



A Guide to *Sensory Integration* for Parents

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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.

Imagine you are an adult who has become socially isolated because the slightest touch feels threatening and the smells and sounds of restaurants, malls and movie theaters are intolerable.

What is Sensory Integration?

Imagine you are a parent of a young child who struggles with sleeping and eating and is irritable much of the day. You hope it is only a stage, but day after day it's still a challenge.

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 while 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 children, sensory integration develops through typical childhood experiences. Through these sensory 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 children, the ability to integrate everyday sensory information does not develop as well as it should. It can result in difficulties with everyday activities such as play, dressing, eating and self-regulation. When

Imagine you are a 10 year-old girl who is friendly and has a wonderful imagination but cannot kick a soccer ball, learn the steps in dance class, or ride a bike.

this occurs, the child has a problem with sensory integration. This problem is frequently referred to as a Sensory Integration or Sensory Processing Disorder (SPD).

Imagine you are a bright kindergarten boy whose ears fill with pain whenever the school fire alarm rings. While the other children line up to leave the room, all you can do is hide in the corner with your hands 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. A child 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. Children may be sensitive to clothing, be picky eaters, react strongly to sounds, or be fearful of movement activities.

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 sports, handwriting, coordination, or ball skills.

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 games, or organizing homework.



A Guide to Sensory Integration Problems



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

<i>Sensory problems</i>	<i>Signs or behaviors a child may exhibit</i>
Overly sensitive to touch, movement, sights or sounds	<ul style="list-style-type: none"> • Distractible • Withdrawn when touched • Avoidance of textures, certain clothes and foods • Fearful reactions to ordinary movement activities such as playground play • Sensitive to loud noises • May act out aggressively with unexpected sensory input
Under-reactive to sensory stimulation	<ul style="list-style-type: none"> • Seeks out intense sensory experiences such as body whirling, falling and crashing into objects • May appear oblivious to pain or to body position • May fluctuate between under and over-responsiveness
Unusually high/low activity level	<ul style="list-style-type: none"> • Constantly on the move or may be slow to get going and fatigue easily
Coordination problems	<ul style="list-style-type: none"> • May have poor balance • May have difficulty with sports or ball skills • May have great difficulty learning a new task that requires motor coordination • Appears awkward, stiff or clumsy
Delays in academic achievement or activities of daily living	<ul style="list-style-type: none"> • May have problems in academic areas, despite normal or above normal intelligence • Problems with handwriting, scissor use, tying shoes, buttoning and zipping clothes
Poor organization of behavior	<ul style="list-style-type: none"> • May be impulsive • Distractible • Lack of planning in approach to tasks • Does not anticipate result of actions • May have difficulty adjusting to a new situation or following directions • May get frustrated, aggressive or withdraw when he or she encounters failure
Poor self-concept	<ul style="list-style-type: none"> • May appear lazy, bored or unmotivated • May avoid tasks and appear stubborn or troublesome

I think my child may have SPD...Now what? The Assessment Process

Ideally your child should be assessed and treated by an occupational therapist that is certified in sensory integration assessment and has experience in both evaluation and treatment of sensory integration difficulties. Many parents ask, “What should go into my child’s assessment?” This will vary depending on setting, insurance reimbursement and other factors. However, a comprehensive sensory integration-based occupational therapy evaluation will have many important aspects and skills that should be assessed in detail. The assessment checklist located in the Appendix may be used as a guide in determining whether your child received a comprehensive sensory integration-based evaluation.

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

The first information an occupational therapist will gather is background information about your child. This includes medical, educational and developmental history as well as what services or therapy your child has already received. An occupational profile of your child should be developed, which will help paint a current picture of your child as a whole. An occupational profile includes activities your child currently seeks out or enjoys doing, social history and identification of what skills and activities your child needs or wants to be able to do but currently cannot. Observation of or information on your child’s performance in a variety of settings such as school, in the clinic, and at home is desirable.

For a comprehensive evaluation, a set of formal or structured evaluations should be completed. The Sensory Integration and Praxis Tests (SIPT) is the preferred assessment for children ages 5-8. It must be administered by a therapist who is certified to administer and interpret this assessment. This evaluation assesses aspects of sensory integration including tactile and movement (vestibular) discrimination, visual perceptual skills, and praxis skills such as motor planning and bilateral coordination. Other assessments may be used with different age groups or children with other diagnoses, such as children with autism. A sensory questionnaire developed by the clinic/ school/ therapist you are referred to or a standardized questionnaire such as the Sensory Profile is typically given to caregivers to provide information on the functional impact of your child’s sensory processing. This questionnaire will ask questions regarding how a child reacts to sensations, movements and his or her behaviors throughout a typical day. Information gathered through the assessment process will provide the therapist with a profile of your child’s sensory processing, praxis abilities and the effect sensory integration is having on his or her life. This information will allow the therapist to use the most effective intervention techniques and to provide caregivers with tips and strategies that can be used at home.

School vs. clinic based sensory integration

Depending on the services your child receives he or she may see an occupational therapist in a clinic or at school. Sensory integration-based occupational therapy intervention may look quite different in a school setting than in a clinic. School-based occupational therapy typically will emphasize development of skills that will help your child function in the educational setting as best as possible in conjunction with an individualized education plan (IEP). In the clinic setting, intervention will focus on helping your child develop sensory and motor skills needed to function at home and in the community. School-based intervention may involve consultation with teachers, adaptation of the classroom environment, and provision of sensory-based strategies in the school or classroom itself. In both settings, therapists may suggest the use of a sensory diet or sensory breaks to help organize your child to promote improved function throughout the day.

Intervention: What happens in Sensory Integration-Based Occupational Therapy?

Sensory integration-based occupational therapy intervention (sometimes called SI-OT) is based on the unique needs of each child. It may address difficulties with self-regulation, sensory processing, body awareness, motor planning or development of gross motor and fine motor skills. Therapists will develop individualized goals with parents and the child to address the child's needs in these areas. Throughout therapy, your therapist will typically structure treatment sessions using ideas and leads from the child to make activities meaningful to the child. The use of an imaginative play theme is often used to facilitate the child's willingness to engage in desired activities. The therapist will adapt activities to provide activities at the "just right challenge" which ensures that they are not so difficult that the child will not engage in the task but is not so easy that he or she quickly loses interest. Though a therapy session may sometimes look like casual play, the activities are designed to promote the child's sensory processing and skills development and both therapist and child are working very hard.

All of the activities that your child engages in during the therapy session are purposeful. Activities may include those which promote development of the sensory systems, like playing in sensory media such as finding objects in a bucket of beans or swinging on a special swing. Some activities will promote the development of strength and postural control, such as climbing or pulling activities, balancing on a large air pillow, or jumping on a trampoline. Other activities will emphasize motor coordination, planning, and motor skills that involve timing and movement through space such as completing obstacle courses, negotiating mazes on a scooter, or throwing beanbags at a target. Initial therapy sessions will often emphasize improvement in sensory processing and development of foundational skills such as posture, attention or self-regulation with skill-based activities occurring somewhat later in the therapy process. Social skills may be addressed through cooperative play with peers who may be working one-on-one with their therapist at the same time.

The frequency and length of therapy will vary depending on the child, reimbursement, client availability, and individual needs of the child. but it is common for children to need 50 to 80 hour-long sessions of therapy. In some cases therapy may occur two to three times per week, which may shorten the number of months of therapy.



How can families integrate Sensory Integration activities at home?



There are many strategies and activities that can be done at home to help your child function at his or her best. Through intervention and consult with a therapist, specific tips for your child can be suggested. This chart provides a quick reference of activities for different sensory needs that can be done at home. Remember, though, that every child is unique and may respond differently to these suggestions.

Activities and strategies to try at home

Calming and organizing activities	Getting input for child with poor discrimination or who is under-responsive	Motor and postural activities
Sucking a piece of candy or sucking pudding through a straw	Crunchy foods: pretzels, ginger snaps, chips, crackers, nuts, carrots, celery	Animal walking: walking around the house or through a maze like different animals
Blowing bubbles	Bouncing on a ball	Sitting on a therapy or exercise ball
Imitating “smell the flowers and blow out the candles” (deep breathing)	Jumping up and down on a mattress	Carpet ride: have child sit on blanket and drag child around house
Placing hands on child’s shoulders or head with safe firm pressure	Finding small objects in a large bucket of dried beans	Wheelbarrow walking
Pillow sandwich: Using pillow cushions to provide deep pressure to child	Pushing or moving heavy boxes, pot, or pans	Jungle gym or playground: encourage climbing and jumping
Pushing against walls	Chair or wall pushups	Walking or crawling over uneven surfaces like a row of pillows
Rocking, swaying or creating a small quiet space for child to go	Climbing or hanging from monkey bars	Rolling down a hill and climbing back up



How do we know Sensory Integration intervention works?

A tremendous amount of research dedicated to the development of sensory integration theory, intervention, and the validation of the diagnosis of sensory processing disorder has occurred in the past decade. Sensory integration continues to be one of the most researched areas of practice in the occupational therapy profession.

A comprehensive systematic review examining the evidence on the effectiveness of intervention using a sensory integrative approach with children was completed by May-Benson and Koomar in 2010. They found that sensory integration intervention may result in successful outcomes in children in the areas of motor planning, socialization, attention, behavioral regulation, reading skills, play skills and achievement of individual goals. A series of five systematic reviews were completed at this same time including an examination of the neurophysiologic evidence to support SI-OT (Schaaf & Lane, 2010), the relationship between sensory processing problems and functional skills (Koenig, 2010), evidence for subtypes of sensory integration deficits (Davies, 2010), and efficacy of approaches other than SI-OT for sensory-based problems (Polatajko & Catin, 2010). This literature supports sensory integration theory and intervention.

In addition, several studies have examined the relationship of children's sensory processing problems to their parent's functioning. Cohn, May-Benson, & Teasdale (2011) found that children's sensory processing problems were related to their parents parenting sense of competence. Earlier studies by Cohn (2001) highlighted parents' perceptions of the benefits of their child's occupational therapy and sensory integration intervention. In addition, to gains in social participation and motor skills, parents valued the education received from occupational therapists on their child's behavior which helped them change their relationship and expectation for their children.

Research related to sensory integration is continually occurring and it is recommended that individuals interested in obtaining more information see the reference list at the back of this guide and go to the following websites for current information.

Websites

- The Spiral Foundation: www.thespiralfoundation.org/index.html
- Sensory Processing Disorder Foundation: www.spdnetwork.org
- SI Global Network: <http://www.siglobalnetwork.org>

Frequently Asked Questions

What are the causes of sensory integration problems?

Research suggests that there may be a variety of factors which contribute to sensory integration problems. These factors include genetics, prematurity, birth trauma, pre-natal exposure to stress and alcohol, and early health issues such as jaundice among other factors.

Can sensory processing disorder be cured?

When occupational therapy is provided using a sensory integration framework, these problems can be minimized. The nervous system can be changed, the ability to process sensation can be improved and improved performance in daily like activities and skills can occur.

Will sensory processing issues go away as my child grows up?

No, without treatment, these issues do not go away with time. Sensory integration problems persist into adulthood. However, they can appear to be less severe over time due to the greater flexibility most adults have in controlling their daily activities in comparison to children. Adults can learn strategies and tools to help manage their SI problems but they may also receive direct sensory integration intervention. It is never too late for SI-OT intervention.

How is SPD related to ADHD, ADD, Non-Verbal Learning Disabilities (NVLD), Autism, or Learning Disabilities (LD)? If a child has another diagnosis, will he or she still benefit from SI intervention?

Sensory integration difficulties can occur alone or in conjunction with many other diagnoses. Children with other diagnoses will likely receive a variety of services (speech therapy, ABA, tutoring, etc.). They may also take medications. Sensory integration intervention is appropriate for children who, in addition to their other difficulties, have problems with sensory processing that affect their everyday, functional performance.

What are similarities and differences between ADHD, ADD and SPD? Can attention deficits be cured with SI intervention?

Difficulties with arousal, attention, and excessive movement can be present in each disorder, and sensory integration intervention may help reduce these problems. Some behaviors usually attributed to ADD or ADHD may actually indicate SPD. For example, a child who is sensitive to touch or noise might be easily distracted; or poor postural stability or processing of vestibular input from the inner ear could result in constant movement when sitting.

Do all children with autism have sensory integration difficulties?

Although estimates vary, approximately 90% or more of children with autism experience some sensory integration problems, and SI intervention can help mitigate sensory-based autism symptoms.

Is SPD related to anxiety disorder?

Observation suggests that individuals with SPD may be more prone to anxiety due to the condition's effect on everyday life. A study conducted by the Spiral Foundation demonstrated significant relationships between anxiety and sensory processing in adults.

Can sensory integration intervention help children learn to talk or to read?

Yes, if language or reading issues are rooted in sensory processing problems. Many children with speech and language problems have difficulty with cerebellar functioning. The cerebellum is the center in the brain where vestibular (movement), ocular (visual), and proprioceptive (body position) input is organized. Occupational and physical therapy with a sensory integration focus can address these issues, resulting in improved language skills and reading abilities. In addition, skills addressed through this therapy, such as regulation of arousal level, postural control, and motor planning, are foundation abilities that are needed to support learning of any kind.

What types of toys should I buy for my child?

Toys that promote imaginative play as well as toys that provide your child with the opportunity to move or jump are great. These include swings, slides, bikes, trampolines, and jungle gyms. Any toys that you may see in an occupational therapy clinic or during sensory integration therapy would also work well for your child. Specific items in a clinic are pillows, cushions, hammocks, and tunnels. Ask your therapist what might work best for your child or have them suggest common household items that can be transformed into playful ideas. Also see the Spiral Foundation's holiday toy list for annual suggestions.

What should I tell my child?

Keeping language simple is the most effective way of communicating with your child. Making sure you tell them they are loved and appreciated is important in the therapy process. Explaining to them that everyone is made up differently and sometimes people need different things to make their body feel good so they are able to play and learn in school.

My child's school thinks that he has ADHD but my occupational therapist thinks this is a sensory issue. How do I reconcile this debate?

If you have an evaluation report that outlines your child's sensory issues, it is important to share it with the school. It can also be helpful to have your child's teacher fill out a sensory integration teacher checklist highlighting issues related to school performance. Discussion may be easier after the teacher has made his or her own observations. Clinics specializing in SI often give informational talks and lectures that school personnel can attend.

Where can I find out more about sensory integration?

Books on Sensory Integration

- **Living Sentionally: Understanding Your Senses:** Winnie Dunn
- **Love, Jean: Inspiration for Families Living with Dysfunction of Sensory Integration:** A, Jean Ayres, Zoe Mailloux
- **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, Ed.D., OTR/L, FAOTA
- **SenseAbilities - Understanding Sensory Integration:** Maryann Colby Trott, Marci K. Laurel, and Susan L. Windeck
- **Sensory Defensiveness in children aged 2-12: An intervention guide for parents and other caretakers:** Patricia Wilbarger
- **Sensory Integration and the Child: 25th Anniversary Edition:** A. Jean Ayres
- **Sensory Integration: Answers for Parents:** Gina Geppert Coleman, Zoe Mailloux and Susanne Smith Roley
- **Sensational Kids: Hope and help for children with Sensory Processing Disorder:** Lucy Jane Miller and Doris Fuller
- **The Everything Parent's Guide To Sensory Integration Disorder: Get the Right Diagnosis, Understand Treatments, And Advocate for Your Child:** Terri Mauro, Sharon A. Cermak
- **The Highly Sensitive Child: Helping Our Children Thrive When the World Overwhelms Them:** Elaine Aron
- **The Mislabeled Child: How Understanding Your child's Unique Learning Style Can Open the Doors to Success,** Brock Eide & Fernette Eide.
- **The Misunderstood Child, Fourth Edition: Understanding and Coping with Your Child's Learning Disabilities:** Larry B. Silver M.D.
- **The Out-of-Sync Child: Recognizing and Coping with Sensory Processing Disorder:** Carol Stock Kranowitz
- **The Out-of-Sync Child Has Fun, Revised Edition: Activities for Kids with Sensory Processing Disorder:** Carol Stock Kranowitz

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Appendix



“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 at desk.
- 3. Needs more practice than other children to learn new skills.
- 4. Reverses letters such as *b* and *d*; can't space letters on the lines.
- 5. Breaks pencils frequently or writes with heavy pressure.
- 6. Does not enjoy jumping, swings or having feet off the ground.
- 7. Dislikes handwriting, tires quickly during written class work.
- 8. Difficulty paying attention or following instructions.
- 9. Overly active, unable to slow down.
- 10. Poor self-esteem, lack of confidence.
- 11. Dislikes swimming, bathing, hugs, and/or hair cuts
- 12. Over-reacts to touch, taste, sounds, or odors
- 13. Avoids physical education or sports activities.
- 14. Finds it difficult to make friends with children of the same age, prefers to play with adults or younger children rather than peers.
- 15. Difficulty following several step instructions for motor tasks.

*If your child is experiencing three or more problems on this checklist, occupational therapy intervention may be helpful

See the Spiral Foundation website, www.thespiralfoundation.org, for How Do I Knows for different age groups. Other languages are also available.

A Comprehensive Sensory Integration Assessment Checklist

Information and skills being assessed	Assessment	Age	Present in evaluation
Background information: Medical, educational, developmental history, and therapeutic history	Occupational profile, intakes, clinic developmental history	All ages	
Current information: What activities does your child currently seek out or enjoy, what does your child need and want to do, areas of strengths and difficulties	Occupational profile, intake, clinic developmental history	All ages	
Unstructured evaluations: Clinical observation in the clinic, school, or home environment and parent report	Occupational profile, intake, clinic developmental history, Ayres Clinical Observation, Sensory Modulation/ Discrimination Evaluation	All ages	
Structured evaluations: Use of standardized and norm referenced measures to interpret the effects of sensory integration and praxis on performance	SIPT, Miller Assessment for Preschoolers (MAP), BOT-2, Movement ABC	4-8	
Sensory modulation: Sensory sensitivities, sensory seeking, and self-regulation	Sensory Profile, clinic sensory testing, Sensory Processing Measure	3-10	
Sensory discrimination: Visual, tactile, vestibular-proprioception	SIPT, MAP	4-8	
Postural control: ocular, oral, and bilateral motor control	COMPS, Ayres Clinical Observation	5-15	
Motor coordination: Gross motor skills	Peabody, BOT-2	Birth-5	
Fine motor skills: Handwriting, cutting, in hand manipulation	BOT-2, Peabody, and handwriting assessments	Birth-5	
Praxis: Imitation, planning, timing, construction, space planning and sequencing of actions	SIPT, Test of Ideational Praxis	4-8	
Visual Perceptual skills: Visual integration and visual spatial skills	Visual Motor Integration (VMI), Test of Visual Perceptual skills (TVPS-3), Motor-Free Visual Perception Test (MVPT-3)	2-18	
ADLS: Dressing, eating, bathing, self-care, play	Observation, intakes, clinic developmental history	All ages	
Organizational skills: Managing materials, schedules, transitions, and social expectations	Observation, intakes, clinic developmental history	All ages	

**Note: There are many standardized assessments available, these are some commonly used test but not comprehensive.

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 working with children 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. 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.

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 an over-sensitivity to sensory stimulus. A child may react defensively, withdraw or become overwhelmed.

Hypo-responsivity is an undersensitivity to sensory stimulus. A child 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. Children with praxis problems have difficulty executing motor tasks, developing organizational skills, and interacting with objects in a playful and imaginative 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 on a child.

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 child/ person directed and takes place in a playful, 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.