A Parent's Guide to Understanding Sensory Integration

Sensory Integration theory, as discussed in this booklet, comes from a body of work developed by A. Jean Ayres, PhD, OTR. This theory has been further developed and refined by the research of Dr. Ayres, and other occupational and physical therapists. In addition, literature from fields such as neuropsychology, neurology, physiology, child development, and psychology has contributed to theory development and treatment techniques.

Parents usually know and understand their children better than anyone else. Therefore, they also know better than anyone else then their children are struggling, stumbling, or suffering. This booklet was written to provide information on why some of these problems occur. It is also meant to help better understand the reasons why some of the things parents do naturally are vital to fostering optimal development in their children. This booklet can also be used to communicate with teachers, physicians, counselors, therapists, and others, to help them understand some of the behaviors of the children with whom they work.

Sensory Integration: The Concept

All of the information we receive about the world comes to us through our sensory systems. Because many sensory processes take place within the nervous system at an unconscious level, we are not usually aware of them. Although we are all familiar with the senses involved in taste, smell, sight, and sound, most of us do not realize that our nervous systems also sense touch, movement, force of gravity, and body position. Just as the eyes detect visual information and relay it on to the brain for interpretation, all sensory systems have receptors that pick up information to be perceived by the brain. Cells within the skin send information about light, touch, pain, temperature, and pressure. Structures within the inner eat detect movement and changes in the position of the head. Components of muscles, joints, and tendons provide and awareness of body position.

The Sense of Touch

Although the senses of touch, movement and body position are less familiar than vision and hearing to most people, they are critical in helping us to function in daily life. For example, the sense of touch (the tactile sense) makes it possible for a person to find a flashlight in a drawer when the lights are out. Tactile sensation also plays an important role in protection from danger – for example, it can signal the difference between the soft touch of a child's fingers and the crawling legs of a spider.

The Sense of Movement

The vestibular sense responds to body movement through space and change in head position. It automatically coordinates the movement of one's eyes, head and body. If this sense were not functioning well, it would be impossible for a student to look up at the blackboard and back down at her paper without losing her place. It would be difficult to walk along a rocky path without falling, or to balance on one foot long enough to kick a soccer ball. The same vestibular sense is central in maintaining muscle tone, coordinating the two sides of the body, and holding the head upright against gravity. The vestibular system can be though of as a foundation for orientation of the body in relation to surrounding space.

The Sense of Body Function

Closely related to the vestibular sense is the sense of proprioception, which gives us an awareness of body position. It is proprioception that makes it possible for a person to skillfully guide his arm or leg movements without having to observe every action. When proprioception is functioning efficiently, an individual's body position is automatically adjusted to prevent falling out of a chair. Proprioception also allows objects such as pencils, buttons, spoons, and combs to be skillfully manipulated by the hand. Because of efficient proprioception, a step off of the curb is smoothly synchronized with the following step on level ground.

Organization of the Senses

The tactile, vestibular, and proprioceptive systems begin to function very early in life, even before birth. These basic senses are closely connected to each other and form interconnection with other systems of the brain as development proceeds. The interplay among the various senses is complex, and is necessary in order for a person to interpret a situation accurately and make an appropriate response. It is this organization of the senses for use that is termed sensory integration.

Motor Planning

Not only does sensory integration allow us to respond appropriately to incoming sensations, it also guides the way that we act on the environment. For example, motor planning (or praxis) is an important ability that depends on efficient sensory integration. Motor planning involves having an idea about what to do, planning an action, and finally executing the action. New actions are planned, using knowledge if past experiences and the sensations that accompany them. The tactile, proprioceptive, and vestibular senses are particularly important in providing knowledge about how the body moves and how it can be used to act on the environment. When motor planning occurs, a person is able to deal with a completely new task by organizing a new action. An example is the preschooler who, on encountering a novel child-size riding toy for the first time, is able to figure out how to get on and off without any instructions or help. Motor planning involves conscious attention to the task, while relying on stored information regarding unconscious body sensations.

Sensory Integrative Disorders

For most children, sensory integration develops in the course of ordinary childhood activities. Motor planning ability is a natural outcome of the process, as is the ability to respond to incoming sensation in an adaptive manner. But for some children, sensory integration is disordered, a number of problems in learning, development, or behavior may become evident.

Signs of Sensory Integrative Dysfunction

Not all children with learning, developmental, or behavioral problems have an underlying sensory integrative disorder. There are certain indicators, however, that can signal a parent that such a disorder may be present. The following are a few of the possible signs:

Overly sensitive to touch, movement, sights, or sounds

This may be manifested in behaviors such as irritability or withdrawal when touched, avoidance of certain textures of clothes or foods, distractibility, or a fearful reaction to ordinary movement activities, such as those typically found on a playground.

Under-reactive to sensory stimulation

In contrast to the overly sensitive child, an under-responsive child may seek out intense sensory experiences such as body whirling or crashing into objects. He or she may seem oblivious to pain or to body position. Some children fluctuate between extremes of over- and under-responsiveness.

Activity level that is unusually high or low

The child may be constantly on the move or may be slow to activate and fatigue easily. Again, some children may fluctuate from one extreme to the other.

Coordination problems

This can be seen in gross or fine motor activities. Some children may have unusually poor balance, while others have great difficulty learning to do a new task that requires motor coordination.

Delays in speech, language, motor skills, or academic achievement

These may be evident in a preschooler along with other signs of poor sensory integration. In a school-aged child, there may be problems in some academic areas despite normal intelligence.

Poor organization of behavior

The child may be impulsive or distractible and show a lack of planning in approach to tasks. Some children have difficulty adjusting to a new situation. Others may react with frustration, aggression, or withdrawal when they encounter failure.

Poor self concept

Sometimes a child who experiences the problems mentioned above just does not quite feel right. A bright child with these problems may know that some tasks are more difficult for him than for other children, but may not know why. This child may appear lazy, bored, or unmotivated. Some children soon figure out ways to avoid these tasks that are hard or embarrassing. When this happens, the child may be considered troublesome or stubborn. When a problem is difficult to see or understand, parents and children may blame themselves. Family tension, poor self concept, and a general feeling of hopelessness may prevail.

Typically, a child with a sensory integrative disorder will show more than one of the above signs.

Evaluation: The Next Step

If you suspect that your child fits this picture, an evaluation can be conducted by a qualified occupational or physical therapist. Results of the evaluation will indicate whether or not a sensory integrative disorder is present, and will provide you with a profile of your child's sensory processing abilities in a number of areas.

Evaluation consists of both standardized testing and structured observations of responses to sensory stimulation, posture, balance, coordination, and eye movements. The occupational or physical therapist who conducts testing may also informally observe spontaneous play, and may ask you to provide information about your child's development and typical behavior patterns. A thorough evaluation usually requires about 1 1/2 to 3 hours. Following the evaluation, you will receive a report that provides y ou with rest scores and with an interpretation of what the scores indicate.

For most young children, the Sensory Integration and Praxis Tests (SIPT), (or the earlier version, the Southern California Sensory Integration Test (SCSIT)) will be used in the evaluation. These tests assess the child's functioning in the following areas:

Visual perception
Somatosensory processing (touch and proprioception)
Vestibular processing
Eye-hand coordination
Motor planning or praxis

If your child has special problems, or if he or she is not the appropriate age for these tests, other tests or assessment methods may be selected by the therapist.

It is appropriate to ask a professional when and how he or she was trained in evaluation of sensory integration. If the SIPT or SCSIT is used in evaluation, the therapist should be certified in administration of that particular test. For a listing of certified therapists, you can contact Sensory Integration International at 1402 Cravens Avenue, Torrance, California 90501, telephone (213) 533-8388.

After carefully analyzing test results and other assessment date along with information from other professionals and parents, the therapist will make recommendations regarding the appropriateness of therapy using a sensory integrative approach.

These recommendations are made on the basis of the degree and nature of sensory integrative involvement in the child as well as research that identifies which types of problems respond best to particular therapeutic approaches. For children with clear evidence of sensory integrative dysfunction, occupational or physical therapy using sensory integrative procedures may be recommended on a trial basis to determine whether or not the child is responsive to this therapeutic approach. For still other children, occupational or physical therapy may not be recommended, but referral to another professional may be made or suggestions about how to help the child may be provided to the parent or teacher.

What Therapy Can Do to Help Your Child

If occupational or physical therapy using a sensory integrative approach is recommended for your child, you will want to make sure that a qualified professional will be seeing your child. Again, it is appropriate to ask how and when she or he was trained in theory and treatment in this area. The therapist who treats your child should be an occupational or physical therapist who has received post-baccalaureate training in sensory integration theory and treatment, and who has pursued continuing education in this area.

How Therapy Works

In therapy, your child will be guided through activities that challenge his or her ability to respond appropriately to sensory input by making a successful, organized response. Therapy will involve activities that provide vestibular, proprioceptive, and tactile stimulation, and are designed to meet your child's specific needs for development. The activities will also be designed to gradually increase the demands upon your child to make an organized, more mature response. Emphasis is placed on automatic sensory processes in the course of a goal-directed activity, rather than instructing or drilling the child on how to respond.

Training of specific skills is not usually the focus of this kind of therapy. The child probably will not be drilled on tasks like walking on a balance beam, catching a ball, using a pencil, or hopping on one foot. Rather, a variety of activities will be used to develop the underlying abilities that enable a child to learn such skills efficiently. There are cases, however, in which being trained to do specific skills may be critical in the development of a child's self-esteem or ability to interact with peers. In such cases, the occupational or physical therapist may provide skills training, or they may refer the child to other professionals who would provide this service. Adaptive physical education, and gymnastic classes are examples of services that typically focus on motor skills training. Such services re important, but they are not the same as therapy using a sensory integrative approach.

One important aspect of therapy that uses a sensory integrative approach is that the motivation of the child plays a crucial role in the selection of the activities. Most children tend to seek out those activities that provide sensory experiences most beneficial to them at that point in development. This is an important cue to the therapist, who draws upon the child's interest and motivation to guide selection of activities. Some children will be allowed a great amount of choice in the selection of activities while others who have difficulty choosing appropriate activities will be provided with a high degree of structure. Even when the therapist is providing a great deal of structure, however, the child is encouraged to be an active participant in activities. Rarely is the child simply a passive recipient of stimulation, for it is active involvement that enables the child to become a more mature, efficient organizer of sensory information.

Why Children Like Therapy

Therapy using sensory integrative procedures in almost always fun for the child. The clinical setting is full of appealing equipment: ramps to slide down, platforms to swing on, bolsters to climb over, inner tubes to jump into, trapezes to swing from. For the child, therapy is play and may look like play to the adult observer as well. But it is also important work, for with the guidance of a trained professional, the child is able to achieve successes that probably would not occur in unguided play. In fact, many children with sensory integrative disorders are unable to play productively in an organized manner without special help. Creating a playful atmosphere during therapy is not done just for fun. It is advantageous because the child is more likely to be highly interested in the activities, and thus is more likely to benefit from time spent in therapy than a child who is disinterested or disengaged.

Therapy should be a positive growth experience for children, who usually look forward to it with eager anticipation. Not every day of therapy, however, will be optimally productive – all children have some difficult days. There are some disorders, also, which make it difficult for a child to interact with equipment and derive enjoyment from activities that most children consider play. For some children, therefore, getting started in therapy may be a process. A trained therapist will know how much to push a child and may ask for the parents' assistance in helping the child to become involved.

What to Expect from Therapy

When a sensory integrative approach to therapy is successful, the child is able to automatically process complex sensory information in a more effective manner than previously. This can have a number of important payoffs. An improvement in motor coordination may be documented by the child's ability to perform gross and fine motor tasks with greater skill and at a higher level of complexity than would be expected with no intervention. For the child who originally presented problems of over- or under-responsiveness to sensory stimulation, more normal responses may lead to better emotional adjustment, improved personal-social skills, or greater self-confidence. Some children will demonstrate gains in language development, while others will improve significantly in school achievement as their nervous systems begin to function more efficiently. Very often, parents report that their child seems to be better "put together," more self-assured, better organized and easier to live with.

At the outset of intervention, the therapist will predict which areas are likely to demonstrate change as the child progresses, based on the constellation of presenting problems and the existing research on treatment effects. Of course, predictions are fallible, so your child will be monitored at 3 to 6 month intervals. The duration of therapy typically ranges from 6 months to 2 years, depending on the severity and type of problem your child has, as well as the rate and degree of progress seen.

Some children have benefited from intermittent periods of therapy over the course of several years. For example, therapy might be provided for a 6 to 9 month period, then reinstated a year or so later for another period of intervention. Most treatment settings allow for one to three sessions per week, each lasting from 30 minutes to 2 hours, depending on the facility and the needs of the child.

What Parents Can Do to Promote Sensory Integration in Their Child

Probably the most important way a parent can facilitate sensory integration is by recognizing that it exists and that it plays an important role in the development of a child. Then, by considering ways in which a child might experience various types of sensory input, a parent can provide an enriched environment that will foster healthy growth and maturation.

A second important guideline in facilitating normal sensory integration is to recognize that every child is an individual with unique interests, responses, and needs. No one "cook book" can tell you all the right activities for your child's development. Parents can analyze their individual child's needs best by observing the child's response to various situations. Consider, for example, the different ways in which a child is affected by touch, movement, sights, smells, or heights. Sometimes fast movement may make a child more alert and may lead to increased verbalization. At another time, or for another child, the same movement may excite the child to the extent of disorganization or may elicit fear. It is important for a parent to watch a child's response to an activity and to be ready to alter an activity based on that response.

Finally, a parent needs to know that sensory integration is not the same as sensory stimulation. Although it is sometimes appropriate to provide activities which involve a variety of types of sensory input, it is also important at times to reduce or block out certain types of sensory stimuli. Response to sensory input varies from child to child. For example, one child may seek a great deal of hugging while another may like to be held only occasionally. In addition, responses vary in the same child from day to day and sometimes even from one time of day to another. Consideration of the ways in which sensory input can vary, as well as an individual child's reactions, can help a parent to guide a child to activities that will be most beneficial to his or her development.

Some Basic Principles

While remembering what each child is different and that an individual child's response will vary, a parent can consider some general principles in promoting normal sensory integration. These include the following:

Remember All the Senses

Touch and movement are at least as important as vision and hearing, if not more so, in helping a young infant learn about the world. As a child grows older, vision and hearing will become critical for learning. This does not mean that sights and sounds need to be limited in infancy; only that touch and movement should not be neglected. For example, sometimes a well intentioned parent may place an infant in an infant seat near the living room so that the baby can hear and see family activities. An alternative would be to spend a substantial amount of time holding, rocking, or carrying the baby, whether in your arms, a knapsack or an infant swing. Physical contact is particularly important not only for the sensation that it provides but also for the opportunity to enhance the parent-child relationship. Another aspect to consider is the variety body positions the infant experiences throughout the day. For example, since babies are often placed on their backs in the hospital, that is sometimes the way parents continue to place them in their cribs at home. However, a baby lying on his stomach receives different sensations than a baby who is lying on his back or side. Providing a variety of body positions for playing, sleeping, and cuddling helps an infant to master gravity, movement, and body control.

Be Sensitive To Your Child's Reactions To Activities

It's important to recognize and understand how each child perceives and is affected by different experiences. While light touch ma be pleasing to some children, for others it may be irritating or distracting. Similarly, some children may react negatively to loud noises or certain types of sounds, or may have trouble tuning out background noises in order to attend to specific sounds (i.e. the teacher's voice). Some may exhibit negative responses to heights and certain types of movement, while others may seem to seek excessive amounts of movement. It is important to recognize that a child's reactions to certain situations may be due to how they are perceiving their world and not necessarily a behavioral problem. Once it is understood how a child is perceiving the world, a parent is better able to respond effectively to the child's needs and to help the child cope by either adapting or avoiding certain situations. For example, children who are irritated by light touch often respond positively to firm touch or deeper pressure. This is why hugging is calming to most children. Or for the child who has difficulty tuning out background noises to attend to a task, a special quiet place could be set up for specific classroom and homework times.

Look For Clues From Your Child

Children often seek the types of sensory experience their nervous systems need. If a child appears to be looking for sensory input, whether it is touch, movement, smell, sight, or sounds, the may be a clue that a certain type of sensation is desired. If a child seeks a great deal of movement, touch, pressure, vibration, visual, or auditory stimuli, try to provide some of these sensations in normal play activities. For example, if a child seems to want a lot of hugging and firm pressure, a parent might try games like tug-o-war, neighborhood hiking with weighted back packs, rolling games, or hide-and-seek under large pillows or foam mattresses – all activities that provide deep proprioception.

Recognize Your Child's Activities

Consider the demands places on a child to process sensation and respond to it. A child who enjoys movement and who has a good balance may be able to carry on vivid, imaginative conversations while swinging. A child who is fearful of movement, however, may need to concentrate intensely just to maintain balance, so may not be able to talk and swing at the same time. Remember that one child may not process sensory information or respond to it as automatically as another.

Foster The Spirit of Play

Sensory input can be a powerful force. It can act to "rev up" or increase arousal and activity level, or it can have the opposite, toning down effect. Sensations can have a dramatic impact on the nervous system, especially for the young child. Whenever trying new activities, attend to both the immediate and long term effects on the child, as new or different sensory experiences can affect sleep, eating, bowel and bladder control, and organizational state. A good rule is to not attempt any activities that seem beyond the scope of normal play.

Involve Your Child in Activities

The brain physiology that is involved in active movement, responses, and behavior is different than that of passive activities. Active involvement depends on the child initiating, planning, executing, or dynamically responding to an activity. A passive activity may provide sensation or movement that does not necessarily require a response. Active involvement provides the best opportunity for changes in the brain that lead to growth, learning, and better organization of behavior. When a child is actively involved, he or she has more control over the situation. Passive activities, in contrast, carry more precautions as the child may be less able to demonstrate signs of distress. Therefore, when planning new sensory and movement experiences, it is usually best to emphasize active participation on the part of the child.

Glossary of Sensory Integration Terms

The following glossary of terms is included to help parents understand words or phrases commonly utilized in testing or treatment of sensory integrative disorders:

Adaptive response: An appropriate action in which the individual responds successfully to some environmental demand. Adaptive responses require good sensory integration, and they also further the sensory integrative process.

Body image: A person's perception of his own body. It consists of sensory images or "maps" of the body stored in the brain. May also be called body scheme or body percept.

Brain stem: The lowest and innermost portion of the brain. The brain stem contains centers that regulate internal organic functions, arousal of the nervous system as a whole, and elementary sensory-motor processing.

Cocontraction: The simultaneous contraction of all the muscles around a joint to stabilize it.

Dyspraxia: Poor praxis or motor planning. A less severe, but more common dysfunction than apraxia (the lack of praxis), it is often related to poor somatosensory processing.

Extension: The action of straightening the neck, back, arms, or legs.

Flexion: The act of bending or pulling in a part of the body.

Gravitational insecurity: An unusual degree of anxiety or fear in response to movement or change in head position; related to poor processing of vestibular and proprioception information.

Hypersensitivity to movement: Excessive sensations of disorientation, loss of balce, nausea, or headache in response to linear and/ or rotary movement. Response may be delayed up to several hours after receiving the input.

Kinesthesia: Perception of the movement of individual body parts; dependent on proprioception.

Lateralization: The tendency for certain processes to be handled more efficiently on ones side of the brain than on the other. In most people, the right hemisphere becomes more efficient in processing spatial information, while the left hemisphere specializes in verbal and logical processes.

Learning disorder: A difficulty in learning to read, write, compute, or do school work that cannot be attributed to impaired sight or hearing, or to mental retardation.

Modulation: The brain's regulation of its own activity. Modulation involves facilitating some neural messages to maximize a response, and inhibiting other messages to reduce irrelevant activity.

Nystagmus: A series of automatic, back-and-forth eye movements. Different conditions produce this reflex. Rotary movement followed by an abrupt stop normally produces postrotary nystagmus. The duration and regularity of postrotary nystagmus are some of the indicators of one aspect of vestibular system efficiency.

Occupational therapy: Occupational therapy is a health profession concerned with improving a person's occupational performance. In a pediatric setting, the occupational therapist deals with children whose occupations are usually players, preschoolers, or students. The occupational therapist evaluates a child's performance in relation to what is developmentally expected for that age group. If there is a discrepancy between developmental expectations and functional ability, the occupational therapist looks at a variety of perceptual and neuromuscular factors which influence function. Based on a knowledge of neurology, kinesiology, development, medical diagnoses, and current research, the occupational therapist can identify the children who have the best potential for remediation through occupational therapy.

Perception: The meaning the brain gives to sensory input. Sensations are objective; perception is subjective.

Physical therapy: Physical therapy is a health profession concerned with improving a person's physical ability. In a pediatric setting, the physical therapist evaluates a child's orthopedic structure and neuromuscular functions. A physical therapist can also receive special training identical to that received by an occupational therapist to assess and remediate the disorders in sensory processing that influence learning and behavior.

Praxis: (Motor Planning) The ability of the brain to conceive of, organize, and carry out a sequence of unfamiliar actions.

Prone: The horizontal body position with the fac and stomache downward.

Proprioception: From the Latin for "one's own." Refers to perception of sensation from the muscles and joints. Proprioceptive input tells the brain when and how muscles are contracting and stretching, and when and how the joints are bending, extending or being pulled or compressed. This information enables the brain to know where each part of the body is and how it is moving.

Sensory input: The streams of neural impulses flowing from the sense receptors in the body to the spinal cord and brain.

Sensory integration: The organization of sensory input for use. The "use" may be a perception of the body or the world, or an adaptive response, or a learning process, or the development of some neural function. Through sensory integration, the many parts of the nervous system work together so that a person can interact with the environment effectively and experience appropriate satisfaction.

Sensory Integration and Praxis Tests (SIPT): A series of tests, published in 1989, designed to assess the status of sensory integration and praxis (motor planning) in children ages 4 through 8 years old. The SIPT is a revised and updated version of the original SCSIT.

Sensory integrative dysfunction: An irregularity or disorder in brain function that makes it difficult to integrate sensory input effectively. Sensory integrative dysfunction may be present in motor, learning, social/ emotional, speech/ language or attention disorders.

Somatosensory: Body sensations that are based on both tactile and proprioceptive information.

Southern California Sensory Integration Tests (SCSIT): A series of tests, published in 1972, designed to assess the status of sensory integration or it's dysfunction. These tests were later revised, updated and republished as the Sensory Integration and Praxis Tests (SIPT).

Specialization: In general, the process by which one part of the brain becomes more efficient at particular functions. Most specialized functions are lateralized, that is, one side of the brain is more proficient in the function than the other side.

Supine: The horizontal body position with the face and stomach upward.

Tactile defensiveness: A sensory integrative dysfunction in which tactile sensations create negative emotional reactions. It is associated with distractibility, restlessness, and behavior problems.

Vestibular system: The sensory system that responds to the position of the head in relation to gravity and accelerated or decelerated movement; it integrates neck, eye, and body adjustments to movement.

Learning More About Sensory Integration

As a relatively new concept in the field of child development, sensory integration, and more specifically sensory integrative dysfunction, is often not well understood by physicians, teachers, or the general public. Learning more about how the theory of sensory integration was developed, and about the intervention methods used, may help you as a parent to understand your child and to help others understand him or her as well.
For more information contact:

The Occupational/ Physical Therapy Department of your local children's hospital or school district

Locate occupational and physical therapists in your community through these sources. Children's hospitals employ therapists with experience in pediatrics, and who are likely to have training in sensory integration theory and treatment. They can also refer you to other therapists in our area who have advanced training in this approach.

Your local school district may also employ pediatric occupational and physical therapists. You may be able to obtain services free of charge through the school district, regardless of whether your child is presently attending school.

The American Occupational Therapy Association (AOTA)
1383 Piccard Drive
P.O. Box 1725
Rockville, MD 20850-0822
(301) 948-9626

This is the national association for occupational therapists. AOTA can provide information about occupational therapy and listings of therapists in your area.

Sensory Integration International
1402 Cravens Avenue
Torrance, CA 90501-2701
(213) 533-8338

Sensory Integration International (SII) is a non-profit organization founded in 1972 to develop awareness, knowledge, skills, and services in sensory integration.

SII will provide general information about sensory integration, or provide information on a specific subject, such as treatment efficacy that you can share with your pediatrician. SII also maintains a listing of occupational and physical therapists who have been certified in the administration and interpretation of the SIPT and SCSIT evaluation tools.

The SI quarterly newsletter is free to members of Sensory Integration International. Each issue includes valuable information for therapists, parents, teachers, and others interested in sensory integration. Parents receive discount memberships.

SII offers courses for therapists in the evaluation and treatment of sensory integrative dysfunctions, as well as theory courses that are open to all who would like to have more in-depth knowledge of sensory integration.

The following resources are available through Sensory Integration International and are recommended as an introduction to learning more about sensory integrative dysfunction:

Sensory Integration and the Child
By A. Jean Ayres. Published by Western Psychological Services (1979). This is an essential reference source and excellent tool for improving communication between parents, therapists and teachers of children receiving sensory integrative assessment or treatment.

Sensory Motor Handbook
This manual was designed for classroom motor-related activities. Many parents also find it useful when working with their children at home. A trouble-shooting section provides practical tips to help children who are having difficulty with specific activities such as handwriting, using scissors, etc.

Sensory Integration Quarterly
Newsletters are published four times per year and are distributed to all members of Sensory Integration International. Each issue includes valuable information for therapists, parents, teachers and others interested in sensory integration.

The History of A. Jean Ayres and Sensory Integration

A. Jean Ayres, PhD, OTR, FAOTA, is credited with having first identified sensory integrative dysfunction. She is the author of the Sensory Integration and Praxis Tests, and was one of occupational therapy's foremost leaders in theory development.

Born in 1920, Anna Jean Ayres grew up on a farm in Visalia, California. As a child, she struggled with learning problems similar to those she would later study.

After obtaining a master's degree in occupational therapy and a doctorate in educational psychology from the University of Southern California, Dr. Ayres began postdoctoral work at UCLA's Brain Research Institute. Here she began to formulate her theory of sensory integrative dysfunction.

Prior to Dr. Ayres' landmark research, children who has suffered from a misunderstood disability. Parents were frustrated by a child who would become agitated by simple daily tasks, had more labored handwriting than other children, had difficulty attending in school and was disorganized at home. Through her research, Dr. Ayes made the discovery that such children had a neural disorder that resulted in inefficient organization of sensory input received by the nervous system. She developed diagnostic tools for identifying the disorder and proposed a therapeutic approach that transformed pediatric occupational therapy.

In 1972, Sensory Integration International, a not-for-profit organization, was established to further Dr. Ayres' work. Through the educational programs offered as part of the mission of Sensory Integration International, and through operation of The Ayers Clinic, the pioneering work of Dr. Ayres continues.