

# Sensory Processing

## *What is it?*

- ❖ Sensory processing involves the central nervous system's ability to detect, register, and process sensory information (Atchison & Merkut, 2017). Children that experience difficulties with sensory processing have challenges with "detecting, regulating, interpreting, and responding to sensory input" (Critz et al., 2015, p. 711, as cited in Pfeiffer et al., 2018), resulting in symptoms that can impact function and participation in childhood occupations.
- ❖ One way to describe sensory processing challenges is through the four categories described below:
  - (1) **Sensory modulation problems**: involves difficulty generating responses that are appropriate given the sensory input received (Parham & Mailloux, 2015). Types include under-responsiveness and sensory registration problems, over-responsiveness, tactile defensiveness, and gravitational insecurity.
  - (2) **Sensory discrimination and perception problems**: involves difficulty organizing and interpreting sensory stimuli (Parham & Mailloux, 2015). Types include tactile discrimination and perception problems, proprioception problems, and visual perception problems.
  - (3) **Vestibular-Bilateral problems**: includes difficulties with functions involving the vestibular system such as head/trunk control, bilateral coordination, and balance (Parham & Mailloux, 2015).
  - (4) **Praxis problems**: involves difficulty understanding, planning, and executing new and/or unlearned tasks (Parham & Mailloux, 2015).
- ❖ For more information on sensory processing, you can visit the following websites:
  - Spiral Foundation - <https://thespiralfoundation.org/parent-toolkit/>
  - Child Mind Institute - <https://childmind.org/article/sensory-processing-issues-explained/>
  - Seattle Children's - <https://www.seattlechildrens.org/pdf/PE1108.pdf>

## *What are the signs of sensory processing challenges?*

- ❖ Children that experience challenges with sensory processing may appear to be oblivious of or over react to touch, movement, sounds, and/or other forms of sensory input, may display signs of fear or avoidance of stairs, escalators, moving playground equipment, or uneven surfaces, or may have difficulty distinguishing between different letters or sounds of words.
- ❖ Children may also exhibit difficulties with fine-motor skills, appear clumsy or awkward, actively seek out sensations, use too much or too little force during activities such as typing or writing, may have poor trunk control, balance, and bilateral coordination, or may have difficulty performing new motor activities resulting in knocking objects/toys over or difficulty when imitating actions of others.

## *How can sensory processing challenges impact occupational performance?*

- ❖ Sensory processing challenges can potentially impact any or all aspects of occupational participation and performance ranging from ADLs (i.e., dressing, toileting, etc.) and school to play, leisure, and social participation.

## *How can OTs help?*

- ❖ Depending on the child's needs, an OT may work to promote independence and participation in occupations by:
  - Providing individualized amounts/types of sensory input to promote sensory regulation
  - Providing the child with opportunities and education for self-regulation (i.e., obstacle course, heavy work activities, use of Zones of Regulation etc.)
  - Providing education on and practicing using sensory strategies such as a sensory diet
  - Use of complementary programs such as Therapeutic Listening or Astronaut Training
  - Providing parent and caregiver education

*\*Information above is not comprehensive and all treatment plans are specific to and depend on the needs of the child and are in no way limited to the examples provided above.*

### References

- Atchison, B. J., & Merkut, B. G. (2017). Sensory processing disorder. In B. J. Atchison & D. P. Dirette (Eds.), *Conditions in occupational therapy: Effect on occupational performance* (5th ed., pp. 101-116). Wolters Kluwer.
- Parham, L. D., & Mailloux, Z. (2015). Sensory integration. In J. Case-Smith & J. C. O'Brien (Eds.), *Occupational therapy for children and adolescents* (7th ed., pp. 258-303). Elsevier Mosby.
- Pfeiffer, B., Clark, G. F., & Arbesman, M. (2018). Effectiveness of cognitive and occupation-based interventions for children with challenges in sensory processing and integration: A systematic review. *The American Journal of Occupational Therapy*, 72(1), 7201190020p1-7201190020p9. 10.5014/ajot.2018.028233