

Sensory Processing Issues in Autism

Children with autism spectrum disorders often have trouble effectively processing information that comes into the brain through the senses (sight, hearing, touch, etc.), and this can interfere with the ability to understand and interpret what is in the environment around them.

There are five commonly known senses:

Hearing Sight Touch Smell Taste

And also two lesser-known senses –

Proprioception - the sense that tells the body's joints and muscle groups how to react, move smoothly, and tells the body 'where it is in space'.

Vestibular – the sense of balance involved with the inner ear that stabilizes visual fields when the head moves and maintains equilibrium.

Difficulty in processing information as it comes into the brain affects the ability to form appropriate motor responses. Processing information correctly involves:

Registration – The information actually reaches the brain through the sensory channel (problems in registration might include blindness, hearing loss, etc.)

Modulation – The brain is able to filter through the various incoming messages for what is meaningful and what is not, and chooses the information to focus on

Integration – The brain is able to organize the incoming information, analyze it accurately, choose a reaction, and follow through on the action

These deficits may show themselves differently in each child. However, we most often see them expressed in over- or under-sensitivity to sensory input from one or more of the senses, and this can cause confusion, anxiety and fearfulness. We can also see these deficits appear in other areas such as:

Visual-perceptual skills: depth perception (may miss obstacles or over/underestimate distance), directionality to determine where things are (left/right, up/down, etc.), visual memory (retaining an accurate picture of an environment to remember information), sequential memory (what comes first), form constancy (if an object is half-covered, the whole object is still there), and over-focusing on details or unimportant input and missing the relevant cues (looking at a car's design without realizing the danger of being hit).

Auditory processing: understanding of language (discriminating between similar words, organizing spoken words to determine meaning), selecting what to listen to (i.e. if your name is called) and filtering out background noise (i.e. the air conditioner hum), experiencing a delay in one ear but not both (makes for garbled input), hearing sounds as too loud or too soft (may hear sounds others can't).

Taste/smell: may be a very 'picky eater' which can interfere with proper nutrition, can gag or vomit easily.

Touch: may not be able to discriminate objects by touch alone (i.e. find something in their pocket), may be injured without experiencing pain (high pain threshold), may appear clumsy (drops things), have poor body awareness (trip over things), have trouble planning a series of motor movements (climbing a ladder), be highly sensitive to light touch (tags on clothes, hair cuts) or dislike sticky substances (like glue).

Proprioception: may use too much or not enough force when pushing, pulling, lifting or holding (i.e. hug too hard, knock people and things over without meaning to), may fall down a lot, have trouble with small fine motor skills (managing coins, writing, zippers), may appear stiff or have an unusual gait, may have trouble knowing where their body ends and objects begin (running a hand over a wall to determine body placement, infants may confuse mother's body as part of their own).

Vestibular: may lose balance if head is tilted, have trouble recovering from movement (i.e. car sickness, dizziness after swinging) or may not get dizzy at all, may crave excessive movement (rocking, swinging) or, conversely, may dislike any movement (head position, climbing), may lose balance easily (fall out of chairs), develop poor postural control (cannot maintain positions like sitting for very long).

Emotional regulation: may have intense emotional reactions to sensory stimuli and have difficulty calming down (i.e. the fire bell can result in behavioral breakdowns through the rest of the day), and the rate of recovery from reactions to stimuli may be slow (may need extended or regularly scheduled break times to maintain control).

Sensory issues can affect mood (anxiety and depression), social skills and relating to others, behavioral breakdowns, and learning. Trained occupational therapists (OT) can be very helpful in working directly with children to process information more effectively. They also can provide valuable support to the classroom teacher through consultation about changing the environment to make it more tolerable, using strategies that help the child cope with sensory-related anxiety and challenges, and modifying work and activities so that the child is able to participate (i.e. using a slanted board to copy from the board if the visual-motor skills interfere). They can also assist families in determining how to modify expectations and daily tasks at home, and to teach the skills the child must learn to manage his/her own sensory needs.