2016 Texas Focus Conference
June 16-17, 2016
Seeing Out-of-Sync Children through Sensory Goggles
Friday, 9:15 AM – 12:00 PM

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Developed for
Texas School for the Blind & Visually Impaired
Outreach Programs
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Seeing the Out-of-Sync Children through Sensory Goggles

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Kids Gotta Move!

Figure 1 Drawing of an adult playing a slide whistle and a child seated tailor-style with her arms stretched above her head.

Slide Whistle Stretch

Environmental Senses

• SEEING (Visual)
• HEARING (Auditory)
• SMELL (Olfactory)
• TASTE (Gustatory)
• TOUCH (Tactile)

Figure 2 Drawing of a body with the various senses pointing to the body parts that are involved with that sense.

Body-centered Senses

• Vestibular
• Proprioceptive
• Interoceptive
Figure 3 A drawing of the body with body parts associated with vestibular, proprioceptive, and interoceptive senses pointed out.

Building Blocks of Sensory Processing

Level 1: Primary Sensory Systems
- Touch
- Balance & Movement
- Body Position,
- Visual & Auditory Senses

Level 2: Perceptual Motor Foundations
- Body Awareness
- Bilateral Coordination
- Lateralization
- Motor Planning

Level 3: Perceptual Motor Skills
- Auditory & visual Discrimination
- Eye-Hand Coordination (Pencil Skills)
- Visual-Motor Integration

Level 4: Readiness for School and the Big World
- Academic Skills,
- Complex Motor Skills
- Regulation of Attention
- Organized Behavior
- Self-Esteem

Figure 4 Graphic of Building Blocks of Sensory Processing: see detailed information below.
• Self-Control
• Self-Confidence

What Basic Functions Do Our Senses Serve?
• Self-protection (defensiveness), for survival
• Discrimination, for learning
• Satisfaction, for feeling good
• Smooth functioning all day long, for life!

Physical Functions (Body)
• Touching and being touched, for interacting with people and objects
• Moving and being moved, for making one’s way in life

![Figure 5 A photo of young children marching.](image)

Physical Functions (Body)
• Gross-motor skills: balancing, running, climbing
• Fine-motor skills: writing, cutting, tying laces
• Oral-motor skills: speaking, eating
• Visual skills: what, where and how of sights
• Auditory skills: what, where and how of sounds
• Muscle tone, strength, stamina (“oomph”)
• Posture: staying on a seat, changing positions

Emotional Functions (Spirit)
• Emotional security
• Self-regulation, or modulation, of emotions and responses to sensations coming from one’s own body and from environment
• Attention

Cognitive Functions (Mind)
“The eyes remember what the hands have touched and the ears have heard.” Diane Ackerman
The “End Result” Function of Sensory Processing

Praxis (Action, or Doing):

1) Ideation
2) Motor planning
3) Execution

![Figure 6](image)

Figure 6 A young girl wades in a creek and bends over to pick up a large rock.

What Helps?

Arm Circles

![Figure 7](image)

Figure 7 Graphic show a young girl holding her arms out to her sides and making small circles in the air.

Copy Cat

![Figure 8](image)

Figure 8 A graphic showing a boy standing on one leg and moving his arms.
Sensory Processing Disorder

Ordinary sensory experiences cause atypical reactions in the brain that cause atypical responses in the body, affecting relationships, work, and play.

BEHAVIOR MEANS SOMETHING!

Figure 9 A series of three images of a very young boy (from left to right): 1) holding his hands over his ears, 2) covering his face with his hands, and 3) arms crossed over his chest.

Wearing Sensory Goggles....

- What sensations irritate the child?
- What sensations does child avoid/crave?
- What is child’s self-therapy? Can it be broadened or re-channeled?
- What sensory input may calm child or provide a jump-start?
Taxonomy of SPD

SENSORY PROCESSING DISORDER (SPD)

Sensory Modulation Disorder (SMD)
- SOR
- SUR
- SC

Sensory Discrimination Disorder (SDD)
- Visual
- Auditory
- Tactile
- Taste/Smell
- Position / Movement
- Interoception

Sensory-Based Motor Disorder (SBMD)
- Postural Disorder
- Dyspraxia

SOR = Sensory Over-Responsivity
SUR = Sensory Under-Responsivity AJOT, 61:2, March/April 2007, p. 137
SC = Sensory Craving
Sensory Modulation Disorder:

Sensory Over-responsivity (SOR)

“Sensory avoider”

- Fearful and cautious — or negative and defiant
- Busy, busy, busy — or under the table

Quick, intense “fight or flight” response to harmless sensations

Most emotionally laden Darwin Goodenough: “Oh, no!”

Figure 10 Drawing shows someone sharpening his pencil in an electric pencil sharpener while another sitting in the desk in front of him daydreams about sitting in a beanbag with his dog while reading a book and two girls interact with each other at the desk in front of the boy.

Darwin Goodenough: “Oh, no!”

What Helps SOR?

- Lower the sensory load
- Offer non-messy tactile play
- Play, Squeezit, Pressit, Stretchit
- Think, “Push-pull-lift-carry”

Figure 11 A child emerges from a long fabric tube that is stretched on mats outside. He is pushing a large, yellow ball.

Push That Ball!
What Helps?

Figure 12 A drawing showing a child with his hands in a tub of sand. Four items set around the tub including blocks and a toy car.

Treasure Trove

What Helps?

Figure 13 Drawing of a girl shining a flashlight on her foot.

Flashlight Focus

Sensory Modulation Disorder:

Sensory Under-responsivity (SUR)

- “Sensory disregarder”: inattentive, self-absorbed, disengaged
- Slow, sluggish responses to ordinary sensations; lost; loose and floppy
- Limited perception of pain; poor self-protection; may bite self or hurt others
- *Intense sensory input* needed to get in gear

What Helps SUR?

- Intensify the sensory load
- Think, “Push-pull-lift-carry”
- Provide deep pressure (passive)
- Provide heavy work activities, mud & clay, and resistive experiences for active play
Figure 14 A boy and girl are inside a hula hoop; the boy pushes back and the girl pulls forward.

Bus Driver

Sensory Modulation Disorder:

Sensory Craving (SC)

- “Sensory craver,” “bumper & crasher”
- Constant response to every novel stimulus
- Constant search for more, more, more!
- Never “filled up”
- Impulsive, dare-devilish behavior and tendency to get into trouble

What Helps Sensory Craving?

Figure 15 A soda bottle half-full of red liquid.

- Interrupt activity (stop or reverse spinning)
- Offer something heavy to carry or shove … like a Bottle Baby
- Change head position
- Switch to another sensory domain:
  - from vestibular spinning to proprioceptive pushing
  - from proprioceptive pushing to vestibular spinning
  - from vestibular and proprioceptive to tactile
What Helps?

Figure 16 A young man stands on a thick band with one foot and stretches it by holding his arms out to his sides.

Shape Stretch

**Sensory Discrimination Disorder (SDD)**

- “Sensory jumbler”
- Difficulty in differentiating among and between stimuli (often visual & auditory)
- May – or may not – co-exist with SMD
- Difficulty in sensing the world in 3-D (to paraphrase Ricki Robinson)

“What am I supposed to do/know/say/feel?” (SDD)

Figure 17 A photo of a classroom environment with children sitting on T-Stools. Also another picture of a boy with his hands on his head. Beside the boy’s head are the circled pairs of letters “d or b” and “p or q”.

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Sensory-Based Motor Disorder:

**Postural Disorder**

- “Sensory slumper”
- Difficulty with:
  - Movement
  - Bilateral coordination, balance, and crossing the midline
  - Stabilizing body while moving or resting
- May involve fatigue, slumping, overflow, and associated movements

![Image of a young girl resting her head on her arm while writing in a workbook on her desk.](image)

*Sensory-Based Motor Disorder:*

**Dyspraxia**

- “Sensory fumbler”
- Dysfunction in praxis → poor ideation, motor planning, and/or execution of new motor action
- Difficulty with gross-motor, fine-motor, oral-motor output
- Clumsy, inflexible, inactive behavior
- Preference for familiar rather than novel
What Helps Improve Sensory-Based Motor Skills?

• Break tasks down into manageable chunks.
• Go slowly and allow time to practice.

Active, 3-D games like Jumpland. Not computer games!

Figure 19 Drawing of a young girl jumping down steps.

Figure 20 Photo of a baby in front of a computer; the photo has an "X" across it.

Associated Visual Problems

• Modulation difficulties, affecting basic visual skills (convergence, tracking)
• Discrimination difficulties, affecting advanced skills such as:
  o Visual attention
  o Visual-spatial skills
  o Visualization and imagination
  o Reading and writing
  o Playground activity and Sports
Visual Benefit of SPD
Ashwin, Ashwin, Rhydderch, Howells, & Baron-Cohen

High visual acuity = Superior visual perception at local level (“trees”); 2.79 times better than average, with faster reaction times and greater accuracy in visual search tasks — Birds of prey have acuity 2 times better than humans
(However, a person with high visual acuity may have impaired perception at global level, with difficulty perceiving “forest” -- or faces!)

What Helps Vision?
Allison, Gabriel, Schlange, & Fredrickson

- OT-SI (by occupational therapist) – improving tactile, vestibular and proprioceptive processing while child is in motion
- Vision therapy (by developmental or behavioral optometrist) -- involving gross motor skills
- Prisms and Irlen (colored) lenses
- Activities including block building instructions, maps, treasure hunts, mazes, blueprints, storytelling, musical activities such as A Pizza Hut

What Helps?

Figure 21 A drawing of a young girl playing Wall Ball.

Wall Ball
What Helps Vision?

Figure 22 Drawing of a young girl lying on a rug with her arms stretched above her head, hands clasped with thumbs sticking out. An arrow indicates a movement of thumbs to eyes.

Come Here, Thumb

Associated Auditory Problems

- Modulation problems, affecting basic hearing skills
- Discrimination problems, such as:
  - Speech and language skills
  - Listening comprehension
  - Auditory recall
  - Word retrieval
  - Conversational skills
  - Social development

Figure 23 Children sit on the floor listening to a man playing guitar. One girl stands with her back to him and her hands over her ears.

Auditory Benefit of SPD

Heaton, Williams, Cummins, & Happé

- Many people with SPD and autism have affinity for music
- 5% (500/10,000) of people with autism have perfect pitch .... (.01%, or 1/10,000, of typical people have perfect pitch)
What Helps?

Obstacle Course

Figure 24 Children play on an obstacle course.

Figure 25 Drawing of a teacher standing by an easel with a pattern of "Xs" drawn on it. A young girl stands in front of the easel and claps as the teacher points to an "X".

What Helps Most? OT-SI!

Occupational Therapy using a Sensory Integration framework (OT-SI) improves:

- Self-regulation and adaptive responses
- Attention
- Social participation and communication
- Sensory-motor abilities and motor coordination
- Self-esteem
What Helps?

Figure 26 A group of people in casual clothes stand together.

People Classification

Figure 27 A group of random objects sits on a table including such things as a book, a ruler, scissors, screwdriver, a cup, and canvas bag and other things.

Object Classification

What Helps?

Subscribing to e-magazine, Sensory Focus

www.sensoryworld.com/SensoryFocus.aspx

Figure 28 Cover of Sensory Focus e-magazine.
What Helps?

(Publications available at amazon.com and sensoryworld.com)

Figure 29 Covers of books available from amazon.com.

Two new books

![Absolutely No Dogs Allowed!](image)

![The Out-of-Sync Child Grows Up](image)

Figure 30 Covers of Absolutely No Dogs Allowed and The Out-of-Sync Child Grows Up.

What Helps?

Sensory-rich work and play!

Thinking about children’s abilities, not disabilities!

![Image of a young boy carrying a heavy bag of mulch.](image)

Amazing Delivery Kid (like Edward Goodenough, hauling mulch)
Characteristics of Sensory Processing Disorder

from *The Out-of-Sync Child* (Kranowitz, 2005)

**Tactile Dysfunction**

The child with MODULATION DISORDER who is over-sensitive to touch stimuli may:

- Have tactile over-responsivity to unexpected, light touch, rubbing off kisses or casual touches and pushing others away to avoid closeness.
- Instantly and intensely exhibit a "fight or fright" response or a “flight or freeze” response to harmless touch sensations.
- Dislike messy activities (cooking, painting, using chalk or tape).
- Be bothered by certain types of clothing, and be particularly sensitive to sock seams, shoes, and tags in shirts.
- Prefer wearing long sleeves and pants, even in summer, or dress lightly, even in winter.
- Become anxious or aggressive on windy, "hair-raising" days.
- Be a picky eater, avoiding some foods (rice, chunky peanut butter, mashed potatoes, vegetables) because of texture, or preferring food to be the same temperature, hot or cold.
- Dislike swimming, bathing, brushing teeth or having hair cut.
- Have poor peer relationships.

The child with MODULATION DISORDER who is under-responsive to touch stimuli may:

- Seem unaware of touch unless it is intense, showing little reaction to pain, and getting hurt without realizing it.
- Not realize he has dropped something.
- Have poor body awareness.
- Disregard whether clothes are on straight or face is messy.
- Physically hurt other people or pets, not comprehending their pain.

The child with MODULATION DISORDER who seeks extra touch sensations may:

- Touch objects and people constantly, showing “in your face” behavior.
- Seek certain messy experiences, often for long durations.
- Rub or bite own skin; twirl hair in fingers; prefer being barefoot.
- Chew on inedible objects (fingernails, hair, collars, cuffs, toys, pencils).
The child with DISCRIMINATION DISORDER may:
- Seem out of touch with his hands.
- Have trouble holding and using tools (pencils, scissors, forks).
- Not touch or pick up items that appeal to others.
- Not perceive objects’ properties (texture, shape, size, density).
- Need vision to identify body parts or familiar objects (buttons, erasers).
- Prefer standing to sitting, to ensure visual control of his surroundings.

The child with DYSPRAXIA may:
- Have difficulty conceiving of, organizing, and performing activities that involve a sequence of movements, such as cutting, pasting, coloring, etc.
- Have poor eye-hand coordination and poor fine motor control.
- Have poor gross motor control for running, climbing, jumping.

Vestibular Dysfunction

The child with MODULATION DISORDER who is over-responsive to movement may:
- Overreact, negatively and emotionally, to ordinary movement.
- Dislike physical activities such as running, biking, sledding, or dancing.
- Avoid playground equipment, (swings, slides, jungle gyms, and merry-go-rounds).
- Be cautious, slow-moving, and sedentary, hesitating to take risks.
- Not like head to be inverted, as when being shampooed over the sink.
- Be very tense and rigid to avoid changes in head position.
- Be uncomfortable on stairs, clinging to walls or banisters.
- Feel seasick when riding in a car, airplane, escalator or elevator.
- Appear to be willful, manipulative, uncooperative, or a sissy.
- Demand continual physical support from a trusted peer or adult.
- Have gravitational insecurity, a great fear of falling experienced as primal terror.

The child with MODULATION DISORDER who is under-responsive to movement may:
- Not notice or object to being moved.
- Seem to lack inner drive to move actively.
- Once started, swing for a long time without dizziness.
- Not notice sensation of falling or being off-balance, and not protect self well.

The child with MODULATION DISORDER who seeks extra movement may:
- Crave intense, fast, and spinning movement (rocking/swiveling in chairs, jumping on a trampoline, riding roller-coasters, racing around corners) – and not get dizzy.
• Be a thrill seeker and daredevil, e.g., enjoying riding over speed bumps and jumping from high places.

• Need to move constantly (rocking, swaying, spinning, jiggling, shaking her hands or head, fidgeting) in order to function. The child may have trouble staying seated.

• Enjoy being in upside down positions.

• Enjoy swinging very high and/or for long periods.

**The child with DISCRIMINATION DISORDER may:**

• Fall frequently off seat or while moving or standing.

• Become easily confused when turning or changing directions.

• Be unable to tell when he has had enough swinging, and keep going until he feels sick.

**The child with DYSPRAXIA may:**

• Have difficulty conceiving of, planning, and carrying out complex, unfamiliar movement sequences.

• Have poor eye-hand coordination and poor fine motor control.

• Have difficulty with gross motor skills and thus move awkwardly while running, climbing, or jumping.

• Be unable to generalize what he has already learned to accomplish a new task.

**Proprioceptive Dysfunction**

**When MODULATING sensations of body position and muscle movement, the child may:**

• Have problems with touch and/or with gravity and movement, as well.

• Be stiff, uncoordinated, and clumsy, falling and tripping frequently.

• Lean, bump or crash against objects and people, and invade others' body space.

• Crave bear hugs and heavy work activities, more than others.

• Slap feet when walking, sit on his feet, stretch his limbs, poke his cheeks, pull on his fingers, and crack his knuckles (for additional feedback).

• Pull and twist clothing, stretch his tee-shirt over his knees, or chew sleeves or collars.

**With poor DISCRIMINATION of body position and muscle movement, the child may:**

• Have a poor sense of body awareness.

• Be “klutzy” while positioning limbs to get dressed, climb stairs, or ride a bike.

• Be unable to grade movements smoothly, using too much or not enough force, and manipulate hair clips, lamp switches, crayons, and classroom tools so hard they break.
The child with DYSPRAXIA may:
- Have difficulty carrying out unfamiliar, complex motions, e.g., putting on new ice skates.
- Be unable to do ordinary, familiar things without looking, such as getting dressed.
- Have difficulty ascending and descending stairs.
- Avoid participation in ordinary movement experiences, because they make him feel uncomfortable or inadequate.
- Stick to familiar activities and resist new challenges.
- Have eating, speaking and other oral-motor problems.

Visual Dysfunction

The child with MODULATION problem of over-responsivity to sights may:
- Become over-excited with too much to look at (words, toys, or people).
- Overreact, negatively & emotionally, to the sight of people or objects in motion.
- Cover eyes and/or have poor eye contact.
- Be inattentive to desk work.
- Be hyper-vigilant, ever alert and watchful.

The child with MODULATION problem of under-responsivity to sights may:
- Ignore novel visual stimuli, such as obstacles in her path.
- Respond slowly to approaching objects.
- Not turn away from intense bright light.
- Stare and “look right through you.”

The child with MODULATION problem of craving sights may:
- Seek visually stimulating scenes and screens for long periods of time.
- Be attracted to shiny, spinning objects and bright, flickering light.

With VISUAL DISCRIMINATION DISORDER, the child may:
- Confuse likenesses and differences in pictures, written words, objects, and faces.
- Miss people’s expressions and gestures.
- Have difficulty with visual tasks, such as lining up columns of numbers or judging where things (including himself) are in space.
Auditory Dysfunction

The child with MODULATION problem of over-responsivity to sounds may:
- Overreact, negatively & emotionally, to ordinary sounds and voices.
- Cover ears frequently.

The child with MODULATION problem of under-responsivity to sounds may:
- Ignore ordinary sounds and voices.
- “Turn on” to exaggerated musical beats or extremely loud, close, or sudden sounds.

The child with MODULATION problem of craving sounds may:
- Crave intense, loud noises and TV or radio volume.
- Love crowds and places with a lot of noisy action.
- Speak in a booming voice.

With AUDITORY DISCRIMINATION DISORDER, the child may:
- Have difficulty recognizing differences between sounds, e.g., consonants at beginnings or ends of words.
- Be unable to repeat or make up rhymes.
- Sing very much out of tune.
- Look to others for cues, because verbal instructions may be confusing.
- Have problems with basic auditory skills, such as localizing where a sound comes from or picking out a teacher’s voice from a noisy background.
- Have poor listening skills (receptive) and poor speech and language skills (expressive) because of underlying dysfunction of auditory and vestibular senses.

Taste (Gustatory) Disorder

The child with MODULATION DISORDER who is over-responsive to taste may:
- Strongly object to certain textures of food — chewy, lumpy, or pureed.
- Strongly object to certain temperatures of food — very hot, lukewarm, or ice cold.
- Frequently gag while eating.
- Be a picky eater but may enjoy more foods when alerting tastes (sour or bitter) are eliminated.

The child with MODULATION DISORDER who is under-responsive to taste may:
- Not be alerted when eating something rotten or harmful.
- Be uninterested in food but may learn to enjoy new foods when spices & herbs are added.
- Be able to eat very spicy food without reaction.
The child with MODULATION DISORDER who seeks taste sensations may:

- Lick or taste inedible objects, such as Play-Doh, glue, and toys.
- Overeat.
- Eat during times when they need to pay attention, as food helps them get organized.
- Prefer very spicy or very hot-flavored foods.
- Prefer very cold or steaming hot foods.

The child with DISCRIMINATION DISORDER may:

- Be unable to distinguish tastes or tell when food is too spicy, salty, or sweet.
- Be unable to distinguish when food’s taste indicates that it has gone bad.
- Choose or reject food based on the way it looks.

**Smell (Olfactory) Disorder**

The child with MODULATION DISORDER who is over-responsive to smell may:

- Strongly object to odors, such as a ripe banana, that others do not notice.
- Be a picky eater.
- Become irritable when strong odors such as disinfectants are in the air.

The child with MODULATION DISORDER who is under-responsive to smell may:

- Be unaware of unpleasant odors, such as sour milk.
- Be unable to smell his meal.

The child with MODULATION DISORDER who seeks smell sensations may:

- Seek strong odors, even objectionable ones.
- Sniff food, people, and objects.

The child with DISCRIMINATION DISORDER may:

- Be unable to distinguish distinct smells, such as lemons, vinegar, or soap.
- Be unable to distinguish when food’s odor indicates that it has gone bad.

**Sensory-Based Motor Disorder**

The child with POSTURAL DISORDER may:

- Be tense or have “loose and floppy” muscle ton.
- Lose balance easily and “trip on air.”
- Have difficulty using both sides of the body together (bilateral coordination).
- Not have a hand preference by age 4 (unilateral coordination).
- Have difficulty crossing the midline.
The child with DYSPRAXIA may:

- Have difficulty ideating a new, complex action; sequencing the steps and motor planning to do the action; and executing the plan.
- Be awkward, clumsy, apparently careless, and accident prone.
- Have poor gross-motor coordination and difficulty in learning new skills, such as skipping.
- Have poor fine-motor skills in the hands, such as drawing, buttoning, playing with Legos.
- Have poor fine-motor skills in the eyes, having difficulty using both eyes together.
- Have poor fine-motor skills in the mouth, having difficulty sucking, eating, chewing, holding mouth closed, and speaking clearly enough to be understood.
Therapies for SPD

Occupational Therapy (OT-SI)

Occupational therapy (OT) is a broad-ranging health profession that includes direct treatment, home programs, education, and/or accommodations for people of all ages. Although young children with more malleable (neuroplastic) brains improve faster, adolescents and adults also benefit.

Occupational therapy using a sensory integration approach (OT-SI) improves sensory processing and decreases atypical reactions to ordinary sensations. OT-SI addresses everyday life skills, such as:

- Tactile responsivity and discrimination
- Balance and postural control
- Body awareness and gravitational security
- Ideation, planning, and execution of complex, voluntary actions (praxis)
- Gross-motor and fine-motor coordination
- Flexion and extension
- Bilateral integration and coordination
- Eye-motor (ocular-motor or visual-motor) skills; Visual perception and discrimination
- Self-help
- Self-esteem
- Social participation
- Organization, using a paper or electronic planner

If a student’s sensory challenges warrant “related services,” the school is obligated to provide them for free. To find outside therapists to hire, go to [www.spdfoundation.net/treatment/directory](http://www.spdfoundation.net/treatment/directory) for a list of local health care, education, and community service providers with experience and expertise.

With or without regular direct treatment, sensory programs for home and school, planned by the OT with input from the client, family, and teachers, are also useful. Involvement from family and friends can make the program not only beneficial but also fun and emotionally satisfying.

Other Therapies for Individuals with SPD

Physical Therapy (PT) is a health profession addressing neuromuscular and orthopedic conditions such as poor motor planning and coordination, low muscle tone, and decreased strength, stability, and stamina. PT may improve a person's motor control and physical coordination, especially of the large muscles. Look for a PT who has received additional training in sensory integration theory and treatment (PT-SI). (See [www.apta.org](http://www.apta.org) or [www.spdfoundation.net/treatment/directory](http://www.spdfoundation.net/treatment/directory) )
Vision Therapy (VT), akin to PT or OT, is specifically for the eyes and brain. A doctor of optometry, called a behavioral or developmental optometrist, addresses problems including lazy eye, crossed eyes, double vision, and convergence insufficiency. The optometrist may help the person integrate visual information with input from other senses, such as hearing, touching, and moving. VT may include eyeglasses with traditional or specialized lenses (prisms), in addition to sensory-motor and educational activities that strengthen the person’s ocular-motor control, visual discrimination, and eye-hand coordination. (See optometrists.org, covd.org, or spdfoundation.net/treatment/directory/)

Listening Therapy (LT) may help people integrate sensory input by using specific sound frequencies and patterns to stimulate the brain. LT is based on the theory of neuroplasticity, referring to brain changes that occur as a result of specific, repeated stimulation. Certified OTs and other professionals can provide LT. Several widely-used programs include Therapeutic Listening (Vital Links), Samonas Sound Therapy, The Listening Program, and especially a multisensory program called Integrated Listening Systems (iLs). (See integratedlistening.com or spdfoundation.net)

Psychotherapy, provided by a psychotherapist, psychologist, or clinical social worker, may be helpful if the student has behavior or self-image problems or is depressed or anxious, owing to years of poor sensory processing. (Psychotherapy deals with the secondary, emotional effects of SPD but not with the underlying causes.) Types of psychotherapy include Cognitive Behavioral Therapy, to help a person address irrational or distorted thoughts, feelings, and behaviors, and Family Therapy, to help the adolescent, parents, and siblings become a healthier unit. (See spdfoundation.net/treatment/directory/)

Speech-Language Pathology (SLP) may help the student strengthen expressive and/or receptive communication. Specific goals may be improving speech skills, such as pronouncing "L," "K," or "Sh" sounds; monitoring the pitch of the person’s voice; and strengthening mouth muscles for oral-motor control. Activities to expand language skills include conversing and developing memory and vocabulary. A speech pathologist trained in oral-motor and feeding issues may also be able to help the picky eater. (See asha.org or spdfoundation.net/treatment/directory/)

These therapies and alternative approaches may also be helpful:

- Deep Pressure and Proprioceptive Technique (known as brushing), for helping reduce tactile over-responsivity
- Nutritional Therapy, identifying and addressing difficulties with health, diet, and daily functioning
- Perceptual-Motor Therapy, providing integrated movement experiences that remediate gross-motor, fine-motor, and visual-perception problems
- Hatha Yoga, involving physical exercises (known as asanas or postures), designed to align your muscles and bones and to increase energy and a sense of well-being
- Massage, providing deep pressure and tactile input that may be both physically and emotionally soothing while increasing body awareness
- Martial Arts, using physical skill and coordination without weapons, such as karate, aikido, judo, or kung fu
- CranioSacral Therapy, using light touch manipulation of the bones in the skull, sacrum, and coccyx to improve sensory, motor, and neurological function
Also some school counselors, pediatricians, and other specialists working with children and adolescents incorporate SI techniques into their practice. Several books about collaboration among therapists include, No Longer A Secret: Unique Common Sense Strategies for Children with Sensory or Motor Challenges (Bialer & Miller, 2011), The Sensory Connection: An OT and SLP Team Approach (Kashman & Mora, 2005), Sensory Processing Challenges: Effective Clinical Work with Kids & Teens (Biel, 2014), and Envisioning a Bright Future: Interventions that Work for Children and Adults with Autism Spectrum Disorders (Lemer, 2008).
For Fun and Function:

The Obstacle Course, of Course!

Fish gutter swim, birds gotta fly, and kids gotta climb, jump and balance. While dangling from banisters, scooting under turnstiles, teetering on curbs, and jumping into puddles may dismay grown-ups, children persist with good reason.

How do kids learn to think and relate to the world around them? By scanning their surroundings; touching wooden, metal, rubber, or concrete surfaces; grasping and releasing handholds; changing body positions; maintaining equilibrium; and experimenting with different movement patterns. And, they are having fun!

An obstacle course is sensational, both to provide fun and to promote praxis. Praxis, a sensory-based process, involves:

- Ideation (having an idea of something you want to do)
- Motor planning (figuring how to do it)
- Execution (carrying out the plan)

The person who builds and moves through his own obstacle course strengthens praxis many times over.

You and your child can build an obstacle course outdoors, where everything is better, or indoors in bad weather. You don’t need special equipment – just a fresh way of looking at ordinary objects, with an eye on how they can promote sensory processing.

What to Do:

1) Brainstorm, or ideate, with your kids and encourage them to tell or show you what they have in mind. This step is wonderful for kids who are old enough to help. You can always do it on your own if your child isn’t ready to participate in this step. Make three lists of “ingredients” with these headings: Ways to Move, Prepositions, and Objects.
<table>
<thead>
<tr>
<th>Ways to Move</th>
<th>Prepositions</th>
<th>Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step</td>
<td>Into</td>
<td>Shoe boxes</td>
</tr>
<tr>
<td>Creep on all fours</td>
<td>Below</td>
<td>Table</td>
</tr>
<tr>
<td>Walk</td>
<td>Beside</td>
<td>Lines of masking tape</td>
</tr>
<tr>
<td>Roll</td>
<td>Over</td>
<td>Plush rug</td>
</tr>
<tr>
<td>Crawl on belly</td>
<td>Through</td>
<td>Tunnel</td>
</tr>
<tr>
<td>Hop</td>
<td>Across</td>
<td>Mattress</td>
</tr>
<tr>
<td>Jump</td>
<td>On</td>
<td>Bubble wrap</td>
</tr>
<tr>
<td>Scoot</td>
<td>Around</td>
<td>Wastebaskets</td>
</tr>
<tr>
<td>Leap</td>
<td>Between</td>
<td>Paper plates</td>
</tr>
<tr>
<td>Slither</td>
<td>Under</td>
<td>Chairs</td>
</tr>
<tr>
<td>March</td>
<td>On top of</td>
<td>Telephone books</td>
</tr>
<tr>
<td>Stomp</td>
<td>In and out of</td>
<td>Hoops</td>
</tr>
</tbody>
</table>

2) Together, plan the course by mixing and matching ingredients. It is very important to vary movements, prepositions, and objects! Variations reinforce children’s ability to handle and discriminate different materials (tactile sense), stretch muscles and develop body awareness (tactile/proprioceptive sense), balance and move through space (vestibular sense), perceive spatial relationships and negotiate around obstacles (visual-motor skills), and improve motor planning, coordination and postural responses (sensory-based motor skills).

3) Execute the plan by laying out the course. In tight spaces, such as a hallway, a linear course is okay for one or two kids. In the yard or cleared room a circular course is best for a crowd. And, of course, let youngsters help! Remember that the heavy work of lifting, carrying, pushing, and pulling materials into place is functional fun.

Soon you will see that obstacle courses can be everywhere you look, indoors and out. Set a dining room chair in the doorway for the kids to climb over or crawl under as they come for a meal. Place that same chair in the hallway for them to jump around on the way to the bathroom. Or place two for them to alternate over and under on their way out the door.

Naturally, outdoors can present the perfect obstacle course. Ready-made obstacles include hills for running or rolling up (try it!) and down, puddles for jumping into or over, rocks to walk between or balance on, trees to go around, and branches to crawl under.

Be vigilant about safety. Allow sufficient space between obstacles for the child to readjust his posture before moving to the next. Always be there.
Suggestions:

- Have the kids go barefoot, or backwards, or with music.
- Suggest adverbs to encourage variation in the quality of the child’s movement, such as quietly, gently, softly, angrily, noisily, quickly, slowly.
- Incorporate concepts such as direction by adding arrows, and rhythm by using a metronome.
- Incorporate your child’s favorite theme. Does he love trains? Pretend that obstacles are the locomotive, freight car, caboose…. Is ballet her thing? Have her twirl through the course, wearing a tutu.
- For a group, have everyone travel in the same direction to avoid traffic jams.
- Prior to a happy birthday party, practice building and going through a course with your child so she feels in-the-know and ready to help her friends if they get stuck.
- To give children the chance to master new physical challenges, learn problem-solving skills and develop praxis, make an obstacle course every day! Build it, and they will come.
## Today’s “In-Sync” Sensory-motor Activities and Sources

<table>
<thead>
<tr>
<th>Activity</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide Whistle Stretch</td>
<td>Out-of-Sync Child Has Fun</td>
</tr>
<tr>
<td>Marching</td>
<td>Miller Assessment of Preschoolers</td>
</tr>
<tr>
<td>Arm Circles</td>
<td>Growing an In-Sync Child</td>
</tr>
<tr>
<td>Copy Cat</td>
<td>In-Sync Activity Card Book</td>
</tr>
<tr>
<td>Push That Ball!</td>
<td>Out-of-Sync Child Has Fun</td>
</tr>
<tr>
<td>Treasure Trove</td>
<td>In-Sync Activity Card Book</td>
</tr>
<tr>
<td>Flashlight Focus</td>
<td>Growing an In-Sync Child</td>
</tr>
<tr>
<td>Bus Driver</td>
<td>Growing an In-Sync Child</td>
</tr>
<tr>
<td>Bottle Babies</td>
<td>Out-of-Sync Child Has Fun</td>
</tr>
<tr>
<td>Shape Stretch</td>
<td>In-Sync Activity Card Book</td>
</tr>
<tr>
<td>T-Stool</td>
<td>Out-of-Sync Child Has Fun and Getting Kids In Sync DVD</td>
</tr>
<tr>
<td>Jumpland</td>
<td>In-Sync Activity Card Book</td>
</tr>
<tr>
<td>Wall Ball</td>
<td>In-Sync Activity Card Book</td>
</tr>
<tr>
<td>Come Here, Thumb</td>
<td>In-Sync Activity Card Book</td>
</tr>
<tr>
<td>Obstacle Course</td>
<td>Out-of-Sync Child Has Fun</td>
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<tr>
<td>Metronome Code</td>
<td>Out-of-Sync Child Has Fun</td>
</tr>
<tr>
<td>People Classification</td>
<td></td>
</tr>
<tr>
<td>Object Classification</td>
<td></td>
</tr>
<tr>
<td>Amazing Delivery Kid</td>
<td>Growing an In-Sync Child and The Goodenoughs Get In Sync</td>
</tr>
</tbody>
</table>
Notes:
Texas School for the Blind & Visually Impaired
Outreach Programs

Figure 36 TSBVI logo.

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“This project is supported by the U.S. Department of Education, Office of Special Education Programs (OSEP). Opinions expressed herein are those of the authors and do not necessarily represent the position of the U.S. Department of Education.”

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