

AYM & Sensory Integrations - Sutapa Ray, Ph.D.

Sensory processing or "sensory integration" is a term that refers to the way the nervous system receives messages from the senses and turns them into appropriate motor and behavioral responses. Whether you are biting into a hamburger, riding a bicycle, or reading a book, your successful completion of the activity requires processing sensation or "sensory integration."

Sensory Processing Disorder (SPD, formerly known as "sensory integration dysfunction") is a condition that exists when sensory signals don't get organized into appropriate responses. Pioneering occupational therapist and neuroscientist Dr Jean Ayres, likened SPD to a neurological "traffic jam" that prevents certain parts of the brain from receiving the information needed to interpret sensory information correctly. A person with SPD finds it difficult to process and act upon information received through the senses, which creates challenges in performing countless everyday tasks. Motor clumsiness, behavioral problems, anxiety, depression, school failure, and other impacts may result if the disorder is not treated effectively.

Sensory processing disorder can affect people in only one sense—for example, just touch or just sight or just movement—or in multiple senses. One person with SPD may over-respond to sensation and find clothing, physical contact, light, sound, food, or other sensory input to be unbearable. Another might under-respond and show little or no reaction to stimulation, even pain or extreme hot and cold. In children whose sensory processing of messages from the muscles and joints is impaired, posture and motor skills can be affected. These are the "floppy babies" who worry new parents and the kids who get called "klutz" and "spaz" on the playground. Still other children exhibit an appetite for sensation that is in perpetual overdrive. These kids often are misdiagnosed - and inappropriately medicated - for ADHD. Research by the SPD Foundation indicates that 1 in every 20 children experiences symptoms of Sensory Processing Disorder that are significant enough to affect their ability to participate fully in everyday life. Symptoms of SPD, like those of most disorders, occur within a broad spectrum of severity. While most of us have occasional difficulties processing sensory information, for children and adults with SPD, these difficulties are chronic, and they disrupt everyday life.

Children with poor sensory integration often have poor school achievement, particularly in arithmetic. Parham (1998) investigated the relationship between sensory integration and school achievement in children aged between 6 and 10 years, 32 were learning-disabled and 35 were non-disabled. Sensory integration was significantly related to school achievement and this relationship was retained over a 4-year period, even when children of equal IQ were compared. In fact, research indicates that sensory integrative problems are found in up to 70% of children who are considered learning disabled by schools. It is also very common among children with Autism, ADHD.

Typically, Sensory Integration therapy, provided by occupational therapists (OT), does not focus on training specific cognitive skills. However, significant research now reveals that the majority of sensory integration disorders are caused by cognitive weakness resulting from a poorly connected prefrontal cortex. The most evolved part of the brain known as the Prefrontal Cortex (PFC) is where all of our sensory information is pulled together to allow us to make decisions about how to respond to any change in our environment. The PFC has two way connections to the parts of the brain involved in the processing of visual, auditory and somatosensory information. Therefore, although traditional therapy exercises may be helpful for general motor skills retraining, any long-term treatment for sensory integration dysfunctions must include targeted, integrative cognitive skills assessment and training.

In conclusion, Accelerating Young Minds programs can facilitate sensory processing ability by developing the wiring/connectivity/functioning of the prefrontal cortex. The interactive activities in our programs provide visual processing and auditory processing assessment and training necessary to improve these skills. Improvement of one sensory processing mode eg., vision or hearing is known to help improve sensory processing of another modality like touch or smell. This is because our brains are wired for our senses to work together. Within our brain there are some areas that are relatively selective for visual, auditory, or tactile motion processing, but other areas that seem to process various combinations of inputs (multisensory areas). We therefore recommend our programs be used in conjunction with traditional OT programs for young children. Visit our website at acceleratingyoungminds.com to learn more.

References

Sensory Processing Disorder Foundation <http://www.spdfoundation.net/index.html>

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