Making Sense of Sensory Integration:

Significant Categories of SI and Related Considerations

The third in a series from the audiotape *Making Sense of Sensory Integration*
with Sharon Cermak *EdD, OTR, FAOTA* in conversation with
Jane Koomar, *PhD, OTR, FAOTA* and Stacey Szklut, *MS, OTR*.
The conversation is narrated by David Silver, MD.

For biographical material on the presenters please refer to the first installment of this transcript.

Sensory modulation and discimination

Dr. Sharon Cermak: Jane, can you talk a little about different kinds of problems in sensory integration?

Dr. Jane Koomar: We typically talk about sensory integration problems under two main categories: sensory modulation and sensory discrimination.

Sensory modulation refers to the ability to filter and screen incoming information so that we can respond appropriately to the situation. *Sensory discrimination* refers to being able to take in information, interpret what's going on in our environment and make adaptive responses to fit what's going on around us. We will often see problems in both modulation and discrimination, but some children can have problems more in one area versus the other.

Dr. Sharon Cermak: Can you give me an example of problems in sensory modulation and sensory discrimination?

Dr. Jane Koomar: A common problem with sensory *modulation* is sensory defensiveness, where a child is overly sensitive to one or more incoming sensations. A school-age boy who is very sensitive to light touch might be very bothered by standing in lines, because other children may randomly bump into him, brushing and touching him. This boy might actually perceive that touch as painful and may hit the other child back or complain about the touch.

A common problem with sensory *discrimination* is seen in children who do not have good awareness of their bodies from their sense of touch, called tactile discrimination, or from their muscles and joints, called the proprioceptive system. They may be clumsy because its a little bit like having Novocain throughout their bodies, if you've ever had that at the dentist. When that's wearing off afterwards, you know where your mouth is, but it feels kind of vague and if you go to eat something you feel really insecure about where exactly your mouth is or how you're chewing. You might bite your tongue or drool. Children with difficulties with sensory discrimination often appear a bit more vague about their body sense, so they may bump into doorways or other people.

Dr. Sharon Cermak: It would be like adults wearing a backpack that they're not used to who turn around and hit the person behind them?

Dr. Jane Koomar: Yes, that's a great analogy. You just don't have that whole sense of where your body ends and how you need to move and what kind of space you need to allow in order to move past a desk or through a doorway.

Dr. Sharon Cermak: Can you give me an example of how sensory discrimination and sensory modulation problems might be different, say in the example of eating or feeding?

Dr. Jane Koomar: Sensory *modulation*, particularly sensitivity or defensiveness, can certainly impact eating for a child who is extremely picky about different textures, tastes and smells of food. *Discrimination* around our mouth is important because this touch feedback tells us where the food is in our mouth, where our tongue is, and how our jaw is moving so we don't bite our tongue. Children who have discrimination issues often are very sloppy, messy eaters. They may put way too much food in their mouth because that's when the muscles get enough input to recognize that there's food in their mouth. So there can be some social issues around how messy these children are when eating. There can also be some safety issues in terms of how much food the child puts in their mouth. Children who are sensitive to touch around their mouth are often very neat eaters who will use three or four napkins or wash their hands and face frequently because they can't tolerate the sense of touch around their face.

Relationship between SI and other diagnoses

Dr. Sharon Cermak: Stacy, can you talk a little bit about the relationship between problems in sensory integration and other diagnostic conditions like pervasive developmental disorder or autism, learning disabilities, and attention deficit disorder? Many of these children have characteristics that also would indicate problems in sensory integration. Can a child have more than one diagnosis at the same time?

One of the things that is often confusing for parents is how their child can have several different diagnoses, and then sensory integration disorder is added as another diagnosis. It's important for parents and teachers to see how all these different labels weave together. Underneath it all, we're talking about how a child's nervous system is functioning, where there are problems and what kinds of skills are affected.

Stacey Szklut MS, OTR: Yes, children who have pervasive developmental disorder, attention deficit disorder and learning disabilities, often have some sensory processing problems as well. There's a very, very strong relationship between autism, pervasive developmental disorder, Asperger's syndrome and sensory integration problems.

With Attention Deficit Disorder, it is more challenging sometimes to see these relationships, although we clearly see some sensory processing issues in some children. Some children often move and move in an attempt to charge their battery so that they can focus and pay attention in the classroom. So their behaviors of moving continuously are actually a sensory behavior, or an indicator to us that they need that intense amount of movement to be able to focus and pay attention in the classroom.

Dr. Sharon Cermak: Do all children with learning disabilities have problems in sensory integration and do all children with problems in sensory integration have learning disabilities?

Stacey Szklut MS, OTR: No, but we do see overlaps between the two. There are many different reasons why learning disabilities can occur and we don't always see that these children have sensory integration problems.

Dr. Cermak: One of the medications that's frequently used for children with Attention Deficit Disorder is Ritalin or Methylphenidate. Does this also help problems in sensory integration?

Stacey Szklut, MS, OTR: We sometimes will see an improvement in the fine motor coordination of children with Attention Deficit Disorder while they're on the medication; sometimes parents will report less sensitivity to sensation also. But it's not thought to permanently affect the problems. It will improve functioning and performance during the school day perhaps, but the underlying difficulties will still be there.

Dr. Sharon Cermak: So is one of the distinctions between treatment for sensory integration problems and use of medication for Attention Deficit Disorder an issue of long term effect?

Stacey Szklut MS, OTR: Yes. The intent with sensory integration treatment is that a child will truly have a better ability to take in sensory information and make behavioral and motor responses.

Dr. Sharon Cermak: So what you're really saying is, the most important thing is to look at the child, his behavior and to try to understand what will help him and what will enable him to function better within his environment.

Stacey Szklut MS, OTR: Absolutely.

When to seek an evaluation

Dr. Sharon Cermak: If a parent, caregiver or teacher feels that a child might have problems in sensory integration, what can they do?

Stacey Szklut MS, OTR: Occupational and Physical Therapists have a special background in sensory integration. I would recommend that the teacher talk with the Occupational Therapist first. Parents, if they have concerns, often go to the pediatrician first. Because sensory integration disorders can be so subtle, very often the pediatrician's advice is to wait and see. Let's see if the child will begin to catch up. Sometimes that can actually delay assessment and treatment.

Dr. Sharon Cermak: Do you agree with the wait and see approach with young children since many children experience variations in their development and appear to "outgrow" problems.

Dr. Jane Koomar: What I tell parents when I talk to them, particularly of young children, toddlers and preschoolers, is to watch how much frustration the child is experiencing and how much they withdraw from age appropriate activities. How often does the child say "I can't, I need help"? Typically at that age you're hearing a lot of "no, let me do it myself" and wanting to move into independence. So I really use that gauge of frustration/withdrawal as a gauge of when to warrant therapy. If you notice some of the symptoms but the child seems to be pretty happy and is developing peer relationships and skills, then wait and see.

Dr. Sharon Cermak: What does an evaluation of sensory integration look like?

Stacey Szklut MS, OTR: Evaluation will take different forms, depending on the age of the child and what the presenting issues are. I think of an evaluation for sensory integration as detective work, it is very carefully getting history information from the parents. If the child is old enough, from the child too, in terms of what's happening in her life and how are things going? I also see it as being a very careful observer in different environments. How is the child functioning and what's happening when there are certain types of sensory information bombarding their systems?

So part of the process within our clinic setting is to expose the child to a variety of different types of sensory input and look at both how the child responds and how well they can organize that information as well as looking at skill development. For example, can a child utilize information from muscles and joints effectively to climb a ladder without having to watch his feet or without falling through the rungs? That would give us an indication of how well the muscle sense is providing information for him. I also identify strengths e.g., how the child best uses the information from the environment and his body to learn. This creates a huge window into how others might help this child be more effective in his world and in learning.

So I'm trying to look for strengths and at what modalities the child uses for learning. I'm also looking for any strategies that the child might show me how we can help him organize himself and his environment. Very often, if we're careful observers, children will give us clue about what is organizing, such as fiddling with a toy when they're trying to listen to you, or rocking in their chair a little bit when they're trying to pay attention to something the teacher is saying.

Dr. Sharon Cermak: You've mentioned that observation is an important part of the assessment process. Are there also tests that will evaluate sensory integration and sensory processing?

Dr. Jane Koomar: Yes, there are. For instance, for toddlers there's the *Test for Sensory Functions* and the *Miller Assessment for Preschoolers*. At the 4-9 year old age, the *Sensory Integration and Praxis Tests*, looks at sensory integration as well as items from a variety of other standardized tests.

Dr. Sharon Cermak: Do you think assessment with a standardized test alone is enough to make the diagnosis, or do other things also need to be considered?

Dr. Jane Koomar: I think you always need observations and histories from parents and teachers.

Dr. Sharon Cermak: I would really agree with that. I think just standardized tests alone is not enough. You really need to look at how is the child functioning within his environment.

Summary from Dr. David Silver: The parents' observations of their child's behavior is very important. If a child's problems are creating frustrations with social interaction, physical skill development, or with their ability to learn, it may be unwise to assume that he or she will simply outgrown the problem. It may be more advisable to seek an assessment. There are evaluations of sensory integration available for each age child. Coupled with observations by parents and teachers, valuable insights into the child's needs can be obtained.