

SENSORY FOR THE SLP

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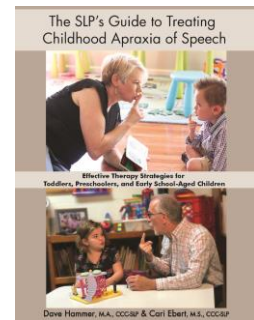
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Speaker Disclosure

- Financial Disclosure: Cari Ebert owns Summit Speech Therapy, LLC (dba Cari Ebert Seminars) and receives a salary. She receives royalties from cariebertseminars.com product sales. Ms. Ebert receives compensation from KSHA for presenting this seminar.
- Nonfinancial Disclosure: Cari Ebert has a son with autism, apraxia and sensory processing disorder and shares personal experiences in her seminars.

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*My new
apraxia book
is now
available*



www.cariebertseminars.com

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Why We Are Here

- To gain an understanding of the external and internal sensory systems because...
- The way a child receives, processes and interprets sensory information affects the way he develops, learns and behaves.

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Sensory Processing

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- "Sensory processing refers to the way the nervous system receives messages from the senses and turns them into appropriate motor and behavioral responses." SPD Foundation

- Our bodies must process and integrate constant sensory information coming from the environment and also from inside our own bodies.

- To be neurologically organized, all the sensory systems must work together to provide us with the optimal level of arousal.

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How Young Children Learn

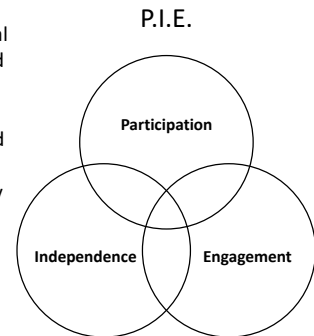
- Young children learn by **participating** in daily routines and activities (such as meal time, bath time, dressing time and playtime).
- Young children gain **independence** by practicing newly learned skills at different times and with different people.
- Young children learn through social interactions while **engaging** with the important people in their lives.

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The way young children take in and respond to sensory information can significantly impact their participation, independence and engagement (P.I.E.) in daily activities.

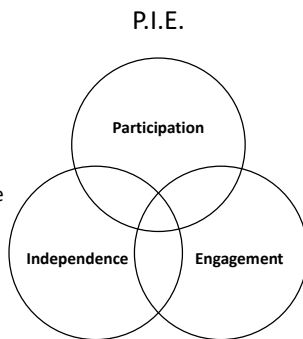
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As the neurotypical child develops and matures, his participation, independence and engagement in activities naturally increase



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As the child with special needs increases his participation, independence and engagement in activities, his degree of disability decreases



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Sensory Processing Disorder

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Sensory Processing Disorder (SPD)

- “Sensory Processing Disorder exists when sensory signals don’t get organized into appropriate responses and a child’s daily routines and activities are disrupted as a result.” Lucy Jane Miller, 2006
- “Sensory Processing Disorder is a neurological disorder in which the sensory information that the individual perceives results in abnormal responses.” STAR Center (spdstar.org)
- Some children present with sensory challenges that result in atypical reactions to typical experiences.

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Why We Must Address SPD

A child who has difficulty receiving and interpreting sensory input can have difficulties with:

- communication
- social interactions with adults and peers
- making and keeping friends
- daily routines and activities
- behaviors
- self-regulation
- self-esteem
- academics
- the occupation of childhood (learning & developing)

How many of these issues are relevant to the SLP?

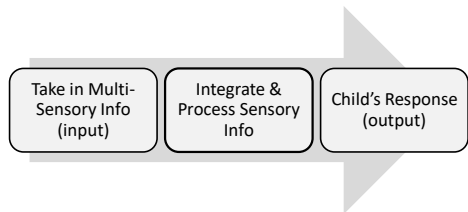
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Pioneering occupational therapist, Jean Ayres, likened sensory processing disorder (also called sensory integration disorder) to a **neurological traffic jam** that prevents the brain from correctly interpreting sensory input.



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SPD = Input/Output Problems



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Sensory Processing Disorder

- Sensory Processing Disorder is treated by an experienced occupational therapist.
- However, all educators, pediatric therapists and school administrators need to have a basic understanding of sensory processing and be equipped with strategies on ways to support children who struggle with self-regulation.

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Sensory Variations

- There are variations of what is considered “normal.”
- You and I can make adjustments to accommodate our sensory variations in life (e.g. we don’t wear clothes that make us feel uncomfortable or stay in places that annoy us).
- Some children can’t effectively communicate their need for adjustments in an appropriate manner and therefore, they need our help.

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Displeasure vs. Disorder

- There are certain kinds of sensory input that cause you and I displeasure.
- While most people have occasional difficulty with sensory processing (displeasure), to get diagnosed with Sensory Processing Disorder (SPD) these difficulties must be chronic and disrupt the person's life on a daily basis (cause total discombobulation).

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Etiologies of SPD

- The exact cause of SPD—like other complex neurobehavioral disorders such as autism spectrum disorder (ASD) and ADHD—is unknown.
- According to Lucy Jane Miller, PhD, OTR, there are three likely contributors to SPD:
 1. Heredity/genetics
 2. Adverse prenatal and delivery complications (drug/alcohol exposure, prematurity, birth trauma)
 3. Environmental factors

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➤ **Today, we are talking about children with sensory dysfunction, who may, or may not, have a formal diagnosis of SPD.**

➤ Most of the children we work with do not have a diagnosis of SPD...which is not surprising because SPD is not recognized in the medical community as a formal diagnosis.

➤ Despite 40 years of research and discussion, the SPD researchers have yet to identify and agree upon a standardized diagnostic tool. SPD was therefore excluded as a medical diagnosis in the revised DSM-V in 2013.

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Prevalence of SPD

- One study indicates that 1 in 20 children are affected by SPD = Prevalence of 5%.
Ahn et al., 2004
- Another study suggests that 1 in 6 children experiences sensory symptoms significant enough to affect aspects of everyday life = Prevalence of 16%.
Ben-Sasson, et al., 2009
- In children with ADHD, autism and Fragile X syndrome, the prevalence of SPD is much higher.
Lucy Jane Miller, 2006

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SPD Subtypes

Lucy Jane Miller, PhD., OTR

Sensory Modulation Disorder: problem turning sensory messages into controlled behaviors that match the situation

- Sensory over-responsivity
- Sensory under-responsivity
- Sensory seeking/craving

➤ Dysregulation

Sensory-Based Motor Disorder: problem with stabilizing, moving, or planning a series of movements in response to sensory demands

- Dyspraxia
- Postural Disorder

Sensory Discrimination Disorder: problem with sensing similarities and differences between sensations

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Regulation

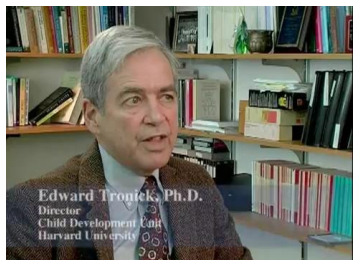
The child's brain has an important job: to regulate reactions to sensory input so his/her nervous system obtains the appropriate level of alertness needed for learning and development.

- Self-regulation is a person's ability to monitor and control his own alertness level based on the sensory input and changing demands of the situation.
- Co-regulation refers to how a person responds to and feeds off of other people (child's reaction mirrors the adult's reaction).

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Co-regulation

Still Face Experiment by Dr. Edward Tronick



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Regulation

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- Co-regulation refers to how a person responds to and feeds off of other people (child's reaction mirrors the adult's reaction).
- Dysregulation describes inappropriate responses to input from the senses/difficulty self-regulating.

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"Ready State for Learning"

- Parasympathetic nervous system: this part of the nervous system helps to produce a state of equilibrium in the body—necessary for a "ready state" for learning and interacting.
- Sympathetic nervous system: this part of the nervous system is intended for safety and the ability to react when danger arises—this is the "fight, flight or freeze" state of arousal.

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The Dysregulated Child

(Sensory Modulation Disorder)

- Describes a child who has difficulty turning sensory messages into behaviors that match the situation.
- Children who struggle with modulation have difficulty with self-regulation—they are not in a "ready state" for learning (they are dysregulated).
- There are three ways a child can be dysregulated:
 1. Over-responds to sensory input
 2. Under-responds to sensory input
 3. Craves sensory input (actively under-responsive)

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Dysregulation

H₂O Analogy

Neurotypical person = filling an 8 ounce glass with tap water (controlled and efficient)

Sensory over-responsivity = filling a shot glass with a firehose (getting too much input too fast)

Sensory under-responsivity = filling a large pitcher with an eye dropper (takes an extended amount of time to get enough input)

Sensory craving = filling a Styrofoam cup that has holes in the bottom (can't ever get enough input, no matter how long you try)

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Sensory Over-Responsivity

- *Oh no!* response
- Nervous system over-responds to sensory input
- Low threshold to sensory input (responds too quickly)
- Sensory information rushes in like a runaway train
- Also called "sensory defensiveness"
- Overwhelmed, anxious, and emotionally laden
- Overly cautious and resistive to change
- Difficulty with transitions
- Has a fight or flight response to sensory input

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Sensory Under-Responsivity


- *Huh?* response
- Nervous system under-registers sensory input
- These kids require more input for longer periods of time with greater intensity in order to perceive information coming in through the senses
- Inattentive, withdrawn, difficult to engage, poor self-motivation, slow to respond, unaware of what's going on in the environment
- Low activity levels; prefer sedentary activities such as screen time

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Sensory Craving

- *More, more, more!* response
- Nervous system never seems to get enough or the right kind of sensory input – therefore the sensory input never seems to regulate the child
- Seeks unusual amounts of sensory input
- Lacks safety awareness, takes bold risks, is impulsive
- Constantly moving, touching or chewing
- Knows no fear, is a risk-taker and is often described as “naughty”

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Under-Responsive (Basset Hound)

Over-Responsive (Dalmatian)

Sensory Craving (Terrier)

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A child can be dysregulated in more than one way...

Example 1: A child can be over-responsive to certain kinds of sensory input and under-responsive to others.

Child is over-responsive to certain food textures and under-responsive to pain

Example 2: A child can be under-responsive to certain kinds of sensory input and constantly seeking other types of input.

Child is under-responsive to loud noises and craves oral-sensory input

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The 8 Sensory Systems

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The 8 Sensory Systems

External Senses

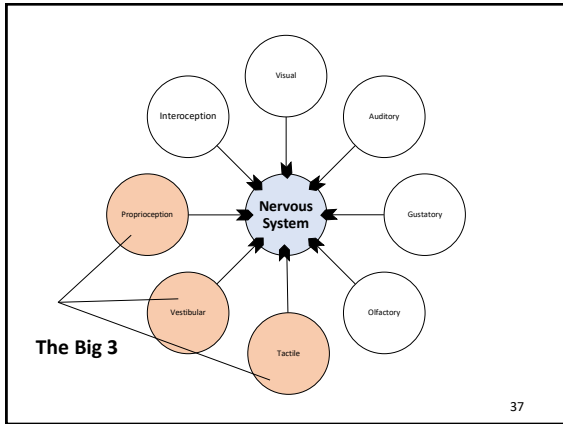
- Visual (sight)
- Auditory (hearing)
- Gustatory (taste)
- Olfactory (smell)
- Tactile (touch)

These are considered the 5 basic sensory systems.

Internal Senses

- Proprioception (body position and awareness sense)
- Vestibular (balance and movement sense)
- Interoception (internal physiological body condition sense)

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Visual Sense

- Sensory acuity is different from sensory processing.
 - Visual acuity is the actual physical ability of the sensory organs (eyes) to receive input (to see). Visual acuity needs are addressed with glasses.
 - Visual processing is the brain's ability to process the information the eyes take in. Visual processing needs are addressed with changes to the environment/activity and vision therapy.
- Many children with visual processing deficits actually have intact acuity (20/20 vision).

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- Vision therapy is designed to resolve vision problems that can contribute to learning disabilities (tracking, using both eyes together, eye hand coordination, etc.).
- Hahn Price Vision Center in Olathe, Kansas provides a symptoms checklist for undetected vision problems including:
 - Reads below grade level
 - Avoids reading
 - Loses place when reading/uses finger to follow print
 - Omits or turns around words when reading
 - Tires quickly when reading
 - Covers an eye to read

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Visual Input:

Symptoms of Sensory Over-Responsivity

- Sensitive to bright sunlight (insists on wearing hat or sunglasses; only plays outside after dusk)
- Dislikes flashing lights
- Difficulty keeping eyes focused on activity
- Easily distracted or overwhelmed by visual stimuli
- Difficulty focusing in bright rooms
- Rubs eyes or squints frequently
- Avoids eye contact
- Likes to play in the dark

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Visual Input:

Symptoms of Sensory Under-Responsivity

- Difficulty discriminating between similar letters or figures (p/q, +/x, b/d)
- Has difficulty following a moving object
- Difficulty locating items that are often in plain sight
- Loses place when copying from book, while reading or when doing math problems
- Struggles identifying differences in pictures
- Difficulty with consistent spacing and size of letters
- Fatigues easily with school work

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Visual Input:

Symptoms of Sensory Craving

- Is attracted to bright or spinning lights
- Likes to stare at spinning objects
- Blinks eyes repetitively
- Moves fingers in front of eyes or pokes eyes
- Peers out of corner of eyes (peripheral vision)
- Lines up objects and then scans them repeatedly
- Flaps hands
- Turns light switches on and off repeatedly

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Auditory Sense

- Sensory acuity is different from sensory processing.
 - Auditory acuity is the physical ability of the sensory organs (the ears) to receive input (to hear). Acuity needs are addressed with hearing aids.
 - Auditory processing is the ability of the brain to process the information the ears take in. Auditory processing needs are addressed with changes to the environment/activity and speech therapy.

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Auditory Input

Symptoms of Sensory Over-Responsivity

- Bothered by sounds not noticed by others
- Fearful of loud or unexpected sounds (vacuum, sirens, hairdryer, flushing toilet, sneezes)
- Covers ears to block out sounds
- Dislikes loud places (movie theater, parades, school assemblies, Chuck E. Cheese, Wal-Mart)
- May dislike certain people because of their voice
- Tells people to “be quiet” or “stop singing”
- Strong aversion to the *Happy Birthday* song

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Auditory Input

Symptoms of Sensory Under-Responsivity

- Doesn't consistently respond to name being called
- Appears deaf at times (yet hearing is WNL)
- Has difficulty remembering what was said
- Appears oblivious to certain sounds/doesn't startle
- Overly tolerant of loud noises
- Unsure of where sounds are coming from
- Limited vocalizing or babbling as a baby
- Says “*What?*” or “*Huh?*” frequently
- May get diagnosed with auditory processing disorder.

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- Auditory processing disorder is also known as central auditory processing disorder (CAPD).

- CAPD is officially diagnosed by an audiologist and can be difficult to diagnose until age 7-8.

- CAPD affects communication, academics (reading, spelling, writing) and social skills.

- Children with CAPD have normal hearing acuity, but they struggle to process and make meaning of sounds.

- Speech therapy and reading instruction are typically indicated for children diagnosed with CAPD.

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Auditory Input

Symptoms of Sensory Craving

- Enjoys noisy environments (mall, gymnasium)
- Talks loudly/often the loudest kid in the classroom
- Prefers TV and music be played at a loud volume
- Frequently makes odd noises just to hear them
- Produces frequent vocalizations such as humming, grunting or shrieking
- Repeats portions of videos or books (scripting)
- Covers and uncovers ears
- Snaps fingers or taps objects repeatedly

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Gustatory Sense

- The taste buds can detect 5 flavors: sweet, salty, sour, bitter and savory (umami).
- The gustatory sense allows us to know what we are eating, even if we don't see it first.
- People with a well regulated gustatory sense will tolerate and welcome the introduction of new foods.

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Gustatory/Oral Input Symptoms of Sensory Over-Responsivity

- Has food jags/eats the same foods every day
- Gags with textured foods/prefers pureed foods
- Prefers bland flavors
- Dislikes mixing foods and textures
- Strong aversion to having teeth brushed
- Dislikes toothpaste and mouthwash because of their strong flavors
- Extremely fearful of going to the dentist
- Dislikes chewing gum or sucking on mints

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Gustatory/Oral Input Symptoms of Sensory Under-Responsivity

- May act as though all foods taste the same
- Excessive drooling past the teething stage due to lack of oral awareness
- Unable to feel food that is in or around mouth
- Overstuffs mouth when eating
- Has difficulty learning to use a straw
- Unable to notice tastes and textures that others do, even if they are offensive
- Has an underactive gag reflex

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Gustatory/Oral Input Symptoms of Sensory Craving

- Licks toys, walls or other non-edible surfaces
- Eats play-dough or other non-edible items
- Craves flavor extremes
- Bites finger nails
- Constantly puts toys and other objects in mouth after age two
- Loves condiments (can't get enough ketchup, ranch dressing, salsa, etc.)

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Olfactory Sense

- Smell travels to the limbic system (emotional part of the brain—this is why the smell of apple pie reminds us of grandma's house).
- Taste and smell are closely tied together.
- There are 5 tastes we can detect (salty, sweet, bitter, sour, savory)—any other flavor we detect is actually provided by the olfactory sense.
- If you can't smell, you can't taste, which is why having a cold decreases your appetite.
- If something smells bad, you can almost taste it.

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Olfactory Input Symptoms of Sensory Over-Responsivity

- Unable to tolerate certain smells
- May have strong aversions to certain foods because of how they smell
- Extreme reactions to certain smells—may get physically ill/nauseated
- Often notices odors that other people don't
- Is offended by cologne/perfume and scented lotion, soap, shaving cream
- May avoid certain people or places based on how they smell/may talk about it excessively

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Olfactory Input Symptoms of Sensory Under-Responsivity

- Does not notice smells that others do, even if they are offensive
- Does not respond to unpleasant odors
- May eat or drink harmful or poisonous things due to inability to notice the noxious smell
- Unable to identify smells from spices or scratch 'n sniff stickers

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Olfactory Input

Symptoms of Sensory Craving

- Craves certain smells
- Needs to smell new people, food and objects (everyone and everything)
- Smells food before eating it
- Smells toys during playtime

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Tactile Sense

- The tactile sense is the largest sensory system because the skin is the largest organ in the body.
- The skin contains sensory receptors for touch, temperature, pressure, and vibration.
- There are two types of touch receptors:
 1. deep pressure touch receptors (calming/inhibitory)
 2. light touch receptors (alerting/excitatory)

“Every one of us, from infancy onward, needs steady tactile stimulation to keep us organized, functioning and healthy.”
Carol Kranowitz, 2003

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Tactile Input

Symptoms of Sensory Over-Responsivity

- Dislikes tight fitting clothes (jeans, hats, turtlenecks, underwear, socks, belts, coats)
- May wear attire not appropriate for the season, because child prefers loose-fitting clothes
- Picky about clothing/dislikes certain fabrics
- As a toddler, may constantly take clothes and diaper off
- Aversive to tags and seams in clothes
- Startles easily with light or unexpected touch (tactile defensiveness)

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- Has difficulty transitioning from winter clothes to summer clothes
- Wipes off place where kissed
- Avoids group activities for fear of being touched or bumped into
- Avoids standing close to other people
- Is excessively ticklish
- Bothered by the wind
- Distressed by diaper changes
- Resists affection/doesn't like to be held or cuddled
- Dislikes being hugged, but may be willing to give hugs (does not want touch to be imposed on him)

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- Overreacts to minor cuts, scrapes and bug bites
- Refuses to walk barefoot in the grass or sand
- May toe walk to avoid having feet touch the surface
- Won't leave bandages on skin
- Dislikes messy play such as finger painting
- Bothered by dirty hands—wants to wash them frequently
- Avoids using hands during play
- Hates being buckled into the car seat
- Aversive to taking a shower (prefers a calm bath)
- Bothered by having face washed, nails clipped, hair brushed or washed, getting a haircut

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Tactile Input

Symptoms of Sensory Under-Responsivity

- Lacks awareness of being touched or bumped
- Doesn't seem to recognize when being handled aggressively
- Dresses inappropriately for the weather due to not noticing extremes in temperature
- Doesn't notice if bath water is too hot or too cold
- Oblivious to hands or face being dirty or wet
- Not aware that nose is running
- High pain tolerance/didn't cry when getting shots

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- Isn't bothered by wet or dirty diapers
- Doesn't notice scrapes and cuts
- Doesn't notice when clothes (or chin) are wet
- Lacks awareness of whether clothes are on straight (looks disheveled most of the time)
- Has difficulty successfully using tools such as pencils, scissors, eating utensils

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Tactile Input

Symptoms of Sensory Craving

- Intrusively touches other people ("space invader")
- Explores surfaces or textures repeatedly by touching, rubbing, licking, squeezing, etc.
- Excessively mouths objects (past age 2)
- Scratches or rub own skin excessively
- Engages in self-injurious behaviors (pinching, biting, banging head)
- Seeks out messy play
- Sleeps with excessive number of stuffed animals and blankets on the bed

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- Likes clothes and shoelaces to be as tight as possible
- Enjoys being in tight spaces
- Likes heavy or weighted blankets
- Enjoys lying under something heavy
- Likes being wrapped up tightly in a blanket (baby burrito/swaddling)
- Loves to be squished

*Squishing a child provides deep pressure touch; if the child tries to climb out from under the weight, he is working against gravity and will also receive proprioceptive input

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Proprioceptive Sense

- Sensory information comes through receptors in the muscles, joints, ligaments and tendons.
- This sense allows you to know where your body is without having to look (referred to as body awareness).
- Body awareness ("internal eyes") aids in accurate motor planning. Kashman & Mora, Delaney
- Vision is not necessary to understand body ownership.

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- This sense tells us where our body parts are relative to other body parts ("*The left hand knows what the right hand is doing sense*" –Tara Delaney)
- Proprioceptive input involves heavy resistance to the muscles and joints and helps our bodies assimilate and process movement (vestibular) and touch (tactile) information.
- Have you ever felt disconnected from your own body? How about when your leg falls asleep or after you get Novocain at the dentist?

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Proprioceptive Input

Symptoms of Sensory Over-Responsivity

- Proprioceptive input is helpful to the nervous system, so we do not typically see over-responsivity in this sensory system

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Proprioceptive Input

Symptoms of Sensory Under-Responsivity

- Has poor body awareness
- Doesn't know where body is in space
- Has difficulty maintaining posture; slumps when sitting in a chair or when seated on the floor; leans head on hands when working at a desk

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Proprioceptive Input

Symptoms of Sensory Craving

- Seeks out constant input to muscles and joints
- Craves high-impact jumping (gives the joints in the hips, knees and ankles a jolt)
- Flaps hands or arms excessively (gives the joints in the shoulders, elbows and wrists a jolt)
- Loves heavy work (pushing, pulling, or dragging weighted or bulky items; working against gravity)
- Frequently cracks knuckles or neck
- Kicks floor or chair while seated
- Walks on toes for increased input

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- Is unknowingly too rough with pets or younger children
- Slams own body to the ground
- Chews constantly on non-edibles
- Grinds teeth, crunches ice, bites hard candy instead of sucking on it
- Uses too much force (slams doors, gives intense hugs)
- Frequently bangs, throws or breaks toys
- Seeks out wrestling and rough-housing types of interactions
- Adults are always reminding the child to be gentle, saying such things as "nice hands" or "soft touch"

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Vestibular Sense

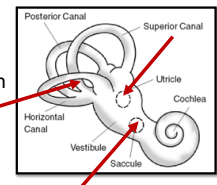
- This is the most powerful sensory system and its main job is to regulate our sense of balance.
- This is our internal GPS system and it tells us where we are in relation to the ground.
- A child with vestibular dysfunction will not feel safe and secure in his movements.
- Vestibular input is processed in the inner ear (the "vestibule" consists of the semicircular canals, the utricle, and the saccule).
- The vestibular system is like a carpenter's level.

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- The vestibular sense detects movement changes related to gravity: tells you whether you are sitting or standing, in motion or standing still, balanced or off-balance, upright or horizontal, moving forward or backward, walking or running, right side up or upside down; also detects if we are in a safe, relaxing place or in danger.
- This sense is important for the development of balance, orientation, coordination, eye control, attention, security in movement, and some aspects of speech and language.

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- The semicircular canals process movement/primarily starting and stopping: on an airplane the only time you experience the sensation of movement is at take off, landing and when there is turbulence.
- The utricle and saccule process smaller sustained movements. This helps with balance, extensor tone, linear movements and feeling grounded (the person's relationship to gravity).



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- Vestibular input has to be processed bilaterally (we have two ears!).
 - Kids with vestibular problems may have difficulty choosing a dominant hand due to difficulty with bilateral integration
 - Tasks involving both sides of the body (zipping a jacket, riding a bike) depend on effective vestibular function
- Why do some people get motion sickness? The visual system receives information that competes with the vestibular system. When reading in the car, the eyes see still words, but the ears feel the linear movement of the vehicle.

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Vestibular Input Symptoms of Sensory Over-Responsivity

- Has gravitational insecurity/fearful of feet leaving the ground (general fear of movement)
- Dislikes playground equipment that involves movement (slides, swings, teeter totters)
- Fearful of going up and down stairs/ladders
- Is uncomfortable in elevators and on escalators (may try to sit down)
- Over-responds to ordinary movements (appears terrified); physically clings to caregiver
- Fearful of walking on uneven surfaces

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- May have a shuffled gait (in order to keep both feet on the ground)
- Dislikes inversion (being upside down)
- Moves slowly and cautiously
- Startles/over-reacts if someone else moves them
- Fearful of heights, even a curb or a step
- Disliked tummy time as an infant
- Disliked being tossed in the air as a baby
- Loses balance easily
- Described as clumsy
- Has difficulty riding a bike, hopping, balancing on one foot, walking on a balance beam

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- Dislikes leaning back to have hair washed
- Fearful of doing the back float in the pool
- Unwilling to dive head first into the pool
- Prefers to keep head in one position (dislikes alternating looking up and down)
- Dislikes gymnastics (somersaults, cartwheels)
- Becomes easily dizzy or nauseous (motion sickness)
- Dislikes moving with eyes closed
- Is overly cautious
- At times may appear to be willfully uncooperative or manipulative (this is a fight or flight response resulting from fear)

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Vestibular Input Symptoms of Sensory Under-Responsivity

- Doesn't get dizzy with rotary movement (spinning)
- Unaware of being off-balance/sensation of falling; doesn't protect self well during a fall
- Has poor muscle tone and/or coordination resulting in:
 - limp or floppy body
 - difficulty with hand dominance
 - skipping of the crawling stage
 - weak gross and fine motor skills
 - “w” sitting

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“W” Sitting

The vestibular system coordinates body movements, maintains balance and equilibrium, and helps children develop normal muscle tone

A deprived vestibular system can contribute to weak core

W-sitting limits trunk rotation

W-sitting is often used to compensate for poor trunk or pelvic stability and/or poor static balance



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Vestibular Input

Symptoms of Sensory Craving

- Seeks intense movement in all directions and angles (the faster the better)
- Loves to jump, spin, skip and roll excessively
- Delights in being upside down
- Loves roller coasters and spinning rides
- Likes to jump from high heights
- Climbs up wrong side of staircase
- Is a thrill seeker
- Loves being thrown in the air

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- Craves roughhousing, wrestling and play fighting
- Has spurts of impulsive running
- Can repeat certain movements endlessly just for the sensation it provides
- Needed to be rocked excessively as a baby; was happiest in the swing, bouncer or riding in the car
- Rocks body front to back or side to side repeatedly
- As movement increases, child becomes more and more disorganized
- Gets little to no information about how high or how fast he is going; has “no fear”
- Seeks out balancing activities

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Interoceptive Sense

- This is the “How do you feel?” sense.
- The interoceptors are internal sensors that tell you about the physiological condition of your body related to:
 - Pain/Sickness
 - Itch
 - Thirst and hunger
 - Need to use the bathroom
 - Fatigue
 - Breathlessness
 - Hearttrate
 - Subjective feelings of ones’ emotions

The Hidden Sense

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Interoceptive Input

Symptoms of Sensory Over-Responsivity

- Bodily sensations may cause over-reactions such as fear or pain (e.g. hunger interpreted as a stomach ache)
- Frequently complains of non-specific discomfort (visits the school nurse often)
- Avoids using the restroom due to anticipation of pain associated with bowel movements or uses the restroom excessively
- Has meltdowns for no apparent reason (reacting to intense internal sensations)
- Mis-interprets stretching as pain (in PT)

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Interoceptive Input

Symptoms of Sensory Under-Responsivity

- Child may not feel or respond to the body’s signals appropriately or in a timely manner
- High internal pain tolerance
- May not experience nausea, hunger, thirst, fullness, fatigue
- Slow to potty train
- Difficulty sensing need to use the restroom—may have frequent “accidents” (incontinence, enuresis)
- Doesn’t notice a pounding heartbeat or sweaty palms

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Interoceptive Input

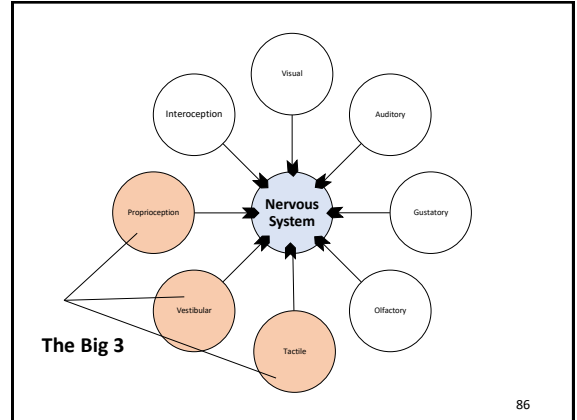
Symptoms of Sensory Seeking

- Child may be in constant motion because he is seeking a pounding heartbeat and fast respiration
- Hunger and thirst sensations might feel good so eating and drinking is purposefully limited

84

The Big 3

85



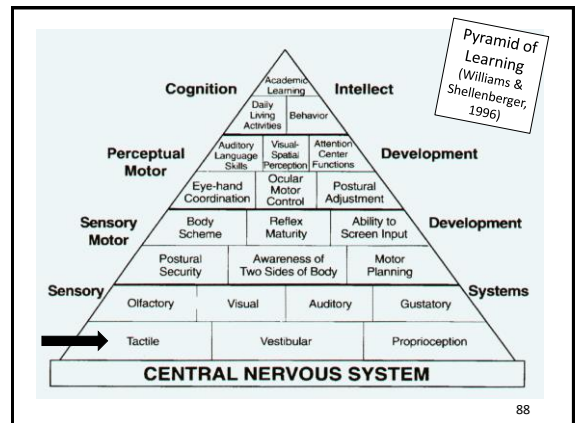
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The Big 3

- According to Dr. Jean Ayres, the tactile, proprioceptive and vestibular senses are the “Big 3” for kids with sensory dysfunction. The other senses can’t work properly if the Big 3 aren’t doing their job. It is the integration of these three **power senses** that allow us to experience, interpret and respond appropriately to the constant bombardment of sensory information.
- The proprioceptive and vestibular senses work with the tactile sense to lay the foundation for the development of the other senses.

Tara Delaney OTR/L

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Why the “Big 3” are relevant for the SLP

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The Tactile Sense and the SLP

- Tactile receptors are located not only on the skin, but also inside the mouth.
- If the child is over-responsive to tactile input in the mouth (is defensive), challenges related to eating may occur such as:
 - Transitioning from a liquid to a solid diet
 - Moving from smooth pureed to chunky baby food
 - Trying new foods
 - Eating with certain utensils → They may not “feel” right in the mouth
 - Drinking from certain cups →

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- When seeking tactile input, the child may always be putting his or her hands and objects in the mouth (long past the developmental stage of oral exploration).
- If the child doesn't receive appropriate feedback from the articulators, his/her speech may be highly unintelligible (inaccurate oral feedback can hinder the perception, pressure and speed of the articulators). Speech requires rapid and accurate alternating movements of the articulators (think diadochokinetic rate).

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The Proprioceptive Sense and the SLP

- Gesturing, pointing and writing are all proprioceptive tasks that are performed without constant visual monitoring of the extremities (which means they require body awareness).
- Oral-motor difficulties may occur that negatively impact talking and/or eating (child may not know where to place his articulators to form sounds; child with inaccurate tongue movements may have difficulty forming a bolus which could lead to choking and other difficulties with eating).

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- Poor awareness of the articulators can contribute to speech challenges (many young children we work with don't even know they have lips and a tongue).
- A child who is craving proprioceptive input through his jaw may always have something in his mouth (may chew constantly on pencils, straws, shirt or gum).
- The child may clench his jaw when talking, creating significant problems with intelligibility.
- Since proprioceptive input is calming, some kids may overstuff their mouth, grind their teeth, or mouth non-edibles as a way to calm down in overstimulating or stressful situations.

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The Vestibular Sense and the SLP

- There is a connection between the vestibular sense and speech and language development.
- The vestibular and auditory systems work together as they process sensations of movement and sound—these senses are closely connected because they both begin to be processed in the receptors of the ear.
- The vestibular system plays a role in the development of language—therefore children with vestibular dysfunction may also have speech, language, and/or auditory processing difficulties.

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- The vestibular sense is tied to speech and language development—it is the integration of the vestibular and auditory senses that allows for processing of auditory information. Kranowitz, Kashman & Mora
- Stimulating the vestibular system directly impacts the auditory system, which facilitates speech and language development (this is why an OT can get some kids to talk better than the SLP).
- "Integration of the tactile system, along with the vestibular and proprioceptive systems, allows accurate speech articulation."

Kashman, OTR/L & Mora, CCC-SLP

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- "The vestibular system influences motor control and motor planning that are necessary to use those fine muscles to produce intelligible speech." Carol Kranowitz

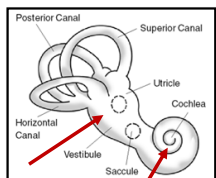


- According to Kranowitz, "Moving activates the ability to speak. A child with vestibular and language problems benefit greatly from therapy that simultaneously addresses both types of dysfunction...therapists report that just putting the child in a swing during treatment can have remarkable results."

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- The vestibular system and the cochlea (the hearing portion of the inner ear) are anatomically connected. Therefore, stimulating the gravity receptors impacts the hearing receptors. Research (by Ray, Kin & Grandin, 1988) has shown that vestibular stimulation can increase spontaneous speech productions.

- Movement is important to enhancing speech development in children with speech delays.



Cochlea is the hearing portion of inner ear

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Communication impairments often associated with vestibular dysfunction (Carol Kranowitz)

- Easily distracted; difficulty focusing on speaker
- Difficulty locating source of sound
- Difficulty with reading
- Poor articulation
- Weak vocabulary and immature sentence structure
- Difficulty following multi-step directions
- Trouble responding appropriately to questions or comments
- Difficulty putting thoughts into spoken or written words

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Functions of Behavior

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We must recognize that...

1. You can't teach a child anything until he is in a ready state for learning.
2. All behavior is communication.
3. In order to understand a child's behavior, we need to consider **ABC**:
ABC = Antecedent, Behavior, Consequence

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Communicative Functions of Behavior

1. **Attention:** Child uses behavior to seek attention (positive or negative) from the adult or to get a reaction from peers.
2. **Escape:** Child uses behavior to avoid a challenging or undesired task. The behavior is seen as a "way out."
3. **Control:** Child resents trying to be controlled by the adult, and retaliates. Child may be described as manipulative, rebellious, non-compliant or oppositional.
4. **Access:** Child uses behavior to access a preferred item or activity.

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5. **Express Feelings or Physical Needs:** Child uses behavior to communicate feelings and emotions (tired, ill, anxious, sad, lonely, angry, frustrated).
6. **Communicate:** Child uses behavior to initiate interactions (social) or to communicate wants and needs (functional) due to unintelligible speech or struggles with expressive language.
7. **Lacks Understanding:** Child's behavior occurs due to difficulty understanding the social rules that aren't explicitly taught (i.e. turn taking, personal space, topic maintenance, nonverbal cues from communication partner, etc.).
8. **Sensory Need:** Child's behavior provides some type of sensory input that is pleasing, or removes some type of sensory input that is aversive.

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EXAMPLES

- Child flicks an eraser up in the air right as the teacher walks by his desk.

The communicative function of his behavior was likely...

To gain **ATTENTION**

- Child gets upset, falls to the floor in a heap and cries until the teacher gives her the bubbles she is holding (at which point the tears end abruptly).

The communicative function of her behavior was likely...

To gain **ACCESS**

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- Child is asked to pick up his art materials. He whines and complains, "It's too hard" and then throws the colored pencils on the floor. The child is then sent to the "safe spot" for a time-out to think about his behavior.

The communicative function of this behavior was likely...

To **ESCAPE** an undesirable activity

- Child refuses to sit with the other kids on the carpet during circle time. The teacher invites him to sit on her lap, which he eagerly does. The teacher provides frequent "squeezes" to the child while seated on her lap.

The communicative function of this behavior was likely...

To meet a **SENSORY** need (deep pressure touch)

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- A minimally verbal child throws herself on the floor off and on all morning, crying and screaming for no apparent reason. The child is absent the next day and parent reports that she went to the doctor and has an ear infection.

The communicative function of her behavior was likely...

To express a **PHYSICAL NEED/FEELING**

- Child is instructed to sit down and be quiet. He doesn't follow directions and instead proceeds to run in circles around his desk while making loud sounds.

The communicative function of his behavior was likely...

To gain **CONTROL**

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- Child with poor speech intelligibility hugs her peers as a way to initiate an interaction.

The communicative function of this behavior is likely...

To **COMMUNICATE** her desire to play with others

- Child talks incessantly about the new Spiderman movie until his peers start screaming at him to "Shut-up!" Despite multiple prompts from the teacher, the child continues to talk about this movie until one of his peers shoves him into the wall.

The communicative function of this behavior (incessant talking) is likely...

Due to a **LACK OF UNDERSTANDING** of social rules

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Behavioral Tantrum or Sensory Meltdown?

- Behavioral tantrums (temper tantrums) and sensory meltdowns can look and sound similar.
- The causes and appropriate responses from the adult, however, are completely different.
- In order to provide the necessary support, we need to understand how they differ.



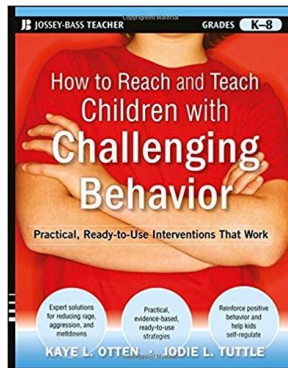
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Anatomy of a Behavioral Tantrum

- Purpose of a tantrum is to manipulate the caregiver in order for the child to get his way; tantrums are socially driven.
- Child can stop mid-tantrum, when being ignored, and start up again when the adult is looking (which means he is in control of his behaviors).
- Tantrums are typically sparked by not getting his way.
- A tantrum stops if the child gets his way (i.e. if the adult gives in).

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Excellent Resource for Addressing Challenging Behaviors in the Classroom



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The “3 Ds” (Otten & Tuttle, 2011)

- Not all challenging behaviors need to be addressed.
- Behaviors that pass the “So what?” test, likely do not need to be addressed (while they are irritating, they may lead to unnecessary power struggles).
- The behavior should qualify as one of the 3 Ds before action is taken:
- The 3 Ds include behaviors that are:
 - 1) Dangerous to the child or others
 - 2) Destructive to personal property or the property of others
 - 3) Seriously disruptive to the learning environment

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Anatomy of a Sensory Meltdown

- Meltdowns occur due to a cumulative effect of sensory overstimulation – and there is often one final trigger, or stressor, that sends the child over the edge (this is how a tantrum can change into a meltdown).
- Child is neurologically disorganized and the behavior serves no end result that is obvious to the adult.
- Child isn’t seeking attention or a tangible item from the adult; meltdowns aren’t socially driven.
- Meltdowns slowly lessen in intensity and eventually end due to physical exhaustion or changes in sensory input.

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A tantrum is bad behavior...a meltdown is a neurological response due to being overwhelmed.

“A child throwing a temper tantrum looks like he’s giving a performance, while a child having a sensory meltdown looks like he’s fighting for his life.”

Terri Mauro, 2006

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SPD or ADHD?

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SPD or ADHD?

ADHD is a biological condition that makes it hard for the child to concentrate and sit still. According to the CDC, 11% of children aged 4-17 in the United States have been diagnosed with ADHD.

SPD is a neurological condition that makes it hard for the child to focus and attend. Studies indicate that 5-16% of children exhibit symptoms of SPD (Ahn, Miller et. al, 2004, Ben-Sasoon, Carter et. al, 2009).

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Sensory Seeking or ADHD?

Miller, 2006

1. Acts impulsively
 - Sensory seeking: child can stop impulsive behavior if sensory input is sufficient
 - ADHD: child remains impulsive regardless of sensory input; has frequent tantrums due to poor impulse control; blurts out things inappropriately
2. Extra active
 - Sensory seeking: craves activity that is related to sensory input (usually proprioceptive or vestibular)
 - ADHD: craves novelty and activity that is not sensory specific

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3. Seems neurologically disorganized
 - Sensory seeking: is ready to learn and is more organized after sensory input
 - ADHD: sensory input does not improve the child's ready-state for learning
4. Impatient and demanding
 - Sensory seeking: more patient if given sensory input while waiting
 - ADHD: has difficulty waiting and taking turns regardless of sensory input
5. Lacks self-control
 - Sensory seeking: touches people/objects frequently
 - ADHD: talks all the time, impulsively interrupts

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6. Doesn't follow through and finish activities
 - Sensory seeking: struggles initiating activities, but can stick with them when prompted
 - ADHD: starts activities but doesn't stick with them; schoolwork and desk are disorganized
7. Has difficulty with focusing attention
 - Sensory seeking: often in a daze; can't filter out distractions
 - ADHD: interested but makes careless mistakes; loses focus easily; gets easily bored
8. Appears disinterested and uncooperative
 - Sensory seeking: fatigues rapidly and appears bored or unmotivated
 - ADHD: daydreams and seems far away

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9. Doesn't follow directions well
 - Sensory seeking: unaware of directions begin given; may have difficulty getting started due to difficulties with motor planning
 - ADHD: gets started but has difficulty remembering or following-through completely
10. Doesn't perform daily routines in a timely manner
 - Sensory seeking: knows the routines but is impossibly slow; dislikes changes in routines
 - ADHD: forgets or gets lost in the middle of a routine but can complete it at a normal pace when focused

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Sensory and Autism

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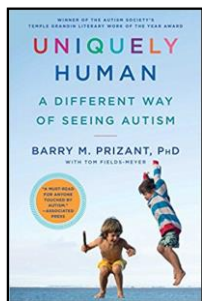
SPD and Autism

- Atypical responses to sensory input in children with autism may be as high as 95%.
(Tomchek, Dunn 2007)
- While most people with autism have sensory processing disorder, not all people with sensory processing disorder have autism!

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Uniquely Human: A Different Way of Seeing Autism by Dr. Barry Prizant is an excellent resource for therapists, educators and parents.

Dr. Prizant encourages us to seek to understand the child's behaviors first, before trying to change them.



This book is under \$10 on Amazon

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“Autism is not an illness. It’s a different way of being human. Children with autism aren’t sick; they are progressing through developmental stages as we all do. To help them, we don’t need to change them or fix them. We need to work to understand them, and then change what we do.”

Prizant, p. 4

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Stimming Behaviors and Autism

- Self-stimulatory (“stimming”) behavior refers to repetitive movements that are used to stimulate one’s own senses.
- Stimming behaviors are common in people with autism spectrum disorder (ASD).
- Angie Voss, OTR, refers to stimming behaviors as “sensory anchors.”

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“Sensory Anchors”

Angie Voss, OTR

Voss describes a sensory anchor as “a behavior or repetitive activity which helps the brain organize, calm, soothe and achieve or maintain a ready state.”

Common anchors we see that may help the dysregulated child feel grounded and organized:

- lining up toys or objects
- looking at spinning objects
- making repetitive mouth sounds
- chewing on non-edibles
- scripting and repeating phrases
- hand flapping

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Seek to Understand, Not Change the Child (Prizant, 2015)

Q: “Why does Joey flap his hands?”

A: “Because he has autism.”

This is a dismissive response. Instead, we need to respect the child and try to understand *why* he is hand flapping—

- To screen out distractions so child can gain selective focus
- To increase his alertness level
- To release tension/calm down
- To express joy

This hand-flapping behavior is actually a **strategy** that Joey utilizes when he is dysregulated.

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Supporting Children with Sensory Differences

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How the SLP Can Support a Child with Sensory Differences

1. Have a best friend who is an OT.
2. Focus on the Big 3 (tactile, proprioceptive & vestibular) by incorporating deep pressure touch, heavy work, and play-based movement into speech and language activities.
3. Consider the need for sensory input when a child starts to lose focus, attention or engagement and prior to difficult transitions.
4. Remember the 3 D's and choose your battles wisely (if a child who typically refuses craft activities will complete one in therapy when using a glittery pink pen with feathers on it, then maybe it should be allowed).

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4. Align therapy activities to meet the child's sensory needs.
5. Be in tune with what each child needs from day to day (what works one day, may not be effective the next; what works with one child may not be effective with another child).
6. Keep in mind that our overall goal should be to increase the child's participation, independence and engagement (P.I.E.).
7. Use visual supports to help the child understand what is expected and increase appropriate responses and behaviors.
8. Respond appropriately to problem behaviors by acknowledging and addressing the communicative function of the behavior.

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9. Dim the lights to provide a calming effect.
10. Offer noise-canceling headphones to provide a calming effect.
11. Designate a quiet space for children who need to self-regulate (a quiet space limits auditory and visual input/OTs call it the "womb" effect).
12. Reduce visual clutter on walls and bulletin boards; place a curtain over open shelves to reduce visual distractions.
13. Be sure the child has a way to ask for a break.
14. Prepare the child for new events/changes in the schedule with visual and verbal cues.
15. Determine optimal seating facing away from doors and windows to reduce distractions.

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16. Provide advance warnings of loud noises (vacuum, toilet flushing, fire alarm, school bell) that may overwhelm the child.
17. Have a plan in place for taking the child to loud, chaotic events.
18. Read aloud books about sensory processing disorder (Sensory Like You by Rachel Schneider; Listening to My Body by Gabi Garcia).
19. Continue to attend professional education courses and read books/articles on sensory processing to increase your sensory tool box.
20. Help the child achieve a ready-state for learning by determining whether his nervous system needs calming input or alerting input.

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Alerting Input

- Jerky movements/ changes in direction
- Fast movements/speech
- Side to side movement
- Inversion
- The unexpected
- Bright/fluorescent/ flashing lights
- Upbeat, loud music
- Light touch
- Loud sounds/voices
- Cold or changing temperatures
- Rough texture
- Strong odors
- Bright colors
- Pokey or prickly
- Bold, bright, colorful, busy background stimuli

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Calming Input

- Rhythmic movements
- Slow, steady movements/speech
- Linear movement
- Eyes right with horizon
- The familiar
- Soft, natural lighting/dimly lit rooms
- Slower paced music
- Quiet sounds/voices
- Warm/neutral temps
- Smooth texture
- Mild odors
- Muted colors
- Deep pressure touch, heavy work
- Subdued backgrounds/ limited visual stimuli

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ALERTING OR CALMING?

- Fast spurts of running
- Carrying heavy books to the library
- Doing somersaults
- Moving a child's chair from behind
- Swinging on a glider/porch swing
- Being tickled
- Putting objects into a bucket repeatedly
- Lining up or sorting objects

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Embracing a Multisensory Therapy Approach in Speech Therapy

Talking doesn't start at the mouth.

By incorporating play-based movement and multisensory cueing into our therapy activities, SLPs can more effectively treat the *whole* child, not just the *hole* in the head (the mouth!).

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Multisensory Therapy Cues for Persistent Speech Sound Disorders

(Hammer & Ebert 2018)

- Moving away from the "I say it...you say it" cue is critical to establishing functional communication skills.
- Too many children become prompt dependent as a result of speech therapy, only talking when in imitation or when instructed to do so.
- The commonly used cues by SLPs include visual, verbal/auditory, tactile, semantic and kinesthetic. When cues are used in combination, this is referred to as multisensory cueing.
- Multisensory cues make it possible for the SLP to gradually fade the cues, one at a time.

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Visual Cues

The child receives a visual model related to the shape, placement or movement of the articulators to support accurate speech production. Some examples include:

- Having the adult speaker orally posture and then mouth the word without voicing
- Using blocks to represent a specific component related to speech (# of syllables in a word)
- Pairing gestural cues with speech tasks (sign language, hand signals, common gestures)
- Incorporating graphic cues into talking tasks
- Using flashcards depicting pictures of speech targets (incorporate play-based movement when possible)

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Auditory/Verbal Cues

The adult provides a verbal model of the target sound or word. Some examples include:

- Saying only the first sound of the target word
- Saying the target word in unison
- Using starter cues (carrier phrases, pivot words)
- Whispering the target utterance
- Providing prosodic cues
- Using backward chaining to address smaller speech units at a time
- Using verbal shaping to elicit child's best production
- Having the child verbally imitate (I say it...you say it)

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Verbal cues alone are often not enough to bring about intelligible speech

Children with persistent speech errors can't improve their speech production skills by just HEARING other people model clear speech

It is the SLP's use of multisensory cueing that allows for steady progress to be made in therapy

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Tactile Cues

The SLP provides touch cues primarily to the face, neck and head. Some examples include:

- P.R.O.M.P.T. (Prompts for Restructuring Oral Muscular Phonetic Targets) – a multidimensional approach to treating speech sound disorders
- Dynamic Temporal and Tactile Cueing (DTTC) – an integral stimulation method that uses a hierarchy of verbal, visual and tactile cues
- The Touch-Cue Method (TCM) – touch cues are provided by the therapist to a specific area on the child’s lower face and neck

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Kinesthetic Cues

(Body Awareness & Movement Cues)

The child receives kinesthetic feedback to help feel the movements associated with speech. Some examples include:

- Introducing Turtle Vowels (*Easy Does it for Apraxia*)
- Pairing speech tasks with play-based movement (going down a slide while exclaiming “whee!”)
- Tapping, clapping and using other rhythmic body movements to match the acoustic elements of speech
- Using *Visual Phonics* or *Sounds in Motion* program
- Providing transition cues

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Semantic Cues

The SLP provides cues directly related to the associated language meaning of the speech target. Some examples include:

- Providing phonetic placement cues (“pop your lips”)
- Offering sound metaphors (“snake sound” for /s/ or “open mouth windy sound” for /h/ or “sticky sound” for final consonant inclusion)
- Using phrase completion in which the child fills in the blank with the target word

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Strategies for Interacting with a Child Who Has Sensory Issues

- Keep requests and questions simple and to the point.
- Avoid figurative language such as “There’s a frog in my throat” or “Don’t cry wolf”.
- Speak slowly and clearly using as few words as possible.
- Give the child ample time to process and don’t repeat yourself over and over.
- Provide visual cues as needed to help the child understand and be successful.
- Don’t demand eye contact. Instead, try writing IEP goals related to having the child “visually check in.”

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- Be aware of the child’s sensory needs.
- Know the child’s passions/deep interests (avoid referring to them as “obsessions”).
- Use the child’s interests and preferences to facilitate attention, focus, concentration and learning.
- Understand and accept stimming behaviors as sensory anchors that may be helping the child regulate his nervous system.
- Pick your battles wisely (remember the 3 Ds: dangerous, destructive, seriously distracting).
- Remember, each child is unique and will act and react differently, so be patient, kind, empathetic and supportive.

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Activities to Incorporate into Speech Therapy to Address Sensory Needs

- Heavy work
- Weighted lap pad, heavy backpack, ankle/wrist weights
- Jumping jacks, wheelbarrow walk, crab walk
- Yoga poses, stretching activities
- Resistance activities: molding with clay, pulling beads out of TheraPutty, playing tug-of-war, squeezing stress balls
- Stretchy band around chair legs for children who need to bounce their feet
- Footstool at table/desk so feet are flat on the floor

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- Quiet handheld fidgets, fidget boxes
- Sensory bins
- Lotion
- Mardi Gras beads
- Moldable sand, play-dough
- Touch and feel books
- Mermaid sequins
- Small tent filled with soft pillows
- Textured surface to draw on (sandpaper, cardboard)
- Gum, water bottles with straws or chewy pencil toppers if the child seeks oral input
- Offer snack foods to provide oral-sensory input (chewy, crunchy, frozen, high-intensity flavors)



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- A “Biter Bucket” filled with objects that provide resistance and are appropriate for the mouth:

- Chewelry
- Ps & Qs
- Vibrating toothbrush
- Icemaker tubing
- Rolled up washcloth



Block and redirect the child to the biter bucket when inappropriate mouthing occurs

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- Alternative seating (stand-up desk, dynamic seating options)

Dynamic Seating Options

- Ottoman
- Small step stool
- Disc'o Sit cushion
- Spin bucket seat
- Coffee can stool
- Video game chair
- T-stool
- Therapy ball
- Partially inflated beach ball
- Wobble chair (tennis balls on two of the chair legs)



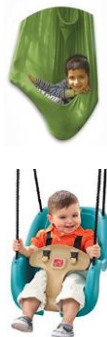
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- Velcro under the desk
- Beanbag chair for group activities on the floor
- Carpet square or small hula hoop to define personal space that still allows for some movement
- Clipboard so tasks can be completed lying on the floor
- Rhythmical rocking
- Play-based movement such as running, climbing, marching, pounding, sliding, rolling, jumping (but limit spinning)

**Work closely with the OT before doing any spinning activities as this type of vestibular input can be disorganizing. Angie Voss, OTR, recommends that spinning be limited to one revolution per second with a maximum of 10 revolutions, then switch directions.*

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- Swing in different positions (standing, prone, seated, cuddle swing)



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Angie Voss, OTR, explains that swinging can have a powerful effect on the brain's ability to process sensory input (15 minutes of swinging can have a **6-8 hour effect** on the nervous system)

Expression Swing



Tire Swing



Face-to-face interactions support joint attention and social communication

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Sensory Diets

- “A sensory diet is a group of activities that are specifically scheduled into a child’s day to assist with attention, arousal and adaptive responses.”
www.ssdmo.org
- Angie Voss, OTR, recommends that a child have access to different types of sensory input AS NEEDED, rather than providing the input in a pre-determined manner
- Voss refers to this as a “Natural Sensory Diet”

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- A rigid sensory diet may not be able to meet the child’s fluctuating sensory needs from day to day (a specific strategy may work on Monday, but be totally ineffective on Tuesday)
- Voss explains that the brain responds best to purposeful and meaningful activities and only the child’s brain knows what it needs at any moment
- A natural sensory diet is child-led; teaching the child to seek out the type of input his nervous system needs is essential for learning to self-regulate

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Sensory Goals

- Sensory strategies, accommodations and modifications are often addressed informally rather than through specific goals on the IEP.
- Sensory goals can be difficult to measure in an objective manner.
- Sensory processing difficulties vary—what works one day may not be effective the next (this makes goal writing and measuring a challenge).
- Sensory strategies involve a degree of trial and error.

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Environmental Modifications

What can we change in the school environment?

- Reduce distractions
- Provide fewer options
- Change the furniture/seating options
- Adjust the amount of sensory input/stimulation
- Adjust the type of sensory input/stimulation
- Change the location
- Use sensory stories (www.sensorystories.com)
- Provide visual cues/schedules
- Offer sensory breaks

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Expected Outcomes of Sensory Input

- ✓ Child will increase participation in _____.
- ✓ Child will increase independence in _____.
- ✓ Child will increase engagement with peers during _____.
- ✓ Child will remain seated for an appropriate period of time during _____.
- ✓ Child will tolerate non-preferred activities.
- ✓ Child will accept new foods at lunch time.
- ✓ Child will tolerate changes in the daily schedule.

P.I.E.

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- ✓ Child will demonstrate more flexibility during _____.
- ✓ Child will maintain the appropriate level of arousal during _____.
- ✓ Child will demonstrate appropriate/expected behaviors when standing in line.
- ✓ Child will tolerate being in proximity to peers during _____.
- ✓ Child will demonstrate improved body posture at his desk.
- ✓ Child will reduce mouthing of non-food items in the classroom.
- ✓ Child will tolerate messy activities during art.

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- ✓ Child will participate in leisure activities during indoor recess.
- ✓ Child will reduce the number of sensory meltdowns in a day.
- ✓ Child will reduce the duration and intensity of sensory meltdowns (can make it measurable).
- ✓ Child will demonstrate improved attention during _____.
- ✓ Child will tolerate unexpected noises in the classroom and hallway.
- ✓ Child will use visual supports to communicate her need for _____.

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Documentation

Document the functional problem

Always answer the “so what?” question – what will be improved if the child gains this skill?

- Instead of: Decrease tactile defensiveness
- Better: Joey will demonstrate decreased resistance to painting and clay activities in order for him to **participate** in art time with his peers.

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- Instead of: Decrease mouthing of non-edibles
- Better: Zoe will demonstrate increased **engagement** with peers during center time by reducing the time spent mouthing non-edibles.

- Instead of: Reduce outbursts
- Better: Albert will **maintain appropriate classroom behaviors** by requesting the quiet space to calm down during times of overstimulation.

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Case Studies

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Child wants to wear boots all the time

Possible explanations

- Boots provide additional proprioceptive input
- The extra weight of the boots provides additional body awareness and can help with balance and walking
- The boots provide added support for weak ankles (like a shoe insert does)
- Boots make a cool sound
- The child likes boots
- Boots are easier to put on (no laces)

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Possible strategies to support this Child

- Let the child wear boots when possible
- Offer tight, long socks when boots are not an option
- Provide frequent doses of deep pressure to the lower extremities
- Wear ankle weights
- Embed jumping, stomping, & marching to play time (jolts of input to the ankles, knees, and hips)
- Consult with PT to see if ankles are weak

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Child constantly makes loud, repetitive sounds

Possible explanations

- This may help the child tune out other sensory input that is bothersome
- It can be a strategy the child uses to help self-regulate and to avoid having a sensory meltdown
- It may be a way for the child to communicate that the situation is overwhelming or uncomfortable

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Possible strategies to support this Child

- Respond to this signal as a need to change the environment and decrease the amount of sensory input
- Offer noise-canceling headphones
- Offer soothing music through earbuds
- Reduce the pressure to engage in social interactions during times of sensory overload
- Use a noise meter in the classroom to monitor the sound levels
- Use a quiet voice to get the child's attention
- Play white noise to block out other distracting sounds
- Offer a quiet retreat that limits sights and sounds

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Haircuts cause distress

Possible explanations

- Sensory defensiveness or over-responsivity in one or more of the sensory systems
- This is multisensory activity that involves social interactions with nonpreferred, unfamiliar people, in an unfamiliar environment
- Distress may be triggered by the cape, the sound or vibration of the clippers, the smell of the unfamiliar hair products, the chattering of all the people, hair touching the skin or clothes, the squirt bottle
- Touch is imposed on the child the entire time
- The chair moves up and down

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Possible strategies for this child

- Take the child to the park for 15 minutes prior to haircuts—encourage swinging, climbing, and hanging upside down
- Provide deep pressure to the head prior to haircut (head squeezes) or wear a tight hat
- Offer fidget toys during hair cut
- Have child sit on adult's lap
- Use scissors rather than clippers
- Have haircuts in familiar places (home is best)
- Find a barber/hairdresser that is patient and will work to understand the child's needs
- Select a haircut style that is easy and quick

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- Have the barber chair go up and down periodically throughout the haircut (passive vestibular input)
- Have the child sit in a regular chair or on the floor if the movement from the chair is a problem
- Cut the hair dry (no hair washing or spray bottle)
- Make appointment during the least busy time of day
- Prepare the child: go visit the barbershop/salon several times before the haircut; allow child to watch parent, sibling or other child get their hair cut
- Remember, one traumatic experience at the barber shop or salon can create a negative memory that is difficult for the brain to overcome—**so the first experience is the most important one**

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Child asks excessive questions about future events

Possible explanations

- Children with sensory differences have a need for sameness and predictability
- Excessive questioning is likely a request for reassurance about the upcoming event

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Possible strategies to support this child

- Be patient
- Create a visual schedule to refer to the child to when he asks questions repeatedly
- Provide a visual countdown
- Show pictures to the child of the upcoming event/place/activity
- Google info or watch videos on You Tube (if available)
- If possible, preview the new place ahead of time to help prepare the child

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Child has difficulty staying seated at her desk

Possible explanations

- The child's nervous system is need of some type of movement and/or proprioception in order to stay in a ready state for learning

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Possible strategies to support this child

- Offer dynamic seating options to allow for some movement while seated
- Allow for frequent movement breaks
- Offer breaks involving heavy work
- Use stretchy bands around legs of the chair
- Provide quiet fidgets
- Offer a weighted lap pad
- Provide a chewy; let child chew gum
- Allow the child to stand and work on a vertical surface (like at an easel)
- Allow child to lie on stomach to do school work (using a clipboard to write on)

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Child holds it together at school, then melts down at home

Possible explanations

- Sensory input has a cumulative effect—many kids function well in the morning, but are struggling by the afternoon
- By the time child arrives home, his nervous system is completely overloaded (long day at school, loud bus ride, may be hungry)
- Also, kids tend to let it all out in the environment in which they feel the safest
- School offers more structure and predictability

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Possible strategies for this child

- Respect and acknowledge this as a sensory signal that the day was challenging and overwhelming
- Offer a sensory retreat to help unwind and unload (the "womb" effect)
- Offer a snack
- Encourage swinging in slow rhythmical planes
- Offer inversion, full body deep pressure touch, and proprioceptive input
- Decrease stimulation for 1-2 hours after school
- Reduce expectations (related to conversation, homework, chores, sports) immediately after school

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Child has difficulty going to sleep or staying asleep

Possible explanations

- The sleep-wake cycle is controlled by the same area of the brain that controls self-regulation
- Children who struggle with self-regulation often have difficulty establishing sleep patterns
- Children who are seeking sensory input often struggle with sleep, because the body is constantly craving sensory input
- Screen time within 2 hours before bed can prevent melatonin from being released

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Possible strategies for this child

- Be sure child has engaged in enough heavy work throughout the day (proprioceptive input is key to establishing successful sleep patterns)
- Provide a heavy quilt or weighted blanket
- Offer compression clothing under PJs
- Provide deep pressure touch to the body before bedtime
- Eliminate screen time 2 hours before bed; reading is a better option to promote sleep
- Let the child sleep in a sensory retreat such as a tent or fort
- Make a "nest" out of pillows on the bed
- Establish a consistent bedtime routine

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- Place the mattress on the floor
- Provide at least 15 minutes of rhythmical rocking/swinging prior to bedtime (rocking chair, hammock or cuddle swing)
- Provide a large stuffed animal or body pillow for the child to hug
- Avoid sugar and carbs before bed
- Offer a small nightlight
- Provide white noise (music, humidifier, fan)
- Be sure the child is not too hot

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References & Recommended Readings

Delaney, Tara (2008). *The Sensory Processing Disorder Answer Book*.

Garland, Teresa (2016). *Hands-On Activities for Children with Autism and Sensory Disorders*.

Goddard Blythe, Sally (2005). *The Well Balanced Child: Movement and Early Learning*.

Hammer, David & Ebert, Cari (2018). *The SLP's Guide to Treating Childhood Apraxia of Speech*.

Hannaford, Carla (2005). *Smart Moves: Why Learning is Not All In Your Head*.

Kashman, Nancy & Mora, Janet. *The Sensory Connection: An OT and SLP Team Approach*.

Koscinski, Cara (2017). *Sensorimotor Interventions: Using Movement to Improve Overall Body Function*.

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Kranowitz, Carol (1998, 2003). *The Out-of-Sync Child and The Out-of-Sync Child has Fun*.

Mauro, Terri (2006). *The Everything Parent's Guide to Sensory Integration Disorder*.

Miller, Lucy Jane (2006). *Sensational Kids*.

Otten, Kaye & Tuttle, Jodie (2011). *How to Reach and Teach Children with Challenging Behavior*.

Prizant, Barry (2015). *Uniquely Human: A Different Way of Seeing Autism*.

Voss, Angie (2011). *Understanding Your Child's Sensory Signals*.

Websites:

- www.spdfoundation.net
- www.sensory-processing-disorder.com
- www.asensorylife.com

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Closing Thoughts

Helping children get in a ready-state for learning is critical for success at home, in school and in life.

Sensory trumps everything!

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Thank you for joining me today! I'll "see" you on social media!

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