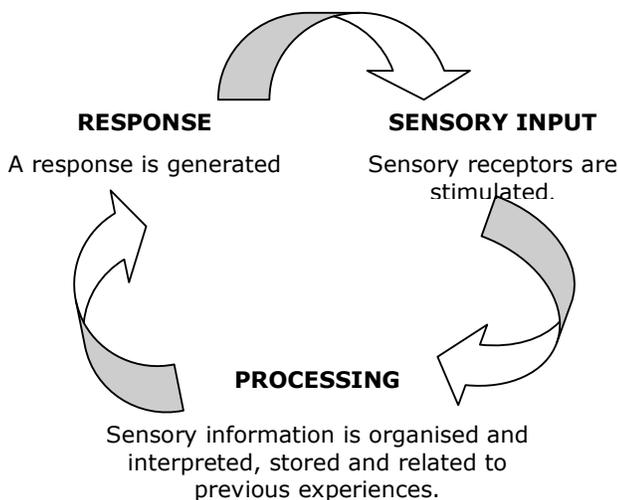


WHAT IS SENSORY PROCESSING?

Sensory processing is the ability to organise and interpret information we receive through the senses from our own bodies and the environment. This enables us to produce an appropriate response for particular situations, the task and the environment.



THE SENSORY SYSTEMS:

Far Senses:

There are senses that we all know and are called the "far senses" as they respond to external stimuli.

 **Visual processing** - the ability to interpret information received through our eyes

 **Auditory processing** - the ability to interpret information that is heard. Sensors are located in the outer and middle ear

 **Gustatory (taste) processing** - provides information about different types of taste. Sensors are in the skin around the mouth, inside the mouth and muscles and joints of the face

 **Olfactory (smell) processing** - provides information about different smells. Sensors are located in the nose

Near Senses:

There are also the less familiar senses and they are often called the "hidden" because we aren't aware of them and can't directly observe them. They respond to what is happening in our own bodies.

 **Tactile processing** - receives and interprets information about pressure, vibration, movement, pain and temperature. Sensors are located in the skin and have the dual role of discriminating tactile information (e.g. rough & smooth) and also protecting us from tactile input (e.g. hot surfaces) *N.B. Tactile can also respond to external stimuli and is also therefore considered a far sense as well.*

 **Vestibular processing** - sensors are located in the semi-circular canals in the inner ear. Provides information regarding head position relative to body and the environment.

 **Proprioceptive processing** - Sensors are located in muscles, joints, tendons, ligaments & connective tissue. Provides information about where a body part is and how it is moving in relation to the rest of our body.

WHAT ROLE DO THE SENSES PLAY IN DEVELOPMENT?

The senses provide us with essential information about our own body and the environment in which we function. They provide us with information about where our body is in space, how our body is moving, what impact the environment is having on our body, what is happening in the environment and help us in

knowing how to effectively respond to task and environmental demands.



Let's think about just the simple action of walking down a step something which we are able to do without looking or even thinking about. How do we know where our body is, how do we know to shift our balance between our feet, shift the balance of our body, know when our foot has touched the step without even looking? We know because each of our sensory system is telling us what is happening and helping us to generate appropriate responses.



Our sensory system is the foundations of our skill development and is like laying the foundations for a house. Whilst some structures may be able to be developed without the support of the foundations it does not become a structural sound 'house' without good foundations. Just as we need a foundation to build a house we need effective sensory processing for the development of building our skills across our development.

HOW WE PROCESS SENSORY INFORMATION?

Threshold:

Is a range in which the person notices the sensory information and where the sensory information becomes overwhelming.



Each sensory system has its own threshold range and this can also vary within the individual depending on stress, environment, fatigue, fear etc. Our threshold is partly established by genetics and experience.

Sensory Modulation:

'Is the ability of the central nervous system (CNS) to regulate, organise & prioritise incoming sensory information, inhibiting or suppressing irrelevant information and enhancing relevant information' (Slutsky & Paris, 2000).



It works like the brains' **zoom lens** in that it helps us to widen, narrow and shift our focus for receiving stimuli needed to match the environmental and task demands'.

A well modulated nervous system:

- ✎ Adapts to changes in the environment
- ✎ Has a level of arousal and attention that is appropriate for the task
- ✎ Blocks out irrelevant information/stimuli, attending
- ✎ Attends to relevant information/stimuli
- ✎ Responds appropriately & in direct proportion to the input

(Slutsky & Paris, 2000)

SENSORY PROCESSING DIFFICULTIES:

Sensory Processing Disorder (SPD):

Is an inability to process information received through our senses for generating appropriate responses. The result of this is a decreased ability to respond to sensory information in order to behave in a meaningful & consistent way. It can also lead to difficulty in using sensory information to plan and organise our own body & make sense of the environment in which we function thus impacting on our ability to learn.

Types of Sensory Processing Disorders:

There are 3 main types of sensory processing disorders:

1. Sensory Modulation Disorder (SMD)
2. Sensory-Based Motor Disorder (SBMD)
3. Sensory Discrimination Disorder

1. Sensory Modulation Disorder:

The child experiences difficulty processing sensory information into appropriate behaviours/responses which match the intensity of the sensory information (Miller, 2006)

There are 3 types of SMD:

1. **Sensory Over-Responsivity (sensory defensiveness)** This is where children respond more intensely & faster for longer durations e.g. becoming really upset when touched by another child standing in line (Miller, 2006)
2. **Sensory Under-Responsivity** – These children show less of a response to sensory input than would be expected for the situation, they take longer to respond and require more intense input before they even respond e.g. having a high pain threshold (Miller, 2006)
3. **Sensory Seeking** - These children have an intense craving for sensory experiences and will actively seek this out, often in ways that aren't matched or appropriate to the environment e.g. running around during group time (Miller, 2006)

2. Sensory-Based Motor Disorder:

This is where the child has trouble controlling, planning and supporting their movements into a smooth, coordinated and sequence way.

There are 2 types of SBMD:

1. **Dyspraxia** - These children have difficulty processing sensory information to create physical, unfamiliar or sequenced movements e.g. difficulty riding a bike (Miller, 2006)
2. **Postural Disorder** – These children have difficulty maintaining enough control of their bodies to meet the demands of a given motor task e.g. difficulty remaining in an upright sitting position for writing tasks (Miller, 2006)

3. Sensory Discrimination Disorder:

This is where the child experiences difficulty distinguishing between similar sensations. They need additional time to process sensory information and their capacity to perceive the information as quickly and naturally as other children do is reduced. For example they may be unable to up their buttons or find their pencil in their pencil case without looking (Miller, 2006)

WHERE TO FIND MORE INFORMATION:

- ✦ 'The Out of Sync Child' & 'The Out of Sync Child Has Fun' – Carol Stock Kranowitz
- ✦ 'Building Bridges through Sensory Integration' – Ellen Yack, Shirley Sutton, Paula Aquilla
- ✦ 'Sensational Kids: Hope & Help for Children with Sensory Processing Disorder' – Lucy J. Miller

REFERENCES:

- ✦ *Building Bridges through Sensory Integration: Therapy for Children with Autism and Other Pervasive Developmental Disorders* by Ellen Yack, Paula Aquilla and Shirley Sutton (2002).
- ✦ *Exploring the Spectrum of Autism and Pervasive Developmental Disorders: Intervention Strategies* by Carolyn Murray-Slutsky & Betty A. Paris (2000).
- ✦ 'Sensational Kids: Hope & Help for Children with Sensory Processing Disorder' by Lucy J. Miller