

Sensory Processing

What is sensory processing/integration?



Sensory Processing - or Integration as it is also known - is the effective registration (and accurate interpretation) of sensory input in the environment (including one's body). It is the way the brain receives, organises and responds to sensory input in order to behave in a meaningful & consistent manner.

Children who have difficulty processing sensory information have what is known as *Sensory Processing Disorder*.

Why is sensory processing/integration important?

A new born is able to see, hear and sense their body but is unable to organise these senses well; therefore this information means very little. They are unable to judge distances or feel the shape of one object versus another. As the child is exposed to various sensory inputs, they gradually learn to organise them within

their brain and are able to give meaning to them. They become better able to focus in on one sensation and as a result performance improves. Their movement changes from being jerky and clumsy, to more refined and they are able to manage multiple amounts of sensory input at one time. By organising sensations the child is able to modulate their response and as a result they seem to be more connected with the world and in control of their emotions.

When children are efficient in their processing, appropriate responses to the environment around them occurs and is demonstrated by appropriate skill mastery, behaviour, attention and self regulation (controlling their physical activity, emotional and cognitive responses). Children are able to sit and attend to the important pieces of information in a classroom and therefore have a good chance at achieving their academic potential. Furthermore, the child is able to understand their body's movement in relation to their surroundings and themselves. This allows for success in whole body (gross motor) activities. This in turns aids the social development of the child.

What are the building blocks necessary to develop efficient sensory processing/motor integration?

All the sensory systems need to work together for effective sensory processing. It is important to recognise that there are in fact 7 senses that make up the sensory system and it is these sensory systems that process information as the building blocks to many other skills.

- **Visual sense:** is the ability to understand and interpret what is seen. The visual system uses the eyes to receive information about contrast of light and dark, colour and movement. It detects visual input from the environment through light waves stimulating the retina.
- **Auditory Sense:** is the ability to interpret information that is heard. The auditory system uses the outer and middle ear to receive noise and sound information. They receive information about volume, pitch and rhythm. It is important for the refinement of sounds into meaningful syllables and words.
- **Gustatory Sense:** is the ability to interpret information regarding taste in the mouth. It uses the tongue to receive taste sensations, and detects the

chemical makeup through the tongue to determine if the sensation is safe or harmful.

- **Olfactory Sense:** is the ability to interpret smells. It uses the nose to receive information about the chemical makeup of particles in the air to determine if the smell is safe or harmful.
- **Tactile sense:** is the ability to interpret information coming into the body by the skin. It uses receptors in the skin to receive touch sensations like pressure, vibration, movement, temperature and pain. It is the first sense to develop (in the womb), and as such is very important for overall neural organisation.
- **Proprioceptive Sense:** is the ability to interpret where your body parts are in relation to each other. It uses information from nerves and sheaths on the muscles and bones to inform about the position and movement of body through muscles contracting, stretching, bending, straightening, pulling and compressing.
- **Vestibular sense:** is the ability to interpret information relating to movement and balance. The vestibular system uses the semi-circular canals in the inner ear to receive information about movement, change of direction, change of head position and gravitational pull. It receives information about how fast or slow we are moving, balance, movement from the neck, eyes and body, body position, and orientation in space.

How can you tell if a child has problems with Sensory processing/integration difficulties?

If a child has difficulties with Sensory Processing they might:

- Have poor attention
- Demonstrate inappropriate behaviour
- Being overly active or
- Being very lethargic and lacking in speed of activity
- Have difficulties in learning and retaining learn skills
- Be unable to comfortably manage crowds or group settings
- Show immature social skills
- Suffer from heightened anxiety

How can you tell if my child has problems with sensory processing/integration?

If a child has difficulties with sensory processing they might:

- Show heightened reactivity to sound, touch or movement.
- Be under-reactive to certain sensations (e.g. not noticing their name being called, being touched, high pain threshold).
- Appear lethargic/disinterested; appearing to mostly be in their 'own world'.
- Have difficulty regulating their own behavioural and emotional responses; increased tantrums, emotional reactive, need for control, impulsive behaviours, easily frustrated or overly compliant.
- Be easily distracted, show poor attention and concentration.
- Have poor motor skills; appears clumsy, has immature coordination, balance and motor planning skills, and/or poor handwriting skills.
- Have poor sleep patterns.
- Display restricted eating habits or is a picky eater.
- Become distressed during self-care tasks (e.g. hair-brushing, hair-washing, nail cutting, dressing, tying shoe laces, self-feeding).
- Love movement; seeks out intense pressure (e.g. constant spinning, running around, jumping, crashing in objects/people).
- Avoid movement based equipment (e.g. swings, slides etc).
- Appear floppy or have 'low muscle tone', tire easily and is often slumped in postures.
- Performs tasks with too much force, has big movements, moves too fast, writes too light or too hard.
- Have delayed communication and social skills, is hard to engage in two-way interactions.
- Prefer to play on their own or has difficulty in knowing how to play with other children.
- Have difficulty accepting changes in routine or transitioning between tasks.
- Have difficulty engaging with peers and sustaining friendships.

When you see difficulties with sensory processing / motor integration, you might also see difficulties with:

- **Attention and concentration:** Sustained effort, doing activities without distraction and being able to hold that effort long enough to get the task done.
- **Behaviour:** The actions of a person, usually in relation to their environment.
- **Body awareness:** Knowing body parts and understanding the body's movement in space in relation to other limbs and objects.
- **Coordination:** The ability to integrate multiple movements into efficient movement.
- **Expressive language (using language):** The use of language through speech, sign or alternative forms of communication to communicate wants, needs, thoughts and ideas.
- **Play skills:** Voluntary engagement in self motivated activities that are normally associated with pleasure and enjoyment where the activities may be, but are not necessarily, goal oriented.
- **Receptive language (understanding):** Comprehension of language.
- **Self regulation:** The ability to obtain, maintain and change one's emotion, behaviour, attention and activity level appropriate for a task or situation in a socially acceptable manner.
- **Articulation:** Clarity of speech sounds and spoken language.

What can be done to improve sensory processing/motor integration skills?

- **Education** around the range of management strategies.
- **Recognition of the triggers:** Educate the child's adult carers (parents, teachers) of the triggers that spark inappropriate sensory reactions, as well as how to then manage them.
- **Environmental factors:** Improve the parents and carers knowledge of how to reduce the environmental factors that contribute to sensory issues.
- **Alert (Engine) program** to promote effective self-regulation through sensory and cognitive strategies.
- **M.O.R.E program** using motor components, oral organization, respiratory demands, and eye contact to assist with sensory regulation.
- **The Wilbarger Protocol** (Deep Pressure Proprioceptive Technique or sometimes known as the Brushing program) is a therapy program

designed to reduce sensory or tactile defensiveness and assist with sensory regulation.

What activities can help improve sensory processing/motor integration skills?

- **Sensory diet** (an individually tailored range of sensory based activities performed regularly) to provide sensory feedback to the body to enable efficient sensory regulation. These activities might include things such as:
 - Physical obstacle courses
 - Wheelbarrow walking
 - Animal walks
 - Trampolining
 - Cycling
 - Swings (forward and back, side to side, rotary)
 - Rough and tumble play / squishing or sandwiching with pillows or balls
 - Wearing a heavy backpack for play / walking
 - Weighted items (wheat bag on lap while sitting or heavy blanket for sleep)
 - Chewy toys
- **Visual schedules** enable a child to see and understand what is going to happen next. Schedules also help people to organise themselves and to plan ahead.
- **Visual Timers** help with transitions as they tell the child how long they need to perform an activity for. Timers can allow us to pre-warn the child when a fun task is coming to an end.

Why should I seek therapy if I notice difficulties with sensory processing/motor integration?

Therapeutic intervention to help a child with sensory processing difficulties is important to:

- Ensure the child is able to engage in learning tasks.
- Enable the child to be able to develop appropriate social interaction, behaviour and play skills.

- Allow the child to cope in busy environments.
- School transition may be difficult if they are unable to follow instructions within the educational setting (e.g. classroom instructions, academic task requirements).
- Because children do not 'grow out of' sensory issues, rather they change and adapt as necessary with varying degrees of success.

If left untreated, what can difficulties with sensory processing lead to?

When children have difficulties with sensory processing, they might also have difficulties with:

- Behaviour; as the child may be unable to regulate themselves appropriately to settle and attend to a task for extended periods of time.
- Accessing the preschool or school curriculum because they are unable to attend to tasks long enough to complete master tasks through repetition or to demonstrate assessment mastery.
- Social integration as they can have trouble learning how to play with, rather than dominating their peers, and can sometimes hurt their peers due to poor body awareness.
- Poor sleep habits, impacting upon skill development due to fatigue.
- Rigid routines that are difficult to break as routine limits anxiety.

What type of therapy is recommended for sensory processing / motor integration difficulties?

If your child has difficulties with sensory processing/motor integration difficulties, it is recommended they consult an Occupational Therapist.

Contact us today to make an initial enquiry or book an assessment for your child on 1800 KID SENSE (1800 543 736)

