



Sensory integration and processing differences

We use our senses to learn about and navigate the world around us. For example, we touch, smell, taste, listen to and look at a variety of things from a very early age to make sense of what they are. We also might test how to use or interact with certain objects – for example, babies learn how quickly and how far to put a spoon into their mouth without making themselves gag as they learn to feed themselves.

The sensory systems

Most adults usually think we have five senses – sight, smell, touch, taste and hearing. However - there are 3 'hidden' sensory systems:

- Proprioception: bodily awareness and co-ordination (we sense this through muscles, tendons and joints),
- Vestibular: the sense of balance (we sense this through the position and orientation of our head and the speed we are moving at)
- Interoception: internal signals and cues (this includes signals around hunger, fullness, toileting, pain, temperature and emotions).



These additional sensory systems help us to learn and explore from the earliest stages of development – for example, babies learn how much force they need to pull themselves to a standing position, toddlers begin to balance when climbing stairs and tackling obstacle courses, and older children learn how to recognise and express when they are not feeling well – such as being too hot, hungry or thirsty.

Sensory integration and processing

Some children may experience differences in how they receive and make sense of sensory information. When the brain organises sensory information correctly, it allows us to respond appropriately – for example, we quickly realise how hard to press with a pen or pencil to write something down or how much force we need to close the front door. However, when the brain has difficulty organising sensory information, we can have difficulty responding correctly. This might mean we have poor body awareness and balance or are particularly sensitive to certain types of sensory input.

For further information about a service level agreement with the Early Years and Key Stage 1 team or to find out more, please contact Emma Weaver via email: emma.weaver@adhdfoundation.org.uk



Hypo- or hyper-sensitive?

Everyone seeks and avoids sensory input – lots of us enjoy particular smells, tastes or fabrics. However, when children have difficulties with sensory processing and integration, they may seek or avoid sensory input more than their peers.

Hypo = under

Hyper = over

If a child is avoiding certain sensory input – such as trying to switch the lights off, covering their eyes, squinting or playing only in darker spaces, it is likely they are hypersensitive to it. If they are seeking a particular sensory input, for example, by jumping, climbing, rocking and spinning, they are hypo-sensitive to it. Some children may become overwhelmed by the amount of sensory information their brain is trying to process and become agitated, distressed or have a meltdown. This is not a tantrum.



How can we help?

- Create opportunities for the child to engage with the types of sensory input they are seeking during the day – for example, children who climb will benefit from frequent access to climbing equipment, or those who enjoy jumping might like to use a trampette throughout the day.
- Management of sensory input children avoid: for example, try to soften/reduce overhead lighting, create dark spaces and areas of the room where there is less visual information (for example, neutral colours, minimal displays or resources) for children who are sensitive to visual input.
- Be mindful that children's reactions to sensory input can change over time – they may become more heightened if a child is feeling unwell, for example.
- Sensory circuits can be helpful for children during the nursery or school day – see our guide for more information.

Seek a referral to an occupational therapist for support with designing a sensory diet.