

Parents Handout on Sensory Processing

All the information we receive about the world comes to us through our sensory systems. Although we are familiar with the senses involved in taste, smell, touch, sight and sound, most of us do not realise that our nervous system also senses movement and body position as well as our internal sense e.g. awareness of pain and temperature. Touch, movement and body position are an integral part of the theory and treatment known as sensory processing



The sense of Touch (Tactile)

There are two types of touch systems in our bodies, the protective touch system and the discriminative touch system. The touch receptors are located in the skin. The protective touch system responds to light or unexpected touch, and helps to alert our body to anything that maybe potentially dangerous e.g. touching a sharp object. The other touch system is the discriminative one. This tells you where and what is being touched. For example finding objects in your pocket without seeing them. The two systems must be balanced to protect us and adapt to different sensations from the skin.



The Sense of Movement (Vestibular)

The vestibular system is our balance and movement sense. It tells us where our body is in relation to gravity, whether it is moving and how fast. The movement receptors are located in the inner ear and are important for body posture, muscle tone and bilateral integration (using two sides of the body



The Sense of Body Position (proprioception)



Proprioception is the sense that gives us an awareness of body position. Messages from the proprioceptors in the muscles, tendons and joints let us know about our body position and force of movement. When proprioception works well a child can adjust their sitting position without falling off the chair. It is proprioception that allows us to move our hands carefully without having to observe every movement.

Internal Sense - Interoception

Interoception is our awareness of internal feelings e.g. feeling hot/cold, in pain or needing to use the toilet. This sense allows us to know when we have touched an object that is hot or cold.

It also allows us to know when to remove clothing or add clothing when the temperature changes. It allows us to know when we have hurt a certain part of our body as well as feeling the need to pass urine or open our bowels.





Why are these senses important?

The tactile, vestibular and proprioceptive senses develop in the womb very early in life, even before the visual and auditory systems. These basic senses are closely connected and interconnect with the other senses as the child develops. In everyday life we are not often aware of any one sense. They all work together in an integrated way. This happens most importantly in the first eight years of life when the child senses countless bits of sensory information that are then given meaning in the brain.

Integration is the name given to the process where the brain gives meaning to sensation and enables us to formulate a plan of action. Children get great satisfaction from sensory experiences e.g. children love to run, jump and swing, seeking sensations of movement and body position. Children are designed to enjoy activities that promote brain development and therefore they naturally seek out sensations that help to organize the brain.

Sensory Integration Difficulties

For some children sensory integration does not occur as it should. The brain cannot sort out, filter, analyse, organize and connect (integrate) sensory messages. It is like a 'traffic jam' in the brain with some bits of sensory information 'getting tied up in traffic' and then certain parts of the brain then do not get the sensory information they need to do their job (Ayres, 1979). The result is that the child is unable to respond to sensory information, in order to behave in a meaningful and consistent way. The child may also have difficulty using sensory information to plan and organize what he needs to do.

Low registration threshold – Sensory over responsive

Tactile - Irritated by clothing, enjoys stripping off, hits out when touched, dislikes grooming activities e.g. hair cutting.

Vestibular – Lays on the floor or close to the ground, chooses sedentary play options, likes feet to be firmly on the ground, hesitates on stairs or on uneven ground and travel sick.

Proprioception – One tends not to be over responsive to proprioceptive input.

Auditory, vision, smell and taste – Hands over ears, squints to protect eyes from light, runs from bad smells, poor or limited diet.

High Registration Threshold – Sensory under responsive

Tactile – may not be aware of being touched, enjoys deep pressure and/or vibration, struggles to discriminate objects when not seen e.g. when asked to retrieve pencil from bag without looking.

Vestibular – Appears passive, chooses to lay down, difficult to engage, may appear tired or disinterested and attention difficulties.

Proprioception – Responds well to deep pressure, vibration is alerting, enjoys small and confined spaces, falls frequently and bumps into objects.

Auditory, vision, smell and taste – seems dis-engaged, enjoys being in the dark, likes strong tastes e.g. spicy food, likes strong smells but wouldn't seek them out on own accord.

High Registration Threshold – Under Responsive (sensory seeking)

Tactile – hits and taps objects and people, places hands in messy substances and if not available creates their own tactile stimuli e.g. smearing, seeks hugs and deep pressure touch, enjoys being under heavy duvets and small confined spaces.

Vestibular – spins, rocks, runs back and forth, always 'on the go', climbs high on furniture, enjoys being upside down.

Proprioception – crashes and bangs into furniture, enjoys jumping and placing pressure through joints, crawls into confined spaces.

Optimum Alertness Levels

In order for someone with a sensory modulation disorder to successfully complete an activity, and/or adapt behaviour/emotional responses, they need to be able to obtain the...

Calm Alert State



References

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- Williams, M.S., and Shellenberger, S. (1994). How does your engine run? Albuquerque NM USA: Therapy Works.
- <https://www.sensoryintegration.org.uk/>

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