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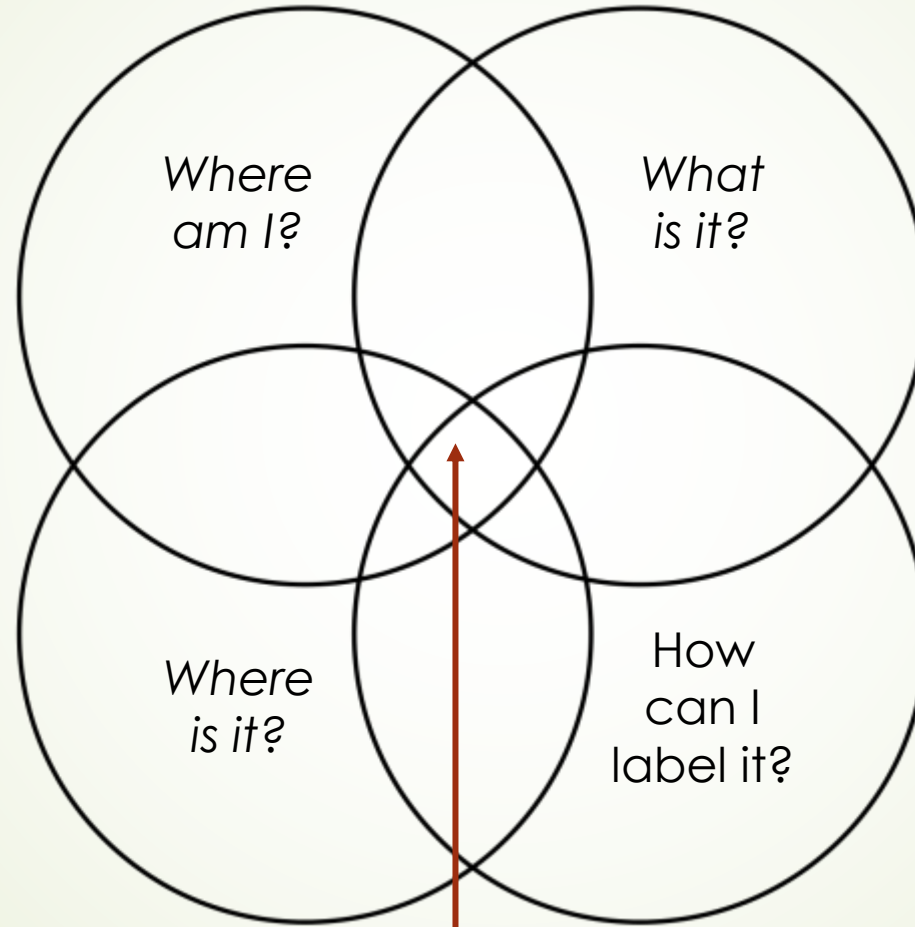
A Functional Approach to Sensory Integration and Vision Therapy

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Skeffington Symposium 2022

Skeffington's Circles

Anti-Gravity

Identification



Centration

Speech-Auditory

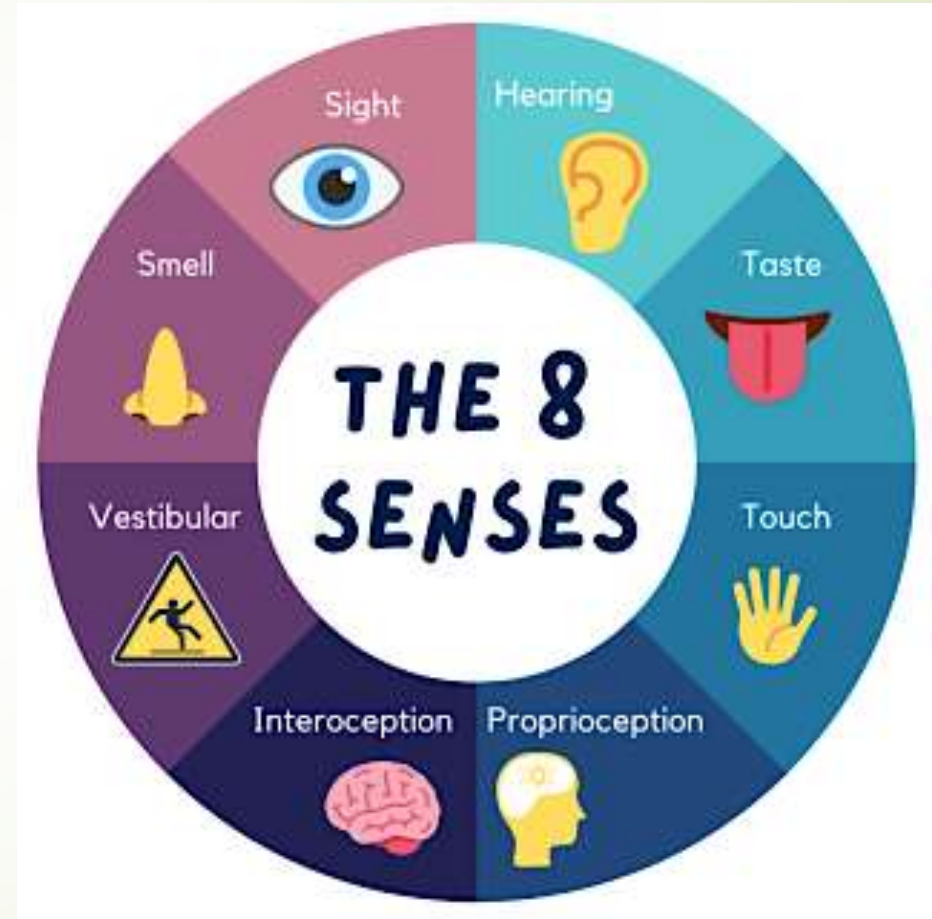
VISION

The Eight Sensory Systems

1. Visual
2. Auditory
3. Taste
4. Tactile
5. Olfactory

6. Vestibular
7. Interception
8. Proprioception

} **“Private senses”**





What is Sensory Processing Dysfunction?

- ▶ **Sensory Processing Dysfunction (SPD):** is used to describe individuals who have difficulties tolerating, integrating, and/or processing one or more types of sensory input
- ▶ Sensory experience = rewiring the brain!
- ▶ Can be *Developed* or *Acquired*

What does SPD look like?

Distracted by all sounds

Exhibits extreme reactions
(crying, screaming, running away)

Picky eater

Constantly moving, fidgeting,
or spinning around



Constantly biting
or chewing on
things

Difficulty tolerating
tags on clothing

Strong aversions to
certain food smells

Easily distracted by
surrounding visual
stimuli

Does everything with 100% force

Appears sluggish,
slumping, or leaning over




Case Report #1: T.S, 5 yr. old CM

- ▶ Sudden onset R. Esotropia @ age 2
- ▶ Pediatric Neuro-Ophthalmology evaluation (Age 2)
 - ▶ MR/CT Scan: normal
 - ▶ Retinoscopy: +1.50 sph, OU
 - ▶ Cover Test: 20 RET @distance and near
- ▶ Occupational Therapy evaluation (Age 3)
 - ▶ Transition issues → lots of meltdowns
 - ▶ Separation anxiety
 - ▶ Picky eater
- ▶ OT Evaluation:
 1. Gross Motor deficiencies
 2. Sensory Processing dysfunction



Case Report #1: T.S, 5 yr. old CM

- ▶ Vision Therapy evaluation (Age 3)
 - ▶ VA: 20/40 OD, 20/30 OS, 20/15 OU
 - ▶ Retinoscopy: +1.00 sph OU
 - ▶ CT: 20 RET @ distance, 25 RET @ near
 - ▶ NPC: fusion from nose to 3" out
 - ▶ Oculomotor: Inaccurate pursuits, overshooting saccades
 - ▶ Accommodation: Periods of accommodative spasm, accommodative infacility
- ▶ **Treatment course:** Visually-enhanced Occupational Therapy (Age 3)



Case Report #1: T.S, 5 yr. old CM

- Visually-enhanced Occupational Therapy treatment:
 1. Therapeutic Listening (15 min/day x 2 days a week)
 2. Visually-engaged activities to bring more peripheral awareness
 3. Prone/Extension activities
- Today, T.S is 5 years old, and is continuing visually-enhanced OT and as of 3 months ago began regular Vision Therapy
- No noticeable eye turn!
- Enjoys playing on a soccer team, can navigate through unfamiliar territories, appropriately expresses emotions



Case Report #2: J.H, a 7 yr. old CM

- ▶ Optometrist evaluation (Age 1.5)
 - ▶ Retinoscopy: +7.50 sph OU
- ▶ IEP was put into plan at the start of Kindergarten
- ▶ Enrolled in Physical Therapy (Age 5)
- ▶ Vision Therapy evaluation (Age 6)
 - ▶ VA: 20/40 OD, 20/50 OS, 20/40 OU
 - ▶ CT: 2 IAET @ distance, 15 IAET @ near
 - ▶ NPC: (+)diplopia during entire test
 - ▶ W4D: OS Suppression @ distance, OD suppression @ near
- ▶ **Treatment course:** Vision Therapy + Occupational Therapy (Age 6)



Case Report #2: J.H, a 7 yr. old CM

- ▶ Occupational Therapy goals:
 1. Increase muscle tone
 2. Increase attention on task work
 3. Regulate vestibular system when on swings
- ▶ Vision Therapy goals:
 1. Develop smooth and accurate oculomotor function
 2. Gain constant fusion and binocularity
- ▶ Today J.H is an active 7 year old who can spend hours on a swing and not get dizzy, who demonstrates better understanding of how to use his eyes as a team, to sustain prolonged attention on near tasks, and has age-appropriate gross and fine motor skills



Case Report #3: J.S, 26 yr. old CM

- ▶ Vision Therapy evaluation (age 25)
 - ▶ Recommendations from previous evaluation at Wilmer Eye Institute:
 1. Prism glasses
 2. Pencil push ups
 3. Severe dry eye treatment using AT's q1hr
 - ▶ Patient had a very demanding analyst job
 - ▶ Couldn't keep his eyes open for more a few seconds, let alone stare at a computer screen for the whole day
 - ▶ Impression: Mental breakdown through the visual system
 - ▶ **Treatment course:** Vision Therapy *initially*



Case Report #3: J.S, a 26 yr. old CM

- ▶ J.S had to be guided into the VT room because he would not open his eyes
 - ▶ Total of 140 intensive VT sessions completed before considering adding OT
- ▶ Occupational Therapy evaluation (age 26)
 - ▶ Sensory overload → coping mechanism: automatically shut down
 - ▶ Family members described him as “unresponsive” in group settings
 - ▶ Goals that J.S had:
 1. Taking LSAT in Spring 2022
 2. Auditory/Visual/Vestibular integration
 3. Play piano again
 4. Fall asleep and stay asleep



Case Report #3: J.S, 26 yr. old CM

➤ OT treatment = Interactive Metronome and Sensory Counseling

1st Session: demonstrated an inability to tolerate metronome sound

2nd Session: (a) Taking breaks from studying

(b) Using ankle weights to increase awareness to lower extremities

(c) Sucking on mints or straw to control nausea

4th Session: Came in unable to talk/communicate

“Swing = Amazing”

6th Session: Understands that his senses are all coming in at once, and can recognize the unity of all the systems as they should work together

10th Session: Better bedtime routine

13th Session: “Living is less hard”; breaks have become more instinctive

20th Session: (a) Feels he’s getting more out of VT now more than ever!

(b) Advocated for himself in over-stimulating environments

Therapeutic Listening

- **Therapeutic Listening:** a sound-based program that is embedded in a developmental and sensory integration perspective
- The music used in this system gives the listener unique and precisely controlled sensory information
- It can be modified to highlight the parts of the sound spectrum that naturally capture attention and activate body movement, and synchronizing it with the surrounding environment



Therapeutic Listening

- ▶ Active listening is a dynamic and continually adapting behavior, which utilizes a function of the entire brain well beyond just stimulating the auditory system
- ▶ Therapeutic Listening has been observed to benefit individuals who exhibit the following:
 - Poor attention
 - Limited play skills
 - Difficulty with transitions
 - Trouble following directions
 - Poor timing and sequencing of motor skills



Interactive Metronome

- ▶ **Interactive Metronome (IM):** a biometric computer program that measures and emphasizes timing
 - ▶ Timing is essential for all basic and complex neurological functions, and is one of the most important factors in assessing human performance
 - ▶ Timing dictates one's ability to focus and process information while doing homework, playing a sport, or writing a report for work
 - ▶ Our brain depends on quick and synchronized neural timing for providing attention, executive function, motor control, and speed and accuracy.





Interactive Metronome

- ▶ IM responds to a patient's performance by providing immediate auditory and visual feedback, indicating whether they are hitting too fast, too slow, or in sync to the program
- ▶ This program allows for various networks in the brain to engage with one another, making them collaborate into a stronger and more efficient processing vessel
- ▶ Many types of medical professionals such as developmental optometrists, occupational therapists, speech pathologists, psychologists, and physical therapists can use IM as a tool to help treat patients with:

AHDH

Developmental Delays

Athletic enhancement

Autism

Learning disorders

Traumatic brain injuries

Dyslexia

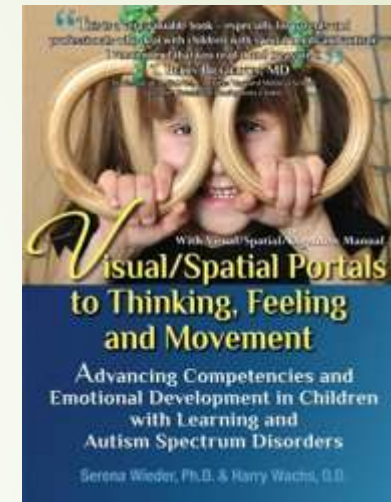
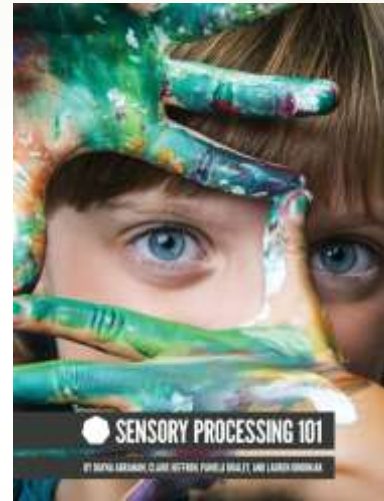
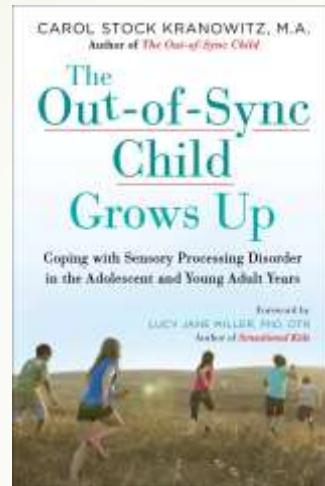
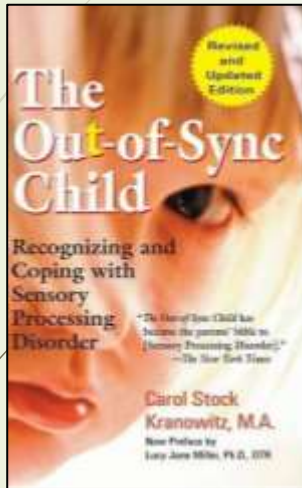
Sensory processing disorders

Closing remarks



“No two people are alike when it comes to responding to a sensory experience, which is why healthy development of the sensory systems is promoted by thoughtful, guided, and intentional exposure to playful sensory stimuli as a child”
- Dayna Abraham *Sensory Processing 101*

Additional Resources



Interactive Metronome: <https://www.interactivemetronome.com>

Therapeutic Listening: <https://vitallinks.com/therapeutic-listening/>



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