

Achieving That “Just Right” Feeling...Watch Behavior Improve

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Objectives

- Quick overview of sensory processing disorder (SPD), and sub categories
- Understand behaviors related to SPD, and discuss interventions and strategies to address behaviors and self regulation



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Sensory Processing

- The ability to register, process, and use information taken in by the senses
- Allows us to make adaptive, appropriate, and functional responses
- Directly impacts development of functional skills



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Sensory Systems

- Visual
- Auditory
- Gustatory (taste)
- Olfactory (smell)
- Tactile
- Vestibular (movement)
- Proprioceptive (joint awareness)
- Introception

The vestibular, proprioceptive, and tactile systems are precursors to the development of the visual and auditory systems.



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Understanding our 8 Senses

The Near Senses:

- **Vestibular**- Processing information about movement, gravity, and balance, which is received through the inner ear.
- **Proprioceptive**- Processing information about body position and body parts, which is received through the muscles, ligaments, and joints.
- **Interception**- is contemporarily defined as the sense of the internal state of the body. This can be both conscious and non-conscious. Interception helps you understand and feel what's going on inside your body. You're able to tell if you need to use the bathroom. You know if you're hungry, full, hot, cold, thirsty, nauseated, itchy, or ticklish.
- They are called the "hidden" senses, because we are not aware of them, we cannot control them, and we cannot directly observe them.



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Sensory Stimulation

Input from any of the sensory systems to the body.

Examples:

- How clothing feels against one's skin (tactile)
- Active play (i.e. playground) (vestibular, proprioceptive)
- Music/Voice/Noise from the environment (auditory)
- Position changes (i.e. standing/sitting/laying) (proprioceptive)
- Types and temperature of foods (tactile, taste)
- Knowing when need to go to the bathroom (introception)



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Sensory Processing Disorder (SPD)

- Also known as Sensory Integration Dysfunction (SID) or Dysfunction in Sensory Integration (DSI), now the trend in the past 10 years has moved towards calling Sensory Processing Disorder (SPD).
- Occurs when there is a "glitch" in the system.
- The brain cannot register, interpret or integrate sensory information to produce an organized response...making learning and interacting difficult.
- A. Jean Ayres, PhD, compared SID to a neurological "traffic jam" that prevents certain parts of the brain from receiving the information needed to interpret sensory information correctly.



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About SPD

- the body-brain processing of registering, interpreting, and integrating sensation is regulated and goes entirely unnoticed.
- over-responsiveness to sensation that make it difficult to fit in an inflexible sensory world, which can be exhausting, troubling, and effortful for these individuals.
- so overwhelming and confusing at a brain and body level that they rarely feel safe.
- seek sensory input in inappropriate ways and have difficulty with interaction and engagement within the environment and the people around them.

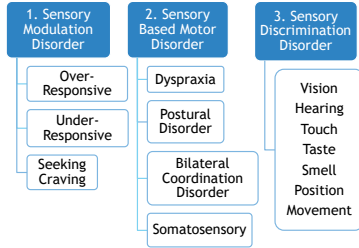
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Sensory Presentation



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Classic Symptoms and Classification of Sensory Processing Disorder



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Symptoms of Sensory Processing Disorder

3 classic symptom clusters:

1. Sensory Modulation Disorder (SMD)
 - Over responsivity (avoider/sensitive), under responsivity (low registration/bystander), sensory seeking, regulation disorders
2. Sensory-Based Motor Disorder (SBMD)
 - Dyspraxia, postural disorder, bilateral coordination, somatosensory
3. Sensory Discrimination Disorder (SDD)
 - Vision, hearing, touch, taste/smell, position/movement

Can exhibit multiple symptoms of SPD and/or symptoms of SPD and another disorder



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Behavioral Responses Related to SPD

- Impulsive
- Under active
- Overactive
- Distractible
- Clumsy
- Avoidant
- Agitated
- Hitting
- Tantrums
- Poor frustration tolerance
- Poor peer interaction
- Emotional outbursts
- Emotional shut-down
- Decreased arousal
- Obsessive touching of others



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Understanding Sensory-Based Behavior

- Poorly adaptive or challenging behaviors seen in children may be the result of poor sensory processing.
- Observing the behavior and the cause of the behavior may tell how the child is interpreting or processing sensory information from the environment.
- Becoming the "Investigator" of the child's behavior. What is the antecedent(s) before observing the disruptive behavior?



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Reasons for Behaviors

- For attention
- For escape
- To communicate
- To seek or to avoid sensory input
- For self regulation
- To meet a specific need

A behavior is the nervous system's response to environmental stimuli.
 The neurological response can turn into a learned behavior.



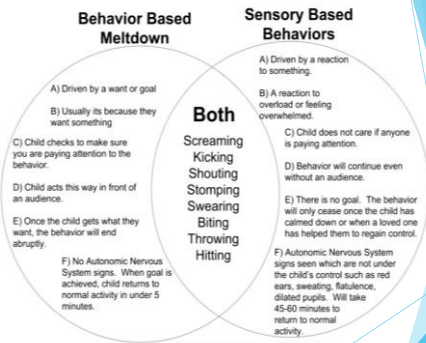
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Emotional Impacts of SPD

- Children with Sensory Processing Disorder often have problems with motor skills and other abilities needed for school success and childhood accomplishments. As a result, they can become socially isolated and suffer from low self-esteem and other social/emotional issues.
- These difficulties may put children with SPD at high risk for many emotional, social, and educational problems; including: inability to make friends or be a part of a group, poor self-concept, academic failure, and being labeled clumsy, uncooperative, disruptive, or "out of control."
- Anxiety, depression, aggression, or other behavior problems can follow.



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Sensory Processing Intervention

3 Complementary Strategies:

1. Helping parents/caregivers/teachers understand sensory difficulties that lead to the child's behaviors & foster successful relationships between the child and significant others.
2. Modifying the environment to fit the child's need.
3. Providing individualized direct intervention designed to meet the individual's needs.

Everyone deserves the best support we have to offer in order to flourish. By Lucy J. Miller



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Using Sensory Stimulation to Enrich Experiences

Common ways sensory stimulation is attained through play and activities of daily living:

- Exercise - proprioceptive, vestibular, tactile
- Swinging - vestibular
- Climbing (i.e. monkey bars) - proprioceptive, vestibular
- Messy play (i.e. finger painting, playing in dirt/sand, food play) - tactile, olfactory, gustatory
- Singing - auditory
- Jumping and running - proprioceptive, vestibular
- Weights vs. compression - tactile, proprioceptive



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Effects of Sensory Stimulation

- Increase/decrease arousal level
 - Shut down vs. hyperactivity
- Affects sleep/wake cycles
- Calming effect
- Improved organization
- Improves attention, skill development, and social interaction



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Sensory Regulation

- The ability to respond or adjust appropriately to sensory stimulation, its called an adaptive response.
- Regulation needs to occur in order to attain, maintain and change one's own arousal level to meet the demands of an activity or situation.

We all do things to self-regulate:

- Exercise
- Listening to music
- Chewing gum
- Deep Breathing
- Drink coffee or soda
- Fidget
- Leg tapping
- Etc.



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Self-Regulation

- Sensory Regulation is an ultimate goal of SPD intervention and to have the child accountable and self-aware of sensory and environmental needs to achieve success within their everyday lives.
- The key is beginning able to identify your own emotional state.
- Self-awareness, and helping the child understand there emotional state.
- The caregiver must be aware of their own regulated state in order to help an out-of-control child. Meaning if the caregiver is being heightened with the child, this will not help set up the child to calm.



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The OT Toolbox Sensory Dysregulation

When your nervous system is out of balance due to too much or too little sensory input. Sensory dysregulation is an involuntary response and can look like any of the following:

- Uncontrollable laughter
- Speaking fast
- Fast/hard movements
- Excess saliva
- Loud voice
- Dilated pupils
- Unable to follow instructions
- Shrieking or high pitch yelling
- Impulsive

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Behavioral Strategies

- Create a positive environment
- Use selective praise/ignoring
- Establish simple routines (can use a schedule)
- Try to plan activities so that something enjoyable will follow a less enjoyable activity
- Establish and enforce simple rules
- Be consistent
- Use simple, specific language
- Give choices as much as possible
- Make it clear when and how tasks begin and end (can use a timer or picture schedule)
- Provide sensory motor support, especially great with individuals that do not do well with transitions.



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The Alert Program®

Although the Alert Program® initially was intended for children with attention and learning difficulties, ages 8-12, it has been adapted for preschool through adult and for a variety of disabilities.

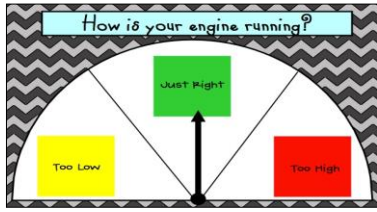
If children are intellectually challenged or developmentally younger than the age of eight, the program's concepts can be utilized by staff to develop sensory diets (Wilbarger & Wilbarger, 1991) to enhance learning.

- <https://www.alertprogram.com/>
- Created by Mary Sue Williams and Sherry Shellenberger, occupational therapists for over 35 years and founders of the Alert Program® in Albuquerque, NM.
- They have recently revised program.



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Example Barometer



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Strategies to Address Sensory Regulation

Zones of Regulation

- Red Zone** is used to describe extremely heightened states of alertness and intense emotions. A person may be elated or experiencing anger, rage, explosive behavior, devastation, or terror when in the Red Zone.
- Yellow Zone** is also used to describe a heightened state of alertness and elevated emotions; however, one has some control when they are in the Yellow Zone. A person may be experiencing stress, frustration, anxiety, excitement, silliness, the wiggles, or nervousness when in the Yellow Zone.
- Green Zone** is used to describe a calm state of alertness. A person may be described as happy, focused, content, or ready to learn when in the Green Zone. This is the zone where optimal learning occurs.
- Blue Zone** is used to describe low states of alertness and down feelings, such as when one feels sad, tired, sick, or bored.

(Kuypers, L., (2015). Zones of Regulation. <http://www.zonesofregulation.com/index.html>)



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Examples of Zones of Regulation

This block contains several examples of the Zones of Regulation. On the left, there are icons for engine states: 'hyper' (explosive), 'fast engine' (boiling), 'engine revving' (frustrated), 'calm engine' (cool), and 'slow engine' (relaxed). Each icon is paired with a color-coded box containing text:

- Explosive:** Let screaming and A LOT of tears be your friend.
- Boiling:** I will use my calm strategies. "It's no bigger" responses are made to be heard.
- Frustrated:** I will stay in the cool Green zone until my calm and then I can return to the activity by myself.
- COOL:** I know I am doing a good job and doing it myself.
- CALM:** I am using all my body (feet, hands, and brain) and my breathing and focus.
- RELAXED:** I will stay in the cool Green zone until my calm and then I can return to the activity by myself.
- Sleepy:** I will stay in the cool Green zone until my calm and then I can return to the activity by myself.

 In the center, there is a diagram titled 'THE ZONES OF REGULATION' showing four zones: Blue Zone (bottom), Green Zone (middle), Yellow Zone (top), and Red Zone (right). Below the diagram are four columns with strategies:

- Blue Zone:** Stretch, Drink water.
- Green Zone:** Deep breaths.
- Yellow Zone:** Take a break.
- Red Zone:** Take a break.



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Other Ideas for Self-Regulation

| Body | Zone | Student Strategies | Teacher Strategies |
|------------------------------|--|---|---|
| fast energy | Red Anxious Frustrated Overwhelmed Out of Control | <ul style="list-style-type: none"> 1. Use the self-talk strategies 2. "The Red Light" 3. "The Green Light" 4. "The Yellow Light" 5. Use the self-talk cards 6. Use the self-talk cards | <ul style="list-style-type: none"> • Self-talk • Breathing techniques • Breathing together on student's signal • Brain Break #1 (B) • Brain Break #2 (B) • Brain Break #3 (B) • Brain Break #4 (B) |
| moving energy | Yellow Worried Silly/Wiggly Excited Loss of Some Control | <ul style="list-style-type: none"> 1. Use the self-talk strategies 2. "The Green Light" 3. "The Yellow Light" 4. "The Red Light" 5. Use the self-talk cards 6. Use the self-talk cards | <ul style="list-style-type: none"> • Self-talk • Breathing techniques • Breathing together on student's signal • Brain Break #1 (B) • Brain Break #2 (B) • Brain Break #3 (B) • Brain Break #4 (B) |
| calm energy | Green Calm Relaxed | <ul style="list-style-type: none"> 1. Use the self-talk strategies 2. "The Green Light" 3. "The Yellow Light" 4. "The Red Light" 5. Use the self-talk cards 6. Use the self-talk cards | <ul style="list-style-type: none"> • Self-talk • Breathing techniques • Breathing together on student's signal • Brain Break #1 (B) • Brain Break #2 (B) • Brain Break #3 (B) • Brain Break #4 (B) |
| slow energy energy off | Blue Sleepy Sad Sick Bored | <ul style="list-style-type: none"> 1. Use the self-talk strategies 2. "The Blue Light" 3. "The Green Light" 4. "The Yellow Light" 5. Use the self-talk cards 6. Use the self-talk cards | <ul style="list-style-type: none"> • Self-talk • Breathing techniques • Breathing together on student's signal • Brain Break #1 (B) • Brain Break #2 (B) • Brain Break #3 (B) • Brain Break #4 (B) |



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Self-Regulation

To use any of the above programs, there are 3-4 levels of learning the system to have the children buy into the system:

1. Learn the vocabulary.
 2. Learn the feeling that coincides with the words (the student/child has to start to become self-aware or accept adult facilitation).
 3. Learn strategies to assist to change levels of regulation (i.e. what will rev up, slow down, increase attention).
- Sometimes children never make it independently to step 3, depending cognitive level. However, can still use system with external assistance for step 3.



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Activity Suggestions for Overresponsivity

Auditory

- Use soft voice & short sentences
- Listen to soft music with low frequencies
- Use soft music, white noise, or nature sounds
- Wear head phones to dampen loud sounds
- Play "I Spy" while waiting in lines

Visual

- Dim the lights
- Use natural light, when you can
- Wear baseball cap or sunglasses
- Visual schedules to organize the child
- Use visual countdown, like the time timer



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Activity Suggestions for Overresponsivity

Proprioceptive

- Use weighted objects- RULE: only use weight for 20-30mins, then off for 2-hrs!
- Engage isometrics (i.e. wall push ups, chair & push ups)
- Work out with weights
- Snack on chewy foods, allow for chewing gum, whistles
- Give firm hugs or have beans bag chairs in rooms for "mushing" kids between
- Wear pressure garments (i.e. bear hug vest), but this could also be under tactile

Tactile

- Roll and/or wrap child in blankets or "mush" between pillows
- Offer fidget toys
- Allow self-directed tactile as they can tolerate it

Vestibular

- Rocking in chair
- Exercise break and complete toe touches



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Activity Suggestions for Underresponsivity

Auditory

- Combine music and movement-fast and slow
- Use a fast paced metronome as background

Visual

- Brighten the lights
- Organize timed tasks
- Use a "time-timer" for work completion

Proprioceptive

- Apply deep pressure that is quick, fast strokes
- Use massager
- Use fabric/texture materials for light touch on skin
- Need things that are unexpected and frequently changing to increase there arousal levels



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Activity Suggestions for Underresponsivity

Vestibular

- Run for short distance (fast, can do in hallway)
- Use of Disc-o-Sit or wedges
- Jumping, high knees, stand-sit-stand
- Sit and bounce on therapy ball at desk
- Animal walks

Oral Motor

- Crunchy snacks
- Using sweet, hot, sour, or spicy snacks
- Chewing gum

Smell

- Aroma Bracelet (smells that elicit attention-strong smells, i.e. mint, citrus, etc.)



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Activity Suggestions for Sensory Cravers/Seekers

Vestibular

- Disc-o-Sit or wedge seats
- Yoga
- Stop-start activities prior to sitting tasks
- Sit on therapy ball

Smell

- Calming bracelets with scents such as lavender, vanilla, or coconut

Proprioceptive/Tactile

- Goal-directed heavy work activities prior to sitting tasks
- Fidgets
- Stress ball
- Weighted Items (within timing standards of no more than 30mins per wear with 2 hour break between wearing)
- Compression Garments
- Theraband or something stretchy around base of chair for child to bounce legs onto



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Activity Suggestions for Sensory Based Motor Disorder (SBMD-Postural Disorder and Dyspraxia)

- Build child's self-esteem
- Strengthen core muscles (i.e. abdominals)
- Work on antigravity positions (i.e. superman position)
- Weight-bearing and resistive activities
- For increased fine motor ability-work on stability of shoulders, forearm, and wrist
- Remember to work on motor challenges, not just sensory difficulties, "normal movement patterns"
- Activities that require body movements within space (i.e. Simon says)
- Activities with component of timing and sequencing



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Activity Suggestions for Sensory Discrimination Disorder (SDD)

- Helping children be aware of properties of people, objects, and other things
- Use rich descriptions of sensorimotor play into activities
- Communication, use of descriptors
- Work on visualization
- Have them measure and weigh things around them, literally to be able to compare and contrast to learn differences
- "same" and "different" games
- Activities that require sustained balance and positioning (i.e. yoga & twister)



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Key Things to Always Remember About Sensory Processing...

- Current research shows...neuroplasticity is ever changing throughout the life span.
- Only way to change or enhance the neuroplasticity, in our case for today's discussion is the sensory system, is through completing activities with frequency, duration, intensity, and variability.
- The NEED to become an investigator...start to plot out the behaviors and try to figure out what the antecedent is or the trigger that causes the behavior. Could be another child, environment, task, and/or time of day.
- Once that is figured out, now we can implement strategies to pair with the behaviors seen.
- REMEMBER it will not be a cookie cutter fix, each child is different and has different needs!



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QUESTIONS?



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- Therapy Street for Kids http://therapystreetforkids.com/files/School_sensory_handout.pdf

American Occupational Therapy Association (AOTA)
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 Fax: 301-652-7711
www.aota.org



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References / Resources

Weisman Children's Outpatient Center Locations

- | | |
|--|---|
| 94 Brick Road Marlton, NJ 08053 (856) 489-4520 | 450 Tilton Road Suite 105 Northfield, NJ 08225 (609) 344-8400 |
| 2475 McClellan Ave. Pennsauken, NJ 08109 (856) 675-1450 | 1206 W. Sherman Ave. Suite 4-E Vineland, NJ 08360 (609) 896-6740 |
| 405 Hurffville-Cross Keys Rd. Washington Twp., NJ 08080 (856) 218-3280 | |



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