

# Sensory Processing



## An Introduction



Understanding  
Our Senses

Understanding  
Sensory  
Processing

Understanding  
Sensory  
Processing  
Challenges



“It's not just about bright lights or crowded spaces. Underlying proprioceptive / vestibular / interoception issues are much harder to deal with and impact every aspect of life.”

“Everyone's experience is different, but that doesn't make it invalid. Sensory issues are REAL and can change the way people experience activities of daily living.”

“We aren't just making a fuss, or being overly sensitive, or not trying hard enough to ignore sensory inputs. Sensory sensitivities can physically hurt. They also drain our batteries like nothing else and are a huge waste of our energy.”

The National Sensory Network is a platform designed to unite all individuals interested in sensory processing and sensory awareness. It is a hub for sharing knowledge, best practices, and resources to promote sensory-informed approaches.

# Understanding Our Senses

A sense is a physiological system in the body responsible for collecting and transmitting information to the nervous system. This information is processed by the brain, spinal cord, and nerves, allowing the body to interpret and respond to internal and external stimuli.

In addition to our vision (sight), olfactory (smell), gustatory (taste), auditory (hearing) and tactile (touch) senses, we have senses related to internal sensations and bodily functions. These include proprioception, the vestibular system and interoception.



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## Proprioception

Proprioception is the sense that allows us to know the position of our body and its parts in space without needing to look.

For example, it enables you to touch your right forefinger to your left elbow with your eyes closed, hold an egg without breaking it, and bring a cup of water to your mouth without spilling.

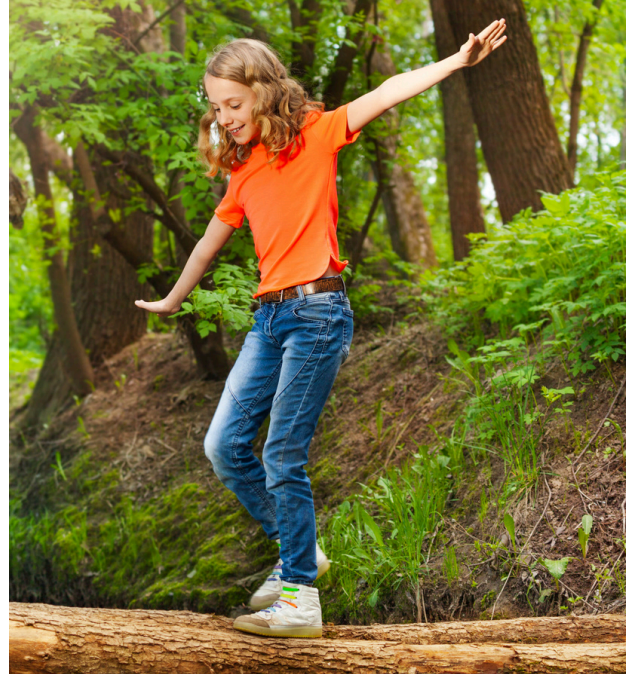
Proprioception is essential for coordinating movements, including their force and speed.



## Vestibular System

The vestibular sense is crucial for maintaining balance, orientation, and spatial awareness. It involves the inner ear and provides information about movement, gravity, and changes in position.

For example, if you close your eyes and tilt forward in your chair, you immediately sense the change in your body's position relative to gravity—this is the vestibular system at work. It also coordinates with vision to help keep your eyes focused while moving.



## Interoception

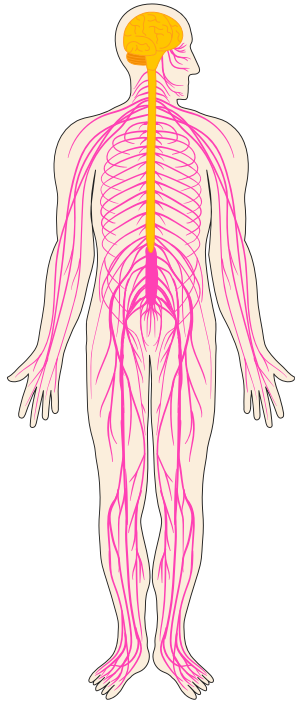
Interoception is the sense that allows us to perceive internal sensations and bodily functions, such as hunger, thirst, heartbeat, and body temperature. It enables us to understand and respond to our body's needs. Interoception encompasses all signals from internal organs, including the cardiovascular system, lungs, gut, bladder, and kidneys.

Much of the processing of these signals occurs subconsciously, maintaining functions like stable blood pressure without our awareness. However, some signals, such as a full bladder, are consciously perceived.

Research indicates that our ability to notice internal signals can influence how we manage emotions and our susceptibility to mental health issues, including anxiety and depression.



# Understanding Sensory Processing



Sensory processing, also known as sensory integration, is how we gather information through our senses and make sense of it.

Sensory processing is our brain's way of understanding the world around us and what's happening inside us and deciding whether to react to or ignore this information.

This process is crucial for functioning effectively in daily life and it impacts everything we do, including getting dressed, eating, moving, playing, socialising, learning, and working.

Our senses include sight, hearing, touch, taste, smell, and internal body cues, including your body's ability to sense movement, force, and body position; your sense of orientation and balance; and your perception of internal sensations and bodily functions, such as hunger, thirst, heartbeat, and body temperature.



We continuously adjust and respond to this information from our senses.

For some people, sensory processing can be more challenging, triggering a fight-flight-freeze response, which affects their behaviour. However, we are all sensory beings, and we all have a unique sensory profile which impacts our functioning and feelings.



You can [learn more about sensory processing and its evidence base here.](#)

# Understanding Sensory Processing Challenges

We all experience differences in how our brain and body deal with sensory input, but some people's differences make everyday activities hard. You may also see the terms 'sensory integration difficulties', 'sensory issues', 'sensory processing difficulties' or 'sensory processing disorder' used.

Sensory integration and processing challenges can be divided into two main types:

- Over- and Under-Reactions to Sensory Input (Sensory Modulation Dysfunction)
- Difficulties With Planning and Performing Movements (Dyspraxia)

## Sensory Modulation Dysfunction (Over- and Under-Reactivity)

This refers to problems with the brain's ability to filter and focus on the sensory information needed for a task. When modulation works well, we can ignore irrelevant sensory input and concentrate on what's important.

When an individual is over-responsive or over-sensitive to sensory input, for example, certain textures of food, they will react strongly to encountering that input and will take action to avoid that input.

When an individual is under-responsive or under-sensitive to a kind of sensory input, for example, movement, they will seek out extra input by, in this example, constantly moving or fidgeting.

Individuals can be over-sensitive to some sensations and under-sensitive to others. Their reactions can also change based on how they are feeling and the environment.



## Dyspraxia (Planning and Performing Movements)



Dyspraxia involves challenges with planning and carrying out movements, which can make it hard for a person to perform coordinated actions.

Some people may experience challenges in one or both of these areas. There are also specific subtypes within each category.



'I wish that others knew that the building blocks for everything we do, how we develop, who we become, if and how we are successful, support our personalities, and how we express our humanity - all begins with processing sensory information.'

'Sensory sensitivities and sensory issues can be diminished and even go away over time with the correct management strategies and emotional support. Likewise, sensory issues and sensitivities can mushroom and spiral into complex roadblocks impeding our independence and self-actualisation with possible additional mental health symptoms if not addressed, or worse, if viewed and treated as bad "behaviour," or turned inward impacting self-esteem, confidence, and resilience.'

### Continue Learning Links

- [Understanding Sensory Processing and Integration in Children \(For Parents and Carers\): Free Course](#)
- [Understanding Sensory Processing and Integration in Teenagers and Young Adults \(for Parents and Carers\): Free Course](#)
- [Understanding Sensory Processing and Integration in Adults With Learning Disabilities: Free Course](#)
- [Your Guide to Qualifying as a Sensory Integration Practitioner: Free Course](#)
- [Transform Your Practice With Sensory Integration: A Free Course for Therapists](#)