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pt connection
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OSPTA@Home and Valley Outpatient Rehabilitation

Sensory Integration

Sensory Integration is used to stimulate or calm individuals who demonstrate altered sensory and motor reactivity. Sensory processing underlies the development of all motor and social skills and affects adaptive behaviors. Assessment is completed through parent and/or teacher questionnaires and therapist observation. Standardized evaluations, such as the Sensory Integration Praxis Test (SIPT), can be completed but are not necessary to determine a treatment plan. Sensory integration treatment is completed by an Occupational Therapist. The goal of treatment is not to eliminate the problem but to teach the child and caregivers how to handle the sensory situation in an appropriate manner, and to teach self regulation during challenging sensory situations. It is also important to remember every person is different and treatment varies between every individual. Sensory processing difficulties occur in people of all ages, all abilities, and all socioeconomic levels. Research shows that there is a high occurrence in premature infants and in people with autism and other developmental disorders. Sensory processing problems are also observed in people with learning disabilities, traumatic brain injuries, stress related disorders, and substance abuse.

Evaluation of sensory processing abilities can be completed throughout therapist observation, caregiver questionnaire completion, and/ or standardized testing. An Occupational Therapist can complete the appropriate observations to determine the needs of the individual as per their sensory processing abilities. This can be done in an outpatient clinic, in the home, or in school. The Sensory Profile is one type of caregiver questionnaire which can provide the evaluating therapist with information as per the individual's sensory processing in all environments (home, school, community). The individual can also complete the Sensory Profile on himself if cognitively able. The Sensory Integration Praxis Test (SIPT) can be completed by a certified therapist to quantitatively determine sensory processing deficits and needs for treatment. All of these methods of evaluating sensory processing are effective in determining needs of individuals.

Sensory Integration addresses your typical external senses: hearing (auditory), touch (tactile), taste (oral), vision, and smell (olfactory). Sensory Integration also addresses two internal senses: proprioception and vestibular processing. Proprioception is known as the unconscious information from your muscles and joints that provide your body with information regarding your position in space, weight of objects, pressure that you may feel, the stretch of your muscles, movement of your body and recognition of changes in position. Vestibular processing is the unconscious information obtained through your inner ear regarding equilibrium, gravity, movement, and position in space. With sensory processing, one can be over responsive, under responsive, or a sensory seeker. Over-responsive processing presents as avoidance, cautious movements, or fear. Under-responsive processing presents as withdrawn or passive behaviors, or increased difficulty engaging. Sensory seekers present with impulsive behaviors and risk-taking. Each of these types of sensory processing is problematic and can cause disruptions in everyday tasks such as eating breakfast, taking a shower, or sitting and attending to a task.

Auditory sensitivities can present with a melt down due to noise or craving more noise than is socially appropriate. Examples of noises can be common sounds, such as the vacuum cleaner or hair dryer or noxious sounds such as a fire alarm or sirens. People with auditory sensory processing problems will cover their ears frequently or become distracted with noise in the background, such as a fan or a buzzing overhead light. Some individuals may even crave sounds. This can be observed by repeated behaviors of flushing a toilet, covering ears and humming, or plays inappropriately with toys just to hear the repeated sound. Treatment for auditory sensory problems include, but is not limited to, wearing protective ear wear, eventually weaning from the use, therapeutic listening programs (must be completed under direct supervision of a certified therapist) (Figure 1), and play with noisy toys/ objects. It is important to teach the individual that these sounds do not hurt and that they serve a purpose.

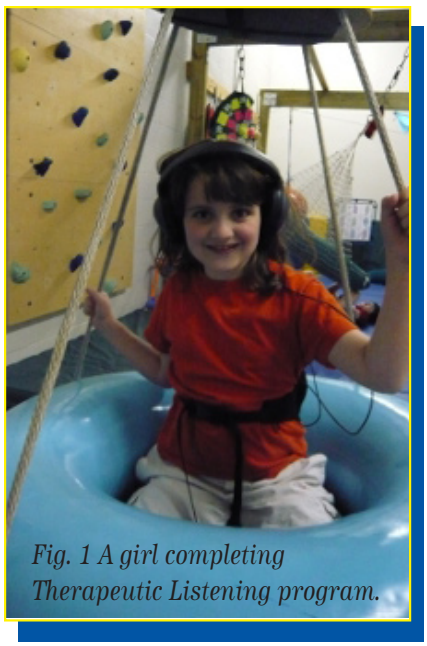

Fig. 1 A girl completing Therapeutic Listening program.

The touch system is also known as the somatosensory system. Problems with the tactile system affect motor and reflex development, tactile perception, motor planning, and emotional stability. There are two types of tactile responses: defensive, is it ok or dangerous, and discriminative, giving you information about the object through touch. Tactile processing deficits are observed when one pulls away from touch, either by an object or a person or craves touch abnormally. Examples of this include withdrawing from water, limited range of clothing types worn, only eats food at one temperature, gags with textured foods or utensils, avoids wet or dirty activities, overreacts to hugs, rubs toys on face and arms, and mouths objects. Treatment for tactile processing deficits include, but is not limited to Wilbarger protocol (must be completed under direct supervision of a certified therapist), massage, tactile stimulating play with beans, rice, sand, etc. (Figure 2), finger painting with various types of media, and vibration.

Fig 2 A boy participating in tactile play.

Oral processing deficits can present with the following observations: gagging with tooth brushing or food presentation, limited food variety, biting, drooling, and mouthing of objects. Treatment for oral processing deficits include, but are not limited to intra-oral stimulation via nuk brushes or swabs, extra-oral stimulation via vibration, texture grading of foods, chew toys, and a reward system for behavior modification. There are oral motor programs that can be completed under the direct supervision of a therapist, such as bite sticks, straw program, whistle program, and oral motor grocery list.

Visual processing deficits are noted when one has trouble finding things when in a competing background, missing button holes, armholes, or utensils, losing place when reading, attends excessively to bright or flashing objects, and trouble matching or sorting. One will present with decreased visual attention to task due to the stimulus being too overwhelming visually or being distracted by other visual stimuli in the room. Some individuals will visually stim on spinning objects, such as tops, credits of a movie, or lines in the wallpaper. Treatment for visual processing deficits include, but is not limited to color therapy, lighting changes, wearing sunglasses or colored lenses, changing the color of writing paper, and contrast use.

Olfactory processing deficits are observed when an individual jerks away from fragrances, such as soaps, perfumes, candles, or detergents, tolerates a narrow range of foods, overreacts to a new person, and smells everything. Treatment for olfactory deficits include, but are not limited to use of smells kits, use of scented lotions, candles, sprays, and baking.

Proprioception increases serotonin levels in the brain, which modulates the nervous system. The proprioceptive system is important to be

in conjunction with the visual system for better overall processing. Proper processing helps mature equilibrium and righting reactions/ reflexes. Proprioceptive processing deficits are apparent when one has difficulty with position changes, becomes tired before the task is over, does not chew food thoroughly, has difficulty with accuracy for feeding tasks such as cutting and pouring, runs into objects or falls on the floor, moves arms and hands in a repetitive manner, and is unable to maintain positions. An individual who has difficult with proprioceptive processing has tense muscles or is rigid and locks their joints due fear of not knowing where their body is in space. Treatment ideas for proprioceptive processing problems include, but are not limited to climbing activities, pressure activities, squeezing, core strengthening, and weight bearing tasks.

Vestibular movements can be linear (in a straight line), rotary (spinning on a single axis), or orbital (movement in a circle without spinning). Vestibular processing affects posture, reflex integration, muscle tone, ocular motor control (eye movements), and equilibrium reactions. Appropriate vestibular responses are important to help establish gravitation security. Vestibular processing deficits are observed when one becomes disoriented or falls when bending over, becomes excitable on or is afraid of playground equipment, rocks excessively, craves movement which is observed by excessive running or spinning, avoids turning head to locate sounds or someone talking, becomes disoriented after riding in a car, and is very clumsy. Treatment ideas for vestibular processing include, but are not limited to completing movement activities such as jumping on a trampoline, swinging (Figure 3), rolling, walking on uneven surfaces, and the Astronaut program (must be completed under direct supervision of a certified therapist).

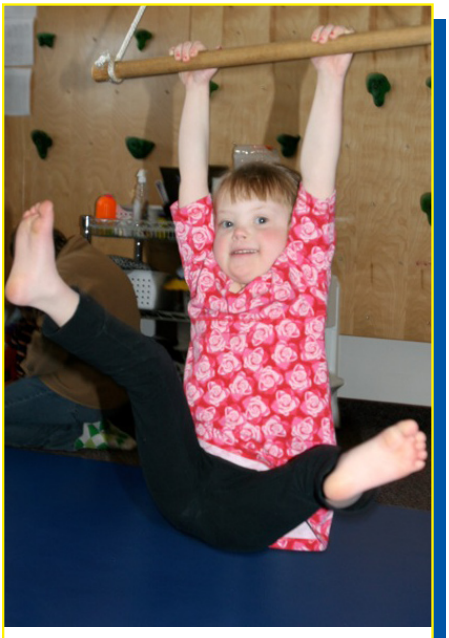

Fig 2 An example of vestibular input

All of these previously mentioned areas can be addressed during therapy sessions with an Occupational Therapist. The sessions would consist of guided play opportunities that provide challenges to the individual's sensory system. The goal of these activities is to obtain an automatic successful, mature, and organized response. Parents/ caregivers will see changes in motor coordination, gross and fine motor skills, emotional stability, personal-social skills, and self confidence.

The most successful interventions include home programming with good carryover of techniques. A Sensory Diet can be established to fit the needs of the individual's sensory processing deficits. A Sensory Diet is a list of suggested activities that can be used during stressful times to calm the individual when noxious situations arise, or used to regulate the individual's system for more effective processing in daily situations in all environments. The idea of the sensory diet is that each individual requires a certain amount of activity and sensory experiences to be most alert, organized, and skillful. An Occupational Therapist can provide you with these recommendations after an evaluation of sensory processing skills.

Resources

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NEWS briefs

OSPTA would like to thank Amy Burt MOT, OTR/L for her efforts and contribution to the newsletter. The Pediatric Center @ OSPTA is located at the Waynesburg office. The Center offers physical, occupational, and speech therapy.

In addition, OSPTA has opened an office in Hopwood, PA. Day and evening hours are available.

OSPTA would like to remind everyone that home health visits can be performed through OSPTA @ HOME

Available services are:

- Physical Therapy
- Occupational Therapy
- Speech Therapy
- Nursing
- Home Health Aides
- Social Services

Belle Vernon *(Lymphedema)	724-929-5774
Bethel Park	412-835-2259
Brownsville	724-785-5262
California	724-938-0310
Carmichaels	724-966-2709
Carnegie	412-279-7700
Charleroi *(Vestibular)	724-483-4886
Clairton/ Jefferson Medical *(Vestibular)	412-466-8811
Connellsville	724-626-3320
Elizabeth *(Hand Center)	412-751-0040
Farmington	724-329-4723
Hopwood	724-430-6230
North Huntingdon	724-864-4410
North Versailles	412-824-0910
Perryopolis	724-736-7415
Uniontown *(Hand Center)	724-439-6294
Upper St. Clair/ Mt. Lebanon *(Pilates Based Ther. & Hand Center)	412-276-6637
Washington *(Hand Cntr & Women's Health)	724-223-1207
Waynesburg *(Hand & Ped Cntr)	724-852-2504
White Oak	412-672-2352
The Hand Center Monongahela	724-483-4263
OSPTA@Home	724-483-4859
Valley Outpatient Rehabilitation Monongahela:	
Country Club Road	724-258-6211
Residence at Hilltop	724-292-1229
Rostraver	724-379-7130
Speers *(Women's Health)	724-489-8111