Sensory Processing and Music

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Sensory processing is a term that is often misunderstood. While it is commonly linked to autism, the two don't necessarily go hand in hand. While we might not all have Sensory Processing Disorder, every person on the planet is affected by sensory processing preferences.

It's common to hear of a sensory diet, occupational therapy, or weighted blankets as ways of helping people navigate sensory preferences with less stress, but most people don't know there's a simple at-home, natural, research-based method of addressing these preferences that may be more effective and have long term benefits.

Sensory Processing Disorder vs Sensory Processing

Most people have heard of Sensory Processing Disorder, which describes difficulty receiving, interpreting, and responding to sensory stimuli. A child, for example, with Sensory Processing Disorder might cover his ears when the blender turns on or might cry at the unexpected passing of a loud fire truck.

That, however, is just one aspect of processing sensory information.

Each of us learned about senses when we were growing up; see, hear, taste, touch, and smell. It is clear that those senses help us to have a rich experience with life around us. A walk in the park would be very different without the ability to hear the sound of ducks in the pond, the smell of flowers along the sidewalk, or the sight of people walking around experiencing it all.

While most people may take those things for granted, what is lesser known is that everyone processes each of those sensations in a different way.

The ducks might be too loud to one person, another could find their noise too distracting to hold a conversation, and another person might not even notice the sound. Each of these preferences is what we refer to as sensory processing. It's something every single person is doing subconsciously, all the time, which in turn affects our reactions, emotions, and energy.

Our Sensory System

Recent studies have shown that we each have at least eight sensory systems, including:

- Vision (seeing)
- Olfactory (smell)
- Auditory (hearing)
- Gustatory (taste)
- Tactile (touch)
- Proprioception (movement or body position)
- Vestibular (balance and spatial position)
- Interoception (the workings inside the body hunger, thirst, the need to eliminate, etc.)

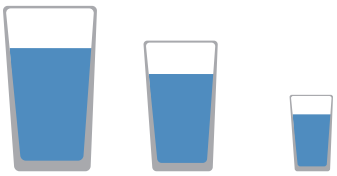
Generally speaking, a person can over process, under process, or process typically in any of those senses.

To put it in the most simple terms, imagine each person has a series of 7 cups representing each sense.

These theoretical cups are one of three sizes; as small as a shot glass, as large as a 64 oz mug, or the size of a typical drinking glass. When a person has a small cup for a specific sense, they can only handle a little of that stimulation before feeling overwhelmed, irritated, or anxious.

Where people have large mugs, they tend to seek out stimulation of that sense, rarely feeling satisfied from what is readily available.

Sometimes there are medium size cups that don't leave a person avoiding or seeking out a sensation as often.



Sensory Processing in the Brain

Seeking or avoiding a sensation doesn't sound like much of a problem until we understand what happens in the brain when those small sensory cups overflow or the big cups feel empty.

Our brains are wired to keep us safe. When a sensory need is unmet (too much or too little sensory input), the brain sends an "unsafe" signal, causing a physical and emotional reaction to get more or less of that sensory stimulation.

For example, a person with a small visual and auditory cup walking in that park might feel overwhelmed by the brightness of the sun shining on them, as well as the amount of sounds being made from the people, ducks, and cars passing by. If someone were to try to strike up a conversation with that person, the brain would be sending "unsafe" signals, which would likely result in a less patient, more distracted version of the person with small sensory cups. This person's brain would be trying so hard to get out of that

overwhelming situation, that any effort to stay would be met with resistance.

On the other hand, if a person had a large tactile (or touch) cup, and large auditory (sound) cup, that person would have a desire to touch all the different textures of the grass, the bridge, or the sand around them. They'd be able to block out the sounds around them to focus on any conversations they were having at the moment and would love the experience of being there at the park. This person's brain would be receiving so much joy from the experience, that leaving the park might be met with quite a bit of resistance.

In essence, when the brain senses a small cup that is overflowing or a large cup that is empty, it activates the fight or flight response.

When the fight or flight response is activated, the brain focuses most of its energy on either running away from or fighting the stimulation that triggered the response. This survival instinct is often activated when small cups overflow, or when large cups are too empty. The response had evolutionary benefits when survival was at stake, but today, when something as simple as the sound of a person chewing, activates the fight or flight response, the reaction can seem overly dramatic.

Dramatic or not, it's the reality of living with any kind of sensory preference. Addressing it for what it is, instead of seeing it as "bad behavior, is key to minimizing the negative responses. To address it properly, we have to first notice the signs of this experience called sensory dysregulation.

Signs of Sensory Over or Understimulation

Sensory dysregulation is the term used to describe an overflowing small sensory cup or an empty large sensory cup.

When a person has a large cup and has not had enough stimulation (under-stimulation) common behaviors could include:

- Shutting down
- Lethargic
- Lack of focus
- Lack of interest
- Aggressive behavior

When a person with a small cup is exposed to too much sensory stimulation (sensory overload) it can show up externally in the following ways:

- Yelling
- Aggressive behavior
- Crying
- Shutting down
- Defiance
- Hyperactivity
- Intense avoidance strategies
- Distractability
- Lack of focus
- Inability to sit still
- Reduced ability to take in new information

Supporting Sensory Preferences

The most common way to support sensory preferences is to create a more calming environment by minimizing the overstimulating sensations and adding more opportunities to have access to sensations the brain is seeking.

With a quick Pinterest search, it's easy to find thousands of sensory activities or sensory diet ideas to calm or stimulate the different preferences a person has. Essentially, this requires continuously adding more or helping avoid specific sensations during the day. By doing this, the sensory system stays more regulated, which results in a more calm feeling, which helps to minimize the extremes of sensory preferences.

While that can be effective, it can be a lot of work, and over time feels exhausting. Often times Occupational Therapists help balance the sensory system in this way, which can be very effective.

Another natural, long-term approach is to target those areas of the brain that are over or under-stimulated and create new neural connections inside the brain, to reduce sensory sensitivity where it begins.

In essence, it's a way of getting to the root of the sensitivities, and creating new pathways in the brain so a person can function with more medium-sized cups which helps them naturally feel calmer and regulated throughout the day.

Addressing The Sensitivity Naturally

These sensory preferences are created from neural pathways in the brain, and with current research, it's clear that those pathways can change. Changing the pathways would essentially be like exchanging the extra small and extra-large cups for medium cups, to help a person feel more balanced throughout the day.

There is "scientific evidence that the brain has a natural ability to physically change itself and strengthen its neural networks in response to a person's experiences. This is called neuroplasticity, and it occurs not just in childhood but throughout an individual's lifetime." [Gee et al.]

This process can happen with a non-invasive, at-home practice in as little as 15 minutes per day.

What does that look like?
The Listening Program (TLP) uses psychoacoustically modified classical music to target certain frequency ranges that can impact sensory processing. All that to say, the music is designed to target the areas of the brain that process sensory stimulation to help a person feel more regulated more often.

TLP improves how the brain detects, modulates, interprets, and responds to sensory stimuli. The auditory system is a very effective pathway for the brain to receive stimulation that helps regulate sensory processing in the brain, essentially creating change from the inside out, rather than the other way around.

Addressing the sensory preferences, both severe and mild, for people of any age is important for maintaining a healthy emotional balance throughout the day. If little noises, sights, or textures ever cause even a minor irritation, TLP is a great way to help minimize that irritation to help you function better in daily life.

About Wendy

I am a Program Manager at Advanced Brain Technologies, and I have a Masters degree in Special Education. I learned early in my career that there's a deeper root to almost any difficulty in life.

It is very rewarding for me to show people how music can help their brains function better and achieve better sleep, less stress, better communication, or healing. Seeing people's potential and helping them achieve it is my passion.

I started my career wanting to help neurodiverse kids find ways to work with their strengths and achieve their goals. I became obsessed with learning about sensory processing and ways to support it to help people reach their full potential without invasive procedures or harsh methods, which I share in my book, *Taming Tantrums: Simple and Positive Ways to Address Challenging Behavior.*

I've used what I learn every day in my own home with my kids, and now, I get to combine that knowledge with my work at ABT.

Before ABT, I worked as a special education teacher, a supervisor of an Early Intervention Program, and then created my own business coaching parents of kids with challenging behavior.

In my spare time, I enjoy being outside hiking, biking, seeing every waterfall possible, doing yoga, or spending time with people I love.

Please reach out if there is something I can help you with. I look forward to supporting you!