



What is Sensory Integration (SI)?

Sensory Integration refers to the neurological process of organizing sensations for use. These sensations can come from outside of the body or within the body. In a typically functioning nervous system our brain receives the sensory message from our body's sensory receptors, interprets the message and organizes the message into a purposeful response. All of this happens at a subconscious level.

For example: As we pick up a glass of water to take a drink, our brain registers that we are thirsty. While visually assessing the container that the drink is in, our brain begins to register the stimulus, and based on past experiences with similar containers, interprets how much force we are going to need to use to pick up that container. The adaptive response to this is the arms and fingers extend towards the glass and once our arm has reached the glass (as is determined and processed by our sense of spatial awareness and then touch), our arm stops extending and our fingers flex around the glass using the appropriate amount of force in order to pick it up.

The sensory systems include:

Visual and **auditory** systems

The **tactile** system: Information is received primarily from sensory receptors in the skin. These receptors provide information about touch, texture, shape and size of objects. It also helps us distinguish differences in touch sensations to determine when touch is threatening or not.

The **vestibular** system: Information is received through the inner ear. These receptors provide information about gravity and space, balance, movement, and about our head position in relation to the world around us. The functioning of the vestibular system also contributes to bilateral coordination, spatial awareness, and ocular motor skills.

The **proprioceptive** system: Information is received from the joint, muscles and ligaments of the body. These receptors provide information about where our body parts are in relationship to one another, and how they are moving. The functioning of the proprioceptive system also contributes to force regulation and body awareness.

What is Sensory Processing Disorder (SPD)?





Sensory processing disorder refers to the inability to respond appropriately to ordinary experiences and occurs when the brain does not process sensations efficiently. In referring back to the first example, a child with SPD may over or under reach for their cup or may rely heavily on visual feedback to assess the timing for closing the hand around the cup. When drinking from a paper cup that child may not be able to appropriately judge the amount of force necessary, and may squeeze the cup too hard, spilling its contents. Additionally, the child may misjudge where his mouth is and have difficulty relying on tactile cues through the lips, resulting in decreased lip closure on the cup and spilling.

Some signs of SPD may be a child who craves a lot of sensory feedback. A child with differences in the way they process **vestibular** information may be able to spin and spin and never seems to get dizzy, or the child who is always on-the-go, takes safety risks, and would be happy to swing for a half hour or more. On the other hand, the child may be fearful of movement and/or heights so much that it impacts the child's ability to be comfortable moving through the environment across uneven or unstable surfaces. He may be more clingy with caregivers and hesitant to try new things

A child with differences in the way they process **tactile** information may be sensitive to being touched or constantly complains that his clothes or shoes are uncomfortable. He may be very picky in regards to food tastes and textures. He may pull away from kisses or hugs or having his hand held. On the other hand, he may crave touch, touching people, surfaces, toys, etc to the point that it irritates others. He may crave messy play and seems to always enjoy getting his hands dirty more than what is typically expected.

SPD can manifest itself differently from individual to individual as well as between different senses. The child may demonstrate **Over-responsivity** to one or more senses meaning that he shows defensive reactions or sensitivities to touch, movement, etc. The child may also demonstrate **Under-responsivity** in one or more senses meaning that he shows a craving for various sensations and requires this extra sensory feedback in order for his receptors to register and interpret the information for an appropriate adaptive response.

Basically, SPD exists when a child demonstrates an atypical response to sensory feedback in that the degree, intensity, and quality of the child's reaction does not match the environmental demand typically associated with that type of sensory feedback.

Signs that your **infant/toddler** may benefit from occupational therapy services:

- Difficulty playing with age appropriate toys





- Difficulty tolerating tummy time
- Difficult tolerating being placed on back
- Overly active; seeks a lot of movement
- Easily startled
- Difficult babbling
- Cries or demonstrates a rigid body position when being moved through space
- Unable to bring hands together at midline
- Low muscle tone; feels floppy when held
- Slow to meet motor milestones; rolling over, sitting, creeping, crawling, standing
- Difficulties with sucking
- Dislikes being cuddled; resists being held
- Frequently holds hands in a fist position after the age of 6 months
- Becomes irritated or agitated with being bathed, having diaper changed
- Difficulty exploring environment

Signs that your **preschool child** may benefit from occupational therapy services:

- Overreacts to touch, taste, sound, odor, or movement
- Needs more practice to learn new skills
- Overly active; difficulty slowing down to perform functional tasks
- Breaks toys or crayons easily
- Often says "I can't" or "I won't" when presented with age appropriate self-care or play activities
- Frequently bumps into furniture or people; has difficulty judging body in relationship to the environmental space
- Avoids playground equipment
- Prefers and/or craves lots of rough and tumble play
- Unable to settle-down to get to sleep
- Delayed language development
- Dislikes activities involving coloring, cutting, or putting together puzzles
- Clumsy; falls frequently
- Low muscle tone; tires easily from or avoids physical activities; appears floppy





Signs that your **school age child** may benefit from occupational therapy services:

- Avoids physical education or other sports/extracurricular activities
- Overly active; has difficulty slowing down to pay attention to functional activities
- Difficulty with handwriting; letter reversals, sizing and spacing of letters and words
- Difficulty focusing attention or over-focused attention making it difficult to shift gears to a new task
- Difficulty following multi-step directions
- Over-reacts to touch, taste, sounds, odors or movement
- Appears clumsy or uncoordinated or accident prone; more so than peers
- Poor self-esteem; lack confidence
- Low muscle tone; poor seated posture at desk for school work; tires easily with physical activity
- Difficulty paying attention
- Does not enjoy jumping, swinging, or feet off the ground
- Seems to require more practice to learn new skills
- Has difficulty making friends with same aged peers; may notice a preference for playing with adults or much younger children
- Has a difficult time tolerating or performing self-care activities- dressing/clothing, brushing teeth, bathing, hair cuts, nail trimming, etc

Questions?

I am here to help! Contact Jamie via phone or email anytime!

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