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Sensory Interventions and Supports for ASD



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Research findings indicate that children on the autism spectrum, including those with Asperger's Syndrome, have under-responsivity and over-responsivity (sensory modulation disorder) in multiple sensory systems (Tomcheck & Dunn, 2007). Sensory modulation disorder is described as "a problem with turning sensory messages into controlled behaviors that match the nature and intensity of the sensory information" (Miller, 2006, p. 12). Children with autism spectrum disorder (ASD) who demonstrate this sensory mismatch with their activities of daily living experience physical, emotional, social and behavioral difficulties. Included in this article are some basic sensory suggestions that can be implemented in school, home and community settings for children with ASD.

Modulating Supports

Sensory input that has deep-pressure touch or heavy work aspects is organizing and modulating to the nervous system and ultimately helps an individual with ASD attain and maintain focus and emotional well-being. Some sensory strategies that have this modulating affect on the nervous system involve tasks or objects with qualities that impact the proprioceptive system. The proprioceptive system is part of the nervous system that includes receptors in the joints, muscles and tendons that perceive contraction, stretching and compression. Examples of sensory modulating tasks involve extracurricular activities such as swimming, martial arts, yoga and playground play, and chores such as wiping the table, carrying groceries, digging in the garden or lifting a laundry basket. Modulating objects include clothing such as Under Armour® (which has stretchy fabric that fits snugly), a bean bag chair to sit in, or weighted items such as a vest, blanket, wristband or lap bag. Note: The use of a weighted vest or blanket needs to be monitored by an occupational therapist. Additional modulating supports include chewing gum; sucking thick liquids through a straw; smelling cinnamon, coffee beans or cloves; using a visual picture schedule; and listening to classical music.

Calming Interventions

There are times when a child with ASD needs calming due to unexpected changes in routines, sudden loud sounds (such as from an ambulance siren), fear of flying insects, the smell of garbage or the tactile sensation of an uncomfortable texture. In these scenarios, a child with ASD may demonstrate a neurological stress response (over-responsivity) to a typical daily event. A stress response is a

protective mechanism in which the body perceives a threat and thus releases adrenaline to prepare the body to fight or flee. The child's behavior may deteriorate into tantrums, harming him/herself or others, or becoming rigid and controlling. Sensory interventions that facilitate a calming environment include a quiet retreat area with the child's favorite toy or stuffed animal, natural lighting or the use of blue-colored light bulbs and environmental sounds such as ocean waves. Sensory supports for calming include deep breathing, gentle rocking, smelling vanilla or chamomile scents, looking at a lava lamp, tasting warm but bland foods, and wearing tag-less clothing and seamless socks.

Sensory-Alerting Strategies

A child with ASD may experience times in which they are lethargic and appear unmotivated (under-responsivity). This state of arousal impedes sustained engagement, a key component to successful interventions for a child with ASD. Engagement involves performance in occupations or activities as the result of self-choice, motivation, meaning and purpose. Initiation and maintenance of engagement involves effective sensory processing for receiving and interpreting sensory information for functional performance. When children are in an under-responsive arousal state, they demonstrate a decreased awareness, orientation and response to sensory input, and would benefit from alerting sensory interventions and supports. Sensory-alerting strategies include smelling peppermint or citrus scents, tasting sour candy or sour food like lemons, manipulating hand fidgets like squeezing a stress ball or fiddling with paperclips, listening to fast-paced music, standing rather than sitting down at a school desk, movement 'jobs' such as passing out papers or running an office errand, and sitting on a ball chair that increases in-seat behavior and engagement in children with ASD (Schilling & Schwartz, 2004).

Improving Praxis

Poor sensory processing in a child with ASD can lead to dyspraxia— difficulty executing unfamiliar motor actions affecting oral motor, fine motor and gross motor skill acquisition. Dzuik et al. (2007) found that dyspraxia might be a core feature of autism or a marker of the neurological abnormalities underlying the disorder. Dyspraxia in a child with ASD can manifest symptoms such as illegible handwriting, being accident prone or poor articulation skills. Strategies to improve praxis (motor planning) include breaking tasks into small steps, using pictures to sequence the child through the steps, having peer models visually demonstrate the task and practicing new skills with at least five repetitions in one sitting.

Benefits of Play

The sensory qualities of activities of daily living can be overwhelming for children with ASD, causing children to have behavioral outbursts, avoidance and problems with these skills. Play skills are an important foundation to facilitating improvement with other activities of daily living. Hilton et al. (2008) found significant differences in play participation between typical and high- functioning ASD groups in number of activities, number of individuals with whom they participate and variety of environments. These findings suggest social impairment impacts play participation, and addressing social skill intervention can increase participation. Participation in sports is one aspect of play that can

benefit children with ASD. The benefits of playing sports include improved cardiovascular, enhanced muscle tone, maintenance of healthy weight, stress release, sensory modulation, socialization, developing a new skill, feeling a sense of belonging and improved self-esteem. Sports should be chosen that are simple and encourage more participation, such as swimming, gymnastics, martial arts and bicycling. By addressing play skills, children with ASD improve motor skills, focus, motivation and sensory processing, all which are components of activities of daily living, such as dressing, eating, sleeping, bathing, brushing teeth and toileting. It is also important that the child with ASD have opportunities for spontaneous play to develop imagination and creativity.

A pediatric occupational therapist can help children with ASD by facilitating sensory interventions and supports to meet their unique needs. Through evaluation, observation and talking to parents and teachers, occupational therapists play a vital role in determining developmentally appropriate skills, providing sensory interventions, facilitating play for social interactions, devising transition strategies, collaborating with family and community members, and assisting with engagement in meaningful tasks to increase each child's quality of life.

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For resources on ASD, go to www.Asperger.net.

For information about sensory processing disorder, go to www.SPDFoundation.net.

For information about occupational therapy and autism, go to: www.AOTA.org.

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