



Sensory Processing

WHAT IS SENSORY PROCESSING?

Sensory processing is the neurological process in which our body registers, interprets, understands and responds to incoming sensory input. It is important to understand as it impacts a persons everyday function, thoughts, behaviour and actions.



Sensory input from the environment and our internal body receptops are detected by our sensory receptors and this information travels to our brain through our central nervous system (CNS). The brain is then responsible for processing and organising the information. After processing (sorting through the relevant and unnecessary sensory input) the brain can determine the response and the way we then interact with our environment.

For some people, they may also experience “Sensory Defensiveness” which is an overreaction of our normal protective senses. Sensory defensiveness occurs due to dysfunction of the brains evaluation pathway and causes the body to perceive different sensory inputs as a threat and unsafe.

It is important to remember that everyone interprets and processes sensory input slightly differently.

WHAT DOES SENSORY PROCESSING LOOK LIKE?

At Calm and Connected, we like to use the model developed by Winnie Dunn. Dunn’s model presents four patterns of sensory processing, that are derived from the interaction of our sensory threshold (down the left of the table) and our self-regulation capabilities (across the top of the table).

Some people need more input to register that sense (high sensory threshold), others need less (low sensory threshold). For example, if someone likes spicy foods, they would need a lot of chilli to be able to taste spice, other people may need just a pinch to taste the spice.









Some people are passive about input (not responsive) while others actively seek or avoid the sensation. For example, some people may seek lots of different textures in their clothes and others may actively avoid certain clothing because of the material. It is important to remember each sensory input can be responded to differently, just because someone seeks movment they aren’t a ‘sensory seeker’ becuae they can also be a ‘sensory avoider’ to avoid auditory input!

Sensory threshold	Self-regulation	
	PASSIVE ←	→ ACTIVE
HIGH ↑	poor registration <ul style="list-style-type: none"> • missing stimuli • responding slowly 	sensory seeking <ul style="list-style-type: none"> • pursuit of stimuli • associated with intelligence and creativity
LOW ↓	<ul style="list-style-type: none"> • distractability • discomfort with sensory stimuli sensory sensitivity	<ul style="list-style-type: none"> • acting to reduce/prevent exposure to stimuli • efforts to make exposure more predictable sensory avoiding



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WHY IS SENSORY PROCESSING IMPORTANT?

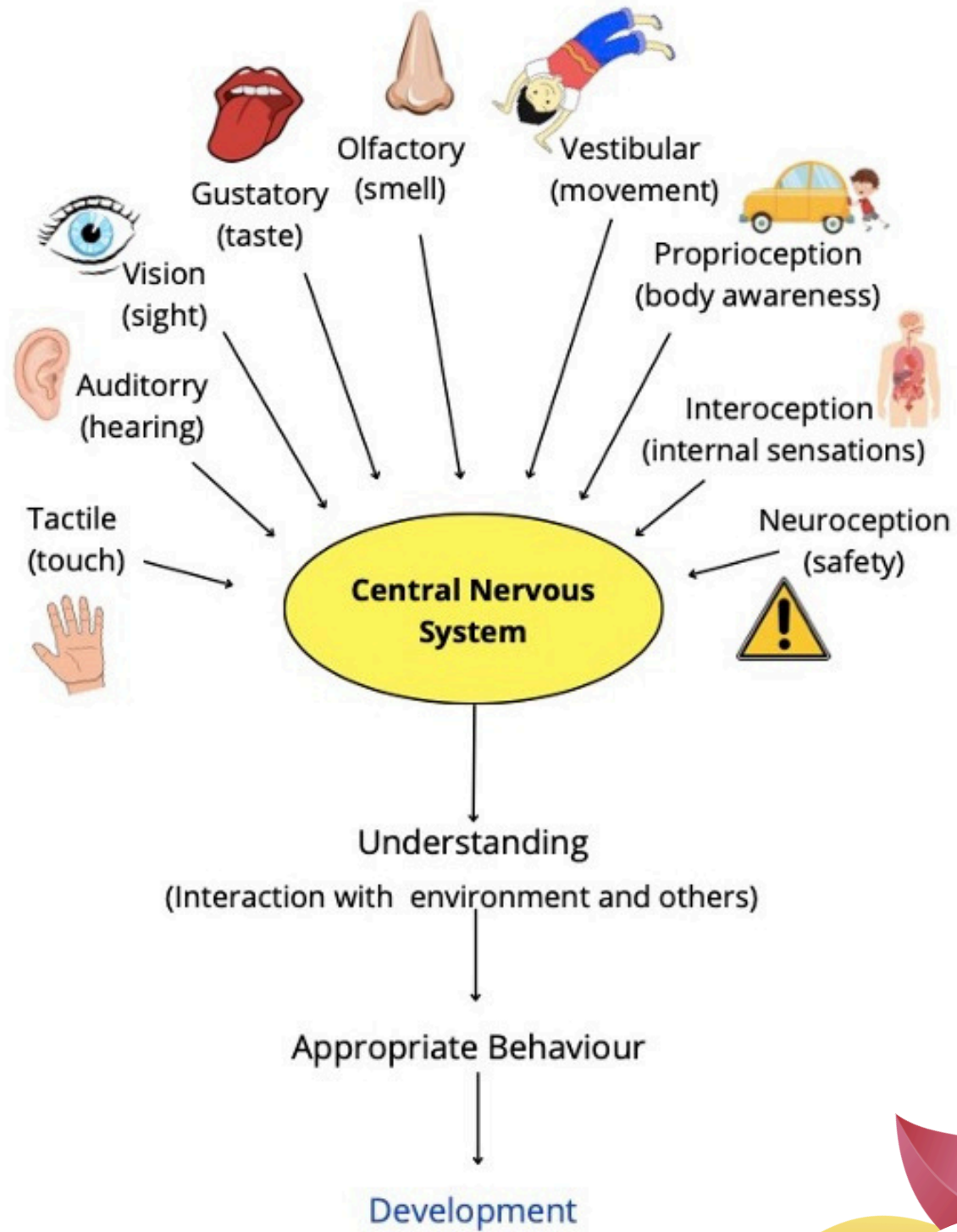
Sense	Where the information comes from	What it does, its role
Vision 	Sensory input from our eyes that allows us to see.	<ul style="list-style-type: none"> Allows us to see Visual memory Safety Spatial awareness Coordination and balance
Auditory 	Sense of sound, hearing from ears. Different pitches and frequencies interpreted and processed slightly differently.	<ul style="list-style-type: none"> Orientation and sense of space For listening, interpreting speech and sounds to use in action and activities. Monitoring surroundings to focus in or notice change
Olfactory 	Our sense of smell, coming from the nose moving up to into the brain to be processed.	<ul style="list-style-type: none"> Due to where it is processed in the brain, links to emotion, memory and learning. Also associated with sense of taste To detect danger
Gustatory 	Sense of taste.	Danger
Tactile 	Sense of touch. Deep pressure and light touch have different pathways to the brain, as does different temperatures and how we interpret pain.	<ul style="list-style-type: none"> To register and interpret pressure, temperature and pain to help us inform movement and action. Danger, comfort
Vestibular 	The sense of knowing where our head and body are in space in relation to the earth's gravity which is the most fundamental aspect of developing a sense of security.	<ul style="list-style-type: none"> What direction we are going How fast or slow we are moving How we understand space <ul style="list-style-type: none"> Orientation Posture Body awareness When our head position changed Related to balance and "fidgeting" Role in problem solving
Proprioceptive 	This is the sense of knowing where your joints and muscles are in space. We depend on this information to know exactly where our body parts are and to plan our movements.	<ul style="list-style-type: none"> Know our body position without using vision Stay in an optimal position in a chair Hold utensils such as a pen or fork in the right way To judge how to manoeuvre through spaces so that we don't run into things To copy a movement – learning a dance routine or exercise To know how much pressure to exert so we don't break a lead pencil
Interoception 	Internal sense of self/ the perception of sensations from inside the body.	<ul style="list-style-type: none"> Perception of physical sensations related to internal organ function such as heartbeat, breathing, hunger, thirst, the need to toilet, temperature regulation, Send signals from the body to the brain related to emotions and emotional regulation.





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ALL THE DIFFERENT SENSES





ACTIVITIES TO STIMULATE THE SENSES



It is important to understand a child's sensory preferences before determining what activities to do with them. If a child has a low sensory threshold for vision, then bright, busy and fast activities may be too over stimulating and cause the child to feel upset or dysregulated. On the other hand you may have a child who has a high sensory threshold for vision and needs more intensity or frequency of the activity. Activities presented in a rhythmical way are more organising for the brain and body.

Auditory (Sound)

- Listening to music
- Telephone game
- Simon Says
- Rhythm matching games



Vision (Sight)

- Eye spy
- Search and find books
- Memory games
- Visual tracking games
- Blowing bubbles



Gustatory (Taste)

- Explore different foods
- Sour
- Sweet
- Salty
- Bitter



Tactile (Touch)

- Playing with sand
- Water play
- Finger painting
- Fidget toys



Vestibular (Movement)

- Climbing or crawling
- Rolling
- Bouncing on a ball or trampoline
- Swinging



Proprioception (Body Awareness)

- Climbing
- Tug-of-war
- Bear hugs
- Animal walks
- Crash/bash/smash games
- Burrito rolls

Oral Motor and Respiratory

- Crunchy foods
- Chewy foods
- Blowing bubbles or bubble monsters
- Straw soccer
- Cold icy poles or ice



Olfactory (Smells)

- Smelly stickers
- Soaps
- Scented texas
- Nature play guessing the smell

Interoception

- Explore sensations like hot/cold, hard/soft
- Emotion games
- Role play
- Books about biological sensations

Sensory Input + Connection = Supports Sensory Processing and Regulation

