Sensory Processing Differences in Autism Across the Lifespan

Part 2: Sensory-Friendly Strategies for Home

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Agenda

— Sensory processing differences & how they impact a person’s behaviours

— The 3 most common sensory reactivity profiles

— Sensory-friendly strategies that support daily functioning
What is Sensory Processing?

Sensory processing is the way in which we interact with the world around us by:

—Taking in sensory messages from within our bodies & surroundings
—Interpreting these messages
—Organizing our purposeful response

Ranges from sensory preferences & quirks to severe dysfunction

Occurs at an unconscious level
The Eight Sensory Systems

6. Vestibular System —Sense of body position & movement

7. Proprioceptive System —Joint & muscle sense

8. Interoception System —Sense of internal organs & recognition of emotional states
Autism & Sensory Processing Differences

93 to 96% of children on the spectrum & autistic youth & 94% of autistic adults experience sensory processing differences to such an extent that they significantly impact daily functioning

(Ben-Sasson et al., 2008; Crane et al., 2009; Tomchek et al., 2014)

A. “Persistent deficits in social communication and social interaction”
B. “Restricted, repetitive and stereotyped patterns of behavior, interests or activities”
⭐“Hyper or hypo-reactivity to sensory input or unusual interest in sensory aspects of the environment”
C. “Symptoms present in early developmental period”
D. “Symptoms cause clinically significant impairment in [...] functioning”
E. “Symptoms cannot be better explained by an intellectual disability” - but can be comorbid
Importance of Sensory Reactivity in Autism

“From as far back as I can remember: I always hated to be hugged... It was like a great all engulfing tidal wave of stimulation...”

“Tactile stimulation for me and many autistics is a no-win situation. Our bodies cry out for human contact but when the contact is made, we withdraw in pain and confusion”

Temple Grandin, Autistic Self-Advocate
But...

—Sensory processing differences are not always synonymous to difficulties but may in fact be a source of unique gifts & quality of life

“When a little girl’s giggles color the walls and ceilings with rainbow foam when she is amused by my echolalia…. I feel blessed for being what I am.”
(Mukhopadhyay, 2008)
Most Common Presentations: A Focus on Sensory Reactivity Profiles

Understanding a person’s sensory profile helps us to determine the ‘why’ behind behaviours & to identify what types of supports a person needs to more easily engage, relate & learn.
Sensory Over-Responders (SOR)

— Over-reaction to sensations
— Person will try to move away or block the sensory input (particularly during self-care tasks)
— Person may react ‘aggressively’ or ‘controlling’ when overwhelmed by sensory stimulation
— Very cautious, fearful, upset by changes in routine & ++challenges with transitions
— Hypervigilant, anxious
— May shut down
★ Thrives with predictable routines

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Sensory Over-Responders (SOR)

Correlations with ASD (Bart et al., 2017; Carpenter et al., 2019; Syu & Lin, 2018), ADHD (Lane & Reynolds, 2019; Lane et al., 2012) anxiety (Green & Ben-Sasson, 2010), GI issues (Mazurek et al., 2013), picky eating (Cermak et al., 2010), sleep problems (Mazurek & Petroski, 2015), self-injurious behaviours (SIBs) (Duerden et al., 2012), increased parental stress & challenges in participating in everyday activities (Reynolds & Lane, 2008)

Families of children with SOR exhibit more impairments than families of children with psychiatric diagnoses (Ben-Sasson et al., 2009)
Sensory Over Responsivity (SOR): Sensory Input = Pain

“Strip lighting... that can immediately... hurt a lot”

“Bad smells feel quite painful”

“If textures (of food) were mixed...the sensation makes me want to feel physically ill”

“If loud noise can bother me.... And it can feel painful”

“Every time I am touched it hurts; it feels like fire running through my body”

“People brushing past me.. It's like pain mixed with panic... and I can become quite aggravated because of it”

“In fact, sensory sensitivities ... may actually predispose autistic people to chronic pain.” (Failla et al., 2021 as cited in Jeffrey-Wilenski, 2021)

Quotes from autistic adults (Robertson & Simmons, 2015)
Sensory Inputs Add Up Throughout The Day ➔ Meltdowns

— *Allodynia*: perceiving non-painful sensations as irritating, non-pleasant or painful (Bar-Shalita et al., 2019)

— These sensations are higher in intensity & linger for a longer duration after the stimulus is over (Bar-Shalita et al., 2009, 2012; Weismman-Fogel et al., 2018)

— Explains the accumulation of aversive sensations experienced by individuals with SOR (Kinnealey et al., 2015)
Sensory Under-Responders (SUR)

— Does not react to sensory input they should be reacting to
— Unaware of body sensations
— Passive behaviours – lies down on the floor, leans on others or furniture
— Does not notice others in the room
— Slow to respond, quiet, withdrawn, uninterested in exploring games
— Becomes tired quickly
— May lack awareness of danger (heights, crossing streets, etc.)

☆ Thrives with explicit & multisensory teaching

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Learning from Autistic Voices: Recognizing the Gap Between Intention & Action in Autism

“One of the biggest misunderstandings you have about us is your belief that our feelings aren’t as subtle and complex as yours. Because how we behave can appear so childish in your eyes, you tend to assume that we are childish on the inside too. Stuck here inside these unresponsive bodies of ours, with feelings we can’t properly express, It’s always a struggle just to survive.”

~ Naoki Higashida, Autistic Self-Advocate

Sensory Seekers

—Seeks constant stimulation
—Likes crashing, bumping, jumping, roughhousing
—Constantly touches objects
—Licks/mouths/chews on objects
—Takes excessive risks during play or when engaged in physical activities

★Thrives in active/multisensory environments & when given access to sensory tools
The Eight Sensory Systems

6. Vestibular System — Sense of body position & movement

7. Proprioceptive System — Joint & muscle sense

8. Interoception System — Sense of internal organs & the basis of emotions

The Hidden Senses

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gro-gifted.com
The Sensory Diet Approach: An Effective Tool for Supporting Sensory Processing Differences:

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The Sensory Diet Approach/Sensory Supports Plan
Sensory Lifestyle/Feel Good Menu

— Sensations are ‘food for the brain’; they provide the knowledge needed to direct the body & mind”- Dr. A. Jean Ayres

— “A sensory diet provides the necessary combinations of sensory input to feed or nourish a person’s nervous system”- Dr. Patricia Wilbarger

— “A sensory lifestyle is how you incorporate the sensory tools that you have into every day life”- Dr. Lucy Jane Miller

@thesensoryprojectshow
Short Term Goals of a Sensory Diet Approach

— Help an over-responsive person to modulate reactions to sensory input
— Increase the alertness level of a under responsive person
— Prevent uncomfortable reactions to sensory stimuli
— Support an optimum level of function and participation
— Gain an understanding as to why certain behaviours occur
Long Term Goals of a Sensory Diet Approach

— Understand own sensory profile & why we react in the way that we do
— Understand which sensory supports are effective in helping a person self-regulate when faced with stressful situations → helps the person to learn which accommodations they need to advocate for
— Support a person’s ability to participate in different contexts (outings, social events, etc.)
— Opportunities for practice, improve endurance & motor planning skills
— Improve a person’s quality of life!
Components of a Sensory Diet Approach

1. A schedule of sensory inputs:
   - Formal schedule OR
   - *Embedded into daily routines*

2. Environmental Adaptations & Access to Sensory Supports/Tools

3. Interaction style ➔ Co-regulation

4. Leisure/recreation activities

An effective sensory diet is personalized & requires active & collaborative problem solving!

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Become a Sensory Detective!

1. Label the behavior & reflect
2. When does it happen?
3. What prompts it to happen?
4. Who does it happen with?
5. Where does it happen?
6. Why do you think it happens? What is the person seeking or avoiding?
7. What strategy do you want to try together to see if it decreases the frequency & intensity of the behaviour?
8. Did the strategy work? What could we do more or less of?

Adapted from: Aquilla, Edelstein & Riczer, 2017. *The Sensory Detective Curriculum*
The Vestibular System

—Orientation of the head in relation to gravity

—Works together with the visual & proprioceptive systems (Devlin et al., 2009)

★ Master Sense: integrates movement information with all the senses (Ayres, 1979)

—Contributes to physical and emotional security (cortical projections to the limbic system)
1. A Schedule of Sensory Inputs

Practical Vestibular Ideas For Home:

Yoga poses or asanas
Simply Fit Board
Flexible Seating Options
Embed movement within household chores
Safe Jumping
@sensoryscout

Look for opportunities for movement throughout the day!

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The Proprioceptive System

—Gives us a map of the body without the aid of vision. Our innate knowledge of what muscles are flexing & where your body parts are in space.

—Works with the vestibular & visual sensory systems to keep posture upright, develop balance & reacts when posture is challenged → sense of safety

Research findings in ASD:

—Deficits in ASD (Weimer et al., 2001)

—Poor awareness of force (Mostofsky & Ewen, 2011: Schaaf & Lane, 2015)
1. A Schedule of Sensory Inputs

Proprioception (‘Heavy Work Activities’)

💋 Carrying, Pulling, Pushing, Dragging, Squeezing & Lifting Activities

— Chewing: gum, chewlery or crunchy snacks
— Wearing a heavier backpack or clothing
— Tug-of-war with a towel
— ‘Pushing’ the wall away
— Climbing, jumping & hanging activities
— Biking, swimming, lifting weights
— Household chores
— Bouncing on a ball
— Digging in the dirt, snow shoveling
— Chair push-ups

How can I do "heavy work" with my kids?

- Go for a bike ride
- Put away groceries
- Play tug of war
- Climb at the park
- Do yoga
- Animal walking
- Pull a wagon
- Water plants
- Monkey bars
- Stomp your feet
- Try to "push over" the wall
- Push your hands together to "squish a bug"
- Dig in sand/dirt

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The Tactile System

— Essential system for development, communication & relationships

— Provides information about light touch, vibration, deep pressure, temperature & movement

— Most problematic sensory system affecting activities of daily living in autistic people

— Dressing, toothbrushing, face washing, hair combing, feeding & sleep

(Reynolds & Lane, 2008)

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1. A Schedule of Sensory Inputs

Deep Touch Pressure Input

— Tight hugs or self-hugs
— Massage
— ‘Burrito’ blanket roll up
— Spandex clothing (smaller swimming shirts, tights, compression sports wear, etc.)
— Sandwich game (pressure with a ball)
— Squishing with pillows
— Pushing hands together/pulling fingers apart
— ‘Crashing’ onto mattress
— Fidget tools
— Sitting in a bean bag chair

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@recoverydoodles

Stretch-eze compression garments
2. Environmental Adaptations & Access to Sensory Tools

— Adapt the Environment
  ✓ Dim the lights
  ✓ Visual choice board & schedules
  ✓ Reduce noise
  ✓ Predictable routines

— Provide access to sensory supports/tools

— Create sensory safe spaces or ‘islands of retreat’

Biology Comes First Principle
Is the person hungry, thirsty, tired or in pain?
Is the person under particular stress?
Be Proactive & Prepared for Sensory Overwhelm: Creating Sensory Kits & Sensory-Friendly Spaces

Sensory Kit from @actuallyautisticalien

@hvppyhands

Ikea swivel arm chair

@arcs.solutions

@autismmotherhood

@lifehacker
Sensory Strategies ARE Mental Health Interventions!

Coping Strategies to use on Public Transport

- Headphones or ear defenders
- Having something to chew or crunch
- Tapping your fingers
- Take a good book, magazine or activity with you

How to deal with sensory overload?

1. Wear glasses
2. Use noise-cancelling headphones
3. Use fragrance-free laundry detergent

Make adaptations when you can!
To promote flexibility, we need to model flexibility.

However you feel, your kids feel it too. Our brains resonate with each other. Take good care of yourself so you can spread calm instead of fear.

@wildpeaceforparents

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4. Recreation/Leisure Activities


Incorporate the Power Senses!

- Stretching
- Bike-riding
- Martial arts
- Yoga & mindfulness
- Rock climbing
- Bowling
- Horseback riding

FUN FACTOR!

- Running
- Foam & pin rollers
- Swimming
Embrace Complexity & Individual Differences in Autism

“Growth is a process of experimentation, a series of trials, errors and occasional victories. The failed experiments are as much a part of the process as the experiments that work.”

-Dr. Cherie Carter-Scott
The Sensory Diet Approach In Action!

Calvin and Hobbes by Bill Watterson for October 28, 1992
Summary on Sensory-Friendly Strategies For Home

—Become a Sensory Detective & think about what sensory experiences the individual on the autism spectrum might be seeking or might be trying to prevent by engaging in the observable behaviour

—Validate feelings- sensory input CAN be perceived as painful & the pain may linger!

—Adopt a Sensory Diet Approach to learn how to best support the autistic person's sensory needs

—Design low cost sensory-safe spaces within your living & work spaces & be prepared by creating a sensory kit if planning to enter a potentially sensory overwhelming experience

—Co-regulation is key! Be aware of your own reactions (as a parent, partner or supporter) as they may compound the autistic person’s experience of sensory overwhelm

—Embrace Productive Fails! Human beings are complex- reach out for an evaluation & support from an occupational therapist (OT) & work together in the creation of an individualized sensory diet that best meets the autistic person’s sensory needs
Resources

Developed by Elsbeth Dodman (Autistic Self-advocate), Moira Pena (OT), and Dr. Fakhri Shafai (PhD, M.Ed.) on behalf of AIDE Canada

Provides:
•—First-person autistic narrative of sensory experiences
—Neuroscience background
—Tips for how to become a “Sensory Detective”
—Strategies to try at home

TOOLKIT
Sensory Processing Differences Toolkit

https://aidecanada.ca/learn/sensory-regulation/sensory-processing-differences-toolkit
Resources

Feeding Differences in Autism Toolkit Developed on Behalf of AIDE Canada

Provides:
- First-person autistic narrative of feeding differences
- Reasons autistic people experience feeding challenges
- Research on co-occurring medical conditions that may be contributing to feeding differences
- BEST strategies to try at home

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https://aidecanada.ca/learn/asd-id-core-knowledge/feeding-eating-issues-toolkit
Resources

Sleep Challenges in Developmental Disabilities on behalf of AIDE Canada

Provides:
• First-person autistic narrative of sleeping differences
• Reasons autistic people experience sleeping challenges
• Research on co-occurring medical conditions that may be contributing to sleeping differences
• Strategies to try at home

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Sensory Processing Resources

**Websites**

https://sensoryhealth.org/
www.sensorysmarts.com
www.toystoolsandtreasures.com
www.fdm.ca
www.flaghouse.ca
Sensory clothing: https://calmcare.com/
https://otvest.com

**Apps:**
Noisli: personalized background noise
Pokemon Smile App for Toothbrushing App:

**Books**

*Building Bridges through Sensory Integration* (Yack, Aquilla & Sutton)
*Living Sensationally: Understanding Your Senses* (Winnie Dunn)
*The Out of Sync Child Has Fun* (Carol Kranowitz)
*The Sensational Child* (Lucy J. Miller)
*Sensory Like You* (Schneider & Dillon)
*Arnie and His School Tools: Simple Sensory Solutions that Build Success* (Jennifer Veenendall)
*Beyond Behaviours* (Mona Delahooke)
*Brain-Body Parenting* (Mona Delahooke)
*Divergent Mind: Thriving in a world that wasn’t designed for you* (Jenara Nerenberg)
*The Sensory-sensitive Child: Practical Solutions for Out of Bounds Behaviours* (Karen Smith & Karen Gauze)
References


References


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At least ______________ percent of people in the general population are significantly affected by Sensory Processing Differences.

A. 10 to 55
B. 40 to 88
C. 10 to 20
D. 93 to 96

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Thank you!

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