

Addressing Sensory Integration Across the Lifespan Through Occupational Therapy



Occupational therapy practitioners (occupational therapists and occupational therapy assistants) support an individual's ability to engage in every day occupations or activities and acquire skills to promote function. Occupational therapy practitioners consider the basic foundations of human development that affect activities of daily living, learning, play, work, social skills, and behavior using a variety of approaches. Deficits in sensory processing can pose a challenge to occupational performance of these activities and occupational therapy practitioners have specialized knowledge and skills in addressing the sensory needs of individuals with and without disabilities, across the lifespan. Occupational therapy practitioners work in a variety of settings to address sensory needs of children and adults. Services may be provided in school, clinic, home, or community settings.



As a natural part of typical development, children process, interpret, and respond to sensory information. When occupational therapy practitioners address the sensory needs of individuals, they consider the registration, modulation, organization and interpretation of information gained through the senses: sight, sound, smell, taste, touch, and perception of movement and position. Occupational therapy practitioners recognize that well-regulated sensory systems can contribute to important developmental outcomes in social-emotional, physical, communication, self-care, cognitive, and adaptive skill development.

Five to fifteen percent of children in the general population demonstrate difficulties with sensory modulation (SMD) (Reynolds, et al, 2008). For many of these children, occupational therapy can help. There is a growing body of scientific evidence to support the importance of the sensory systems in human behavior and occupational performance (Baranek et al, 2002; White et al, 2007). Research has also provided indirect support for the use of a sensory integrative approach to intervention. (Baranek, 2002; Miller & Schoen, 2007).

What Can an Occupational Therapist Do?

Occupational therapists can assess an individual's response to sensory information from the body and the environment using standardized and non-standardized tests, clinical observation, and caregiver or teacher interviews. Emphasis often is placed on the tactile (touch), proprioceptive (body awareness, body position in space) and vestibular (perception of movement) systems. Therapists also assess praxis, the ability to come up with an idea involving action, and to anticipate, time, plan, sequence, and execute unfamiliar motor actions. This information, along with an analysis of the sensory, motor, and cognitive demands of activities, the social and physical characteristics of the environment, and the effectiveness of the individual's performance skills and patterns in those activities, forms the basis of the occupational therapy intervention plan.

Sensory integration and praxis dysfunction and sensory processing disorders vary in type and severity. When a deficit is found in sensory integration, praxis, or sensory processing, occupational therapy practitioners can provide intervention designed to address these concerns.

Some occupational therapists receive specialized post-graduate education and training in theory, assessment, and principles of sensory integration intervention. Certification programs in sensory integration, which qualify a practitioner to administer and interpret the Sensory Integration and Praxis Tests (SIPT) are also available but not required.

Occupational therapy intervention to address sensory processing concerns can be provided throughout the lifespan. Early intervention focuses on infants and toddlers, birth to 3 years of age, with disabilities or at-risk for developmental problems and their families. Occupational therapists use their unique expertise to identify sensory related factors and provide interventions to facilitate effective self-regulation (wake-sleep cycles, level of alertness, self-quieting), sensory processing, motor development and adaptive behavior.

School aged children may require occupational therapy using a sensory integration approach to support educational needs as well as life skills and community-based needs. In addition to providing interventions that remediate the sensory integration issues influencing behaviors in the classroom, occupational therapy practitioners also make modifications to the classroom environment in order to assist children in participating and progressing at school, playing, making friends, and focusing in order to learn. Examples might be managing sensory information during school routines like riding the school bus, tolerating smells and noise in the cafeteria, and playing on the playground with others.

Occupational therapy strategies may help reduce stress and inappropriate or disorganized behavior caused by poor sensory registration, sensory defensiveness, sensory overload, and poor praxis. Occupational therapy practitioners who provide occupational therapy services using sensory processing approaches work with children to remediate the underlying sensory integration and praxis factors effecting a student's education and participation at school.

Adolescents and young adults may benefit from strategies that help individuals understand their own sensory processing systems and the impact on leisure activities, vocational choices, and relationships. Individuals whose participation in everyday activities is limited because they are fearful of movement, sensitive to touch, or unaware of body position in space and have not had the opportunity to use their bodies to effectively explore the sensory (proprioceptive, tactile, vestibular) and physical environment may also benefit from occupational therapy using this frame of reference.

Adults

As young adults transition into lifelong work and leisure experiences, occupational therapy practitioners can play an important role in identifying and supporting successful strategies in these areas. This would include addressing social-emotional needs as individual's age. Sensory integration and sensory processing interventions have also shown promise in working with adults with identified sensory defensiveness. (Pfeiffer & Kinnealey, 2003).

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Occupational therapy enables people of all ages live life to its fullest by helping them to promote health, make lifestyle or environmental changes, and prevent—or live better with—injury, illness or disability. By looking at the whole picture—a client's psychological, physical, emotional, and social make-up—occupational therapy assists people to achieve their goals, function at the highest possible level, maintain or rebuild their independence and participate in the everyday activities of life.



How Can an Occupational Therapy Practitioner Help?

- **Collaborate** with families, physicians, nurses, speech language pathologists, physical therapists, psychologists, and teachers to determine the need for specialized evaluation and intervention;
- **Identify and modify** sensory and environmental barriers that limit participation in every day activity;
- **Teach and model** activities to support sensory, motor planning, and behavioral needs;
- **Identify** adaptive sensory and motor planning strategies to facilitate full participation in daily routines and social interaction;
- **Help** raise the level of an individual's self-awareness of the impact of sensory factors on every day activities and real life situations;
- **Provide** intervention using sensory processing approaches, as well as interventions according to ASI® principles, to remediate underlying deficits and prepare the individual to participate as fully as possible in activities that are meaningful or necessary.



How Can Caregivers and Families Help?

- **Observe** the individual's response to various types of sensory stimuli during everyday activities that impact behavior.
- **Provide** sensory rich opportunities such as music, play, or varied textures throughout the day to support sensory needs.
- **Encourage** active play such as on playgrounds and limit sedentary activities such as television and computer games.
- **Seek advice** from an occupational therapist, including someone with specialized training in sensory integration if appropriate, to determine further need for evaluation and intervention.
- **Consult** a physician, when appropriate, for a referral to an occupational therapist that is knowledgeable about sensory processing approaches.
- **Consult** with your school district's special education team to determine whether your child is eligible to receive school-based occupational therapy services.

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For More Information

Ayres Sensory Integration® (ASI) is both a theory and an intervention approach developed by Dr. A. Jean Ayres to help those who have difficulty with sensory processing to improve their ability to interpret and respond to sensory information. See FAQ on Ayres Sensory Integration® on the AOTA Web site.

Resources

American Occupational Therapy Association (2003). Applying sensory integration framework in educationally related occupational therapy practice. *American Journal of Occupational Therapy*, 57, 652–659.

American Occupational Therapy Association. Occupational therapy practice framework: Domain and process (2nd ed.). *American Journal of Occupational Therapy*. 62, 625–683.

Ayres, A.J. (1989). *Sensory Integration and Praxis Tests: Manual*. Los Angeles: Western Psychological Services.

Baranek, G. (2002). Efficacy of sensory and motor interventions for children with autism. *Journal of Autism and Developmental Disorders*, 32(5), 397–422

Baranek, G., Chin, Y.H., Greiss, H., Laura, M., Yankee, J.G., Hatton, D.D. & Hooper, S.R. (2002). Sensory processing correlates of occupational performance in children with fragile X syndrome: Preliminary findings. *American Journal of Occupational Therapy*, 56, 538–546.

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, 228–238.

Pfeiffer, B., & Kinnealey, M. (2003). Treatment of sensory defensiveness in adults. *Occupational Therapy International*, 10, 3, 175–184.

Reynolds, S. & Lane, S. J. (2008). Diagnostic validity of sensory over-responsivity: A review of the literature and case reports. *Journal of Autism and Developmental Disorders*, 38 (3), 516–529.

White, B.P., Mulligan, S., Merrill, K., & Wright, J. (2007). An examination of the relationships between motor and process skills and scores on the sensory profile. *American Journal of Occupational Therapy*, 61, 154–160..

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