**Sensory circuits**

Sensory circuits is a set of physical activities which runs in three sections, based on the theories of sensory processing and sensory integration and the practical consideration of providing structured sensory input. A sensory circuit facilitates effective sensory integration and allows children to be in the optimum state of alertness, ready for learning. In order to understand how sensory circuits works, we need to learn more about sensory integration.

**What is sensory integration?**

Sensory integration is a neurological process which allows us to respond automatically, efficiently and comfortably in response to the sensations we receive. Through the sensory integration we are able to know what is touching our skin, the distance an object is away from us, where our limbs are in space, if we are hungry and so on. Sensory integration enables us to carry out a task effectively and learn new skills.

**How sensory processing difficulties affect sensory integration?**

Individual with ASD may process the sensory sensations and experiences differently. Although the sensory processing differences do not necessary lead to challenges or barriers, but they may affect the daily functions for many children on the autism spectrum as it directly affects the sensory integration.

Sensory integration has five interrelated components; registration, orientation, interpretation, organization of a response and execution of a response.

*Sensory registration* occurs when we first become aware of a sensory input. We may not be aware of a sensory input until they reach a certain threshold or intensity. Many children with ASD are over-responsive or under-responsive to sensory inputs which affect the way they register sensory inputs. *Sensory orientation* allows you to pay attention to new sensory information. We cannot possibly attend to all the sensory input we receive and we are able to determine which sensory information needs our attention and what information can be ignored. Individuals with ASD have poor sensory orientation which affects their ability to “turn down” the meaningless sensations. A child with ASD may not be able to follow a verbal instruction as they are attending to the noise of the refrigerator in the kitchen. *Sensory interpretation* is the brain’s ability to describe the quality and intensity of a sensory input. It allows us to determine what to respond to and if it is threatening. Having difficulties with registering and orientation of sensory information, hamper the interpretation process which subsequently affects the ability to *organise a response*. Therefore, many children with ASD may overreact in receiving a sensory sensation and may show a fright, flight or fight reaction or they may not respond at all as the input hasn’t been registered and subsequently unable to *execute an appropriate response*.

**How Sensory circuits helps?**

A child with poor sensory integration may work harder to achieve the same outcomes as their peers. They may feel tired, anxious and helpless most of the time. They may have difficulties to getting changed, remembering set of instructions or paying attention in a busy room. They may be fidgety, jumpy and easy to anger and have impulsive response to the sensory input that their body can’t tolerate e.g. noisy environment, messy play, and bright light and so on.

Sensory circuits facilities sensory processing and subsequently an effective sensory integration. The three sections of the circuit (Alerting, Organising and Calming) provide structured sensory input which contributes to the development of self-regulation, comfort in environment, motor planning and motor skills, attention and reediness to learn.

The aim of the alerting section is to provide vestibular stimulation within a controlled setting. It allows the fluid in the ears to move about through jumping and head movement. Skipping, bouncing, jugging on spot, hopscotch, stepping up and down are suggested activities for this section.

Organisation section includes activities that provide challenges involving multi-sensory processing; for example, balancing and moving, throwing and balancing.

The aim of activities in the Calming session is to provide heavy muscle work and/ or deep pressure to the body to ensure the child is calm and centred and organise for the day as possible. Press-ups, pushing and pulling, wall-bar hanging, crawling through roller device, gym ball squash are suggested activities for this section.

The long-term benefits of sensory circuits include:

* Improvements of sell-esteem
* Development of gross motor and fine motor skills
* Differences in focus and attention and the ability to settle down
* Efficient self-care skills
* Multi-tasking
* Self-regulation and emotional control

References:

Horwood, J. (2016). *Sensory circuits*

Yack, E., Sutton, S., & Aquilla, P. (2015). *Building bridges through sensory integration*