

# SENSORY PROCESSING IN ASD STUDENTS

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EEX 4094



# SENSORY PROCESSING IS

A person's way of noticing and responding to sensory events that occur during everyday life.





When we understand processing needs of students we can adjust:

- Activities
- Directions
- Expectations
- Other aspects of the school day



## Our seven sensory systems.

These systems help us understand our world and where we are in it and how to get around in it.

## Sensory Differences

**Visual**  
(sight)



**Olfactory**  
(smell)



**Gustatory**  
(taste)



**Vestibular**  
(balance)



**Auditory**  
(hearing)



**Tactile**  
(touch)



**Proprioception**  
(body awareness)



Smith-Myles, B; Cook, KT; Miller, N; Rinner, L; and Robins L. (2000) *Asperger Syndrome and sensory issues: Practical solutions for making sense of the world*. Shawnee Mission, KS: Autism Asperger Publishing Company. Used with permission by Autism Asperger Publishing Company.

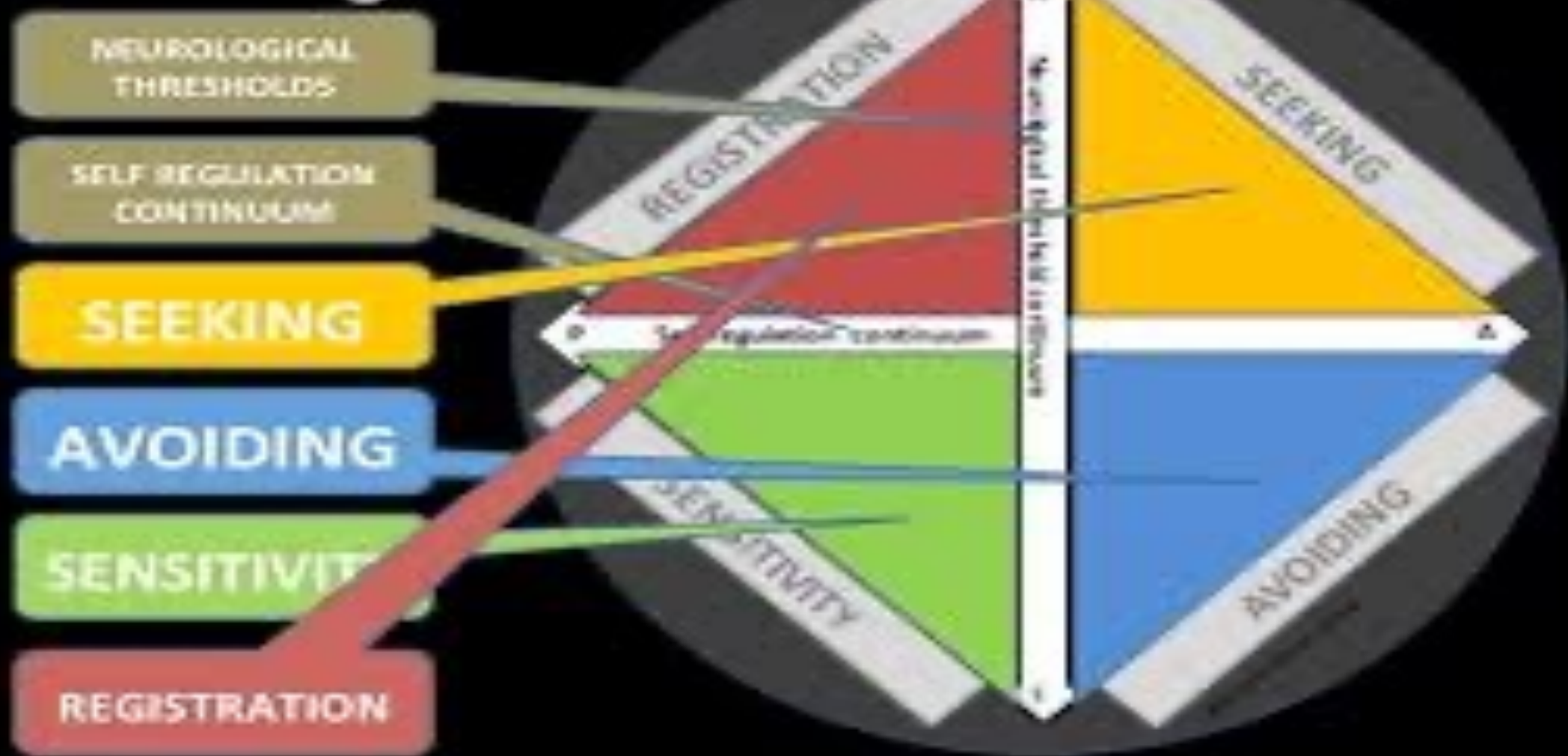




- According to Dunn (2016), our processing interests/strengths can be grouped into four groups according to our patterns. Remember, Dunn states, we all are either Seekers, Avoiders, Bystanders or Sensors most of the time but we can in a different environment become one of the other. Our pattern is not static but, like life, changing all the time. However, in the life of an ASD student these processes can happen more intensely or not at all.



# Dunn's Sensory Processing Framework





Dunn's YouTube video "Sensory Processing: An Integral Part of Classroom Planning and Activities" is lengthy but worth going through for an in-depth understanding of her work. .From 2:59-17:13 is especially noteworthy about her chart explanation

Please Click Here  
to Watch the Video.



# DSM-5

DSM-5 states in Category B for a diagnosis of autism the child must have restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two or the following, currently or by history.

We are interested in number four.

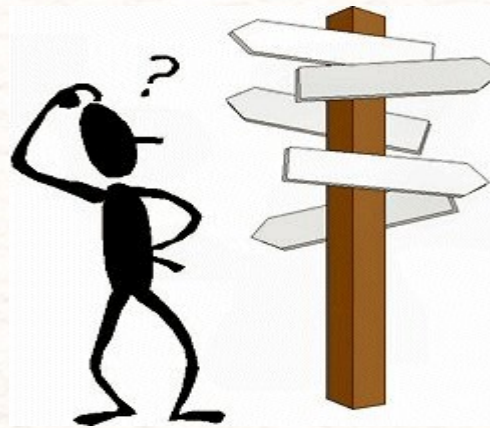
Hyer- or hyporeactivity to sensory input or unusual interests in sensory aspects of the environment(e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement.

Because sensory issues are now included as a component of the diagnosis, we are required to support our children in this area of need.



What does research state about sensory processing interventions?

What can we, as teachers, do to increase communication, engagement and calmness in our ASD classrooms?

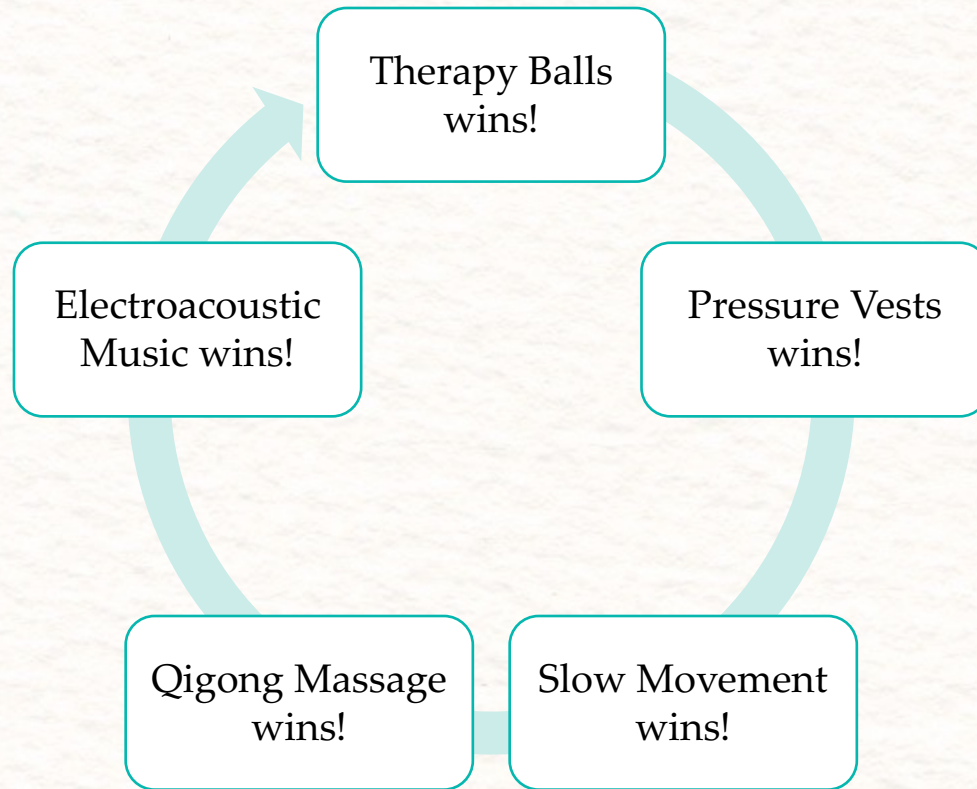




- According to Haynes and Just (2015), most research has been limited in trials, small sample size and lack of evidence to support theories. However, consensus is that sensory intervention supports increased language, attention and balance in *some* ASD students. There are some interesting small studies done on our seven senses in the classroom. The following slide depicts these studies.



# Some studies done with equipment used in the classroom and out of classroom.



- Therapy balls versus cushions(Umeda & Deitz, 2011)
- Weighted vests versus Pressure Vests (Reynolds, Lane, &Mullen, 2015)
- Slow movement versus rapid changes in speed(Anderson, 1998)
- Qigong Massage versus Brushing Program(Segal & Beyer, 2006)
- Sound Therapies versus Electroacoustic music (Ross, 2017)



Electroacoustic  
Music was such a  
new interesting  
concept for me, I  
wanted to add this  
YouTube video  
from Valerie Ross.

[Please Click Here](#)  
[to Listen and](#)  
[Watch the Video.](#)





# Sensory diet ideas to do in the classroom for each sensory modality. (Davis & Dubie, 2004)

## Examples of Visual Overload

- Stares at spinning objects.
- Spins their own bodies.
- Turns opposite direction from where teacher is lecturing.
- Demands to wear sunglasses indoors.
- Extremely organized or unorganized room (i.e. knows when an object has been slightly moved).
- Looses place when reading.
- Gives no eye contact or looks beyond person's face.
- Trouble locating desired toy on cluttered shelf.
- Turns or tilts head when reading across a page.
- Misjudges spatial relationships so bumps into people or things.

## Examples of Visual Sensory diet ideas

- Limit the amount of visual material hanging from ceiling or walls.
- Store manipulatives inside containers.
- Organize and label all material to identify where they belong.
- Put pictures on containers for students with poor visual memory.
- Use picture templates of where items belong in places (i.e. desk, room).
- Tape a number or letter line onto student's desk.
- Provide primary lined paper or graph paper to help with spacing.
- Keep amount of visual information on worksheet to a minimum.
- Use a lamp instead of overhead fluorescent lighting.
- Use a touch screen instead of computer mouse.
- Use computer software to organize material.
- Allow student to sit with back to teacher (i.e. look at a solid wall).
- Have student write notes and use a peer's note as well.





### Examples of Auditory overload

- Covers ears for a fire drill or when class is loud.
- Runs from loud area.
- Complains of noises in room or outside of window (i.e. lawn mower, heat blower, insects on window, students writing on paper).
- Covers ears in the cafeteria or cannot go into the gym when there are many people in it.
- Demands that dad puts “Rain X” on the windows so won’t have to use windshield wipers when it rains.
- Doesn’t respond to verbal prompts when putting on noisy clothes (i.e. sweat pants).
- Hums or sings to self.
- Demands that only one person talks at the dinner table.
- Talks louder than anyone in the class.
- Prefers very loud music or none at all in the car.
- Runs out of restroom as toilet flushes.

### Examples of Auditory Sensory Diet Ideas

- Minimize verbal directions.
- Use ear plugs or head phones.
- Allow time for student to listen to favorite music (i.e. classical, Dixie).
- Use more visuals with pictures or words.
- Use social stories about what might happen or sounds that can be heard in the room.
- Desensitize a student to an area by slowly integrating him or her on numerous visits.





### Examples of Tactile Overload

- Throws arms back when about to be picked up by adult or pulls away when trying to hold child's hand.
- Is always hanging on adult or laying between his box spring and regular mattress.
- Avoids touching certain surfaces or textures (i.e. fabrics, carpets).
- Prefers to touch specific fabrics (i.e. ladies hose).
- Dislikes getting hands or feet messy (i.e. sand, creams, paint).
- Touches everything in sight.
- Avoids being touched on the face, hair or head (i.e. washing face, hair cut).
- Doesn't react to pain such as cuts, shots, bruises, or breakage of bones.
- Person may bite his or her own skin.
- Reacts negative when approached from behind.
- Wears shorts even in extreme cold temperature.

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### Examples of Taste and Smells Overload

- Taste Won't eat certain foods (i.e. texture or taste) or eats extreme tasting foods (i.e. lemons, hot sauce).
- Gags when told to eat food doesn't like.
- Licks or tastes playdough or toys.
- Smells May say "you stink" to staff when wearing a strong perfume or cologne or if can smell onions on staff's breathe from lunch.
- On the opposite extreme, student may smell everything they touch to become orientated and comfortable with the object or thing.
- Breathes through their mouth instead of their nose.
- Won't visit certain environments (i.e. farms, petting zoos, fish stores).
- Does not mind smell of own bowel movement or dirty diaper.
- Won't use the restroom at school.

### Examples of Taste and Smells sensory diet Ideas

- Taste When rewarding student with food or cooking time, use food they already like.
- Keep all poisonous substances locked up safely.
- Talk with nutritionist about diet.
- Smells Have a scented lamp, candle, lotions, liquid soap, scented markers or stickers available to smell to calm student.
- Be aware that if you have a scented object, the student may act adversely to that particular smell.
- Keep Kleenex tissue readily available.
- Use minimal amounts of perfume or cologne.
- Be aware of soaps or detergents use - Use scent free laundry products.





### Examples of Proprioceptive Overload (Difficulty interpreting sensations from the muscles, joints, ligaments, and tendons)

- Pulls, twists, or chew on things (i.e. shirt, gum, pencil).
- Frequently breaks toys or hurts classmates when didn't mean to.
- Leans, bumps, trips or crashes into objects.
- Walks along touching walls.
- Too much pressure when writing (i.e. writes letter over and over again until puts a hole in paper).
- Deliberately falls or crashes into things.
- Constantly seems to "physically tackle" everything.
- Stands too close when talking to others.
- Walks stiff and uncoordinated.
- Pulls on fingers or crack knuckles.

### Examples of Proprioceptive Sensory Diet Ideas

- Engage student in up and down movements (i.e. jumping rope, bouncing a ball, trampoline) to wake up student.
- Back and forth movements (i.e. swinging, sitting in rocking chair) may help calm student.
- Use stress balls, theraputty and fidget toys.
- Allow chewing on crunchy, chewy items (i.e. bubble gum in freezer, licorice sticks, pretzels, carrots).
- Designate an area in the room to stomp feet or pace.
- Never take physical education or recess away from a student (i.e. need deep pressure activities like running, jogging).





Examples of Vestibular Overload (Over or under sensitive to balance and movement sensations)	Examples of Vestibular Sensory Diet Ideas
<ul style="list-style-type: none"><li>•May seem to be a “thrill seeker” (i.e. jumping from high places, driving fast)</li><li>•May be sedentary or cautious or hesitant to take risks</li><li>•Difficulty coordinating movements of the eyes</li><li>•Trouble staying seated</li><li>•Constantly leans head on hand or arm</li><li>•Prefers to lie down than sit upright</li><li>•Feels seasick, when riding in car, boat, train, airplane, escalator or elevator</li><li>•Extreme loose or tense grip on pencil or scissors</li><li>•Enjoys being upside down</li><li>•Easily loses balance when riding a bike or climbing stairs</li></ul>	<ul style="list-style-type: none"><li>•Create heavy work activities (e.g. take down chairs in computer lab, take garbage out at lunch, take a pile of encyclopedia to library).</li><li>•Slowly move from extreme positions (i.e. sitting on floor to standing).</li><li>•Slow down our own movements.</li><li>•Use bands across front legs of desk.</li><li>•Have student sit on wobble cushion or ball.</li><li>•Allow frequent breaks throughout the day.</li><li>•Have student jump on trampoline.</li><li>•Use sticker or stamps to identify left/right.</li><li>•Play games using repetitive alternating and rhythmic movement.</li><li>•Reinforce dominant hand use.</li><li>•Play on merry go round, ride roller coasters, hang upside down, play team sports, swim, twist chains of a swing and untwisting, go sledding, slide down water slides.</li></ul>



Effective sensory intervention for the ASD population will ward off undesired behaviors in the classroom and increase on task behaviors. I wish you the best of luck in your sensory diet tasks with your students!





# REFERENCES

- Brueck & Just, “Successful Treatment of Autism: Embedding Evidence Into Your Daily Practice” (2016)
- YouTube by VCU RRTC on Dunn W., “Sensory Processing; An Integral Part of Classroom Planning and Activities”, (2017)
- Garcia-Sandelis C., Dunn’s Model of Sensory Processing Framework, (2005)
- Haynes & Just, “Managing Sensory-Based Challenges: Reviewing the Evidence to Develop Programs, Collect Data & Drive Practice”, (2005)
- Heasley, S., *Study Finds Sensory Therapy Has Merit For Kids With Autism*, (2014)
- Preis, J., “The Effects of Sensory Intergration Therapy on Verbal Expression and Engagement in Children with Autism”, (2014)
- Ross, V., “Crafting Electroacoustic Music for Sensory Integration Therapy”, (2017)



# REFERENCES

- OT Department, Sarasota County Schools, “Before You Ask the OT”, (2015)
- OT Department, Sarasota County Schools, “Before You Ask the OT: Sensory Concerns, (2017)
- OT Department, Sarasota County Schools, “ Favorite Classroom Strategies for Sensory Processing”, (2016)
- Serra, L., “Sensory Processing and Sensory Integration Therapy What’s the Point?”, (2009)
- Smith, B., “The Sensory Gang”, (2000)
- [www.autisminspiration.com](http://www.autisminspiration.com)
- [www.stimtastic.com](http://www.stimtastic.com) –cool website for all things stimming- adults/kids!