



# SENSORY UNDERRESPONSIVITY

Britt Collins, MS, OTR and Lucy Jane Miller, PhD, OTR

In this column we continue to highlight the first response pattern, Sensory Modulation Disorder (SMD), but turn our focus to the second subtype, Sensory Underresponsivity (SUR).

Individuals who are underresponsive to sensory stimuli are often quiet and passive, appearing to disregard stimulation by not responding. When they are exposed to the usual intensity of sensory stimulation that others respond to, they often appear oblivious to the stimulation. For example, when a child's name is called, he may not seem to notice that you spoke to him. You may have to call the child's name several

times, or position yourself directly in front of him so that he's aware that you are addressing him.

Another symptom may be that the person with SUR is self-absorbed. They are often difficult to engage and seem uninterested in interacting with people. This may be due to a core deficit in relating, but can also be due to intense concentration in an area in which they have strengths.

For instance, when I first went over to Jonny's house, he was happily playing with his cars. I said "hi" to him and he did not even look up at me.

*Jonny is a child on the spectrum who loves to play with Matchbox cars. He has almost every Matchbox car ever made, and knows the entire history of Matchbox cars. During our visit Jonny stated, "About 30 years ago Matchbox started to switch to more conventional plastic and cardboard 'blister packs' used by other cars such as Hot Wheels. But I much prefer to collect the box-style Matchbox cars that have been recently re-introduced for collectors, starting when the '35th Anniversary of the Superfast' series was released in 2004."*

Jonny is only a seven-year-old, and his knowledge in this area is clearly precocious. When he is discussing his favorite topic, he becomes more animated and appears somewhat interactive; however, his style is actually somewhat pedantic as he lectures the listener on the finer features of Matchbox cars.

You may hear the term *self-absorbed* applied to this kind of behavior, not because the person is selfish or absorbed in himself but because he is focused on an area of interest to the exclusion of other topics. Many people think of this as a cognitive style, but in our experience it can often be due to underresponsiveness to sensory input. Because ordinary sensory input is not detected, individuals may turn to a cognitive world of ideas to obtain the stimulation their brains need. Individuals with autism spectrum disorder (ASD), who also have SUR, can become quite animated, alert, and involved when discussing their areas of interest (e.g., Matchbox cars).

Here are some examples of how symptoms of SUR might appear in each of the eight sensory domains:

**Visual:** loses place when reading, complains of eyes being tired

**Auditory:** does not respond to name being called, may hum while working on a task

**Olfactory:** does not notice a strong odor in the refrigerator that others instantly notice

**Taste:** does not notice or care if foods are spicy or bland

**Vestibular:** does not voluntarily choose to play on playground equipment, preferring sedentary tasks

**Tactile:** may not notice if they get hurt or bumped

**Proprioception:** slumps in chair or leans on walls, may have weak muscles

**Interoception:** has toileting accidents, unaware of feeling hungry, poor awareness of where body is in space

A classic symptom of SUR is hyporesponsivity to touch and deep pressure stimulation. This often leads to inadequate body awareness, poor endurance, and movements that are not appropriately graded. Movements that have the correct amount of force for the task are considered "graded." Those with SUR may not perceive objects that are too hot or cold, and classically do not notice pain in response to bumps, falls, cuts, or scrapes.

We label children with SUR as "low and slow." Children who are underresponsive seem to have poor inner drive and lack a spontaneous desire to play and explore (Bialer and Miller 2011). They often appear lethargic or tired. At school a child with SUR may appear not to listen in class and/or may slump down in his chair. He may have trouble making friends because either he cannot keep up physically with fast-moving children on the playground, or by the time he has become alert enough to engage, the other child has moved on to the next thing.

We use the "gas tank" analogy to explain the concepts of Sensory Overresponsivity (SOR) and Sensory Underresponsivity (SUR). The gas tank is like our nervous system. Each car has a different sized tank. Some cars have small tanks and fill up quickly, as kids who are SOR to sensory input do; other cars have large gas tanks and need a lot of fuel and frequent refueling to get and keep them going such as kids who are SUR (Bialer and Miller 2011).

## Emotional Outcomes of SUR

Children who are underresponsive may have low self-esteem. They may prefer sedentary activities to high-energy movement activities and they may be labeled "nerds," "stuck up," or "a loner." Due to their inability to participate with peers, they tend to have fewer opportunities to develop normal social and relational skills. As a result they may have less practice taking turns, sharing, and participating in pretend-play scenarios. They also may lag behind in their work because it takes them longer to detect what the teacher is requesting (i.e., when the teacher directs everyone to take out their papers and begin a spelling test), so they are always behind. These children may begin to feel as though they are not as smart or athletic as the other children around them.

## Ways to Help a Child with SUR

Individuals who have SUR need "fast blast" types of activities that can alert their sensory systems. Listening to loud music and swinging on a swing with fast, high movement can increase their arousal level. Do whatever it takes to engage individuals with SUR with movement activities even though they may prefer sedentary activities like playing on the computer. Incorporate things like the Wii or Xbox Kinect to get them up and moving. Try adding spice to food as well as crunchy and chewy textured food and pungent odors (garlic/onion) to increase arousal. Find out what is motivating to the person and present opportunities for the individual to work toward motivating rewards.

Parents with children who have symptoms of Sensory Underresponsivity are encouraged to seek therapy that is based on engagement and relationship building as a foundation. In addition sensory integration therapy, when provided by a well-trained occupational therapist (preferably someone who has participated in a mentored educational experience), can be extremely beneficial in increasing social participation, self-regulation, and self-esteem. ■

## Reference

Bialer, D. S., and L. J. Miller. 2011. *No Longer A SECRET: Unique Common Sense Strategies for Children with Sensory or Motor Challenges*. Arlington, TX: Sensory World.