

Terminology

The term sensory integration dysfunction (DSI) was first used in 1963 by Dr. A. Jean Ayres, an occupational therapist and developmental psychologist who also had postdoctoral training in neuroscience. She explored and researched the association between sensory processing and the behavior of children with learning, developmental, emotional, and other disabilities which she reported in numerous scientific journals and later in her groundbreaking book, ***Sensory Integration and Learning Disorders***. Ayres theorized that impaired sensory processing might result in various functional problems, which she labeled *sensory integration dysfunction*. The condition was initially based on studies using the Southern California Sensory Integration Tests and later from studies using the Sensory Integration and Praxis Tests (SIPT) and related clinical observations.

Since Dr. Ayres first proposed the theory of sensory integration, many theorists, researchers and clinicians have further developed her theory. Ayres's original term, ***sensory integration dysfunction (DSI)***, was previously used to refer to the disorder of sensory processing and sensory integration. However, this term was often confused with the theoretical frame of reference, assessment process and intervention model used with this problem. Thus, as information on sensory processing grew it became evident that it was important to differentiate the terminology for diagnosis of problems associated with sensory integration deficits from that associated with intervention theory and techniques. Sensory Processing Disorder was therefore proposed as a diagnostic term which refers to the disorders resulting from poor sensory processing and sensory integration. The hope is that recognition of SPD as a formal diagnosis will lead to more opportunities for funding for research, more effective interventions and more comprehensive insurance coverage.

Because of the evolving nature of sensory integration theory and practice, other terms related to SPD may be familiar and found in the literature.

Sensory integration theory refers to the theoretical neurologically-based constructs that discuss how the brain processes sensation and impacts on motor, behavior, emotion, and attention responses. This is a brain-behavior theory.

Sensory integration assessment is a specialized occupational therapy assessment which is conducted from a sensory integration theory frame of

reference. The evaluation process assesses how a person processes (discriminates and modulates) sensory information; how that sensory processing impacts on foundational mechanisms such as postural-ocular skills, visual perceptual skills, hand skills and handwriting; and how it affects fine and gross motor skills, as well as praxis abilities for daily life functioning.

Sensory integration *intervention* is a specific intervention model based on sensory integration theory whereby the provision of enhanced sensory information, in the context of meaningful and purposeful activities is believed to enhance the development of an individual's nervous system functioning. Ayres® Sensory Integration intervention is a unique intervention that is child/ person directed and takes place in a playful, loving and fun environment.

Developmental Coordination Disorder (DCD) is a DSM-IV diagnosis for a motor coordination disorder. This term is used frequently in research on motor coordination problems in children and is increasingly used by physicians. It is very commonly used in Great Britain and in Europe. DCD is characterized by a motor coordination problem which results in functional difficulties. Currently, this diagnosis cannot be given in conjunction with autism spectrum disorder. Within the sensory integration framework, DCD is viewed as an umbrella term which includes praxis disorders of motor planning, bilateral coordination and projected action sequences.

Proprioception is the sensory information generated by a person's joints and muscles. It tells a person where their body parts are in space. It is important for force regulation, control of posture and body awareness. It is also an important sensory input for promoting self-regulation. Proprioception works in conjunction with both the tactile and the vestibular sensory systems.

Vestibular sensory inputs refer to a person's movement sense. This is sensory information from the inner ear that is responsible for balance. It detects and processes information in all planes of movement. In addition to balance, the vestibular system controls one's protective responses, one's posture, and works in tandem with one's visual system. It also has a strong influence on emotions and self-regulation.

Credit to Occupational Therapy Associates- Watertown for influencing this work Igf 9/2011

Information on Sensory Integration and related fields

Fine Motor Olympics- Marcia Bridgeman, OTR/L, 2002

Teacher Guide to Fine Motor Development: Activities to Develop Hand Skills in Young Children (1999) by Mary Benbow.

Fine Motor Skills in the Classroom: Screening & Remediation Strategies by Jayne Berry

Making Sense of Sensory Integration (CD and Booklet) Conversation with Jane Koomar, PhD, OTR/L, FAOTA and Stacey Szklut, MS, OTR/L, moderated by Sharon Cermak, EdD, OTR/L, FAOTA

Sense Abilities - Understanding Sensory Integration Mary Ann Colby Trott, MA with Marci Laurel, MA, CCC-SLP and Susan Windeck, MS, OTR/L

Sensory Integration & The Child 25th Anniversary Edition A. Jean Ayres, PhD

Sensory Integration: Answers for Parents
Crestport Press

Sensational Kids
Lucy Jane Miller, PhD, OTR

Teachers Ask About Sensory Integration (Tape) Carol Stock Kranowitz, MA and Stacey Szklut, MS, OTR/L

The Goodenoughs Get in Sync
Carol Stock Kranowitz, MA

The Out-of-Sync Child Carol Stock Kranowitz, MA

The Out-of-Sync Child Has Fun
Carol Stock Kranowitz, MA

Screening and Intervention Programs

Answers To Questions Teachers Ask About Sensory Integration

Carol Stock Kranowitz, MA

How Does Your Engine Run? Sherry Shellenberger, OTR/L and Mary Sue Williams, OTR/L

Out of the Mouths of Babes Sheila Frick, OTR; Ron Frick; Patricia Oetter, MA, OTR/L, FAOTA; and Eileen Richter, MPH, OTR, FAOTA

Sensory Defensiveness Patricia Wilbarger, MEd, OTR, FAOTA and Julie Wilbarger, MS, OTR

Therapy Equipment

Resources

Avanti Educational Programs produces and distributes, tools, books, audiotapes and other materials related to sensory defensiveness.
14547 Titus Street, Suite 109, Panorama City, CA 91402
Phone: 818-782-7366 Web: ChildDevelopmentMedia.com/seminar.cfm.

American Occupational Therapy Association provides continuing education, publication and position papers for occupational therapy practitioners and a wide variety of information about occupational therapy for the public.
PO Box 31220, Bethesda MD 20824-1220.
Phone: (301) 652-AOTA (2682) Web: www.aota.org

Ball Dynamics International, Inc. distributes physioballs and other therapeutic equipment and seating options.
14215 Mead St., Longmont, CO 80504.
Phone: 1-800-752-2255 Web: www.balldynamics.com

Professional Development Programs and PDP Products sponsor seminars, and publish and distribute materials and products for treating sensory motor deficits.
14524 61st Street, Court N, Stillwater, MN 55082
Phone: (612) 439-8865 Web: www.pdpapro.com

Sammons Preston, Inc. Distributes rehabilitation and pediatric therapy equipment.
P.O. Box 5071, Bolingbrook, IL 60440-5071
Phone: 1-800-323-5547 Web: www.sammonspreston.com

Southpaw Enterprises Inc. Manufactures and distributes therapy equipment especially of sensor integrative treatment.
PO Box 1047, Dayton, OH 45407-2805
Phone: 1-800-228-1698 Web: www.southpawenterprises.com

Therapro sells therapeutic equipment, supplies, toys and publications.
225 Arlington St., Framingham, MA 01701-8723
Phone: 1-800-257-5376 Web: www.theraproducts.com

Therapy Skills Builders (division of Psychological Corporation) publishes and distributes a wide variety of therapy books, evaluations and materials.
555 Academic Court, San Antonio, TX 78204-2498
Phone: 1-800-232-1223 Web: www.tpcweb.com

Therapy Works publishes materials to support the Alert or engine speed program as well as provide training to use the Alert Program curriculum.
4901 Butte Place N.W., Albuquerque MN 87120
Phone: 505-897-4071 Web: www.alertprogram.com

Western Psychological Services publishes and distributes books and testing materials for psychologists and health professionals including the Sensory Integration and Praxis Tests developed by A. Jean Ayres.
12031 Wilshire Blvd., Los Angeles, CA 90025-1251
Phone: 1-800-648-8857
Web: www.wpspublish.com

Applications for Letter perception & keyboard readiness

TeachMe: Toddler

This app is great for our Kindergarteners, which covers six age-appropriate subjects: letters, letter sounds, numbers, shapes, colors, and counting.

Pocket Phonics

This app is great for helping your youngster learn to write/form the lower case letters and practice the letter sounds. There's an arrow that guides the child to properly form each letter. Additionally, there is an interactive word game for making simple phonetically-correct words.

Super Why! for iPad

Your child can interactively play while practicing the alphabet, rhyming, spelling, writing, and reading. A winner of a Parents' Choice Silver Award.

SPELLING APP.....Spellboard

An adult types in and pronounces each spelling word from the week's list! Once saved, your child can "study the quiz".... each word and the pronunciation 'come on' and there is a space for the child to write the word (with his or her finger)! Also, word searches are generated in either upper or lower case, and finally, your child can "take the quiz"...your voice dictates each word, and your child must type the word in the space provided. (However, your child can first write the word, then type it above.) A score is generated and the incorrectly spelled words appear. AMAZING.

iWrite Words (Printing)

This is a fabulous app for practice the proper print formation of letters, both upper and lower case. The graphics are fun and colorful, the auditory feedback is great and best of all, your child traces the letters with his or her finger! LOVE!

Zaner-Bloser Handwriting-Cursive

This interactive app lets your child practice upper and lowercase cursive letters. Great feedback, great music, and great instruction included. My only complaint....there is no practice of writing words, so connecting the letters isn't taught or practiced.

Fun Letters-cursive handwriting

Another cursive app that lets your child follow the proper sequence for writing cursive letters, and then trace the letter. Good feedback is provided. Also, this app has an activity to identify both upper and lower case letters.

TYPING/KEYBOARDING

Type Fun

Want to improve your child's typing skills? An airplane glides across the screen, and in its stream is a word. Type that word before the plane gets to the other side of the screen. Whether your child is just beginning to learn keyboarding or is a seasoned typist...there's an activity I'm sure your child will enjoy. There is a lite version as well as a paid app.

BBC Typing Practice

www.bbc.co.uk/schools/typing/ for ages 7-11

iTextSpeed

This app is designed to improve one's typing speed and efficiency. You can adjust the duration of a game if you have the paid app (vs. the lite version). Words appear on the screen and your child types them. The results are posted after each game...words per minute and number of words correct and incorrect.