***Making Sense of Sensory Integration*:**

Effect of SI Challenges During Different Developmental Stages

The second 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.

Sharon Cermak: Stacey, can you talk about some of the different problems in sensory integration that are seen at different ages and stages of child development? For example, what are the problems that are typically seen in infancy and toddlerhood?

Stacey Szklut: One of the first things we might see in *infancy* is when a child has difficulty understanding body position and movement in space. Some infants are fearful of movement if internal information from muscles, joints and the balance system is not processed accurately by their nervous system. As a result, when a mother tries to cuddle her baby, the baby responds by crying and pulling away. Or the mother may tip the baby on her back to hold her for feeding and the baby may cry and arch her back because she can't understand clearly how her head is moving and becomes overwhelmed and frightened.

The term 'regulatory disorder' is sometimes used in infancy and refers to babies who are overwhelmed by normal sensory input. This is in contrast to the behavior of a typically developing infant who may, at four or five in the afternoon, have a crying period and need to be held in a snugly or quiet place. Infants with regulatory disorders seem to have an inability to process many environmental and internal inputs and therefore cry very often and can look like they have colic. They just basically cry most of the day. These infants also have trouble sleeping. Their sleep/wake cycles are really thrown off so that they may not sleep much at all or sleep in short fits and starts or wake up crying.

As we look at behavior in *toddlerhood*, children naturally develop more skills. Toddlers with regulatory disorders may tantrum very easily, or have great difficulty with any transition, such as getting in and out of the bathtub or leaving the house to go somewhere. A toddler who has great difficulty processing sensory input will have problems staying calm in a place with lots of input, like the grocery store, and will likely tantrum and cry.

At this age, we can begin to see some of the challenges children face when they do not process information about where their body is in space. We might see some developmental lags in being able to sit up and stand and move safely with some degree of coordination through space. However, we don't always see major developmental lags in children with sensory integration disorders. Many times we see some qualitative differences, particularly moving through space in a way that's safe. So, we might see children bumping into things often, or falling down. Or they may have problems manipulating a toy effectively without using too much force, so they may break their toys easily and become frustrated. Knowing how to handle toys skillfully is based on information received from our muscles and joints as we play.

Sharon Cermak: A tantrum is very typical for two year olds. How can we tell whether that reflects a problem in sensory integration or is normal, typical, "terrible two's"?

Stacey Szklut: That's a great question, Sharon. Sensory integration is a normal process that supports all our behavior and actions. Having had two children go through the terrible two's, I know there are times when tantrums occur because your child is overwhelmed with what is going on. Typical examples are at the end of birthday parties, or being at a family gathering and the child has just dealt with so much throughout the day that he falls apart. Two year olds are beginning the process of developing independence and there are those temper tantrums that occur just solely because "I don't want to do what you're telling me to do and I'm frustrated".

The distinction for me in trying to determine whether it's a problem in sensory integration is really intensity and frequency. In children with sensory integration problems, we see much greater intensity of tantrums, and we see the child having incredible difficulty regrouping and pulling back together. Parents will talk to me about children who tantrum 10 or 11 times a day and sometimes cry for up to an hour or an hour and a half. That to me is beyond the realm of what we see in typical children.

Sharon Cermak: Jane, can you talk a little about self-calming and the child who isn't able to use other people or himself to calm down or regroup. I know I've seen this problem even in very young infants who have sensory integration problems, when they really aren't able to use their parents to help them maintain a normal state of arousal.

Jane Koomar: I think when the nervous system overreacts to input, some of strategies we may try to calm children actually causes an upward spiral and creates even more disorganized behavior. We need to be good observers and if we suspect that there's a problem in sensory integration, try to find out if there are any ways that a child has to calm herself. Sometimes we'll see rocking, particularly to fall asleep, head banging or hiding under the bed or another quiet space. And sometimes through careful interview with the parents, we can find strategies to help calm the child- unfortunately, what works one day doesn't always work.

Thinking about my own child and those times when you're just at a place where all sensory input is too much for that child, what was necessary for being able to regroup was actually just removing as much sensation as I could. Providing a quiet place without noise, without vision, without even talking touching them, is the way some children can finally begin to pull themselves back together.

Sharon Cermak: Jane, can you talk about some of the problems that we see in the preschool and young school age child?

Jane Koomar: As a child moves into the *preschool* years, we expect to see more and more skill development, like learning to pump a swing, ride a tricycle, or dress and feed yourself. Many times children with sensory integration problems have difficulty with these things, and may either express a lot of frustration with them and/or just withdraw and not want to do them. They may also tend to throw their toys rather than play with them in a purposeful way.

As a children with sensory integration problems move into *school* age, their physical skills, dressing and eating abilities may still be concerns, as well as using crayons and pencils. They often have handwriting and drawing difficulties. The games school age children typically play with their peers and adults are more complex with more steps and rules. Many times children with sensory integration problems have difficulty with what we refer to as motor planning or praxis, which means having difficulty planning and carrying out an action that has several steps in a sequence. This is noticeable especially if the activity or game is new or something the child doesn't do all the time.

Sharon Cermak: Can you talk a little bit about children who have motor planing problems who aren't included with their peers in sports activities and how this effects their self esteem?

Jane Koomar: Yes, this can be a heartache for any child and his parents when he is not included because he may not be as coordinated, or understand the rules. Other children will often tend to shy away and may say "Oh, he's just not as much fun to play with." A child with sensory integration difficulties is expending so much energy just trying to figure out how to move his body and

engage in a game, that he doesn't have much energy left over to understand the nuances of what he's doing or have fun with it.

Sharon Cermak: Stacey?

Stacey Szklut: I was also thinking that these issues are even more paramount in younger children because the play of *preschoolers* is not very predictable. Sometimes children with sensory integration disorders actually appear to do better as they get older because the rules of the games don't change anymore. So kickball is always kickball and you always kick it and run to first, then second and then third base. Many children compensate or learn the steps by repeating them over and over.

In contrast, when you watch a preschool play ground experience, there are no real rules and so a lot of children with sensory integration disorders are lost trying to understand what's happening in a game. Just when they get to a point when they understand, okay, we're pretending this is a space ship and we're going to outer space, suddenly that spaceship becomes a submarine and now we're in the ocean. So the child is continuously flustered and lost. Parents tell me, "It just feels like my child is lost and doesn't understand what's happening in those social situations."

Sharon Cermak: Do sensory integration problems continue throughout the life span?

Jane Koomar: They definitely do and as we move into *adolescence and adulthood* many of the things that we've talked about can sometimes still be problems. Certainly sports can be an issue in adolescence- also getting organized to do schoolwork or figuring out how to put together your first term paper. We also see difficulty with what's often referred to as sensory modulation which means taking in sensory information, screening it and using it to respond appropriately for the task at hand. Often times we see individuals who are very sensitive to sensory input like bright lights, the school bell, sitting on the subway going to work as an adult and having all that closeness and commotion around them. People can become very emotionally stressed by these inputs. Over the years, these difficulties often result in anxieties, sometimes phobias, or depression because of the continual stress of dealing with these sensory issues.

Sharon Cermak: Might problems in sensory integration influence dating and sexuality in adolescence?

Jane Koomar: I often have talked with adolescents and adults who report they really do not find physical closeness to be pleasurable. It's often very bothersome to be touched lightly, to be kissed, perhaps, or for someone to come into your space and hug you. And so, very often, I have talked with individuals

who have tried to avoid intimate relationships because they really can't handle them.

Sharon Cermak: If nothing is done, do children outgrow problems in sensory integration, Jane?

Jane Koomar: No, they don't. Oftentimes, I will talk to people who say, "Well really I think the problems are much better now". What certainly can happen is children will learn to compensate for their difficulties. If family and friends are educated about the problems, an environment can be set up to minimize the difficulties. As we get older, we have a lot more choices about our work environment, how we structure our home environment, and what we choose as an occupation. So we can really often minimize the impact, but the problems will still remain.

Sharon Cermak: Many of the symptoms you've been talking about sound like things that all of us experience at some point. When does a problem become a sensory integration disorder and when is it normal?

Stacey Szklut: The ability to process and respond to sensory and motor input follows a continuum. People fall everywhere along this continuum, from being slightly low responders to sensory information to being very high responders to the sensory information coming in. When a problem arises, we have to look at the three areas we've talked about: social/emotional, motor and learning indicators.

The social indicators of a sensory integration problem include significant difficulties in social interactions, and poor self esteem with much frustration and anxiety. When there is emotional lability and the child is crying a lot or feeling frustrated, these are indicators for an in-depth look at the child's sensory integration.

In terms of motor development, when the child can't keep up with her peers, or when she's beginning to fall academically because she can't keep up with written demands, or can't sit in the classroom, pay attention and focus on specific tasks, that's when we need to evaluate and consider treatment.

Sharon Cermak: How early is it possible to make a diagnosis of sensory integration problems?

Stacey Szklut: As people are more aware of sensory integration and how it works, we're seeing children at 8 and 9 months now with regulatory disorders. Most typically, I think, by preschool is when the parents notice a difference between the child and their peers.

Jane Koomar: Depending on the severity of the problems and the type of problems, you can really see them at a very young age, in early infancy. But oftentimes there are not enough symptoms to bring the child to someone's attention until they're a little bit older.

Sharon Cermak: In summary, it's not just one behavior that would lead to a diagnosis of sensory integration disorder, but really a cluster of behaviors which interfere with how the child's function in his environment.

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Narration by David Silver:

It is helpful to know that children manifest problems with sensory integration differently at different ages. To review, all children respond to stress with crying and tantrums at times, but the intensity and frequency of these behaviors is qualitatively different for children with sensory integrative problems. Infants may be fearful of movement, and/or they may resist being held or cuddled. Preschool children may not engage in purposeful interactive play; feeding, dressing and skill development in both gross and fine motor areas may also be delayed. The school age child may have trouble with handwriting, figuring out the steps in games, organizing school work and with spontaneous play interaction. Problems with organizing school work and with handling change and transitions create frustration and contribute to low self esteem. Dealing with the stress of sensory integrative problems carries into adolescence and adulthood and interferes with social interaction, learning in a classroom and with physical skill development. If there is a cluster of behaviors encompassing social, motor and learning areas, there is strong evidence for an in-depth sensory integrative assessment and the need for therapeutic intervention.