About Sensory Processing

Our brain is mapping the world. Often, that map is distorted, but it’s a map with constant immediate sensory input.
~ E.O. Wilson

The art of perceiving, interpreting, and responding to information from our environment is called sensory processing. There are technically eight sensory systems, including the typical five senses of sight, taste, touch, smell, and hearing. Children begin to interact with the sensory environment while still in utero, and use their sensory system to explore, learn, and respond to the world around them for the rest of their lives!

The 8 Sensory Systems

- **Tactile**
  - Light touch, textures, pressure, wet/dry, pain receptivity or tolerance

- **Auditory**
  - Speech, pitch, tone, volume, location, importance & identification of sound

- **Vestibular**
  - Balance, direction of movement, spinning, jumping, sliding, swinging

- **Visual**
  - Visual movement, light and dark, colors and patterns

- **Gustatory**
  - Taste—spicy, sweet, sour, strong or light

- **Olfactory**
  - Smell—recognition of characteristics of smells—chemical, strength of odor

- **Proprioceptive**
  - Body awareness, position in space, force/strength, coordination, crashing, jumping, bumping into things

- **Interoceptive**
  - Internal sensations—hungry, thirsty, restroom needs, emotions, pain

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Every individual has their own style of sensory processing and may be more or less sensitive to various sensory experiences (Dunn, 2018).

In some cases, stimuli that may be hardly noticeable to some people is excruciating to others. Interacting with the world’s sensory layers is a critical part of development, and sensory differences may limit some children. Parent, teacher, and provider education and support can help these children learn to navigate their world across all contexts—school, social engagement, home life, and more!

Common Definitions

**Sensory Processing**—how the body receives, interprets, and responds to sensory stimuli from the body and environment to engage in meaningful activities. (Pfeiffer et al., 2015)

**Sensory Modulation**—how the body interprets and adjusts the response to sensory stimuli, excitatory or inhibitory, in a way that is appropriate for the situation.

**Sensory Integration**—an approach used by occupational therapists to engage children in meaningful activities while in a structured, sensory-rich environment to help their nervous system process the sensations to support learning and behavior.

**Sensory Processing Disorder**—a complex neurological disorder which causes physiological differences in sensory processing, comprised of several subcategories and descriptors of sensory processing differences. This is not currently a medical diagnosis. (Miller et al., 2014)

**Sensory Modulation**—how the brain adjusts the receptivity/response to stimuli. See below.

- **Over-Responsivity**—tendency to respond too much, too soon, or too long to input that is typically tolerable; an over-exaggerated response.

- **Under-Responsivity**—tendency to seem unaware or have an insufficient or delayed response to sensory stimuli; a muted response.

- **Sensory Craving**—(sensory seeking) tendency to need intense levels of input for sensory registration; constantly want more sensory input, which leads to disorganization rather than satisfaction. (Hough, 2014)

**Sensory Based Motor Disorder**—brain disorder impacting motor planning, fine & gross motor skills and coordination (dyspraxia); difficulty aligning and stabilizing one’s body during activities or rest (postural disorder).

**Sensory Discrimination Disorder**—difficulty recognizing and organizing input from various senses. (Pfeiffer et al., 2015)
Why Sensory Differences Matter

The impact of sensory processing difficulties on everyday activities depends on the individual child, but it can have a severe impact on their engagement, attention, emotional regulation, and education.

- Difficulty identifying, isolating, and comprehending noise and verbal instructions
- Trouble with coordination, movement, and motor planning for play and writing
- Overwhelm or increased sensitivity with scents, tastes, or food textures leading to picky eating
- Increased sensitivity to the feeling or texture of certain clothes, wet hands or hair, certain toys which limits their daily routines or makes daily activities difficult
- Decreased awareness of body position, force, pain receptivity, or safety awareness required for play and peer interaction
- Decreased tolerance of certain sensations leading to increased emotional dysregulation, difficult behaviors, or outbursts

Children have unique sensory preferences—just like adults! They can learn to recognize their needs and take action when they need a change.

Families can learn about each other’s sensory needs and adjust their routines, habits, and approaches to support their children in navigating the sensory world. For some children, their sensory needs may impact their daily life, and even their education. These children may benefit from occupational therapy or special education accommodations at school through an IEP or 504 Plan.

It is important to know the sensory preferences of your child in order to best support their needs. Sensory interventions, or activities designed to meet specific sensory needs, are unique to each and every child. By adapting the environment and accommodating the needs of the child, you manage current demands and prevent future difficulties.

*When a flower doesn’t bloom, you fix the environment in which it grows, not the flower.*

~ Alexander Den Heijer

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