



## **Sensory Integration Therapy and Speech-Language Therapy**

By Sarah Perkins MS, SLP

Are speech-language difficulties linked to sensory integration (SI) difficulties, and does treatment in the SI domain support progress in speech and language?

A review of 16 articles published between 1981 and 2011 supports the view that speech-language difficulties frequently co-occur with sensory integration difficulties, and that SI treatment can support speech and language gains.

Several researchers have concluded that much overlap occurs between speech-language difficulties and SI challenges (Visscher et al. 2007; Klecan-Aker et al. 1995; Mauer 1999). Klecan-Aker et al. state: "The same symptoms that qualify a child for sensory integration treatment may indeed have an impact on a child's language and learning abilities" (p. 275). The authors go on to state that problems with planning, organizing and sequencing can have a profound impact on language learning and academic success. Visscher et al. note that different speech and language disorders affect motor performance in different ways, and that when speech production is impaired, motor problems are more pronounced.

Researchers have noted that individuals must integrate information from multiple sensory sources to communicate effectively (Massaro & Stork 1998; Magnee et al. 2008; Willems et al. 2007). Magnee and colleagues note that, for successful social behavior to occur, particularly face-to-face communication, information from multiple sensory sources must be integrated. Brain imaging studies show that this multi-modal sensory information may be processed in shared areas. One study reveals that the same neuronal network is involved in both sensory-motor integration and speech representation (Wan et al. 2010). In another brain imaging study, Broca's area, which is traditionally thought of as a language processing area, was found to also be involved in the interpretation of actions. "These findings provide direct evidence that action and language processing share a high-level integration system." (Willems et al. 2007, p. 2322).

The need for a transdisciplinary approach when addressing the needs of children with SI and speech-language difficulties aligns with common sense as well as sound research results (Case-Smith & Holland 2009; Atchison 2007). "Many clinicians agree that the implementation of a transdisciplinary approach in which occupational therapists and SLPs provide a co-therapy approach is most likely to promote maximum improvement in all areas of development." (Atchison, p. 115). In therapeutic settings, goals that focus on the whole child rather than individual treatment objectives can help children reach their full potential.

Finally, sensory integration treatment has been shown through research studies and clinical observations to have a positive effect on speech and language development (Pfeiffer et al. 2010; Fallon et al. 1994; Ray et al. 1988; Windeck & Laurel 1989; Ayres & Mailloux 1981; Clark & Steingold 1982). For example, a recent study of 37 children with diagnoses of autism spectrum disorder found significant post-intervention differences in social responsiveness in children who received sensory integration treatment compared to those who received only fine motor treatment (Pfeiffer et al. 2010). Similarly, a study of 9 children with a variety of disabilities found that children who participated in SI treatment activities prior to speech and language treatment showed higher posttest language scores than children who received no SI treatment. (Fallon et al. 1994). And in a case study of a 9-year-old child with autism, the child's percentage of vocalizations was significantly greater when the child was in a swing

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compared to pre- and post-movement periods (Ray et al. 1988). In addition to the beneficial effects of SI treatment on speech and language development, the reverse may also be true: "Our clinical experience has shown that not only does a child's improvement in sensory integrative functions improve the course of his or her speech-language acquisition, but the child's ability to respond adaptively in the areas of speech and language also positively affects his or her sensory integrative processes" (Windeck and Laurel, p. 1). Thus, SI treatment and speech and language treatment reinforce each other, resulting in positive gains for children with sensory integration challenges as well as speech and language difficulties.

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