

What Is Sensory Processing Disorder

The Central Nervous System (CNS) is responsible for processing all sensory information that is received through the senses of the body. Generally when we speak about the senses of the body, most think of the five; vision, hearing, taste, touch, and smell. When one is working with persons that has sensory processing difficulties, there are 2 other senses that are just as if not more important than the 5 common senses. These other 2 senses are **Proprioception** and **Vestibular**.

Proprioception is the sensations that come from the joints, muscles, tendons, and connective tissue of the body. Proprioceptive information processed by the CNS allows one to have body awareness. It allows the body to automatically change in different situations. The proprioceptive system helps us to sit and maintain posture in a chair, grade the amount of pressure used on objects and others, and perform fine motor activities such as, manipulating writing and eating utensils as well as clothing fasteners.

The **Vestibular** system is the parts that make up the inner ear, which processes the changes in the position and movement of the head. Sensory information provided by the vestibular system is related to motion (vertical orientation and linear movement) and spatial relations. This system is instrumental for movement reactions, motion tolerance, and motor control for postural alignment, balance, and vision.

When the CNS is processing sensory information properly it helps organize, prioritize and interpret the sensory information and allows for the individual to respond using cognitive skills, feelings, motor response or a combination of them. When there is difficulty with how the CNS interprets sensory information it can cause the following difficulties with one or more of the 7 senses.

Tactile Defensiveness

Tactile defensiveness is a result of faulty processing of sensory information by the CNS taken in by the receptors in the skin. Tactile defensiveness causes individuals to respond adversely to the touch of people, objects, textures, and temperature by pulling away, crying, and fight or flight response but would not cause the same response in most others. In the school setting a student might not like going to art class due to anticipation of having to touch glue, paint and other materials. The tag or seams of clothing can be very irritating and distract the student from focusing on the task. These students usually do not like being touch especially being touched lightly, they prefer to initiate who and what they want to touch.

Accommodations & Strategies

If tactile defensiveness is suspected there are ways to decrease the amount of exposure to unpleasant tactile stimuli and ways to work on improving tactile defensiveness.

First you want to determine what the noxious tactile stimulus is. This is done by observing what cause distress to the student.

- Is the student constantly fidgeting with their clothing?
- Does the student respond adversely to being touched by others?
- Does the student avoid or have negative response to touching certain textures.

If you decide that clothing is an issue with the student try the following:

- Document what the student is doing with the clothing i.e. pulling at tags, fidgeting with sleeves, chewing shirts, taking off or refusal to put on items.
- Document the type of clothing that causing problem i.e. type of material, the sizing of clothes loose vs. fitted, sleeve length, type of shoe.
- Document type of clothing that the student wears when student DOES NOT have difficulties.
- Provide parent with information on types of clothing that causes problem and doesn't cause problem with student. Give

parent suggestions to buy more of clothing that student seems to like and let student possibly go shopping with parent and let them try on clothing and choose clothing that is comfortable to them.

If you decide that the student doesn't like to be touched by others try the following:

- When touching is necessary as in holding hand offer student only 1 finger to hang onto or grasp hand firmly or hold by back or shoulder or shirt.
- Alternate between student being first and last in line
- Alternate with letting student board bus first and last
- Instead of sitting on floor with group can use a chair
- Inform all staff members that student comes in contact with how to implement all strategies being used.

If you decide that the student avoids touching certain textures try the following:

- Demonstrate how stimulus is not that bad by applying to self- i.e. dab glue/paint on hand, pick up/touch object being voided.
- Sticky/messy textures let student know that yes it is sticky and its okay they don't like it but they can wash their hands as soon as they finish or have wipes handy.
- Use soothing reassuring voice to encourage, praise, and calm student, i.e. you can do it, you're doing a great job, its okay I'm here to help you.
- Inform all staff members that student comes in contact with how to implement all accommodations and strategies being used.

Auditory Defensiveness

Auditory defensiveness causes one to be highly sensitive to sound. This means that sounds, noises, and voices that would not register at all, or would not be perceived as irritating to a normally functioning nervous system, are perceived as too loud, too high pitched, or otherwise difficult to tolerate, and so they will defend themselves against the sounds. They may do this by tuning

out, hyper focusing on something else, holding their hands over their ears, attempting to escape the situation in which they find themselves by running away, or by acting out in such a way that there is no choice left at times but to remove them from the environment.

Some students may have highly sensitive hearing that their nervous system will not only hear, but then alert them to things that other people don't notice. These are the students who are constantly asking, "Did you hear that? What's that noise? Who's talking?" when you don't hear anything at all. They are often distracted from their ability to attend by the sounds that others hear but don't really register, i.e., people walking in the hallway, heating/cooling system, humming of fluorescent lights, sound from clock, PA system, toilet flushing, spaces with echoes.

Accommodations & Strategies

- Determine what type auditory defensiveness student is experiencing, by asking student/observing what noises bother them loud noises, background noises
- Determine ways to decrease noxious sound
- Be consistent with tone of voice not talking in high pitches or raising voice
- Seat student away from sounds, i.e. doorway, window, vents, etc.
- Cover PA with paper plate
- Keep classroom noise and voices to a minimum, even when class speaks as a unit remind not to scream but soft inside voices
- Teach students to close doors softly
- Use of headphones in noisy areas or with echoes.
- Chew gum that is sugar-free, use xylitol sweetened gum (get permission from parent/principal)
- Prepare student for alarms, loud areas with comforting support and strategies they can use

- Make sure all staff knows what accommodations and strategies are being used

Visual Defensiveness

Hypersensitivities in vision are numerous and can highly impair a one's functioning. One of the most commonly mentioned visual sensitivities is the sensitivity to light. Florescent lighting and any higher level of lighting can be distressing, causing the need to blink or squint their eyes constantly. Many students have difficulty focusing on sunny days, and may even prefer dark, gloomy days, during which they have an easier time focusing.

A sudden presence or changing of lighting, especially flashing lights, can cause a student with light sensory defensiveness to startle into fight or flight, or cause a generally high level of stress. A hypersensitivity to visual tracking and processing can cause a student to become fearful, distressed, and anxious whenever there is a quick sudden movement, or if they try to track a slow moving object through their visual field. They may also be sensitive to colors, which can make everything appear incredibly vibrant, causing a potential overload.

Their eyes will also have a hard time accommodating and adjusting to movement and light. It may take longer, or be impossible, for the eyes to adjust to a change in lighting, or for them not to be distracted and irritated by background movement and flashing.

Hyposensitive responder to vision may need a lot of light and visual movement to stimulate their under-responding nervous systems. They may have a hard time focusing without a lot of light and crave brilliant, sunny days. They may fail to recognize when people enter a room or navigate through a crowded hallway, failing to respond to others in the line of vision.

Visual Seeking

A seeker of visual input may surround themselves in vivid, flashing, or blinking lights, as they are fascinated by what they see and their nervous system will better regulate with the exposure. Fast moving

objects may also be mesmerizing and easily distract them. They may also stare directly at lights and like to watch spinning objects.

Accommodations & Strategies

- Determine if student is hyper/hypo sensitive to visual stimuli or seeks out visual stimuli
- Have as few as possible visual distractors where teachers spends most of their time teaching class
- Seat student away from or near light or windows
- Dim classroom lights
- Decrease the amount of visual clutter in the room, i.e., room is organized, open shelves are covered with solid material, posters on walls
- Limit number of things written on board at one time
- Be aware of your clothing and jewelry that causes visual distractions
- Place charts on desks to decrease looking on walls
- Prepare student when lighting is going to change in classroom
- Make sure all staff knows what accommodations and strategies are being used

Olfactory Defensiveness

Students that are hypersensitive to olfactory sensations will often have a difficult time regulating many smell sensations. Sudden, strong odors can lead to inappropriate fight or flight responses, even if they are not threatening or even noticeable to others in their surroundings. They will also have a hard time removing their focus and tolerating smells, as their brain cannot become accommodate the smell even after prolong exposure, which creates a necessity to leave the situation and/or cover their nose. As the olfactory sense is highly interrelated to the gustatory sense, they may also have a hard time eating certain foods, as they can only smell the overwhelming spices or oils, as opposed to the food, itself.

They may also judge what foods they eat, what homes they visit, or which people they associate with based upon their odor.

Olfactory Under-Responsiveness refers to students that are hyposensitive to smell and may be incapable of even noticing scents that are normally very pungent or irritating to most people, such as dangerous chemicals or body odor. This can be quite dangerous, as they are unable to detect odor potentially toxic chemicals. They may also miss typically pleasant or arousing odors, like fresh cookies baking or flowers.

Olfactory Seeking students will seek out olfactory sensations and often needs to smell things. They will frequently hold things up to their nose to get the scent they are trying to get. Even if they don't necessarily like a certain smell, they may have a hard time NOT continuing to smell it.

Accommodations & Strategies

- Observe what types of smells effect student
- Use of scented chap stick or lotion that the student likes
- Student eat meals in areas other than lunchroom
- Teacher doesn't wear strong perfume/cologne
- Use light scented air fresheners in classroom
- Tell student to use their hands and eyes to explore objects instead of smelling them
- Redirect student when smelling others by demonstrating appropriate interaction, i.e, how to speak to persons, how to touch without smelling
- Calm and encourage, i.e., I know you don't like the smell but you are okay, you are doing a great job, talk about smells they like, tell them what they are smelling and why it smells that way

Poor Sensory Modulation

Sensory modulation allows for an individual to regulate incoming sensory information from the body and environment and respond using forms of cognitive skills, feelings, motor responses or a combination of these. Sensory modulation is also responsible for one to be able to remain at the appropriate level of arousal or alertness. When an individual is unable to regulate sensory information it can cause difficulty with one or more of the 7 senses' systems.

When proper sensory modulation occurs an individual is able to:

- Take in relevant information
- Filter out irrelevant information
- Prioritize one's focus
- Able to adapt to change
- Able to regulate one's level of arousal

When the CNS is unable to regulate sensory information properly sensory modulation difficulties occur causing one or more of the following:

Over-responsivity: An exaggerated response of the nervous system to sensory input. These students are fearful of climbing playground equipment or stairs, doesn't like elevators/escalators, or doesn't like to be or things that spin due to over-responding to vestibular input (the sensation of movement). The nervous system goes into fight-or-flight mode even though real danger exists.

Signs of Over-Responsivity include:

- picky eating habits
- clothing issues – doesn't like tags, seams, certain fabrics
- self-care issues – dislikes hair care, nail-trimming, face washing, bathing
- low frustration tolerance, moody, irritable, fussy
- frequent melt-downs that are out of proportion to the situation
- easily overwhelmed in noisy, busy environments like, classroom lunch-room, auditorium, school bus

- dislikes light touch and may be resistive to “messy” play like finger-painting or play-dough

Under-responsivity: A lack of response, or insufficient response to the sensory environment. Sometimes these students appear to be daydreaming or unfocused on what is happening around them. They may also be uncoordinated and have difficulty with motor skills development.

Signs of Under-Responsivity include:

- may stuff too much food in mouth
- may not notice messy face, hands, twisted clothing
- often appears to be daydreaming or unfocused on what is going on
- asks “what” a lot even when hearing is fine
- high pain tolerance or may not seem to notice cuts and bruises
- may slump, slouch, and lean in chair or desk
- toe-walking or awkward gait
- clumsiness
- poor fine motor skill development

Sensory-seeking: The nervous system of the sensory-seeker needs intense input in order for the sensation to be registered properly in the brain. Therefore the sensory-seeker craves intense sensations constantly.

Signs of Sensory-Seeking include:

- always in constant motion, may “crash” into walls or floor on purpose

- may toe-walk, or may run/jump/skip everywhere rather than walk
- difficulty staying still in seat
- touches everything, may bring everything to mouth, chews on objects
- plays rough
- poor attention span
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One of the most important things teachers need to understand is that many problem behaviors in the classroom may actually be due to sensory processing disorders.

This perspective and awareness leads to a variety of interventions not normally addressed by strict behavioral guidelines or treatment.

When a child hits another child because they were bumped into, it may be a fight or flight response to being touched; a case of tactile defensiveness, not a child who has never been taught not to hit or who has parents that don't discipline at home.

New behaviors may come out in the school environment that parents have never seen in their child. It is so easy for us to blame and slap negative labels on children or their parents when a classroom is continually disrupted by a particular child who poses a significant behavioral challenge.

Teachers are often the first to notice the signs of sensory processing disorders, sometimes before parents notice anything at home, by the problem behavior in the classroom.

One reason for this is that the child may have fewer coping skills at school and much less control over his sensory environment than at home. It is a very different place and no one will anticipate his needs unless they get to know him.

Physical Accommodations

1. Use carpet squares for each child when sitting on the floor to keep them in their own space.
2. Adjust chairs, desks, tables so children sit with feet flat on the floor and hips bent at a 90 degree angle.
3. If a child is easily distracted, make sure his seat is away from doorways or windows.
4. Use of alternative seating equipment; sit on therapy balls, seat cushions
5. Allow children to work in a variety of positions; lying flat on the floor propped on elbows, standing at a table or easel, or lying on side and using a clipboard to write on
6. Use a soft, plush rug in play areas to help muffle noise.
7. If possible, have a rocking chair or glider rocker inside the classroom, and/or a hammock or swing chair outside the classroom where a child can go to relax.
8. Allow children to use sleeping bags or weighted blankets in a quiet reading corner.
9. Use a small tent or play hut with soft pillows and/or bean bag chair for a child to go to if over aroused.

Visual Accommodations

1. Post a daily schedule with pictures.
2. Tape alphabet and number strips on a child's desk for them to use as a reference or guide.

3. Place a drawing of a clock with appropriate day/time for therapy or assistant sessions outside of the classroom.
4. Use tape, hula hoops or carpet squares to reinforce personal boundaries in seated learning or play areas.
5. Use visual cues such as words or pictures for organizing personal belongings, containers, or shelves
6. Keep visual distractions to a minimum; hang art projects on the wall in the hallway, keep bulletin boards simple and uncluttered, reduce hanging pictures and decorations.
7. Help the child stay organized and focused by;
 - using his finger or index card under the line he is working on during reading or math
 - use graph paper for visual help aligning numbers during math work
 - use minimal visual information on each page
 - cover other areas of the page not currently working on to keep the child focused
8. Use study carrels to decrease stimuli
9. Minimize amount of toys, games, and decorations in the environment
10. Have enough organized storage space, containers, and shelves to put all items away (label containers)
11. Keep chalkboard clean
12. Use dim lighting and pastel colors. Turn off lights during quiet breaks
13. Keep memos and informational posters away from the front of the classroom so children can focus on the teacher

Auditory Accommodations

1. Have earplugs or sound blocking headphones available for children who are sensitive to, or distracted by environmental noises
2. Ask child to repeat directions back to you before they start their work to ensure they understand
3. Establish eye contact with the child before speaking to them
4. Teach children to ask for help and make you available to them if they are having difficulty
5. Break directions down into steps and allow extra time for children to process them if needed
6. Warn children of any loud noises before they occur (bells, fire alarms etc.)

Organizational Accommodations

1. Give simple, step-by-step directions. Have child verbalize steps needed to accomplish the task. Use peer or yourself to demonstrate/model task first, then ask the child to try it
2. Use a consistent approach when teaching a child a new skill and allow time to practice and master the new skill
3. Present directions to the child consistent with their best modality for learning (i.e., auditory, visual, or multi-sensory). Model, demonstrate and repeat as needed. Monitor the child to make sure they understand and are able to start the task

4. Help the child plan for each task by asking questions such as, "What materials will you need?" "What will you do first?" and/or "What do you need to do when you are done?" etc.
5. Provide a few suggestions or a peer brainstorming session if a child has difficulty formulating ideas for assignments
6. Help children who have difficulty with transitions by using a timer or give them a verbal cue that it will be time to change activities
7. Transitions may also go smoother if a list with pictures is on the blackboard showing the day's activities
8. Help prepare the child for transitions with an orderly cleanup and a consistent musical selection which makes it fun and signals it is time to move on to the next activity
9. Give children a consistent and organized place to store materials when they are finished using them

Sensory Accommodations (for consistent, appropriate arousal levels and decreasing distractibility):

Alerting Activities for the Lethargic Child

1. Allow the child to sip on ice water in a water bottle throughout the day
2. Use bright lighting
3. Have the child pat cool water on their face as needed
4. Take frequent "gross motor" breaks during difficult tasks (i.e., jump, hop, march in place, sit ups etc.)

5. Encourage an active recess with swinging, jumping, climbing, playing ball etc.
6. Have the child chew strong/flavorful sugar-free gum or suck on sugar free candies (use sweet or sour gum/candy or fireballs)

Calming Activities for an Overly Active Child

1. Use low level lighting, no fluorescent lights!
2. Allow the child to listen to calming music with headphones
3. Use a soft voice and slow down your speech and movements while talking
4. Allow the child to lie on the floor in a secluded area with weighted blankets, heavy pillows or bean bag chairs on top of them during written work or reading
5. Push down heavily on the child's shoulders, with equal and constant pressure
6. Avoid rushing the child
7. Have the child be responsible for the heaviest work at clean up time; putting heavy books or objects away, moving/pushing chairs in, wiping down tables etc.
8. Plan ahead, allow enough time between and during activities
9. Make the child the "teacher's assistant"; carrying books to the library, allow them extra movement breaks with in-school errands (taking notes to the office or another teacher, passing out papers etc.), or giving them "heavy work" chores such as sharpening pencils, erasing and cleaning blackboards and erasers, etc.

10. Provide opportunities for the child to jump on a mini trampoline, bounce on a therapy ball or sit on one instead of their chair to give them extra input
11. Allow the child to have quiet fidget toys, chew toys/tubing, or squish/stress balls to squeeze while sitting and listening or during desk work
12. Encourage twirling, spinning, rolling and swinging during physical education or recess
13. Have child do "chair push-ups" (raising their body off the chair with hands next to them on their seat) and/or tie Thera-Band around their chair and have them stretch it using their legs while doing desk work

Behavioral Accommodations

1. Empower and encourage the child, avoid rescuing when the child is struggling (i.e., "hang in there", "you can do this", "you're ok" and "way to go")
2. Use positive praise and awards when the child tries his best, attempts something new, does something independently, initiates a project, asks for help, follows the rules, or accomplishes something even if the outcome is not exactly what it should be
3. Be specific with constructive criticism; make positive statements about what the child DID accomplish then make suggestions or ways to improve clear, concise and/or elicit suggestions from the child on what is missing or how to improve next time
4. Validate them, their efforts, choices and feelings no matter what!
5. Establish firm, clear rules with appropriate consequences if the child breaks them. Follow through!

6. Talk through a task/problem with the child if they are struggling
7. Be aware of the child's signs when they are starting to lose control. Be proactive in dealing with the issues BEFORE the child has a meltdown
8. Teach children about personal space and enforce staying within those boundaries and keeping their hands to themselves
9. Help the child generate ideas, problem solve, make choices or think creatively
10. Use alternative approaches (through the senses) to alert, calm, and stabilize the nervous system