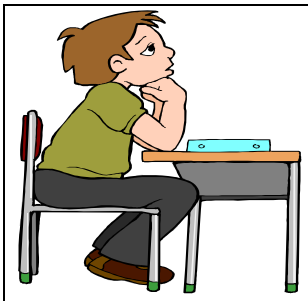

Hertfordshire Community NHS
NHS Trust

Understanding Sensory Difficulties
This sheet aims to help you understand the sensory system and how this may impact your child's behaviour.

THE SENSORY SYSTEMS

Touch: The Tactile Sense
Tactile sensation makes it possible for us to do a range of activities including finding and recognising an object in the dark, recognising different textures and protecting us from pain. For example it helps us differentiate between hot and cold temperatures. Infants receive tactile input during a range of different activities including bathing (the feel of water and different temperatures), dressing (the feel of different fabrics such as soft and rough fabrics), playing (toys with different textures) and feeding (feeling of different textured foods on the hands and in the mouth).

Movement: The Vestibular Sense
The sense of movement is controlled by our vestibular system. The vestibular system responds to body movement through space and changes in head position. In children this system is used when they engage in play activities such as swings and trampolines. It gives them information about how their body is moving through space. In Infants the vestibular system is active every time they move their head, change position, are picked up and moved through the air or they are engaged in rough and tumble play.

Body Position: Proprioception
This is closely related to the vestibular sense, and is formally known as proprioception. This sense gives us awareness of our body position. In adults it allows us to skilfully move our arms and legs without looking at every movement as in touch-typing and playing piano. It also allows us to adjust our body position quickly and automatically when we loose our balance. Infants use proprioception to tell them where their hand is when reaching for a toy when playing.

WHAT IS SENSORY PROCESSING?

Sensory Processing is the way that our bodies take in information through our senses, and how this information is organised in our central nervous system (brain and spinal cord) in order for us to be able to understand, react and interact appropriately with the world around us.
When a child picks up their first shell on the beach, the child must firstly use their vision to spot the shell, taking in information of colour size and shape. As the child bends down to pick up the shell the child needs to be aware of where their fingers, arms, head and body need to be placed so that they are able to reach the shell. At the same time the child needs to keep their balance as they move forward and downwards. As the child picks up the shell they feel the texture as being either smooth or rough, and determine whether the shell is heavy or light. The child might put the stone to its mouth and nose, tasting and smelling the salt from the sea and listening to the sound of crashing waves. The whole time that the child is exploring and enjoying their new experience, their sensory processing system is hard at work.

WHAT HAPPENS WHEN SENSORY PROCESSING IS NOT WORKING AS IT SHOULD?

The sensory systems are extremely complex, and begin to function very early in life (prior to birth). The senses do not act in isolation, but interact with each other in order to allow a person to make an appropriate response. With any system things can occasionally get jumbled, and not work in the way that they were originally designed too. In infants, these systems can mature at different rates, and one of two things can happen.

1. **Infants become overly sensitive to touch, movement, sights or sounds.** This refers to an infant becoming overly aroused by a sensation that most infants would tolerate.
2. **Infants are under-reactive to sensory stimulation**. This refers to an infant who is generally unaware or does not react to certain sensory input, and may as a result seek out further sensory stimulation.

WHAT DOES THIS MEAN FOR MY CHILD?

Infants and children with sensory processing difficulties vary in the extent to which they are affected and the sensory systems that are involved. These difficulties can impact on behaviour during functional, everyday activities. Generally infants and children who are under reactive to sensory stimulation will tend to seek out extra sensory input and infants/children who are oversensitive will tend to avoid or be defensive of sensory input. This defensiveness may result in irritability, crying, or withdrawal during these sensory experiences.

Typical Behaviours

The following behaviours may indicate difficulties with sensory processing:

Movement (The Vestibular System)

- Seeking Behaviour: Rocking body, wagging head. Enjoys rough and tumble play more than expected. Rolls or moves arms and legs more than usual.
- Defensive/Avoidance Behaviour: Persistently sitting on the floor, resisting movement, holding onto people, irritable when position is changed. May be physically rough with people and objects and appears destructive with toys and objects.

Body Awareness (Proprioception)

- Seeking Behaviour: Rolls and engages in movement more than expected, claps hands, jumps to an unusual degree, really enjoys rough and tumble play.
- Under registration (does not recognise sensory input): tends to be physically rough with people and objects.

Touch (The Tactile System)

- Seeking Behaviour: Frequently sucks and mouths objects, hands and clothes. May scratch or pinch and seeks out different tactile experiences and persists with them for extended periods of time.
- Defensive/Avoidance Behaviour: Irritated by certain clothes or fabrics and avoids certain food, such as mixtures of smooth and lumpy textures. Dislikes being towel dried and having face washed, as well as resisting cuddling and touch, avoiding getting hands messy. Dislikes head being touched or nails being cut.

As appropriately functioning adults we are able use activities to self-regulate and organise our level of alertness. Children also need to be to learn to use activities to regulate their alertness levels. Typically children learn to seek out activities themselves in order to do this. However when children are having difficulties with self-regulation, adults may need to assist these children to find the right type of activities to attain the appropriate level of alertness for their situation.

Activities to try with your child to change arousal level

Monitor the children to identify which activities work best. However be aware that the same activity may be calming at one time and alerting at another e.g. Fiddling with something to calm oneself when stressed or to alert when tired.

General Calming Strategies:	General Alerting Strategies
Slow rocking e.g. rocking chair	Running/jogging/jumping
Giving themselves a hug	Clapping activities
Squeezing and relaxing a small fidget toy	Eating crunchy food
Squeezing and relaxing face/hands	Drinking cold drinks
Sucking yoghurt/thick milk through a straw	Sucking sour sweet

This programme aims to help understand sensory behaviour. It also contains activities and strategies for how to use sensory input to support attention and concentration.

A useful website for children with Sensory Processing Disorders is:
www.sensory-processing-disorders.com

Adapted with kind permission from Northumberland PCT Children's Occupational Therapy Service