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What is Sensory Processing?

Sensory Processing

Sensory processing is our body's ability to sense, interpret, and use information gathered through organs such as the eyes, ears, tongue, and nose and the rest of the body, including the skin, muscles, and joints, and internal organs. Appropriate processing of sensory stimulation is necessary to maintain sensorimotor regulation; in other words, understanding the body and having control over what the body does. Every individual processes sensory information differently. It is the impact on their ability to function in daily life that is important to consider.

EXTERNAL SENSES

SMELL VISION HEARING TASTE TOUCH

There are five external senses that are commonly known: **smell, vision**, **hearing, taste,** and **touch**. These tell us about the world around us. Though we may process this input differently, they are usually shared experiences that we are aware of. For example, we all experience the bright sun though some may be more bothered than others; or if a family is at the mall together they all are aware of the loud noise and crowds but one child can "tune it out" and another child may be overwhelmed.

INTERNAL SENSES

PROPRIOCEPTION VESTIBULAR INTEROCEPTION

There are three internal senses that tell us about what is going on with our own individual bodies. These are **proprioception**, **vestibular**, and **interoception**. Since these senses are internal, they are not shared experiences, and we do not necessarily know what another person is experiencing. Observing their behaviors and reactions can help us make educated guesses about their sensory processing.

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Proprioception

Proprioception is an internal sense that tells us about our body's position in relation to itself as well as how much force or pressure is being used. The nerves for this sense are located in the joints and muscles throughout the body. This can be thought of as "body awareness" or "body sense."

PROPRIOCEPTION

Common challenges when there are differences in proprioceptive processing:

- Bumping into others in line
- Not knowing their own strength and breaking things or hurting people unintentionally
- Difficulty sitting or standing in one position
- Often leaning on others, slumping in a chair, or laying on the floor or desk
- Difficulty with coordination such as catching a ball, riding a bike, or doing a new activity

Strategies and tools:

- Weighted blanket provides calming deep pressure for a wiggly child that needs to sit and focus
- Jumping, climbing, pulling, or pushing provides "heavy work" input that helps calm of focus a child prior to doing an activity that requires attention

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Vestibular

Vestibular input is an internal sense that tells us about our movement through space and balance. There are nerves in your inner ears that let your brain know what direction you are moving and how fast. Input from the vestibular system is also used for hand-eye coordination. This input can be exciting when is it fast, circular or spinning, and erratic (things you would do on a roller coaster). It can be calming when it is slow, linear, and rhythmical (things you would do with a baby).

VESTIBULAR

Common challenges when there are differences in vestibular processing:

- Poor balance or difficulty catching themselves when falling
- Excessively seeking or avoiding movement such as swing or slides at a playground
- Difficulty sitting still or frequent fidgeting
- Low registration or level of arousal during sedentary activities

Strategies and tools:

- Swinging back and forth on a playground-type swing can provide calming and organizing input for a child and help them focus on other challenging tasks throughout the day
- Sitting on a yoga ball for homework can provide movement input for a child that has difficulty sitting still or a child that has difficulty staying alert

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Interoception

Interoception is an internal sense that tells us about our internal organs and what our body is feeling (e.g.: temperature, hunger, bathroom needs). These feelings affect overall regulation. If a child needs to go to the bathroom but is not consciously aware of it, they may appear fidgety or restless. If they are hungry but not aware of it, they may be irritable or easily frustrated (aka "hangry"). Some children have difficulty identifying these internal feelings and may not notice the signals from their body. There is no way to "turn up the volume" of these feelings, but we can help children become more aware of them. Using the observable behaviors you see, you can help them tune in and become more aware of what their body signals are trying to tell them.

Common challenges when there are differences in interoception:

- Frequent accidents or not recognizing the need to use the restroom until the last minute
- Not recognizing hunger cues and becoming irritable
- Not feeling full and over eating
- Difficulty falling asleep or identifying feeling tired and becoming "wired" or crashing without being able to wind down
- Difficulty identifying emotions in themselves--not aware of cues like breathing rate, heart rate, or tension in muscles

Strategies and tools:

- Help them name and identify what is going on in their body
- For example, you can say "You haven't used the bathroom in a while and you are dancing in place, I wonder if you need to pee. Check in with your bladder to see if it feels full and why don't you use the restroom to see if that helps."

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