

Kyle, a two and a half year old boy sits in a booster seat at the table with his older sister and his parents. Kyle is strapped into his seat with his feet firmly on footrests. He suddenly begins twisting in his seat, splaying his fingers and screaming “Off, off, off!” His sister gives a pleading look to her parents and covers her ears. It might be the first time she’s done it today or the umpteenth time. Kyle’s dad gets up and walks over to the kitchen sink and runs the water until it’s exactly very warm but not hot. He dampens one-half of a cotton washcloth so he can wipe Kyle’s mouth and hands and then quickly dries him off with other part of the washcloth in an effort to stop the escalating screams. Is this a typical toddler “meltdown” or another chapter in the life of a family living with a child who has sensory processing disorder?

Conservative estimates put the incidence of sensory processing disorders (SPD) at 1 child in 20. (1) And while the committee debating whether the diagnosis of SPD will exist in the new and improved Diagnostic and Statistical Manual, therapists and educators have seen this developmental disorder wreak havoc on family life and impact many young children’s ability to play, socialize and learn.

One of the ways to distinguish typical toddler behavior from a sensory processing disorder is to look at the mealtime struggle of Kyle’s family. Sure, Kyle may be tired or coming down with a cold or even just expressing his dislike of tomato sauce but talk to his sister and find out how she’d rather eat in front of the TV than be anywhere near her brother. Hear the arguments between his parents about “babying” their son. Recognize that this mealtime scene happens every day at almost every meal. The frequency and intensity of Kyle’s reactions affect his relationships with both parents and his sister. They view him as “intense, sensitive and difficult to be around.”

It’s the developmental challenge of a two and a half year old to make his parents laugh out loud at least a few times a day. This is the way a typical toddler insures his parents remain engaged and protective despite intense assertions at independence. Kyle was a fussy baby and now tends to be much more irritable than other children his age. He is so busy defending himself and avoiding sensory input that he rarely laughs or smiles himself, let alone engages his parents or sister in a playful way. There are many daily struggles around dressing, brushing teeth and bathing. Kyle refuses hugs, turns his face away if someone tries to kiss him on the cheek and says “no” to many age-appropriate play activities because they are too messy or loud.

At the age of 18 months, Kyle was initially referred to a speech therapist from Early Supports due to a speech delay. He was later referred for an occupational therapy evaluation to determine whether he would benefit from clinic-based OT service. To assess a child this young requires interviewing parents and asking them to complete an Infant Toddler Sensory Profile. (2) This tool is standardized for children aged 6-36 months. Other elements of the assessment include clinical observations by the occupational therapist based on Dr. Jean Ayres format (3) including observations of muscle tone, movement patterns, self-regulation, coordination and balance. A Peabody Developmental Motor Scale was also completed to get a baseline of gross and fine motor function.

Kyle's Sensory Profile indicated 2+ Standard Deviations from typically developing children in the areas of sensation avoiding, vestibular processing and oral sensory processing. He scored in the 1-2+ Standard Deviation range for auditory processing, visual processing and tactile processing. Kavar's Listening Inventory was also completed by Kyle's parents due to his auditory sensitivity and his auditory processing score on the Sensory Profile. The Inventory helps determine if there are difficulties in the 4 following areas: orientation and regulation, core/praxis, space/time and connection and communication. Parent's responses help determine if a child is a candidate for the Therapeutic Listening Program. (4) According to the responses on the Inventory, Kyle avoided eye contact while nursing, never wanted to go barefoot and always needed his pacifier while riding in the car. As a toddler, Kyle often carried a stick with him when he was out in the yard, dragging it in the dirt or through puddles. He was interested in the qualities of the dirt and water but could never bring himself to touch them. He also seemed to use the stick to help him balance as he walked through uneven patches on the ground. Kyle rarely used rotational movement patterns and often startled with unexpected movement or touch.

Essentially, Kyle's brain and nervous system were being exposed to on-going stress during his most rapid, critical period of development. (5) Self-regulation was a huge problem for Kyle and his family in the face of this chronic stress cycle. Kyle's overall scores on the Peabody fell in the low average range but his scores on the balance and grasping subtests were significantly delayed.

The goals of clinic-based therapy were two-fold. One was to decrease family stress by educating Kyle's parents about his unique needs due to his sensory processing disorder and also affirm their efforts to parent a child who is difficult to parent. The other main goal was to provide Kyle with an opportunity to practice self-regulation with sequenced periods of sensory stimulation followed by stabilization of his nervous system in the clinic. Kyle needed help to come to a state of calm after short periods of mild stress. The priority was to decrease Kyle's "fight or flight" behavior after vestibular input and then work towards more normalized tactile reactions around eating and hygiene. It was important for Kyle's occupational therapist to build rapport before coming into his physical space so initial treatment sessions focused on improving Kyle's security in movement. This approach allowed the natural human drive to be upright and to move emerge in slow, linear paths on equipment set close to the floor.

Dr. Ayres, who originally hypothesized about brain function in sensory integrative disorders stated many years ago that "Sensory integrative treatment requires two things: space and simple but specialized equipment." (6) The first requirement of space is often not readily available in many homes or schools. The second requirement of "simple but specialized equipment" has led to much confusion and misunderstanding about the sensory integrative approach to treating children. It takes a basic explanation of the human vestibular system in order to understand why OT's use so many kinds of swings and equipment in clinic-based therapy.

The receptors for vestibular input are our most primitive body orienting mechanism. Our inner ear houses our vestibular receptors within the densest bony structure of the body. There are two types of receptors, otoliths and semi-circular canals. The otoliths help us tell how far our head is from the ground by the force of gravity. In Kyle's case, his poor balance and limited protective responses indicated to his occupational therapist that neural pathways involving his otoliths were not working efficiently. Any movement can become threatening to a child in this situation, particularly movement into backward space. Kyle did not tolerate any rotary movement in sitting or laying positions when he started therapy and only briefly tolerated linear movement, which provides input to the fluid located in the semi-circular canals.

As Kyle began therapy, his therapist focused on "low and slow" tasks 3-6 " off the ground using platform swings, scooter boards and bolsters. Short periods of vestibular input were followed by proprioceptive activities with bungee cords, weighted balls and oral motor blowing toys. The variety of swings available in the clinic allowed Kyle to have his head in different positions suspended at varying distances from the floor. Kyle naturally looked for support from his therapist when he was physically challenged. These exchanges between child and therapist increased Kyle's trust and ability to tolerate tactile input within his visual field. Now during play in the sensory integration clinic, Kyle began to tolerate touch to his head, face and shoulders. Deep pressure, simple massage and vibratory input also helped Kyle tolerate touch to his hips and feet. His therapist is planning to set up a Therapeutic Listening program to be carried out at home over the summer.

As Kyle passed his third birthday, he began to wear a wider variety of clothing comfortably instead of insisting on wearing the same outfit day after day. He can wait until the end of a meal to wash his hands and has expanded his diet to include a few new foods. The sensory problems that were spiraling with Kyle's anxiety have diminished and his parents are relieved to report he seems happier now. He no longer carries a stick with him all the time but his play themes focus on castles, building borders and defending the inhabitants inside the fence. Kyle is more comfortable with movement now and is more willing to take risks. He enjoys having his sister pull him in his wagon and will swing briefly at the playground without distress. He continues weekly therapy sessions as he prepares for the transition to pre-school in the coming months.

Karen Scoon MA OTR/L

Notes:

1. Sensational Kids by Lucy Miller, 2006
2. Infant/Toddler Sensory Profile by Winnie Dunn, 2002
3. Observations Based on Sensory Integration Theory by Erna Imperatore Blanche, 2002
4. Therapeutic Listening @ vitalinks.net
5. The Boy Who was Raised as a Dog by Bruce Perry, 2006
6. Sensory Integration and the Child (Revised) by Jean Ayres, 2005

Author Bio: Ms. Scoon has over 20 years experience working in schools, early intervention and outpatient clinics with children who have sensory processing disorders. She currently works at the Easter Seals Sensory Integration Clinic in Manchester and is the founder of Just Right Challenge Therapy Gym.