity Disorder (ADHD) or anxiety disorder, but it can also occur on its own. There is evidence that children with SID have problems with their nervous system. There is also some evidence that SID is inherited through genes. Premature babies are at higher risk for SID, as are children adopted from orphanages in foreign countries. This is because the environments in many foreign orphanages have limited resources and children receive little exposure to sensory stimulation early in life. Environmental toxins may also play a role in SID.

When should a child be referred for an evaluation for SID?

The following behaviors may indicate a sensory processing problem:

- the child is disorganized
- the child has difficulty focusing on an activity
- the child crashes through his environment
- the child is clumsy or has poor balance or is accident-prone
- the child watches activities fearfully from the sidelines
- the child consistently avoids a certain type of sensory experience (for instance, loud noises.)

If these behaviors seem to be interfering with a child's ability to have meaningful social relationships with others, or achieve developmental milestones, she may need an evaluation for SID. The diagnosis is best made by an occupational therapist who has advanced training in sensory integration, after a thorough assessment.

How is Sensory Integration Dysfunction treated?

Occupational Therapy (OT) can help a child process, and manage his responses to, sensory information. Children with SID can make huge improvements with early intervention. A planned practical program of specific sensory activities is developed to fit each child's individual needs. The overall goals of OT are to improve the child's social relationships, self-esteem, and sensorimotor abilities. Children can be taught specific startegies for self-regulation that help them achieve a sense of control over an environment that otherwise often feels chaotic and threatening. In addition, the Occupational Therapist works with the child's parents and teachers to make changes in the child's environment, to adapt daily routines, and to make changes in how people interact with the child that can allow the child to succeed.

The fact that SID can occur with, and look like, other disorders, means that it is often misdiagnosed and misunderstood. It is important to think about SID when you observe children who are easily overwhelmed by, or withdrawn from, the sensory world (see the screening tool references below). Early intervention can change a child's life!

By Vickie Leonard, RN, FNP, PhD

Resources and References:

The Sensory Processing Disorder Network
www.sinetwork.org/

Biel, L and Peske, N. (2005) Raising a Sensory Smart Child. New York: Penguin Books.

Kranowitz, C (1998) The Out-of-Sync Child: Recognizing and Coping with Sensory Integration Dysfunction.

Sensorimotor History Questionnaire for Parents of Preschool Children
www.sinetwork.org/aboutspd/questionnaire.html

THE SENSORY INTEGRATION OBSERVATION GUIDE
Level I: 0 - 12 month old scale
www.sinetwork.org/aboutspd/prof-siobsguide.pdf

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