MINIGUIDE: SENSORY INTEGRATION (SI)

WHAT IS SENSORY INTEGRATION?

Sensory integration is the process by which we receive information through our senses (such as our eyes, ears and skin), organize the information, and then use it to respond and participate in everyday activities. It plays an essential role in everything we do including getting dressed, eating, socialising, learning and working.

HOW IT WORKS

Different parts of our body receive sensory information from our environment (such as our skin, eyes and ears). This information is then sent to the brain. Our brain interprets this information, compares and combines it with other information coming in, as well as information stored in our memory and then uses this to help us carry out actions and respond appropriately to our environment.

If this process becomes disrupted somewhere in the loop of intake, organization or output, then normal development and responses are likely to be affected. This can impact Learning, physical and emotional development, as well as behaviour. For some this can be severe.

THE 7 SENSES

Most people are familiar with five senses – **sight, hearing, smell, taste**, and **touch**. However, we also receive input through two additional senses:

The **vestibular sense**, or movement and balance sense, gives us information about where our head and body are in space. It allows us to stay upright while we sit, stand, and walk.

Proprioception, or body awareness sense, tells us where our body parts are relative to each other. It also gives us information about how much force is needed for specific activities i.e. how to pick up an egg without cracking it in our hands.

Recently there has also been much discussion about a possible 8th sense. **Interception** is how our body tells our brain what is going on inside our body, when we are hungry or feel full, when our heart is beating fast or when we have that sensation of butterflies in the stomach. This is a fairly new area of discussion within the area of Sensory Integration.

Most activities require us to combine information from many different senses at the same time. For example during a mealtime we may use proprioception to bring the food to our mouths, smell and taste to identify different types of food, and the vestibular sense to sit upright. For this to work we need sensory integration.

For most of us the development of sensory integration occurs when we are young as part of our normal development however for others, sensory integration is less well developed and can lead to difficulties in everyday life.

SENSORY INTEGRATION DIFFICULTIES/ SENSORY PROCESSING DISORDER

Sensory Processing Disorder (SPD) is a neurological disorder that causes difficulties with processing information from the senses For those with SPD, sensory information is sensed, but perceived abnormally. Therefore unlike those with a visual or hearing impairment, where one of the senses has difficulty taking in the information, with SPD sensory information is received but it is processed by the brain in an unusual way that causes distress, discomfort, and confusion.

Signs of sensory dysfunction could include:

- Overly sensitive or under reactive to touch, movement, sights, or sounds
- Unusually high or low activity level
- Easily distracted; poor attention to tasks
- Delays in speech, motor skills, or academic achievement
- Coordination problems; appears clumsy or awkward
- Poor body awareness
- Difficulty learning new tasks or figuring out how to play with unfamiliar toys
- Difficulty with tasks that require using both hands at the same time
- Appears to be disorganized most of the time
- Difficulty with transitions between activities or environments
- Impulsivity or lack of self-control
- Difficulty calming self once "wound up"

If you suspect that a person may be experiencing sensory difficulties, you can contact your GP to be referred to an Occupational Therapist (OT) for a **Sensory Profile** to be completed. A Sensory Profile will go through each sense and the different behavioural and emotional responses which may be experienced as a result of a processing dysfunction to help identify where the problems may be. From this changes can be made in the environment to help the person cope with these processing differences and a **Sensory Diet** may be created with suggestions of activities that will help the individual cope throughout the day.

Any of the senses may be **over- or under-sensitive**, or both, at different times and so it is important to recognise this and make adjustments to support it.

For example a person who is over-sensitive to touch may experience and display the following:

- Pain and discomfort when touched- which could lead to them withdrawing when touched or
- Discomfort when wearing different clothes due to the material or refusal to wear shoes
- Refusal to eat certain food due to texture

Some adjustments which may help the young person could include:

- Giving them pre-warning before touching them so that they can prepare themselves
- Changing the texture of food (eg purée it)
- Slowly introducing different textures around the person's mouth, such as a flannel, a toothbrush and some different foods
- Gradually introducing different textures to touch, eg have a box of materials available
- Allowing a person to complete activities themselves (eg hair brushing and washing) so that they can do what is comfortable for them
- Turning clothes inside out so there is no seam, removing any tags or labels
- Allowing the person to wear clothes they're comfortable in.

SENSORY PROCESSING DIFFICULTIES AND AUTISM

People often associate sensory processing difficulties with a diagnosis of Autism. Many people on the Autistic Spectrum have difficulties processing sensory information. Any of the senses may be over- or under-sensitive, or both, at different times which could impact on their behaviour. However it is important to remember that sensory processing disorder and sensory sensitivities are not only experienced by people with this diagnosis and can be experienced by anyone.