

Effective Sensory Strategies in the Classroom Environment

Amanda Mangas, MOT, OTRL
Ashley Martindale, COTAL

Overview

- What is sensory integration?
- What is sensory processing disorder?
- Define/ discuss the 7 senses
- Hyporesponsive vs hyper responsive
- Treatment strategies

What is sensory integration?

Sensory integration simply is our body's ability to take in information from the various senses, process that information, and then respond.

“Sensory integration is the organization of sensation for use. Our senses give us information about the physical conditions of our body and the environment around us.... The brain must organize all of these sensations if a person is to move and learn and behave normally. The brain locates, sorts, and orders sensations—somewhat as a traffic policeman directs moving cars. When sensations flow in a well-organized manner, the brain can use those sensations to form perceptions, behaviors, and learning. When the flow of sensations is disorganized, life can be like a rush hour traffic jam.”

-Jean Ayres from *Sensory Integration and the Child*, 1979

What is sensory processing disorder?

- Also known as – sensory integration dysfunction or sensory processing dysfunction
- A breakdown in the ability to take in information, process that information, and formulate an appropriate response
- Causes social difficulties, emotional difficulties through increased anxiety, and motor impairments which result in functional deficits.

The 7 Senses

- ➔ Vision
- ➔ Tactile
- ➔ Gustatory
- ➔ Olfactory
- ➔ Auditory
- ➔ Vestibular
- ➔ Proprioceptive

Vestibular System

- Receptors located in the ear
 - three semicircular canals, the utricle and the saccule
- Provides info regarding rotational or linear movement
- Feedback regarding spatial orientation
- Provides sense of balance and stable basis for visual function
- Closely linked to visual and auditory systems
 - Vestibular-visual-auditory triad

Vestibular System Cont.

- "Without a properly functioning vestibular system, sights and sounds in the environment do not make sense – they are only isolated pieces of information disconnected from the meaningful whole. It is the integration of the sensory information that holds the key for finding the meaning in the world. Because movement is part of everything we do in life, it could be said that the vestibular system supports all behavior and acquisition of skills, as well as helping to balance the stream of sensory information that constantly bombards the system." (Astronaut Training: A Sound Activated Vestibular-Visual Protocol for Moving, Looking and Listening; Kawar, Frick & Frick, 2005)

Proprioceptive System

- Receptors found in muscles and joints
- Provides feedback about our body's position in space
 - Body awareness

Hyporesponsive vs Hyper Responsive

- Hyporesponsive = sensory seeking = under-reactive
- Hyper responsive = defensive = over reactive
- A child may be hyporesponsive in some areas, but hyper responsive in others

Hyporesponsive - Tactile

- ✦ Child always wants to have something in their hands or appears to crave touch
- ✦ May not be aware of or bothered by cuts and bruises.
- ✦ Excessive love of messy play
- ✦ May demonstrate self abusive behaviors such as pinching, biting, or head banging
- ✦ Craves strong foods such as those that are excessively spicy, sour, sweet or salty.
- ✦ After age 2 may mouth non food items
- ✦ Appear disheveled with pants twisted, socks twisted, tongue of shoes pushed down into shoe

Hyper Responsive - Tactile

- ✦ Avoid grooming tasks such as brushing teeth, cutting nails, hair cuts, brushing hair.
- ✦ React negatively to unexpected touch – anxious or aggressive
- ✦ Do not like to get their hands messy
- ✦ Picky eater
- ✦ Dislikes certain textures of clothing
- ✦ Complains about tags in shirt or seams of socks
- ✦ May over react to minor scrapes or cuts
- ✦ Difficulty changing to long sleeves and pants, or to short sleeves and shorts when the seasons change

Hyporesponsive - Auditory

- ✦ May hum or make noises, just for the sake of making noise
- ✦ Enjoy loud music
- ✦ Appears not to hear their name called
- ✦ Needs frequent repetition of directions
- ✦ Cannot locate where a sound is coming from
- ✦ Seems oblivious to surrounding noises
- ✦ Did not vocalize or babble as an infant

Hyper Responsive - Auditory

- ✧ Fearful of loud noises – alarms, vacuums, flushing toilets, hair dryers
- ✧ Plugs ears frequently
- ✧ Appears to be distracted by surrounding noises
- ✧ Seems to hear noises that others do not notice like fans turning on, a refrigerator running, the buzzing from fluorescent lights.
- ✧ Frequently asks others to be quiet
- ✧ Avoids places with loud noises such as movie theaters, fairs, or concerts

Hyporesponsive - Oral

- ✦ Mouth or eat non food items
- ✦ Prefer strong tasting foods – excessively sour, sweet, salty, or spicy

Hyper Responsive - Oral

- ✦ Picky eater – eats limited foods, may avoid foods with strong flavors
- ✦ Gag with textured foods
- ✦ Difficulty sucking, chewing, swallowing
- ✦ May eat only certain temperature foods – hot, cold, or warm

Hyporesponsive - Olfactory

- ✧ May not notice strong odors
- ✧ Explores their environment using smell
- ✧ Enjoys strong fragrances, even those considered offensive by many
- ✧ Cannot discriminate different smells

Hyper Responsive - Olfactory

- ✧ Reacts negatively to smells that others do not notice
- ✧ May like/dislike someone based on how they smell
- ✧ Refuse to go certain places because of how they smell
- ✧ Refuse to eat certain foods because of the smell

Hyporesponsive - Visual

- ✦ Seeks out visual stimulation
- ✦ Effects a child's visual tracking, discrimination, and perception
- ✦ Difficulty with visual discrimination – b and d, q and p for example
- ✦ Reversals when reading – now for won, no for on, was, for saw
- ✦ Difficulty telling the differences between colors, shapes, and sizes
- ✦ Difficulty copying from a chalkboard
- ✦ Inconsistent sizing or spacing when writing, doesn't write on the line

Hyper Responsive - Visual

- ✦ Complains about bright lights, covers eyes frequently, or may get frequent headaches from light
- ✦ Sensitive to florescent lighting
- ✦ Easily distracted by visual stimuli – distracted by movements in their periphery
- ✦ Enjoys playing in the dark
- ✦ Rubs eyes frequently
- ✦ Decreased eye contact

Hyporesponsive - Vestibular

- ✦ Appears to be in constant motion
- ✦ Seeks out movement activities
- ✦ Risk taker – jumps on beds, trampolines, spins in chairs
- ✦ Enjoys being inverted
- ✦ Moves quickly, bumps into objects frequently

Hyper Responsive - Vestibular

- ✦ Avoids movement activities – such as playing on playground equipment
- ✦ Fearful of falling even if there isn't a real risk
- ✦ Dislikes feet leaving the ground
- ✦ Doesn't reciprocate when walking up and down steps
- ✦ Dislikes swings
- ✦ Startled if someone else moves them
- ✦ Appears clumsy – loses balance easily

Hyporesponsive – Proprioceptive

- ✦ Seeks out rough play, hugs, deep pressure
- ✦ Likes tight fitting clothes, belts, hats, shoes
(may prefer to wear shoes on the wrong feet)
- ✦ Enjoys jumping on trampolines
- ✦ Bumps into objects frequently, appears clumsy
- ✦ Cracks knuckles frequently
- ✦ Chews on non food objects
- ✦ Hits/bumps other people
- ✦ Grinds teeth

Proprioceptive System Dysfunction

- Poor body awareness, decreased motor control, and difficulty motor planning
- Signs / Symptoms
 - Slumped posture while seated
 - Difficulty coordinating motor tasks
 - Difficulty motor planning tasks such as getting dressed or tying shoes
 - May appear lethargic

Treatment Strategies

- Vestibular and Proprioceptive systems are key
- Vestibular system - self-regulation, space-time organization, visual difficulties, and postural control
 - Children often have low tone, W-sit, poor extension, and therefore slump when seated.
- Proprioceptive activities are calming and grounding

Vestibular Input

- ✧ Vestibular input is powerful. There is a connection between movement and language/learning. Provide children with movement experiences.
- ✧ Examples:
 - ✧ Swinging- linear movement is typically calming, while rotational movement is alerting.
 - ✧ This however is not always the case.
 - ✧ If your school is not fortunate enough to have a sensory room, on nice days utilize the playground equipment.
 - ✧ *Rotational swinging should be avoided in individuals who have a history of seizures

Vestibular Input Cont.

- ✧ Swing using a sheet
- ✧ Trampoline
- ✧ Slow rocking – rocking chair, over a therapy ball, in your arms
- ✧ Have students sit on therapy ball during activities – make sure ball is correct size allowing for child to have hips, knees, and ankles positioned at 90 degrees.
- ✧ Move and sit cushion
- ✧ Activities that cause a child to be inverted
 - ✧ upside-down bowling

Proprioceptive Input

- ✧ Deep pressure/proprioceptive input – utilize following for proprioceptive seeking individuals and to help achieve calm alert state
 - ✧ Pressure Vest/weighted vest (up to 1 hour on 1 hour off)
 - ✧ Weighted lap pad while seated or weighted blanket (no more than 10% of body weight)
 - ✧ Hand Hugs
 - ✧ Joint compressions
 - ✧ Pushing/pulling weighted objects (carts with books, wagon with weights, phone books)

Proprioceptive Activities Cont.

- Ankle weights/wrist weights
- Crashing into pillows or cushions
- Compression garments
- Trampoline
- Animal Walks – bear walk, crab walk, army crawl etc...
- Wheelbarrow walk
- Catch with a weighted ball
- Chair pushups
- Propel a scooterboard positioned on the stomach with arms only
- Theraband tied to the leg of a chair
- Chewable pencil toppers or chewlery

Auditory Treatment Strategies

- Provide noise reducing headphones for defensive children
- Therapeutic Listening
- Decrease auditory stimuli in room – close doors, turn off buzzing lights, fans

Visual Treatment Strategies

- For visually distracted children
 - Clear excess visual stimulation from room
 - Turn off lights
 - Utilize a tent to diminish surrounding stimuli

Tactile Treatment Strategies

- ✧ Tactile Defensiveness
 - ✧ Wilbarger Brushing protocol- one of the most powerful sensory strategies to decrease defensiveness. This strategy should only be utilized if you have been taught by someone who knows the protocol.
 - ✧ Do not force tactile experiences
 - ✧ **Deep pressure/proprioceptive input**

Tactile Treatment Strategies Cont.

✧ Tactile Seeking

✧ Provide tactile experiences

✧ Bins with beans, rice, noodles

✧ Play dough, moon sand, sand table, water table, glop

✧ Fidgets

✧ Velcro under desks or in binders

Set Up Child for Success

- ✧ When possible, have the children complete these activities prior to your speech session. If it isn't possible, utilize as many of these strategies on the way to the treatment session. If speech is occurring within the classroom, it is OK to involve peers.
- Children with sensory dysfunction are often low tone
 - Position appropriately with hips, knees, ankles at 90 degrees when seated
- The biggest thing to remember, is that all of these treatment ideas are simply suggestions. Get creative using similar concepts. Also, what works for one child, may not necessarily work for another. Sensory is all about trial and error.