



Sensory Integration

What Is It, Exactly?

One of the relatively new common themes emerging in clinical care and research with children exposed to alcohol and drugs during pregnancy is related to deficits in sensory integration. Jean Ayres, an occupational therapist, first introduced the concept of sensory integration – the process by which the brain receives, organizes, and interprets information from the environment. The information is received by sensory receptors, such as the eyes, nose, ears, fingers, mouth and skin. Sensations like movement, body awareness, touch, sight, sound, and the pull of gravity make up the overall sensory experience.

The information that is received from the environment is then sent to the corresponding regions of the brain where it is interpreted and organized. Proper sensory integration helps us to maintain attention and build positive relationships with others and shapes our perception of the world. In children, sensory integration provides a crucial foundation for more complex learning and behavior. All these things contribute to positive self-esteem as well as the ability to learn and concentrate.

For most children, sensory integration develops in the course of ordinary childhood activities. However, prenatal alcohol or drug exposure or lack of stimulation in the early years of development can damage the parts of the brain responsible for sensory integration. An infant who is neglected or has limited opportunities for human interaction, movement, play, and exploration is likely to develop sensory integration problems. Sensory integration dysfunction can result when babies are unable to explore their surroundings, are left alone in their cribs for long periods of time, and do not receive the nurturing touch of a caretaker. Likewise, these problems can occur in children who have been hospitalized early or for long periods of time, or in those who have suffered some sort of trauma and disruption in their developmental process. These life factors are not uncommon in children born into a home where substance abuse and violence are significant parts of the environment.

Children who are experiencing sensory integration difficulties are not intentionally misbehaving. They are simply trying to gain the input that their body needs or to avoid extra stimulation, so they can function properly. Children with sensory processing problems often feel uncomfortable in their own skin, agitated, or out of sorts. These behaviors commonly lead to children receiving a diagnosis of attention deficit hyperactivity disorder (ADHD) as they reach school age. These children are often intelligent but struggle to control their body and their need for sensory inputs. It is important to remember that the sensory needs of these children are just that – needs. Trying to diminish the needs for these behaviors will not be effective, but finding adaptable ways to satisfy the sensory needs of the child *is* helpful.

Assessing children with prenatal alcohol or drug exposure for their sensory integration capabilities is important. Some signs that a child may be having trouble with sensory integration include:

- Clumsy behaviors
- *Over* sensitivity to sounds, sights, smell, touch, or movement
- *Under* reactivity to sounds, sights, smell, touch, or movement
- Distractibility



- Hard to calm down
- Difficulty during transitions and adapting to changes in routine
- Picky when eating – particularly sensitive to the texture or feel of foods
- Resistant to touching things – e.g., resists going barefoot in the grass, playing in sand
- Defensive to light touch
- Agitation when spinning or roughhousing
- Excessive seeking of spinning or swinging movements
- Tendency to exhibit rocking or swaying body movements
- Increased excitation during play to the point that she/he cannot calm down
- Distractibility when eating in a noisy environment
- Easily tired
- Weakness in various muscles
- Fear or intolerance of sounds – e.g., holds hands over ears to protect oneself from sounds
- Awareness of noises that others do not notice
- Difficulties with teeth brushing, hair washing and/or bathing
- Sensitivities to clothing textures and/or needs tags cut out of clothing
- Overly fearful or avoidance of situations or people
- Impulsivity or exhibiting “daredevil” behaviors
- Difficulty falling or staying asleep.

Of course, many of these difficulties fall into the range of normal behavior, but when they are more frequent and more disruptive than what would be normally expected, they may indicate significant problems.

An occupational therapist, trained in sensory integration assessment and treatment, can evaluate a child and provide these services. Children with prenatal alcohol or drug exposure also often suffer early neglect and trauma, so sensory integration is a very helpful approach from both perspectives. It often is quite amazing to see the improvement in children’s daily behavior and functioning when they receive this specialized form of treatment.