

The concept of sensory integration comes from a body of work developed by A. Jean Ayres, PhD, OTR. As an occupational therapist, Dr. Ayres was interested in the way in which sensory processing and motor planning disorders interfere with daily life function and learning. This theory has been developed and refined by the research of Dr. Ayres, as well as other occupational and physical therapists. In addition, literature from the fields of neuropsychology, neurology, physiology, child development, and psychology has contributed to theory development and intervention strategies. Ayres (1972) defines sensory integration as "the neurological process that organizes sensation from one's own body and from the environment and makes it possible to use the body effectively within the environment" (p. 11). The theory is used to explain the relationship between the brain and behavior and explains why individuals respond in a certain way to sensory input and how it affects behavior. The five main senses are:

- Touch - tactile
- Sound - auditory
- Sight - visual
- Taste - gustatory
- Smell - olfactory

In addition, there are two other powerful senses:

- vestibular (movement and balance sense)—provides information about where the head and body are in space and in relation to the earth's surface
- proprioception (joint/muscle sense)—provides information about where body parts are and what they are doing.

Who has problems with sensory integration?

- You may know a child who, although bright, has difficulty using a pencil, playing with toys, or doing self-care tasks, like dressing. Perhaps you have seen a child so fearful of movement that ordinary swings, slides, or jungle gyms generate fear and insecurity. Or maybe you have observed a child whose problems lie at the opposite extreme uninhibited and overly active, often falling and running headlong into dangerous situations. In each of these cases, a sensory integrative problem may be an underlying factor. Its far-reaching effects can interfere with academic learning, social skills, even self-esteem.

Research clearly identifies sensory integrative problems in children with developmental or learning difficulties. Independent studies show that a sensory integrative dysfunction can be found in some children who are considered learning disabled by schools (reference: Daems, Joan (Ed).(1994). *Reviews of Research in Sensory Integration*. Torrance, CA: Sensory Integration International)

Sensory integrative problems are not confined to children with learning disabilities, however. They transect all age groups as well as all intellectual levels and socio-economic groups.

SENSORY ACTIVITIES

SENSATION	For ALERTING	For CALMING
VESTIBULAR	Rapid or jerky	Slow
	Changing direction	Rhythmic
	Visual stimuli	Linear movement
	Angular movement	1 direction to and fro
	Head inverted	Eyes righted with horizon
	Suspended equipment	Grounded equipment
PROPRIOCEPTION	Fast paced	Steady compression
	Quick changes	Slow stretch
	Unexpected changes	Heavy or sustained
	Jarring or jerking	Slowly alternating
	Stops or starts abruptly	Push/pull
TACTILE	Light touch	Pressure touch
	Unexpected	Tight wrap
	Dabs or pokes	Firm stroking
	Touch to face	Large areas
	Approach from behind	Familiar, predicted
	Moving hair	Soothing, comforting
	Rough or cold texture	Smooth, warm
	Intricate shape	Simple shapes
	Sharp corners	rounded
VISUAL	Peripheral vision	
	Unexpected sights	Unchanging stimuli
	Bright colors or lights	Soft color/lights
	Red/yellow shades	
	Black/white patterns	
AUDITORY	Unexpected	Familiar/quiet
	Loud	Gentle rhythm
	Complex/mixed	Simple melodies
OLFACTORY	All odors tend to be alerting	Odors assoc. w/pleasurable Comforting experiences Natural essences