

A Guide to *Sensory Integration* for Adolescents and Young Adults

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About A. Jean Ayres, PhD, OTR, FAOTA, Founder of Sensory Integration Theory

A. Jean Ayres, occupational therapist, developed the sensory integration frame of reference. Dr. Ayres was born in 1920 in Visalia, California. Growing up she struggled with everyday sensations that



interrupted and impacted her ability to learn like her peers. Due to her difficult childhood, Ayres was determined to study the reasons why children like her had such difficulty with everyday tasks. She obtained a master's degree in occupational therapy and a doctorate in educational psychology from the University of Southern California. Dr. Ayres later completed postdoctoral work at UCLA's Brain Research Institute where she began to develop her theory of sensory integration. Through her work, Dr. Ayres found children with sensory integration dysfunction had a neural disorder that affected their ability to interpret and process sensory information, such as touch and movement. From this discovery, she developed assessment tools such as the Southern California Sensory Integration Tests (SCSIT) and later the Sensory Integration and Praxis Tests (SIPT) that helped occupational therapists identify this disorder in children. She created equipment and treatment techniques, which now serve as the foundation to sensory integration intervention. This novel intervention approach changed the way occupational therapists treat children with sensory and motor challenges. Dr. Ayres believed therapy should emphasize the power of sensations, be child-directed and be play-based to make the neural changes necessary to improve the child's ability to function in everyday life. Throughout the past decades, Ayres' work has been the foundation for increased understanding of the relationship of sensory processing, motor development and behavior in children. Her theory and terminology are used by many professions though they remain rooted in occupational therapy.

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GUIDE TO SENSORY INTEGRATION

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This guidebook was developed to provide an overview of sensory integration dysfunction, assessment and intervention.

Maybe you are an adult who has become socially isolated because the slightest touch feels threatening.

What is Sensory Integration?

Maybe you are a teenager who struggles with sleeping and eating and is irritable much of the day. Your parents say it is only a stage, but that doesn't make it any easier to deal with.

Every day we experience and interpret sensory information from our environment. This information comes from the senses: sight, hearing, touch, taste, and smell, as well as balance and movement (vestibular sense) and muscle and joint senses (proprioception). Our balance and movement sense allows us to know where we are in space and where our head is in relation to gravity. Our muscle and joint sense allows us to know about how much force we use and where our extremities are in relation to our body. All of these senses provide us with information about our body and the environment around us. The process by which the brain organizes and interprets this information from our senses is called **Sensory Integration**.

For most people, sensory integration develops through typical childhood experiences. Through these experiences, children acquire the ability to interpret, adjust and respond appropriately to incoming sensations. For example, children gain knowledge of their body in space through movement activities such as running, swinging and rolling. This knowledge allows them to navigate their world safely such as being able to safely time crossing a busy street. However, for some people, the ability to integrate everyday sensory information does not develop as well as it should. It can result in long-term difficulties with everyday activities such as work, dressing, eating and self-regulation. When this occurs, the individual has a problem with sensory integration.

Maybe you are a young adult working your first job who is determined to work hard, but can't seem to stay organized or focused at your desk.

This problem is frequently referred to as a Sensory Integration or Sensory Processing Disorder (SPD).

Maybe you are a college student whose ears fill with pain whenever the fire alarm rings in your dorm building. While everyone else goes outside, all you can do is curl up in your bed with your hands and pillows over your ears.



Sensory Processing Disorders

Sensory Processing Disorder (SPD), sometimes referred to as sensory integration disorder/dysfunction or sensory processing dysfunction, is an often unrecognized condition that may be seen in otherwise typically functioning individuals as well as those with autism, attention deficit disorder, learning disabilities, and other neurological conditions. These individuals are not able to effectively process information from their senses (touch, hearing, sight, taste, smell, and movement), potentially resulting in sensory sensitivities, delays in motor skills and problems with self-regulation, attention and behavior. Sensory Processing Disorder consists of several types of sensory and/ or motor dysfunctions. Someone with SPD may demonstrate one or more of these types of problems:

Sensory Modulation Dysfunction is characterized by over-sensitivities to sensory information that is typically not bothersome to others. Problems in this area can result in difficulties with self-regulation and fight, flight or fright behaviors. Individuals may be sensitive to clothing, have difficulty coordinating their movements, react strongly to sounds, or feel anxious in crowded/busy places.

Sensory Discrimination Dysfunction is difficulty with processing and interpreting the important qualities of sensory information. For instance, discrimination of movement information determines if one is upside down or right-side up, moving or not moving. Discrimination of sensory information allows one to perform motor skills and problems with sensory discrimination typically result in difficulties with posture or skilled motor activities such as driving, handwriting, or coordination.

Praxis Disorders involve problems with motor planning, coordinating two sides of the body and performing complicated motor coordination actions involving timing and movement through space. Problems in praxis result in difficulties with performing motor tasks and everyday motor activities such as dressing, using utensils, playing sports, or organizing your daily schedule.



A Guide to Sensory Integration Problems



When the sensory integration process does not work efficiently and effectively, a person may encounter a number of functional difficulties. Below is a chart that identifies possible sensory problems and resultant signs or behaviors exhibited by individuals with SPD. Typically, someone with a sensory integration problem will show one or more of these signs or behaviors.

<i>Sensory problems</i>	<i>Signs or difficulties you may have</i>
Overly sensitive to touch, movement, sights or sounds	<ul style="list-style-type: none"> • Easily distracted by sounds, movement, and objects • Discomfort when unexpectedly touched by something/someone • Bothered by certain textures—of food or clothing • Sensitivity to loud or unexpected noises • Nervousness or ‘bad reaction’ to movement (easily car-sick, or motion sickness, avoiding elevators and escalators) • Overwhelmed or extremely irritated by very busy environments • Avoidance of anything ‘messy,’ seeking to immediately wash hands/body if they get ‘messy’ • Very sensitive to strong perfumes, cleaning products, body odors; may react strongly to smells that no one else notices
Seeking or under-reactive to sensory stimulation	<ul style="list-style-type: none"> • Seeking out intense movement sensations (thrill-seeking), like fast rides, roller coasters, and sports • Higher ‘pain tolerance’ than others, not noticing bruises, cuts, and bumps • Preferring foods with very strong textures or flavors
Unusually high/low activity level	<ul style="list-style-type: none"> • Constantly on the move, can’t sit still • Dislike for ‘down-time,’ activities planned for every moment of the day • Slow to ‘get moving,’ fatigue easily • Appear lazy or unmotivated to others, but just prefer to ‘chill out’ during free time
Coordination Problems	<ul style="list-style-type: none"> • May have poor balance, trip frequently, difficulty walking on uneven surfaces • Difficulty with sports, driving, or timing of movement • Feeling awkward, stiff, or clumsy—especially when learning a new movement task • Clumsy with cell phone buttons, zippers, utensils, and other smaller items
Problems at work or in social situations	<ul style="list-style-type: none"> • Unable to stay focused on tasks at work, overwhelmed by workload even when it’s within your abilities • Nervousness or avoidance of busy social situations like malls, festivals, or crowded restaurants • Difficulty tracking appointments, birthdays, or time of day • Difficulty maintaining relationships with ‘unpredictable’ people • Avoidance of hand-holding, kissing, or other romantic activities

I think I might have SPD...Now what? The Assessment Process

Ideally, you will be assessed by an occupational therapist (OT) that is certified in sensory integration. Your OT should have experience in both evaluation and treatment of SPD. Many people ask, “What is the assessment process like?” It will be different depending on the clinic, your insurance, your sensory challenges, and other factors. A comprehensive OT evaluation will have many parts that should be assessed in detail.

First your OT will gather *background information* about you. This includes medical, educational and developmental history, as well as what (if any) services or therapy you may have received in the past. They will ask questions about many different parts of your life to try to get a ‘big picture.’ This ‘big picture’ includes activities you currently try to do, enjoy doing, or are required to do. Your OT will also try to identify what things you need or want to be able to do but currently can’t do. Observation or information about your performance in different settings (like work, class, home) will help to get this ‘big picture’.

Sensory profiles or sensory histories are great tools. **But they should not be the only evaluation tool used to determine sensory processing disorder.**

For a thorough assessment your OT should complete a set of *formal or structured evaluations*. These evaluations will likely take place in an OT clinic. Your OT will choose evaluations that are specific to your sensory and/or motor challenges. Evaluations may look at coordination, hand skills, visual skills, postural control, strength, or other functions. Your OT will try to pinpoint specific areas of difficulty, and the effect they have on your daily life. Your OT will also

use *professional observations* and *informal evaluations* to identify details that will guide treatment.

You will probably fill out a *sensory questionnaire* that describes how you respond to different sensations. These are great tools to help get the ‘big picture’, but should not be the only evaluation tool used to determine SPD.

Many formal evaluations used to assess SPD were designed for children or young adolescents. However, they still provide insight into the sensory challenges of adolescents and young adults. OTs with experience in sensory processing have the skills to interpret your results and guide an age-appropriate treatment plan.

Please see Appendix B at the end of this Guide for information on some tools that might be used in your assessment process.

Intervention: How does Occupational Therapy address SPD?

Home programming vs. clinic-based sensory integration

Depending on your needs, an OT may recommend home programming. These activities are designed to help you manage your sensory needs on a day-to-day basis. Some people find home programming preferable to clinic-based services. This can be due to scheduling, finances or social-emotional challenges. *However, home programs alone do not usually make lasting changes to your sensory systems.* Intervention will be most effective if you can receive intensive direct treatment in a clinic. Then, your home program would be used to support clinic-based services. If home programming is your only option, an OT will work with you to create one to maximize your progress. But you must put a lot of time and energy into the activities to get the best results possible.

Occupational therapy using a sensory integration approach is based on the unique needs of each individual. What happens in therapy will depend on what difficulties you experience. It may address self-regulation, sensory processing, body awareness, motor planning, or fine and gross motor skills. Many therapists agree that the key to intervention in older clients is education: **“knowledge is power, people are experts on themselves, and people are the architects of their lives.”** You should be involved in setting goals for your individual sensory needs and lifestyle. During treatment, you are the expert on your own body and how you are feeling. So you and your therapist will need to work together to find activities that are a “just-right” balance. Therapy should be challenging enough for you to grow, improve, and make progress. But it should not be so overwhelming that you overload your sensory system or ‘shut-down.’

The goal of intervention is to make long-lasting changes to your sensory system to improve your daily life. Ideally, therapy will include a combination of clinic services and home programming. Clinic-based treatment may vary based on your needs, insurance, or personal finances. Most people receive OT treatment 1-3 times per week for 3 months to 2 years. Intervention will be most effective if you start with frequent services in an OT clinic to ‘kick-start’ changes. Your clinical treatment will focus on *education* and *treatment activities*.

Education is key to improve your understanding of your sensory system and how it affects your life. With guidance from an OT, you should learn more about your sensory needs. Then, find activities that calm/organize you, and ways to include them in your routine.

Treatment activities will vary based on your sensory needs. These may require specialized programs or equipment that isn’t available for use at home. Since these activities will challenge your sensory system, they require a trained clinician’s supervision. Your OT will customize activities for you system. A list of possible treatment activities is included in Appendix C.

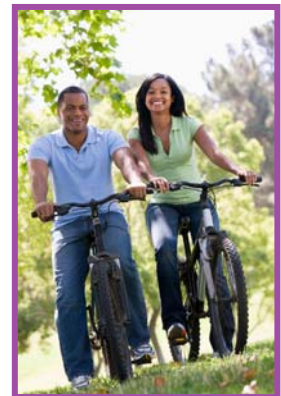
How can you integrate Sensory Integration activities at home?

There are many strategies and activities that can be done at home to help you function at your best. Through intervention and consult with a therapist, specific tips for your home program can be suggested. This chart provides a quick reference of activities for different sensory needs that can be done at home. Remember, though, that each individual is unique and may respond differently to these suggestions. For more ways to build a home/work sensory diet program, download the Spiral Foundation’s Sensory Diet Worksheet.



Activities and strategies to try at home, school, or work

Calming and organizing activities	Getting input for those with poor discrimination or those who need to ‘wake up’ their systems	Motor and postural activities
Suck a piece of candy, chewing gum, or use a bite-and-suck water bottle	Crunchy foods: pretzels, ginger snaps, chips, crackers, nuts, carrots, celery	Go for a walk, run, or bike ride outside.
Take a shower or bath (hot or cold, whichever is more relaxing)	Bounce on a therapy ball or rock in a rocking chair	Lay down on your stomach and prop yourself on your arms when watching TV or reading
Imitate “smell the flowers and blow out the candles” (deep breathing)	Spin in an office chair or while standing	Do yard work (rake leaves, mow the lawn, shovel snow, etc.)
Listen to calming music	Find small objects in a large bucket of dried beans	Yoga or pilates (at home or in a class)
Spend time in a quiet, dark space.	Push or move heavy boxes, pot, or pans	Use a yoga/therapy ball instead of a chair at your desk
Wrap yourself tightly in a soft sweater or blanket	DO chair or wall pushups	Swim laps or swim for fun at a local pool
Apply lotion with firm, deep pressure strokes	Climb or hang from a pull-up (chin-up) bar	Use cardio equipment (elliptical, stationary bike, etc.) or lift weights at the gym



Resources & References: Where Can I Learn More?

Books on Sensory Integration:

- Aron, E. N. (1997). **The highly sensitive person: How to thrive when the world overwhelms you.** New York: Broadway Books.
- Colley, M. (2006). **Living with dyspraxia: A guide for adults with developmental dyspraxia (4th ed.).** Philadelphia: Jessica Kingsley Publishers.
- Dunn, W. (2007). **Living sensorially: Understanding your senses.** Philadelphia: Jessica Kingsley Publishers.
- Heller, S. (2002). **Too loud, too bright, too fast, too tight: What to do if you are sensory defensive in an over stimulating world.** New York: Harper Collins.
- Heller, S. (2013). **Uptight & off center: How sensory processing disorder throws adults off balance and how to create stability.** Kindle eBook.

Websites on Sensory Processing Disorder & Sensory Integration:

- **The Spiral Foundation:** www.thespiralfoundation.org
- **Sensory Processing Disorder Foundation:** www.spdnetwork.org
- **SI Global Network:** www.siglobalnetwork.org
- **Sensory Processing Disorder Resource Center:** www.sensory-processing-disorder.com

Journal Articles:

Sensory Processing Disorder & Anxiety:

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- Pfeiffer, B. (2012). **Sensory hypersensitivity and anxiety: The chicken or the egg?** *Sensory Integration Special Interest Section Quarterly*, 32(2), 1-4.
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Assessment & Treatment:

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- May-Benson, T. A., & Patance, S. (2014). **Characteristic of adults seeking sensory integration-based occupational therapy services.** Spiral Foundation self-study series. Newton, MA: The Spiral Foundation
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- Kinnealey, M., Koenig, K. P., & Smith, S. (2011). **Relationships between sensory modulation and social supports and health-related quality of life.** *American Journal of Occupational Therapy, 65*, 320-327
- Cousins, M., & Smyth, M. M. (2003). **Developmental coordination impairments in adulthood.** *Human Movement Science, 22*, 433-459.
- Turner, K. A., Cohn, E. S., & Koomar, J. (2012). **Mothering when mothers and children both have sensory processing challenges.** *British Journal of Occupational Therapy, 75*, 449-455.
- Jerome, E. M., Liss, M. (2005). **Relationships between sensory processing style, adult attachment, and coping.** *Personality and Individual Differences, 38*, 1341-1352.



“How do I know?” Checklist

- 1. Difficulty focusing attention or over-focused and unable to shift to the next task
- 2. Low muscle tone; tends to lean on arms or slumps when sitting
- 3. Difficulty learning new motor tasks (a new dance, sport or exercise activity, how to drive)
- 4. Reverse numbers and letters, has trouble spacing them, or processes them backwards
- 5. Difficulty learning the “proper” typing method
- 6. Breaks pencils frequently or writes with heavy pressure
- 7. Motion sickness (from car, airplane, amusement park rides, etc.)
- 8. Difficulty paying attention, following instructions, or following a conversation
- 9. Dislikes changes in routine; difficulty with transitions from one activity to another
- 10. Difficulty seeking out and maintaining relationships; may prefer solitary activities over group participation
- 11. High energy, hyperactive, restless when sitting through class or a movie
- 12. Dislikes showers, hugs, haircuts and/or hair brushing
- 13. Overly sensitive to touch, taste, sounds or odors
- 14. Prefers sedentary tasks (avoids sports or physical activities)
- 15. “Thrill seeker” (loves fast and/or dangerous activities, sports, and rides)
- 16. Difficulty making decisions
- 17. Limited diet (avoids foods of certain textures or flavors)
- 18. Attached to comfort objects (i.e. favorite blanket, stuffed animal)
- 19. Avoids crowded places such as movie theatres, sporting events, concerts, etc.
- 20. Loves crunchy or spicy/flavorful foods

**Note: People with sensory processing disorder show many different signs and have different challenges. This list shows some common behaviors but is not comprehensive.

Sensory Integration Assessment Tools

Information and skills being assessed	Assessment Tool
Background information: Medical, educational, developmental history, and therapeutic history	Intakes, clinic developmental history, review of previous therapy evaluations & notes
Current information: What activities do you currently seek out or enjoy, what do you need and want to do that you currently cannot do, & areas of strengths and difficulties	Intake, clinic developmental history Canadian Occupational Performance Measure World Health Organization Quality of Life-BREF
Clinical observations: May take place in the clinic, work/school, or home environment. May include report from spouse, parents, etc.	Responses to various Sensory Stimuli Muscle Tone Prone Extension (<i>trunk strength measured by laying on your stomach & lifting your arms and legs</i>) Supine Flexion (<i>trunk strength measured by laying on your back and curling into a ball</i>) Sequential thumb-finger (<i>moving your fingers one after another</i>) Diadokokinesis (<i>rapidly alternating movements</i>) Oculo-motor control (<i>examining the muscles of your eyes</i>) Gravitational Insecurity (<i>your body's reaction to movement, especially unexpected movement</i>) Postural Alignment
Sensory/Developmental History: To get information on how you <i>usually</i> respond to different sensory inputs	Adolescent/Adult Sensory Profile Adult Sensory History Adult Sensory Questionnaire ADULT-SI Coping Inventory- Adult Version
Sensory discrimination: Tactile, auditory, vestibular (visual, & proprioceptive will likely also be assessed)	Sensory Integration and Praxis Tests: Finger Identification, Graphesthesia Subtests SCAN-3:A Post Rotary Nystagmus: upright and sidelying
Motor coordination: Fine and gross motor skills	Sensory Integration and Praxis Tests: Postural Praxis and Oral Praxis, Standing Balance BOT-2
Visual Perceptual & Visual Motor skills: Ability of the eyes to move in a coordinated way, and effectively interpret what they see.	Visual Motor Integration (VMI), Test of Visual Perceptual skills (TVPS-3), Motor-Free Visual Perception Test (MVPT-3)
ADLS: Dressing, eating, bathing, self-care, leisure	Observation, intakes, clinic developmental history
Organizational skills: Managing materials, schedules, transitions, and social expectations	Observation, intakes, clinic developmental history

**Note: There are many standardized assessments available. These are commonly used tests but this list is not inclusive of all possible assessment tools. Your clinician will select assessments individually focused on your needs.

Sensory Integration Clinical Activities

Activity	Description
Cranio-sacral therapy and myofascial release therapy	May be used for self-regulation, arousal, and increased postural mobility. A session may start with 10-20 minutes of work to organize the client and establish a functional arousal state.
Deep touch pressure	May be used alone using a weighted blanket or heavy crash pad, or may be coupled with cranio-sacral therapy.
Sound therapy programs	May be used for auditory processing and sensitivity problems. The program may be explored in the clinic for tolerance and evidence of change, and then a home program may be implemented.
Wilbarger Therapressure Protocol	Or some other variation, is used (when appropriate) to address tactile defensiveness and as a means of providing organizing deep touch pressure.
Beanbag tapping	Good alternative for adults who do not like the deep pressure provided with a brush. Beanbags are tapped firmly along the extremity to provide deep touch.
Heavy-weight Thera-band or stretchy ropes	When pulled with the arms or against the feet is an effective means of providing organizing proprioceptive input.
Bean and rice bins	May be used to decrease tactile sensitivity by finding small hidden objects in the bins.
Astronaut training program	Provides intense vestibular input to all semi-circular canals through rotation on a large spinning board and promotes equalization of vestibular processing across the canals. It is always followed with integrative oculo-motor and functional movement activities in order to use and integrate the input provided. Adults may need to progress one spin at a time and use organizing inputs like a weighted blanket while engaged in the activity.
Slow linear movement	With swings hung low to the ground is helpful for adults who are gravitationally insecure or fearful of movement
Exploring uneven surfaces	By walking across unstable surfaces such as mattress flooring, through large pillow crash pads, etc., is helpful for increasing comfort with uneven terrain.
BOSU ball activities	Promote vestibular function when the client stands, bounces, or balances on the uneven surface of this half therapy ball while doing eye-hand coordination activities.
Moving the head out of upright	May begin after the client has some comfort with movement. Activities such as falling slowly in a controlled way off a swing into a large pile of pillows or leaning over to pick items off the

	floor are a good start. Working in prone extension (laying on stomach) while on a glider swing may be challenging as well.
The infinity walk	Provides intense but gentle vestibular input and involves walking in a figure 8 while maintaining a visual fix on a central target. Various oculo-motor and praxis challenges can be incorporated.
The flow	Is a flexible water-filled tube with handles that provide proprioceptive input during a variety of activities that promote visual-vestibular integration and praxis.
Bal-A-Vis-X ball activities	Promote oculo-motor control and integration of visual and auditory sensory inputs.
The Learning Breakthrough Program	Combines visual and vestibular activities to improve oculo-motor control, balance, projected action sequences, timing, and spatial awareness
Developmental activities	With simple whole-body movements. Log rolling across the floor or following a line may be difficult to coordinate and may challenge those sensitive to movement. Crawling through pillows provides heavy work, trunk rotation, and bilateral coordination and may be combined with a visual activity. These activities emphasize development of early motor movement patterns, which may be lacking.
Pumping and riding on swings	Can be a good praxis (motor planning) activity to maintain balance and develop bilateral skills. Incorporating visual targets and projected action sequences (coordinating the timing of throwing, catching, etc. moving objects) increase the complexity.
Balance board activities	May be used in many different ways to provide a wide range of praxis challenges.

**Note: Therapists may use a wide variety of treatment activities that will be designed to address specific needs of the individual. These are commonly used activities but this list is not inclusive of all possible activities.

Glossary of terms

Adaptive Response is a purposeful, goal-directed response to sensory information or a task demand.

Apraxia is a difficulty in planning motor movements. It usually refers to an acquired motor coordination deficit in an adult. Speech therapists may refer to an apraxia of speech.

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 commonly used in Great Britain and in Europe. DCD is characterized by a motor coordination problem which results in functional difficulties. Some adults who experience sensory processing difficulties later in their lives were diagnosed with DCD as children.

Gravitational insecurity is intense fear or anxiety that occurs when there is a change in one's head position or when moving through the environment.

Hyper-responsivity is a strong negative emotion or behavior associated with over-sensitivity to sensory stimulus. You may react defensively, withdraw or become overwhelmed.

Hypo-responsivity is under-sensitivity to sensory stimulus. You may crave intense sensations.

Motor planning is the ability to create a plan for motor actions, develop steps to complete the plan, and then execute the plan.

Praxis or motor planning is the ability to plan and sequence the steps of a motor action and is dependent on effective sensory discrimination. People with praxis problems have difficulty executing motor tasks, developing organizational skills, and interacting with unfamiliar objects in an efficient way. Problems in this area are often referred to as dyspraxia.

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.

Sensory discrimination allows us to learn about the specific qualities of sensory information such as size, shape and texture, direction of a noise, and body position and movement in space. Sensory discrimination difficulties most always result in motor related difficulties such as lack of coordination or delayed motor skill development.

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, as well as fine and gross motor skills; and how sensory processing and praxis abilities impact daily life functioning.

Sensory integrative deficits is a term that refers to the problems an individual has with one or more areas of sensory processing or motor planning or coordination.

Sensory integrative dysfunction is a term that refers to deficits in one's ability to integrate and interpret sensations from the environment. Sensory integrative dysfunction is an inability to efficiently and effectively process sensory information.

Sensory Integration and Praxis Tests (SIPT) is a standardized evaluation developed by Dr. Jean A. Ayres' to assess a child's sensory integration skills and abilities. A therapist must be trained and certified to perform the SIPT. Although the SIPT was designed originally for children, it gives very detailed information that will assist an OT in determining areas of need for a client of any age.

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.

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 improve the development of an individual's nervous system functioning. Ayres® Sensory Integration intervention is a unique intervention that is client-directed and takes place in a friendly, loving and fun environment.

Sensory modulation is the ability to take in sensory information, decide what is relevant, and make an appropriate behavioral response. Difficulties in this area can result in avoidance or fear of normal sensations or unusual sensory-seeking behaviors. Sensory modulation problems can impact behavior and emotional development.

Tactile defensiveness is a strong negative reaction to touch or light-touch to one's body.

Tactile discrimination is the ability to distinguish and identify differences in touch and tactile sensations. It is also the ability to distinguish different characteristics of an object through touch, such as shape, size, and temperature.

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 and posture, and works in tandem with one's visual system to allow efficient movement through space. It also has a strong influence on emotions and self-regulation.