

## Understanding Sensory Responses

### What is Sensory Integration?

Sensory integration or processing is a neurobiological process that refers to how our nervous system turns messages that it receives from our senses into behavioral and motor responses. Our brain is constantly processing information it receives from the senses. The most common or familiar senses include – taste, touch, hearing, smell and sight. Two additional and less known senses include the **vestibular** and **proprioceptive** systems. These two senses allow us to process information that enables us to maintain our balance and control our movements, as well as have awareness about where our body is in relation to objects around us.

For most of us, our brain organizes the information it receives from these senses by telling our body how to respond. So, if you are in a crowded place, your brain can automatically tune out all the other voices and focus only on the voice of the person you are with. If you see a cup of steaming coffee, your brain will send a signal to your body to wait for a few moments or to take a very small sip to avoid burning your mouth. If you are walking up a steep staircase, your brain sends a signal to your body on how high to lift your leg to avoid tripping.

For some individuals with autism however, the brain either underreacts to these sensory experiences, or over reacts to them. The brain may also react to the sensation from one of the senses faster, for a longer period of time and more intensely than it should. These types of imbalances cause a number of unusual behavioral and motor responses such as the avoidance of certain foods or textures, bumping into things, spinning, constant movement, or covering their ears, and more. These imbalances are commonly referred to as **a sensory processing disorder** and are not limited to individuals with autism, though a majority of individuals with autism have varying levels of difficulty processing sensory information. Sensory processing disorder can occur independently or with other neurological conditions.

A sensory processing disorder affects many aspects of a person's life. For example individuals with autism may hear most of what is going on around them, and can have difficulty filtering out the sounds. They also may hear sounds a lot louder than people without autism do. Because many individuals with autism are unable to communicate their feelings or what they are experiencing verbally, their caregiver may not notice something that may be causing them distress. This constant bombardment of unfiltered

sensory information from one or multiple senses can easily create a feeling of being overwhelmed. This sensory overload may help to explain some of the difficulties seen with emotional regulation. It may also result in a variety of unusual behaviors utilized in an attempt to self-calm.

### Examples of Sensory Responses in Children with Autism

The following are common examples of things or situations that may be difficult or uncomfortable for a child with sensory integration difficulties. This is not an exhaustive list, and there are many other behaviors that are associated with this condition.

1. Refusal to eat foods with certain textures, smells or colors. A child may have a very limited set of foods that they will eat.
2. Dirty, wet or sticky hands or body.
3. Coping with noise including volume or pitch, smells such as perfume, soap, paint, or foods, touch such as hugs or even light touch.
4. Bright lights, florescent lights, flickering light bulbs.
5. Hugs, kisses or other forms of affection.
6. Wearing new clothing, or tags in clothing.
7. Difficulty with various aspects of toilet training.

Here are some additional things you might see in a child with an over or under reactive sensory system:

1. Might slump while sitting or standing.
2. Lethargic or slow to complete tasks, or may be extremely active.
3. Aggression, irritability or getting easily frustrated.
4. Easily distracted or fidgety.
5. Difficulty learning new motor tasks.
6. May bump into objects or trip over objects frequently.
7. Difficulty manipulating small objects.

### What You Can Do to Promote Sensory Integration

The first step to helping your child is to have them correctly diagnosed and assessed to create a customized action plan. A qualified occupational therapist trained in sensory integration will be able to conduct an assessment to get a proper understanding of your child's unique situation and needs.

Occupational therapists can work with your child to assist them in developing specific skills through various activities that will stimulate their senses and evoke appropriate sensory responses.

You can talk with your therapist to see if any of the following may be appropriate interventions at home for your child.

For children who are under responsive to sensory stimulation:

1. Try offering chewy or crunchy snacks,
2. Use exercise balls or mini trampolines,
3. Have the child play on swings or bounce on the edge of the bed,
4. Use bright colors in their bedroom.

For children who seem fearful or overly cautious of everyday experiences:

1. Start slowly with blanket rides or other games that do not make them too uncomfortable,
2. Encourage playing on the swings (even if they are only comfortable with very gentle swinging) or see-saw,
3. Try piggy back rides and hide and seek.

For children who are constantly in motion:

1. Provide opportunities for them to get their wiggles out, often throughout the day and in a safe environment,
2. You can create an impact pit with pillows or bean bags to allow them to jump safely,
3. Engage in quiet, calming activities an hour before bedtime,
4. If your child has trouble falling asleep, offer a warm bath before bedtime and tuck them in tightly,
5. To prepare for travel, offer novelty toys that will keep them busy, take frequent breaks, or walk them up and down the aisles in the plane when the seatbelt sign is off.

For children who do not like to get their hands messy or are uncomfortable with touch, hugs or cuddles:

1. Allow them to pass on hugs, cuddles or tickles, or to initiate it on their terms,
2. Encourage them to walk, roll or run on different types of surfaces,
3. Give them materials they can squeeze, pull or shape such as Play-Doh,
4. Allow them to gradually play with various textures such as rice, beans, glue and paint,
5. Pre-wash new clothes to soften them,
6. Offer a firm touch pressure massage before dressing,
7. Use soft bristled toothbrushes.

For children who are very sensitive to sounds:

1. Offer earplugs, earmuffs or noise canceling headphones as needed.
2. Gradually introduce musical instruments like harmonicas or drums they use with their hands. This allows your child to create different types of sounds. Use your discretion with this, as each child will have a different tolerance level.
3. Warn your child before you create loud sounds such as with blenders or vacuum cleaners.

For children who have difficulty with motor activities or who have frequent bumps or falls:

1. Break activities down into smaller steps and guide them through the activities.
2. Provide opportunities to go over, in and out of different types of surfaces starting with stable surfaces and moving on to movable surfaces. Your child's therapist will have ideas on what to use for this.
3. You can use weighted pencils and spoons if needed.

These are just some examples of things you can do for your child to promote sensory integration. Speak with your child's therapist for more ideas on how to promote sensory integration. Be sensitive to how your child responds to different experiences as you try various interventions.