Sensory Dysregulation: Implications for FASD

Brittney Richardson M.S.E., OTS
LEND OT Junior Faculty
Department of Occupational Therapy
University of Central Arkansas

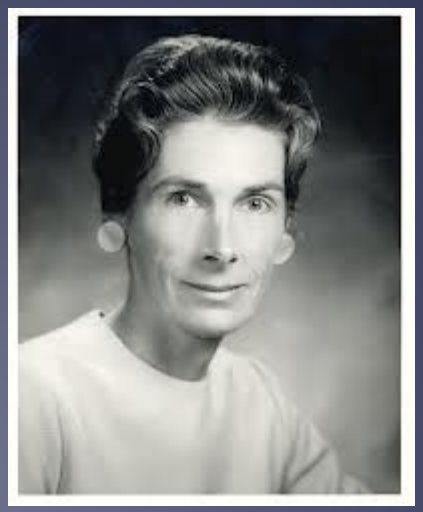
Tina A. Mankey Ed. D., OTR/L
Chair/Program Director and Professor,
Department of Occupational Therapy
University of Central Arkansas

Objectives of the Session

- 1. Identify the sensory dysregulation commonly seen in FASD.
- 2. Discuss how the sensory dysregulation effects everyday life.
- 3. Explore ways to further address the sensory dysregulation.

Ayres' Sensory Integration

- Dr. A. Jean Ayres, Ph.D, OTR – 1960's



- Explored the association between sensory processing and the behavior of children with disabilities.
- Social, emotional, motor, and/or functional problems can result from sensory integration dysfunction.

Theoretical Base

Basic assumptions

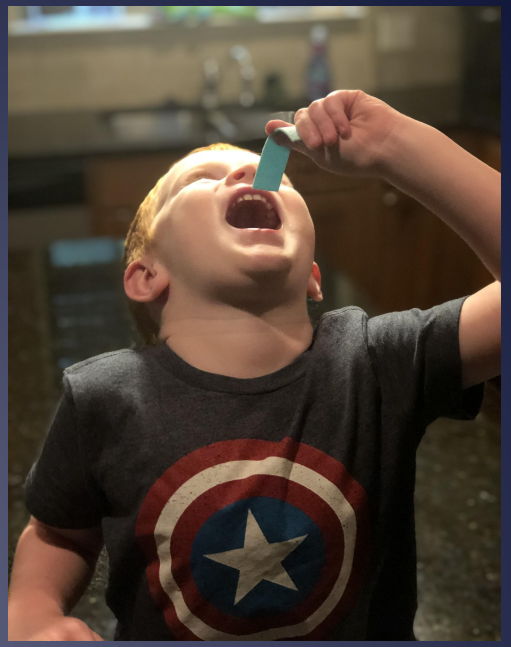
1. The CNS is plastic. (neuroplasticity)
2. Hierarchical organization of the brain.
3. Sensory integration develops in stages.
4. Adaptive response is critical to increased sensory integration.
5. Inner drive and motivation elicit a willingness to participate.

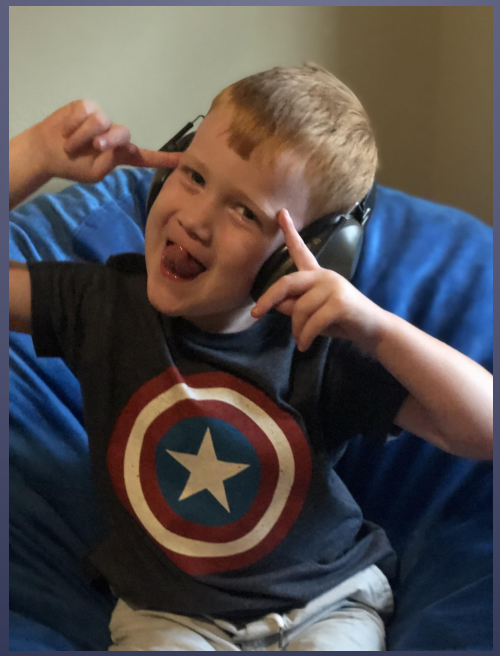
Why is SI Important?

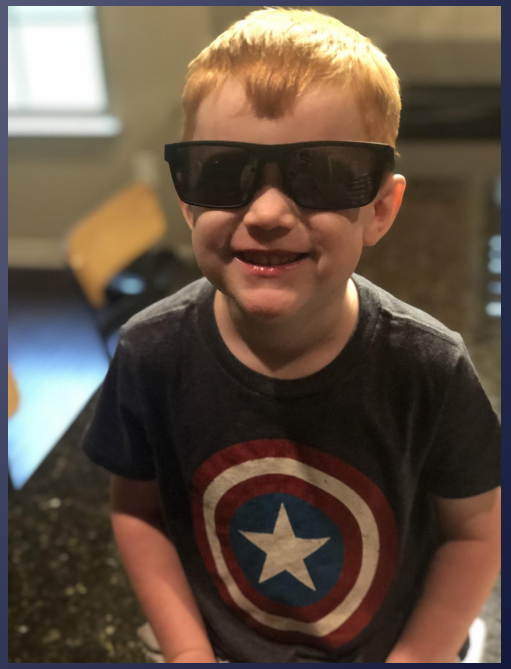
- Over 80% of a individual's nervous system is involved in processing or organizing sensory input
- This can affect a person's ability to interact within their everyday environment.
- Everyone uses a variety of sensations throughout their day to maintain an appropriate level of alertness to be productive
- SI affects the individual across the lifespan

Outside Sensory Systems

Tactile
Visual
Auditory
Gustatory
Olfactory







Inside Sensory Systems

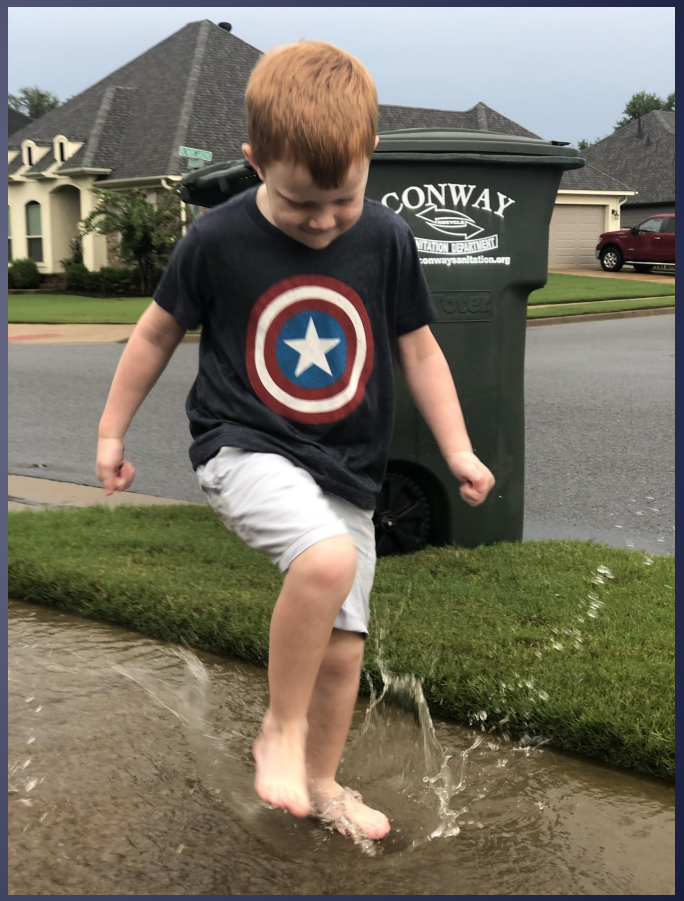
- Information is received from inside our bodies through
  - Vestibular System
  - Proprioceptive System

Vestibular System

- Influences movement
- Changes in direction
- Normal muscle tone
- Balance and equilibrium
- Body position and alignment
- Ability to coordinate both sides of our body
- Alertness and arousal
- Eye control and movements

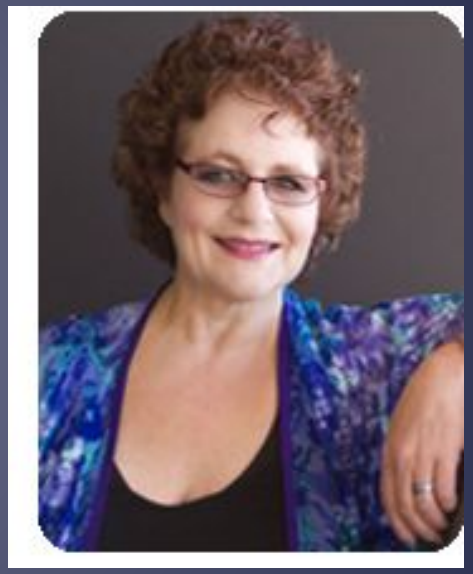
Proprioceptive System

- Sensation from the muscles, tendons, and joints
- Lets us know where each part of out body is and how it is moving
- Knowing body scheme with/without visual input
- Skilled fine and gross motor movements

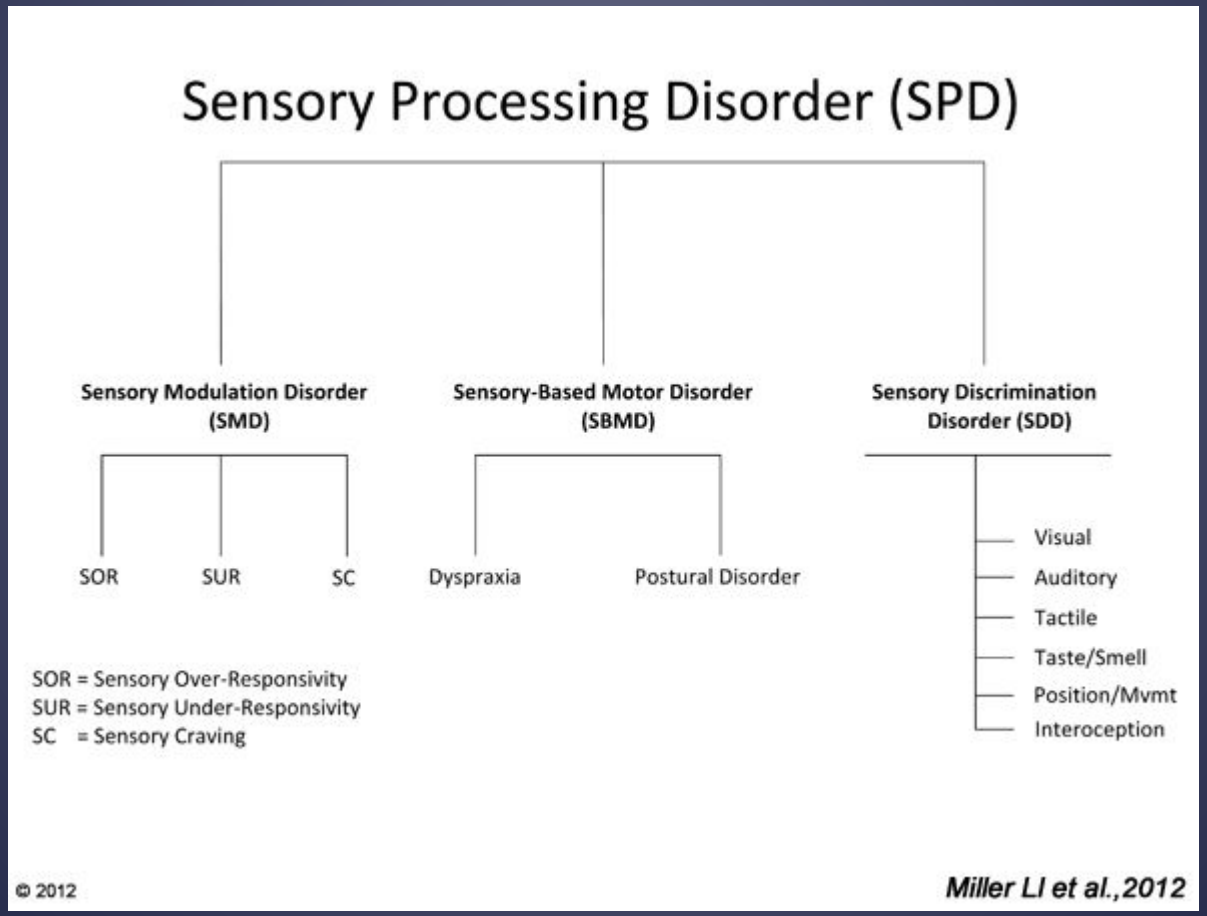


Dr. Lucy Miller

- Founder of the STAR Institute.
- Studied under Dr. Jane Ayres.
- Coined the term Sensory Processing Disorder.



Types of Sensory Problems



Sensory Modulation Disorder (SMD)

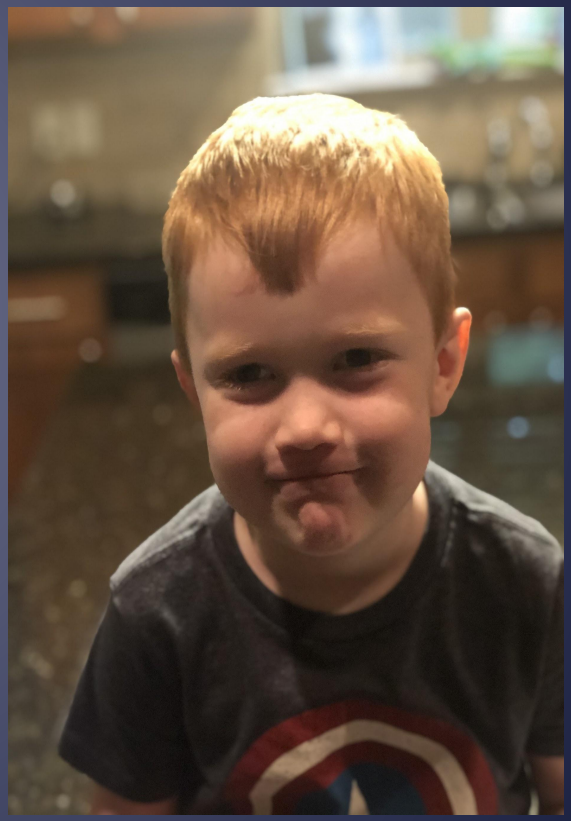
- The most common category of sensory processing disorder.
- Individuals may be over-responsive, under-responsive, or sensory seeking
- Difficulty with the regulation of sensory information

SMD – Over-Responsive

- "Oh, no!"
  - Hyper responsive
  - Cannot inhibit sensations efficiently
  - May respond as if sensations are irritating, annoying, or even threatening
  - Upset by transitions and unexpected changes

SMD – Under-Responsive

- "Ho, hum."
  - Reacts less intensely
  - Requires a lot of stimulation to achieve ordinary arousal or alertness
  - May be withdrawn or difficult to engage or may be preoccupied or self-absorbed



SMD - Seeking

- "More!"
  - Craves more stimulation
  - Constantly on the move
  - Excessively affectionate
  - Often licks, sucks, or chews on non-food items (Hair, pencils, clothing)
  - Often a risk taker with poor impulse control
  - May be intense, demanding, and hard to calm

Sensory Discrimination Disorder (SDD)

- Difficulty differentiating among and between stimuli
- Unable to use input to make purposeful, adaptive responses
- May not interpret sensory messages from the physical and social environment correctly

(Kranowitz, 2005)

Sensory-Based Motor Disorder (SBMD)

- Difficulty with sensory information that affects body movement
  - Dyspraxia
  - Postural Disorder

SI in Multiple Diagnoses

- Attention Deficit-Hyperactivity
- Autism Spectrum Disorder (ASD)
- Learning Disorder
- Sensory Deprivation
- Cerebral Palsy
- Psychosocial Disorders
- Fetal Alcohol Syndrome (FAS)

Sensory Processing and FASD

- Teratogenic impact of FASD can include deficits in:
  - Cognitive Functioning
  - Attention (hyperactivity, destractable)
  - Memory
  - Learning
  - Language
  - Auditory Processing
  - Motor Skills
  - Social Difficulties
  - Poor Organizational Skills
  - Problem Solving (Franklin et al., 2008)

FASD Effect on Everyday Life

- Areas Affected:
  - Work
  - School
  - Social Functioning
  - Adaptive Behavior
  - Social Competence
  - Communication
  - Daily Living Skills (Franklin et al., 2008)

What Does Sensory Approach Look Like?

- Goals of SI:
  - Modulate the sensory systems
  - Work on functional support capabilities within the adaptive responses
  - Acquire adaptive responses necessary to build end-product abilities which is an appropriate action in which the individual responds successfully to some environmental demand (Kimball, 1999)

Tools for Sensory Integration

Tactile

- Playdough, putty, slime
- Rice, beans, noodles
- Textured balls
- Foam/ball pit
- Weighted vest/blankets

Auditory

- Music
- Toys that make sounds
- Language
- Noise cancelling headphones

Visual

- Lights
- Saccade charts, mazes, hidden pictures
- Flashlights, glowsticks
- Colorful toys
- Sensory bottles

Gustatory

- Textures foods
- Sour, sweet, salty foods
- Straws
- Vibrating tools

Olfactory

- Smelly stickers
- Smell different foods
- Candles/essential oils
- Smelly markers/crayons

Vestibular

- Swing, jump, roll, run,
- Balance beam or uneven surfaces

Proprioceptive

- Scooter/heavy work
- Animal walks
- Deep pressure
- Trampoline
- Dragging/pushing objects

Practical Strategies & Intervention

- Preparation – videotaping or social stories
- Be consistent & routine – prepare for changes
- Be prepared for a "escape" plan
- Decrease screen time & add move movement
- Do not force activities by rather gradually introduce
- Always be watching for adverse reactions to sensory environments – physical changes such as nausea, changes in skin color or respiration, sweating, etc
- Proprioceptive input is calming so it is good to counteract excitability

Practical Strategies & Intervention

- Decrease amount of stimulation (all senses)
- Increase intensity for those who are under responsive
- To calm - use earmuff, headphone, soft or low sounds to calm
- To alert – louder music with driving beat & changing sounds
- Low pitched sounds are more calming than high-pitched sounds

Practical Strategies & Intervention

- During community outings, remember to think ahead and make special effort to accommodate to the person's sensory needs
- Teach "time out" strategies during times of stress
- Provide proprioceptive input or deep pressure prior to stressful events
- In work environments, consider the sensory environment & modify as needed
- Provide frequent breaks for heavy work or proprioceptive activities

Final Thoughts

- Early recognition is important
- Caution should be exercised – Sensory problems are not isolated behaviors
- Help the child feel alright about themselves
- Control the environment & be consistent
- Recognize that it can be a physical problem, not just behavior
- If problems are suspected refer the family for an occupational therapy evaluation.

"It may look as though the child at play is not learning anything, but actually he is ….learning how to learn." – Jean Ayres

Special Thanks

- Dr. Tina Mankey
- Elizabeth Cleveland
- Trace Hutch

References

- Ayres, A. J. (1977). Effect of sensory integrative therapy on the coordination of children with choreoathetoid movements. American Journal of Occupational Therapy, 31, 291-293.
- Ayres, A. J. (1972). Improving academic scores through sensory integration. Journal of Learning Disabilities, 5, 339-343.
- Ayres, A. J. & Tickle, L. S. (1980). Hyper-responsivity to touch and vestibular stimuli as a predictor of positive response to sensory integration procedures by autistic children. American Journal of Occupational Therapy, 34, 375-381.
- Founder Dr. Lucy Jane Miller. (n.d.). Retrieved September 02, 2020, from https://www.spdstar.org/basic/founder-dr-lucy-jane-miller
- Franklin, L., Deitz, J., Jirikowic, T., & Astley, S. (2008). Children with fetal alcohol spectrum disorders: Problem behavior and sensory processing. *American Journal of Occupational Therapy*, 62, 265-273.
- Hanschu, B. (1996). Autism and attention deficit disorders: A sensory perspective.
- Jirikowic, T., Carmichael Olson, H. & Astley, S. (2012). Parenting stress and sensory processing: Children with fetal alcohol spectrum disorders. *OTJR: Occupation, Participation and Health.* 32 (4), 160 – 168.
- Kimball, J. G. (1999). Sensory integration frame of reference: Theoretical base, function/dysfunction continua, and guide to evaluation. In P. Kramer and J. Hinojosa (Eds.), Frames of reference for pediatric occupational therapy (2nd ed.), pp. 119-168. Philadelphia: Lippincott, Williams, & Wilkins
- Kranowitz, C. S. (2003). The out-of-sync child has fun: activities for kids with sensory integration dysfunction. New York, NY: Perigee Trade.
- Miller, L. (2007, Fall). Summary of recent study evaluating the effectiveness of OT with a sensory integration approach. Sensations: E-Newsletter. Retrieved from http://www.netnewsdesk.com/SPDFoundation/index.cfm?PID=897&ID=4041,14387,14287
- Miller, L., Coll, J., & Schoen, S. (2007). A randomized controlled pilot study of the effectiveness of occupational therapy for children with sensory modulation disorder. American Journal of Occupational Therapy, 61(2), 228-238. Retrieved from CINAHL Plus with Full Text database.
- Tomchek, S. D. & Dunn, W. (2007). Sensory processing in children with and without autism: A comparative study using the short sensory profile. *American Journal of Occupational Therapy*, 61, 190-200.
- Willard, Helen S.Schell, Barbara A. Boyt. (Eds.) (2014) *Willard & Spackman's occupational therapy.* Philadelphia : Wolters Kluwer Health/Lippincott Williams & Wilkins,

Contact

Dr. Tina Mankey

- tinam@uca.edu

Brittney Richardson

- brichardson6@cub.uca.edu

Sensory Dysregulation: Implications for FASD

Brittney Richardson & Dr. Tina Mankey

Please complete the survey for attendance and continuing education credit by following one of the steps below:

Scan the QR code

Or

Go to this web address:

https://crisredcap.uams.edu/redcap/surveys/

Then enter this code:

RCLYWY3Y4