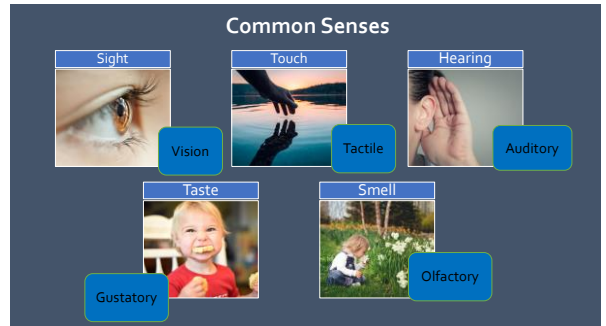


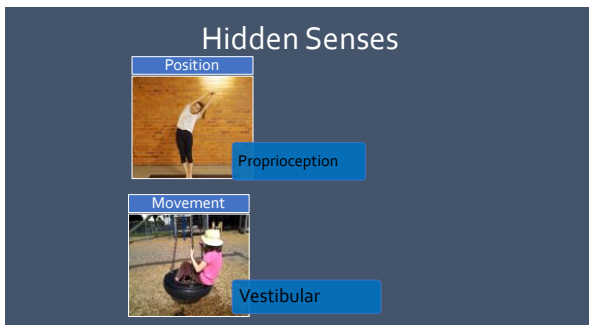
# Sensory Processing and Children with Visual Impairment

Dr. Vidya Pingale, MS, PhD, OTR/L  
For Lighthouse Guild

## Senses



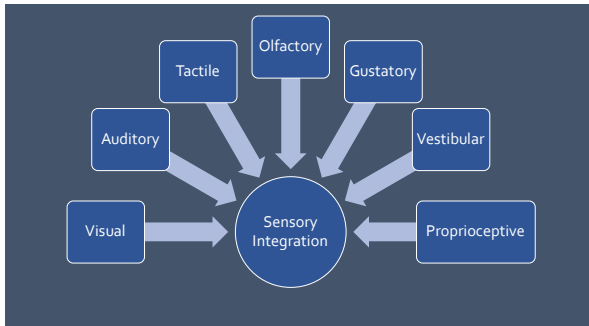
## Senses



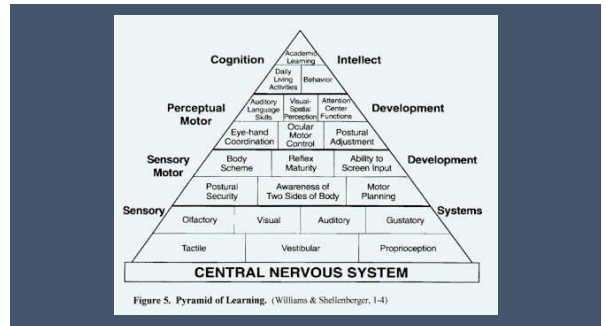
## What is Sensory Integration?

- It is the ability to organize the information that we get from our body and the environment around us and use it effectively to negotiate day to day activities.

## Sensory Integration



## Sensory Processing in Development and Growth



## Impact of Visual Impairment on Development

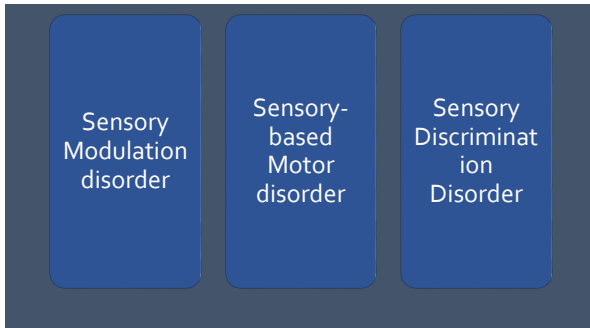
- Attachment with parents
- Environmental exploration
- Neck muscle stiffness
- Posture and Balance
- Gross motor development
- Visual-motor development
- Concept Formation

## Strategies to Promote Development

- Support interactions with the environment
- Support exploration
- Promote muscle tone, balance and postural control
- Learning motor activities with tactile teaching
- Orientation to the environment

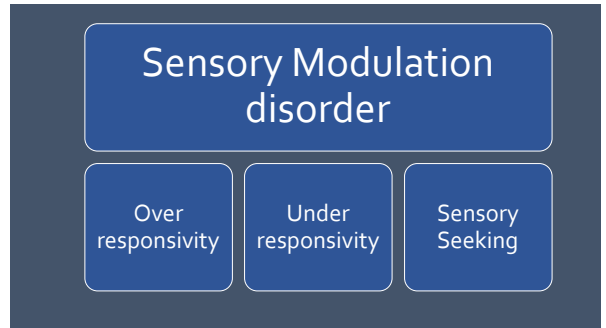
---

## Sensory Processing Disorders



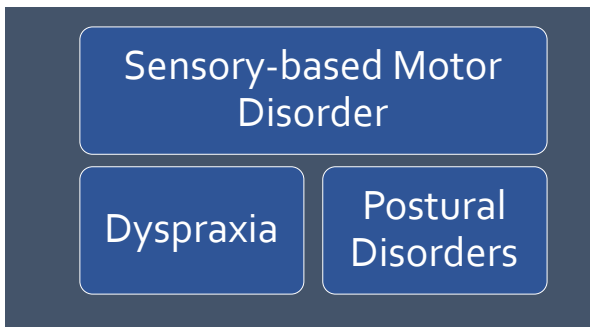
---

## Sensory Processing Disorders



---

## Sensory Processing Disorders



---

## Sensory Processing Disorders



---

## Over-responsivity

- Refuses to touch anything, or pushes away however will seek deep pressure hugs,
- Does not like to get messy
- Dislikes activities like painting, shaving cream, gluing
- Wears long sleeves in summer or refuses to wear a jacket in the winter
- Is reluctant to participate in new tasks
- Will engage in solitary play

---

## Over-responsivity

- Rationalizes verbally to get out of the activity, if language is present
- Difficulty with circle time
- Meltdowns or tantrums for no apparent reason
- May appear distracted and inattentive
- Dislikes playground activities

---

## Over-responsivity

- Dislikes playground activities
- Holds on to rails while going up and down the stairs
- Uncomfortable in elevators
- Demand continuous physical support
- picky eater
- React to loud noises or vacuum cleaners

---

## Under-responsivity

- Unaware of touch unless very intense
- Unaware of bruises, falls
- Will not cry when they fall or bump
- Indifferent to falls or bumps
- Has difficulty manipulating tools

---

## Under-responsivity

- Messy dresser
- Appears clumsy
- Knocks things off and bumps into things
- Generally disorganized (due to lack of input to the muscles)
- Clumsy, awkward, uncoordinated movements

---

## Sensory Seeking

- Touch walls, toys
- Mouthing
- Craves running, spinning, moves from one activity to another
- Constantly moving
- Shakes head intensely
- Craves intense jumping, fast spinning
- Doesn't get dizzy
- Deliberately bumps into things

---

## Postural Control

- Decreased body awareness
- Decreased movement, balance and posture

---

## Dyspraxia

Decreased motor planning and bilateral coordination

- gross motor and fine motor skills
- Didn't crawl as baby
- Delayed milestones
- Need to observe other kids several times before participating in activities
- Reluctant to participate in gross motor tasks
- Jumping with feet together
- No hand preference by age four to five

---

## Sensory Discrimination

- Difficulty grading movement
- Holds too tight or too loose
- Breaks an object that requires simple manipulation
- Picks up with too little force - complains its heavy
- Uncoordinated Movements
- Looks to others before responding
- Unable to pay attention, understand and remember instructions

---

## Emotional Issues and Behavior

- Pushy and/or controlling
- Stubborn and/or rigid
- Emotionally insecure
- Poor Social skills
- Aggressiveness

---

## Sensory Processing and Visual Impairment

- Role of sensations
- Effect of sensory processing issues

---

## Addressing Sensory Processing Issues

- Acknowledge there is an issues
- Consult an Occupational Therapist
- Screen or evaluate

---

## Addressing Sensory Processing Issues

- Each child will be different and respond differently to sensations
- Be sensitive to child's reactions
- Understand sensory demands of activities

---

## Addressing Sensory Processing Issues

- Look for cues from a child for sensory preferences
- Provide opportunities for sensory play
- Provide safe and supportive environment
- Encourage and not force

---

## Sensory-based therapy

- Sensory integration therapy
- Sensory diets
- Weighted vests
- Special seat cushions
- Sensory boxes
- Fidget toys

---

## Strategies for Children with Over-responsivity

- Provide comfortable and secure environment to explore
- Give them feeling of control with predictable activity
- Encourage to participate
- Let them use a comfort toy
- Encourage them to express verbally and identify the triggers
- Use deep pressure activities
- Long handled brushes to play with messy tasks, like painting, glue, shaving cream, etc.
- Have a quiet corner

## Strategies for Children with Body awareness issues

- Keep environment safe
- Use physical structure such as pillows ribbons to define the place
- Use weighted toys or blanket to organize
- Weighted vest

## Strategies for Sensory Seeking Children

- Look for cues from a child for sensory preferences
- Provide opportunities for sensory play
- Weighted vest
- Help the child identify their activity state and
- Help the child identify strategies that helps him or her organize
- Gum
- Chewy
- Timers

## Resources

- The Spiral Foundation:  
[www.thespiralfoundation.org/index.html](http://www.thespiralfoundation.org/index.html)
- Sensory Processing Disorder Foundation:  
[www.spdnetwork.org](http://www.spdnetwork.org)
- SI Global Network:
- <http://www.siglobalnetwork.org>

## References

- Ayres, A. J., & Robbins, J. (2005). *Sensory integration and the child: Understanding hidden sensory challenges*. Western Psychological Services.
- Brambling, M. (2005). Divergent development of gross motor skills in children who are blind or sighted. *Journal of Visual Impairment & Blindness*, 100(10), 620-634.
- Caras, M. L., & Sanes, D. H. (2015). Sustained perceptual deficits from transient sensory deprivation. *Journal of Neuroscience*, 35(30), 10831-10842.
- Cass-Smith, J., Weaver, L. L., & Fristad, M. A. (2015). A systematic review of sensory processing interventions for children with autism spectrum disorders. *Autism*, 19(2), 133-148.
- Haeghele, J. A., Lieberman, L. J., Columba, L., & Runyan, M. (2014). Infusing the expanded core curriculum into physical education for children with visual impairments. *Paltostra*, 26, 44-50.
- Houwen, S., Hartman, E., & Visscher, C. (2009). Physical activity and motor skills in children with and without visual impairments. *Medicine and science in sports and exercise*, 41(11), 320-326.
- Margolis, D. J., Lütjke, H., Schulz, K., Haes, F., Weber, B., Kippler, S., ... & Helmsricher, F. (2013). Reorganization of cortical population activity imaged throughout long-term sensory deprivation. *Nature neuroscience*, 15(11), 1539-1548.
- Pfeiffer, B., May-Benson, T. A., & Bodson, S. C. (2018). State of the science of sensory integration research with children and youth. *American Journal of Occupational Therapy*, 72(1), 720117001001-720117001009. Zappori, R. B., Cobpa, L., Wang, A. M., Cushing, S. L., & Gordon, K. A. (2018). Postural stability and visual impairment: Assessing balance in children with strabismus and amblyopia. *PloS one*, 13(10), e0205857.
- Pingale, V., Fletcher, T. S., Candler, C., Pickens, N., & Dunlap, K. (2013). Effects of Sensory Diets: A Single Subject Study. *Journal of Occupational Therapy, Schools, & Early Intervention*, 1-16.
- Demir, T., Bolat, N., Yavuz, M., Karagöçmen, G., Doğançın, B., & Kayalıoğlu, L. (2024). Attachment characteristics and behavioral problems in children and adolescents with congenital blindness. *Micro Psychology*, 4(2), 116-124.
- Williams, M. S., & Sheltenberger, S. (1996). *An introduction to "how does your engine run?": the Alert Program for self-regulation*. TherapyWorks, Inc.