

**Supporting
Children with Sensory
Processing Needs in
the Early Years**





An introduction to our sensory systems

Our sensory systems are the systems our body has that give us information about ourselves and the world around us; these support us to go about our day to day lives.

We have **8 sensory systems** which include:

- **The Auditory system** – the sense of hearing
- **The Olfactory system** – the sense of smell
- **The Oral sensory system** – the sense of taste
- **The Tactile system** – the sense of touch
- **The Visual system** – the sense of sight
- **The Vestibular system** – how we sense where our bodies are in space. This term refers to the inner ear spatial recognition; it is what keeps us balanced and coordinated.
- **The Proprioceptive system** – our “internal” sense of awareness we have for our bodies. This helps us to maintain posture and motor control, for example. It also tells us about how we are moving and occupying space.
- **The Interoceptive system** – this is the sense of what is happening to our body; maybe best understood as how we “feel”. This system is responsible for the general sense of our body’s physical condition; hunger, thirst, hot, cold, internal discomfort and whether you feel your emotions.

Children’s sensory systems pick up information from their surroundings and these send information to the nervous system. The nervous system processes this information and generates a response or reaction to what is happening around the child.

Sensory experiences can help children understand their environments and support them to feel safe and secure. A well-developed sensory system is essential for both cognitive and social intelligence and is therefore required for children to become successful learners.

Sensory processing is a subconscious neurological process that occurs in every person throughout all stages of their lives. For most people this develops during ordinary childhood activities. When we develop good sensory processing skills, we can integrate information automatically and efficiently. For some people, sensory processing does not develop as efficiently as it should which makes it difficult to generate an appropriate response to environments and everyday situations. This can affect daily living, education, and social interactions; it can also result in a wide range of confusing and sometimes negative behaviours.

Sensory issues impede children from readily seeking out experiences that allow them to learn about themselves and their physical environment. They may have difficulty receiving and responding to information from their senses. Children with sensory processing difficulties may experience difficulties figuring out what is going on inside and outside of their bodies. They may have an aversion to anything that triggers their senses, such as light, sound, touch, taste, or smell.

Children may present with different types of sensory difficulties. If their sensory needs are not supported effectively this can lead to avoidance, withdrawal, inattention, and behaviour that challenges. Sensory difficulties may include:

Hyper (over) sensitive – children who are easily stimulated:

- Dislike of touch / texture experiences, e.g. messy play, physical contact
- Dislike of loud sudden noises
- Dislike of bright lights
- Avoidance of playground equipment (e.g. swings and slides)
- Avoidance of certain foods and food texture, colours, temperatures, etc.
- Dislike or avoidance of certain smells.

These outsized reactions may cause:

- A low pain threshold
- Clumsy, uncoordinated movements
- Withdrawal from activities
- Discomfort and confusion
- Fleeing without regard to safety
- Covering of eyes or ears frequently
- Picky food preferences

These children can be observed to be ‘avoiding’ activities and experiences. They will have trouble suppressing the information that they receive from everyday activities and may feel overloaded, which can cause distress (observed in their behaviour).

Hypo (under) sensitive – children who aren’t so easily stimulated:

- Appear to have no fear or does not feel pain
- Seeks movement or touch opportunities (fidgets, rocks, jumps, leans on peers, runs around)
- Mouths or chews things
- Poor attention / unresponsive to the environment or people around them
- Distractible / over-excited
- Lack of energy

These reactions may cause:

- A high pain threshold
- Bumping into walls
- Touching things
- Putting things into their mouth
- Giving bear hugs
- Crashing into other people or things

These children crave interaction with the world around them; they may interact and engage more with their surroundings to gain sensory feedback. This may make them appear hyperactive when they may simply be trying to make their senses more engaged. These children ‘need’ this feedback so that they can feel ‘just right’. Alternatively, these children may lose focus and appear inattentive because they are not receiving enough input to sustain their involvement and engagement in activities and their environment. These difficulties may also be displayed through their behaviour.



The range of difficulties these children can experience can lead to a variety of developmental delays in children, such as:

- Poor postural control
- Poor hand / eye co-ordination
- Difficulty with spatial awareness
- Visual perception deficits
- Poor attention and concentration
- Difficulties with learning
- Poor self-esteem (which can lead to social and emotional difficulties)

Without good sensory discrimination it is difficult to judge how to participate in everyday routines and activities; a child may struggle to know the difference between soft and hard, hot and cold, how hard to push or pull something, detecting a taste of something that we put in our mouth or judging distances between ourselves and others. These again, can be observed in the behaviours that children demonstrate.

It is important that practitioners recognise and understand these difficulties so that the child can be appropriately understood and supported to access their learning and environment. They must be enabled to learn with enjoyment; not be allowed to struggle with their difficulties. Therefore, practitioners may need to become 'Sensory Detectives'. They should try to identify if there is a pattern emerging which shows how sensory information is reacted to. This will inform planning and interventions for the child to help them regulate the amount of sensory information they need to respond appropriately. It may be useful to use an ABC chart to tune into the child and work out what causes their difficulties and then this information can inform planning and provision. For example, it may be identified that a child requires suitable and personalised sensory input in specific learning contexts to support their sensory regulation. This intervention may improve their focus and enable the child to be 'ready' to learn.

It is important to note that children with sensory issues will often not follow typical ages and stages of developmental. They may fall below 'typical' levels of development or they may have a 'spiky' profile because of their difficulties. Practitioners can refer children with sensory issues to Occupational Therapy where assessments and treatments can be provided to support the child's difficulties.

Hypersensitive **versus** **Hyposensitive**
(Over responsive) (Under responsive)

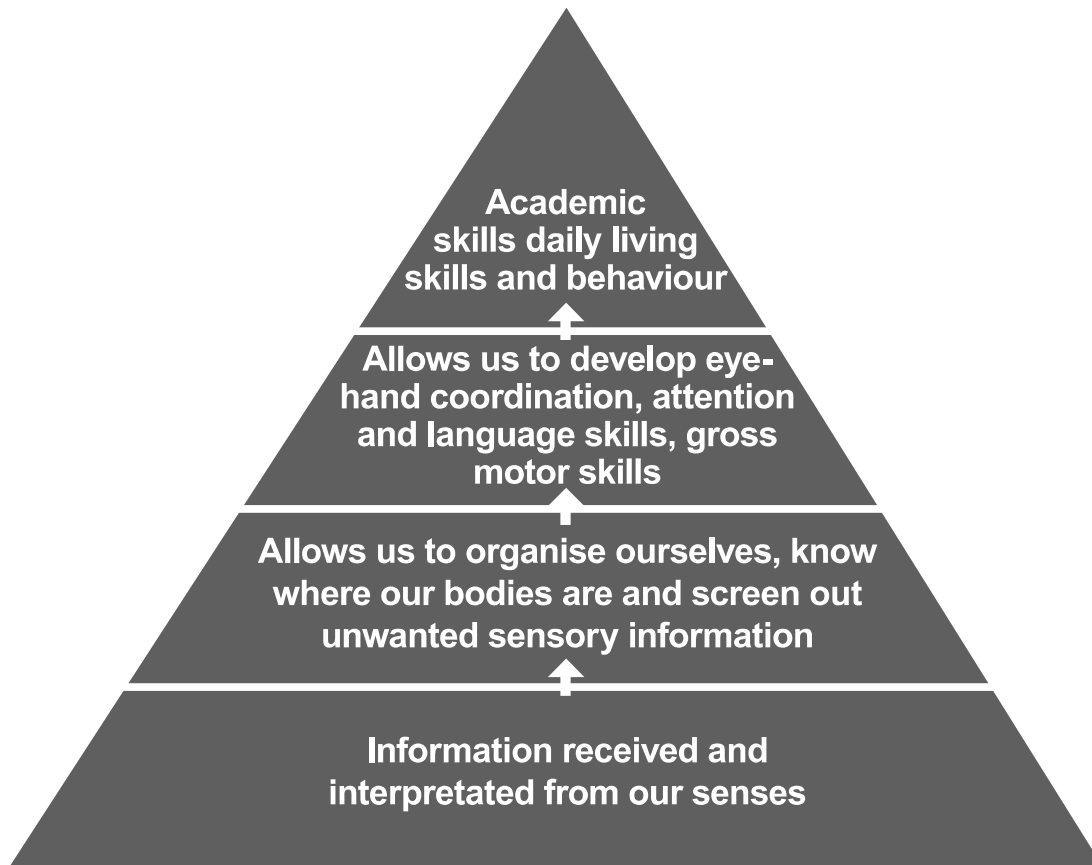
To understand the impact of hypersensitive response versus hyposensitive response, think of the sensory system as a cup and think about adding water to this cup. The water is the sensory input.

If a child is hyposensitive (under responsive) to a certain sensory input, then their sensory system would be like a huge cup; you could keep adding and adding water to this big cup and it wouldn't feel full.

If a child is hypersensitive (over responsive) to a certain sensory input, then their sensory system would be like a tiny cup; all they need is just a little sensory input and their cup will overflow.

Children need their cup to be full but not to spill over. Different children will have a different sized cup and their cup for each sensory system may be a different size; for example a child may have a big cup for proprioceptive senses and a little cup for touch and sound; each one is different and unique.

Some days and times of days can be good for children and some days and times of days can be very challenging, e.g. too much stimulation, too much noise, too much light, not enough movement, not enough feedback, etc. Therefore, being a 'sensory detective' is crucial. All practitioners must understand the child's sensory difficulties and their requirements.



Adapted from Williams and Shellenberger (1994).

Top tips to help children regulate their sensory needs:

- Have an awareness and understanding of the 8 sensory systems and how these may affect some children.
- Be a 'Sensory detective' by finding out what is going on for the child and what he/she needs.
- Do a sensory tour of the environment with the specific child in mind. Consider light, colour, sounds, patterns, surfaces, textures, reflections, and shadows.
- Closely observe the child to determine where he/she feels most comfortable, safe, and secure. Notice places the child appears to avoid.
- Discover whether activities are needed to 'up-regulate' or 'down-regulate' the child.
- Provide a sensory space where the child can access their sensory needs.
- Plan a sensory timetable / diet so the child has regular opportunities for the sensory input they require.
- Provide sensory resources to meet the individual needs and interests of the child.
- Provide 'choices' of sensory activities for the child.
- Ensure sensory activities are fun and engaging.
- Teach the child to recognise their individual sensory needs and to identify the sensory input they require. Encourage them to fulfil their needs independently.
- Provide predictable structures and routines to support the child's emotional well-being.
- Stay calm, patient, and positive and support the child to access the sensory input they need.

You can access further support and advice for supporting children with sensory processing needs via your Early Years Area SENCO.

Planning an Early Years environment to meet the needs of children with sensory differences

The early years environment can be quite challenging for children who have sensory processing difficulties and it is important that practitioners plan their environment accordingly. Settings should consider adaptations to their provision and practice when supporting a child's specific sensory processing differences.

Children need a space to calm their bodies, to regulate their bodies, to release their emotions and to stabilise themselves so that they are ready (and happy) to learn. Some children may benefit from additional opportunities within the provision to be active, providing them with the sensory input needed to help regulate their behaviour.

Planning everyday provision

When planning an enabling environment, remember that the general promotion of good sensory development across the provision will have a positive impact and will be enjoyed by all children. Settings should consider the following resources which are more cost effective and inclusive than some more specialised equipment:

- Provide a selection of large cardboard boxes, as these enable children to create their own enclosed spaces and will reduce noise for children who have difficulties with auditory processing.
- Have something children can bounce on, both inside and outside, for example, a mattress, a small trampet and space hoppers. These provide safe, stimulating vestibular activity for all children.
- Think about equipment children can push, rock and roll around on as well as spin, for example, a swivel chair, a gym ball, a rocking horse, a giant balance spinning top, a Moluk Bilibo shell spinner and a baby buggy.
- Provide blankets, stretchy fabric and 'body socks' for children to wrap themselves in. These will give proprioceptive experiences for relaxing as well as being used for vigorous activity.
- When planning resources for imaginative role play, think about items that can also be used for sensory stimulation too, for example, voile scarves, textured rugs, soft blankets, a variety of different sized cushions etc.



Creating a Calming Sensory Space

Creating quiet, calming spaces is essential so that children with sensory differences can withdraw from the hustle and bustle of a busy early years environment when they need to.

A sensory space does not need to cost a lot of money or need a lot of space. If you only have a corner to turn into a sensory area, you can just put bean bags, cushions, textured mats, and blankets in there. Add a voile drape overhead with fairy lights to make it cosy. Alternatively use a high table and put a cover over it to create a den. Also think about creating calming spaces outdoors too; tents and pop-up dens are great to use for sensory spaces outdoors. Also provide throws and tarpaulins, crates, and large boxes so that children can make their own dens outside.

When planning what to place inside a sensory space, think about the individual needs and interests of the children.

Equipment to consider could include:

- Bubble tubes, glitter balls and fibre optic lights
- Sensory bottles
- Colour changing torch
- Pieces of textured materials (large enough for the child to wrap themselves in)
- Treasure baskets containing different textured objects and materials
- Musical instruments, such as bells and a triangle
- A box of toys to support repetitive play e.g. sorting shells
- CD player and calming music
- Ear defenders

Exploring each of the sensory systems

The Auditory system (the sense of hearing)

Auditory processing is all about how the brain recognises and makes sense of sound. Sounds consist of loudness, pitch, how long the sound lasts and where it is coming from. Our brain takes all this sound in automatically, processes the information and then responds appropriately to it.

Children with a healthy auditory processing system can respond to sound naturally; they respond when their name is called and can follow direction from an adult. They can filter out any unwanted noise and tune into the sounds that are important.



Difficulties with Auditory:

Some children experience difficulties, so they are unable to filter out the unwanted noise. These common background sounds may be a constant distraction and can overwhelm them. Certain noises may make them feel anxious as they do not know what they are and how to respond. Some sounds from toys and resources in an early years environment can also be confusing and cause distress. These children may have difficulty hearing information and processing it; this will make it difficult for them to respond appropriately. They may also misinterpret or miss subtle information when following verbal direction, e.g. "Line up for outdoor play" is quite different from "Line up behind Harry for outdoor play". If children miss one small part of a direction it can alter their response quite significantly. This can appear as unwanted behaviour.

If a child is experiencing difficulties in this area, they should be referred for a hearing test to rule out any other medical difficulties.

Hypersensitivity:

Children who are hypersensitive to auditory input are overwhelmed and can be frightened by the volume, pitch, and unpredictability of everyday environmental sounds. Noise can be painful for these children. You may observe these children running from household noises, e.g. Hoover, washing machine, hair dryer. They may display physical signs of avoidance such as covering an adult's mouth when they talk or sing. They may also cover their ears during everyday routines and activities or at loud and unexpected noises; this can cause them to become distressed and anxious. They may attempt to avoid and withdraw from noisy, crowded environments and appear agitated and ready to flee. They may be so distracted by background noises that they find it very hard to concentrate and attend during focused activities. Children can become very fixated on background noises which may not be obvious to the adult, for example, the discrete buzzing of a light or ticking of a clock. The child may hum to block out this background noise.

General Tips for hypersensitivity:

- Encourage the child to stay at a distance but in the same room as the sound; consider using a pop-up tent as a safe space to help the child feel protected.
- Allow the child to wear ear defenders with chosen / familiar music playing to help drown out sound
- Consider environmental sounds in the provision that may be affecting the child, e.g. a buzzing light or fridge, a ticking clock
- Turn down ring tones and alarm sounds where possible or move them to another room temporarily, then gradually reintroduce; this will help to desensitise the sound.
- Switch off background distractions, e.g. TV, radio as these cause auditory overload.
- Ensure only one person at a time is speaking to the child as too much information will result in the child having difficulty processing what is being said.
- Listening to classical music can help the child feel calm and relaxed.

Hyposensitivity:

Children who are hyposensitive to noise may not register important auditory cues in their environments. They may appear as though they do not hear the sounds around them. They may fail to generate motor responses to auditory input, e.g. following instructions and responding to their name. They may be noisy and seem to be always talking, singing, humming, and making sounds to generate the additional auditory input they need for themselves. They may struggle to process verbal instructions, resulting in them responding slowly and perhaps talking to themselves out loud as they perform tasks. They may find it difficult to remember any of the information that you told them. The child may fail to respond to the adult altogether as they are unaware that they are talking to them. The child may not be alarmed by sudden and loud noises. The child may hold toys and objects up to their ear and have sound making resources on a high volume

General tips for hyposensitivity:

- Allow the child to have the volume up on an object but encourage them to move it to a safe distance so they do not damage the ear
- Approach the child from the front and provide a sensitive touch to their arm before communicating to help focus their attention
- A child who doesn't appear alarmed by sudden noises is often tuned into something that they find more interesting. Try using exaggerated expression and higher tone to gain the child's attention and tune them into sounds.

Activities to try:

- Play games which involve identifying sounds, to help reassure the child and support them in becoming familiar with the sounds.
- Walk towards and around the sound source to see and understand where it comes from and to reassure the child that there is no danger.
- Play simple role play games with phones etc; allow the child to make the phone ring and to become familiar with this noise.
- Plan opportunities for gentle exposure to busy environments to retrieve child motivated objects, e.g. a visit to the hall to get some food.

- Explore a range of options for the child to use to protect their ears from noisy activities, e.g. ear defenders, hat, hood.
- Identify sounds in the environment and give visual and verbal labelling, e.g. “Wow look at that big aeroplane”. This will help to reassure the child.
- Encourage the child to play with the objects that make a noise or watch the adult play with them. Make the activity fun, e.g. blow a balloon up and let it go or release a small squeaky bit of air out, allowing the child to have control where appropriate.

The Olfactory system (the sense of smell) and The Oral sensory system (the sense of taste)

Taste and smell are closely linked as they follow the same neural pathway. Our brains are wired so that we can respond appropriately to smells and tastes however, for some children they may be over or under-sensitive to this. For some children differences with the senses of taste and smell can have a significant impact on the foods they will accept. Some children will only eat bland food whilst others crave spicy, pungent foods. Whilst it is almost impossible to change how someone processes smell and taste, there are strategies you can use to help a child cope with the differences they may experience for this sense.



Hypersensitivity:

Children who have a heightened sense of smell and taste may become anxious at the smells around them. This could include perfume or the scent of washing powder, the smell of cooking and flavours around certain foods. It can mean that a child has a gagging reaction to some foods. Hypersensitivity may also impact on the child being able to cope with teeth cleaning and toileting.

General Tips for hypersensitivity:

- Ask adults working in the setting to refrain from using perfume or strong-smelling hand cream etc.
- Ensure that there is a calm, comfortable atmosphere at mealtimes.
- Encourage the child to smell food at snack and mealtimes and during baking and messy play activities. This reduces the pressure and anxiety on eating and encourages the child to touch and smell food in a fun and relaxed context. Use positive language around the food such as “mmm this grape is juicy”.
- Try to keep the kitchen doors closed and windows open when cooking at the setting.

Hyposensitivity:

Children with an underactive sense of smell and taste may lick or sniff people and toys. Sometimes they will mouth and chew non-edible items. Some children will bite others for no apparent reason. They can also grind their teeth. Children can be fussy eaters and prefer strong flavoured food.

General tips for hyposensitivity:

- Highlight ways to identify people and toys etc. through looking at attributes other than through licking or smelling. For example, “Debbie always has a pink watch on”.
- Audit the setting provision to ensure that it is as safe as possible if you have a child who mouths or eats non-food items.
- Begin to teach the child to explore toys through touching with their hands rather than their mouths.
- If a child tries to bite into a non-food object, intervene and replace this with a small food item, such as a raw carrot stick, instead.

- If a child mouths a non-food item, offer them a safe alternative, such as a teether or 'Chewelry'. Chewelry are resistant chewy aids which can help children who may need added stimulation and proprioceptive input. They provide a safe alternative to biting on hands, cuffs and clothing and they help to eliminate the risk of choking on inappropriate objects. There are many different forms of chewelry to suit the needs and ages of individual children.
- If a child bites others, always ensure that people approach them from the front, not touching the child as they may be experiencing too much sensory overload from the adult.
- If age appropriate, introduce social stories about not eating non-food items.
- Plan activities which will allow the child to receive oral sensory feedback in a controlled and safe environment.

Activities to try:

- Use experimental food in play, such as hiding small toys in a tray of rice crispies or cooked spaghetti. If the child is reluctant to touch the food, start by introducing ladles, salad servers etc.
- Introduce smells in a fun and relaxed environment. Try making scented play dough, add fragrant bath oil to the water tray, have real oranges and lemons in the role play area etc.
- If massaging the child's feet or hands, use scented lotions.
- Set up an investigation station, where children can explore different smells in closed containers with holes punched into the lids.
- Use scratch and sniff books and stickers.
- Use fragrant pens to encourage mark making.
- With all these activities, work at the child's pace and allow them to leave if they find it too overpowering.

The Tactile system – the sense of touch

We all experience touch all the time, whether it be the touch of the clothes we are wearing, the touch of the chair we are sitting on or the touch we experience when someone cuddles us. Touch is important for social development. It also helps us to assess the environment we are in, for example, determining whether an object hot or cold and reacting accordingly. It also allows us to feel pain. The skin is the biggest and most sensitive organ of the body and being under or over-sensitive to touch is one of the most common sensory difficulties. The ability to process tactile input is very important as it enables children to be able to regulate their behaviour, maintain attention and concentration so that they can play and learn, and engage and participate in functional activities and tasks.



Difficulties with a sense of touch:

Some children experience difficulty with processing the tactile information they encounter in everyday life. This may cause them to withdraw from or avoid certain tactile experiences. Even the most basic touch experiences may be unpleasant or even painful.

Hypersensitivity:

Some children are very sensitive to being touched. Touch can be painful and uncomfortable for them and this can impact on their relationships with others. They may dislike some textures and will only wear certain clothing. Some children can become very aware of clothing seams and labels and can also be resistant to having anything on their hands and feet. Children who are over-sensitive to touch may walk on tiptoes, they may dislike being stroked or tickled and they may appear to overreact when they hurt themselves.

General Tips for hypersensitivity:

- Do not force involvement in any activity that involves touching. Warn a child if you are about to touch them and always approach them from the front.
- Remember that a hug may be painful rather than comforting.
- It is important however to continue to offer opportunities that encourage new touch experiences.
- Give the child time to accept tactile activities and follow their lead.
- Try not to put a child in a situation where they may be anxious that someone will touch them, for example, lining up.
- Introduce new touches on the back of the hand rather than the palm, as this is less sensitive.
- Try using a firm touch rather than a light touch. Some children enjoy deep pressure massage using objects, such as balls, rather than skin to skin.
- Provide long handled tools, such as spoons and mashers in sand and brushes and rollers in paint. In this way, a child can explore a range of activities without having to touch the sensory material.

Hyposensitivity:

Other children are under-sensitive to touch and are unaware if they get messy or spill food around their mouth. These children often feel pain less intensely and may not show any distress if they are ill or hurt. They will sometimes self-harm, such as banging their head, as a means of gaining sensory feedback. Often children who are under-sensitive to touch will hold others tightly before they can realise a sensation of having applied any pressure. These children may wrap themselves in blankets and will reach out to touch everything around them.

General tips for hyposensitivity:

- Introduce different variations of touch, e.g. light and firm as this will help the child learn to recognise different sensations.
- During seated activities, it can help to sit behind the child and press firmly onto their shoulders. A weighted blanket folded over the child's knees can also help them to sit still and concentrate during focused activities.
- Wrap the child in a thin yoga mat and roll them across the floor.
- Some children like to be laid across a gym ball and rolled backwards and forwards.
- Provide blankets for the child to wrap themselves in whenever they want.
- Give them cushions and soft toys to cuddle tightly.
- Provide squeeze toys, such as stress balls.

Difficulties with Sensory Play:

Some children may become fixated on the feel of sand or love to watch it running through their fingers. Some will be strongly drawn to the sight and sound of running water. Others can be distressed by the feel of sand on their skin or the noise of running water.

If children have a fascination for sensory play, allow them some time to explore in their own way. Try to limit this solitary play though by using a timer and consider using this type of play as a reinforcer or reward.

With children who are reluctant to join in sensory play activities, gradually introduce some structured joint play with sensory materials. Use a sequence of very small steps so that, over time, the child will start to become less resistant to the sensory material.

General Tips for difficulties with sensory play:

- Limit the resources in joint activities to avoid distractions.
- Keep joint play sessions very short, 2-3 minutes may be plenty.
- Repeat short play sequences over several sessions until the child becomes familiar with what to do. Then adapt or extend as necessary.
- Give a commentary of what the adult and child are doing.

Activities to try:

- Start with a shallow tray with a little warm water. Tip in some marbles and encourage the child to watch them move and possibly touch them.
- Put raisins (or other suitable foods) into a shallow tray of water and encourage the child to dip their fingers in to pick out the raisins.
- Add fruit cordial into a shallow tray of water and encourage the child to dip in his fingers and lick them.
- Use a wind-up toy in a shallow tray of water.
- Introduce an animal wash-mitt to jump and splash in the water and play hide and seek.
- Place a mirror in the bottom of a shallow tray of water.
- Try an adult pouring water from a jug held up high, saying 'ready, steady, go' and encouraging the child to watch.
- Have a small set of water-based animal figures and a set of land-based figures. Encourage the child to sort the animals and throw all the water-based figures in the water tray. Alternatively, use boats and cars to sort.
- Use a decorator's brush or paint roller dipped in water to make marks on the pavement.
- Introduce squeeze bottles or plant sprayers and show the child how to squirt water onto a blackboard or paved area.
- An adult could build a sandcastle, count '1, 2, 3' and encourage the child to knock it down.
- Draw in shallow trays of wet sand with handled tools so the child does not have to touch the sand.
- Use 'real' activities to introduce sensory play, such as watering plants, washing the bikes, planting seedlings etc.
- For children who mouth and eat objects, make edible paint using fruit purees, melted chocolate or a mix of cornflour, water and food colouring.
- Line a cake tin with paper, squirt a few blobs of paint into the bottom, tip a few marbles into the tin, fasten the lid on and encourage the child to shake the tin to make a paint pattern on the paper.
- Develop imaginative play through fascinations and interests of 'real' activities such as a building site or baking.



The Visual system (the sense of sight)

The visual system is how we receive and process sensory information through our eyes. Our eyes and brain work together to communicate and interpret what we see in our physical surroundings. Our brain identifies the object and gives it meaning. Our visual system allows us to create a memory of the image and gives the context within our environment. Vision is closely integrated with all our other senses, e.g. we see freshly baked cakes and we become hungry as our sense of smell and our taste buds are stimulated. If we see a spider, our tactile system goes to work, and we feel a sense of fear. Our vision helps us to process, understand and take action in our environments. A healthy visual system enables us to focus on the most important details in the environment and filter out those that are not important. For example, when playing hide and seek, a child will filter out most of what they see and will focus on the piece of furniture they have chosen to hide behind. The visual system is not simply about our ability to see; it also includes our ability to track, locate and discriminate between the things around us.

Difficulties with visual:

Without a regulated visual system, we cannot focus on the important details that help us understand the world around us. We are constantly surrounded by a range of objects and resources but, with a regulated visual system, we can focus on the details we need to and ignore those we don't. Some children are unable to filter out the unwanted visual stimuli. The wealth of objects they see may be a constant distraction and can overwhelm them, resulting in them not being able to focus and engage. These children may have difficulty selecting the appropriate visual information; this will make it difficult for them to respond appropriately in given situations. Their responses can appear as unwanted behaviour.

If a child is experiencing difficulties in this area, they should be referred for an eye test to rule out any other medical difficulties.

Hypersensitivity:

Some children are highly distracted by the visual stimuli around them. These children may be overwhelmed by the many colours in the room, the resources, the displays on the walls and the movement of others around them. They may fail to focus on a task because of other visual distractions around them. These children may cover their eyes to remove some of the visual stimulation. The child may focus on a tiny part of an object rather than the whole thing, for example, they may become fascinated by tiny threads on the carpet. They may become focused on activity outside the window or become focused on counting the tiles on the floor. They may stimulate themselves on reflective surfaces. Children with an overactive visual sense may experience text vibrating or wobbling, so that activities which involve reading can be tiresome and unenjoyable.

General Tips for hypersensitivity:

- Play with the child in a distraction free area.
- Avoid making environments visually too busy.
- Think about book illustrations and choose books with simple pictures and uncluttered backgrounds.
- Ensure that marks are removed from board before writing on them
- Sit the child on a large single coloured rug to discourage thread pulling or the distraction of patterns.
- Ensure any laminated visuals are made using matt laminate pouches as some children get stuck on the reflection of the card as opposed to the picture itself.

Hyposensitivity:

Children who are visually under stimulated may barely notice their surroundings unless details and objects are pointed out to them. They may stare at the same point for extended periods of time, maybe out the window, at bright lights or at a flickering fluorescent light. They may get excited at flashing lights on toys. They may quickly become confused during visual activities and lose interest. These children need a visual boost.

General tips for hyposensitivity:

- Use visual cues and gestures to support understanding and engagement.
- Use a blind to blank out distractions.
- Avoid fluorescent lighting, especially those that flicker.
- Limit flashing light toys to use as motivators for short periods.

Activities to try:

- If children are visual learners, then pictures might provide the information that they need.
- Provide activities which allow the child to explore and create in minute detail, e.g. making collages out of rice.
- Play alongside and tune into the child. Encourage them to point at what they see as this will help you to understand what they focus on.
- Sensory rooms are useful and often relaxing for children that stare at lights. Use interaction switches and voice activated light boards to encourage interactive play.

The Vestibular system (how we sense where our bodies are in space)

Our vestibular system is all about our balance and movement and is centred in the inner ear. We all have vestibular organs located in our inner ear. When we move our heads the fluid in these organs moves and shifts which constantly provides us with information about the position of our heads and bodies. It tells us if we are right side up or upside down, moving forwards or backwards, whether we are dizzy or not.

The vestibular sense is perhaps the most important of all our senses as it gives us physical and emotional security; it helps to keep us upright against gravity and it helps us to keep orientated when we bend down as our bodies automatically adjust to stop us from falling. It helps us to move smoothly and efficiently and provides us with confidence to move and interact with our surroundings.

When our vestibular system is working effectively it enables us to feel safe, secure and organised in our bodies so we can then attend and respond to other sensory input; e.g. allowing us to process and respond to sounds in the environment whilst bouncing, or to throw a ball at a target whilst running and watching the target.

With a well-developed vestibular system, we can feel confident and safe in movement activities even with our feet off the ground.

Our brains receive vestibular information and then decide what to do with it. Our initial protective reactions are 'go for it', 'don't do it' or 'proceed with caution'. Our brain assesses the situation and establishes if there is a perceived threat or danger; it will then act accordingly.



Difficulties with vestibular:

Children with vestibular difficulties will often not respond accordingly to a given situation. They may feel dizzy and sick very easily and not realise when they have reached their tolerance level.

Hypersensitivity:

Children with a poorly functioning vestibular system may display exaggerated emotional responses to movements against gravity, well beyond the proportion of the actual potential threat. If their brain is over responsive to vestibular input, they may feel off balance and it can make it scary to do activities. These children may be fearful of playground equipment; they may dislike slides and swings. They may feel anxious if they are not in control of movements. Children may move around the outskirts of activities and avoid busy movements. They will prefer low key activities. These children may also get car sick easily.

General Tips for hypersensitivity:

- Ensure that a child who is fearful of movement, playground equipment and who gets car sick easily is in control of the amount of challenging movement that they engage in. They must never be pushed past their limit.
- Always be aware of the sensory strategies that calm a child and that enable them to feel safe and secure. These are useful to prepare a child for challenging work against gravity and to calm and comfort them if they feel unsure or anxious with certain movement activities.
- Place a hard surface under the child's feet whilst sitting to encourage a feeling of stability.
- Avoid big unexpected movements.
- Provide the child with a safe haven to go to if the setting is becoming too much to cope with, for example consider using a pop-up tent. Encourage short periods of time with a small group to begin to desensitise the child to activities.
- Allow the child to play with low key activities alongside a busier group for short periods.
- Gradually encourage one other child into the child's chosen play and facilitate quite low key non-threatening games

Hyposensitivity:

Children with an under sensitive vestibular system may experience an under responsiveness to movement and seek out as much movement as they can; they may constantly be on the go. These children may seek out climbing opportunities, swings, roundabouts, and slides; and they will enjoy hanging upside down on bars and furniture. They may seek rocking motion. They will not display a sense of danger when climbing and they may trip over their own feet. If a child's brain is under responsive to vestibular input, then their body wants to constantly move, and spin and they never get dizzy.

General tips for hyposensitivity:

- Divert the child to more appropriate large play equipment when they show a desire to climb.
- Divert the child to more appropriate provision if they swing on inappropriate equipment.
- Engage the child in lap play activities.
- Provide regular bursts of gross motor play.
- Provide close supervision on climbing frame equipment.

Activities to try:

- Teach the child to use their feet to activate equipment and to become in control, e.g. swinging self on a swing, pushing self along on a Scuttle bug.
- Move legs to pieces of music or during rhymes
- Sing songs such as 'Row the boat' and the 'Roly Poly' song, etc.
- Use of a large child sized ball (gym ball) and encourage the child to lay their body over it and push back and forth with feet on the floor to encourage a rocking motion; use an accompanying song to help maintain engagement.
- Play games where spinning is part of the fun, e.g. 'Ring a roses' and 'Pin the tail on the donkey'.
- Sing songs and share interactive books with actions that involve swirling around.
- Try pulling and pushing activities using appropriate materials, e.g. lycra bands
- If possible, provide a trampoline or trampette for bouncing on.



The Proprioceptive system (the “internal” sense of body awareness)

Proprioception is the sense of body awareness. Information is passed from our muscles and joints to our spinal cord and brain so that we have a subconscious awareness of where our body is in space. As such, proprioception provides us with an internal map of our bodies. It tells us how our limbs are working and how much force to use when lifting, squeezing, or pushing.

Difficulties with proprioception

When a child’s proprioceptive system is not functioning effectively, they may need to seek out additional input to their muscles and joints so they can regulate their behaviour and stay in control. If a child’s sense of body awareness is not well developed, they can appear clumsy.

Hypersensitivity:

Children who have difficulties with processing proprioceptive information and are hypersensitive are often classed as ‘sensory seeking’. These children are often very active, having difficulty being still. Often children who are over-sensitive will excessively climb and have little sense of danger. They may appear lacking in co-ordination skills and bump into things easily. They often move their whole body to look at something. Children can have difficulty with fine motor skills.

General Tips for hypersensitivity:

- Provide regular short bursts of gross motor play throughout the day.
- Ideally provide ‘open doors’ access to the outdoor area so that children have the space and freedom to move around as they need it.
- Provide opportunities to climb on appropriate outdoor equipment when the child climbs on furniture. Reinforce the message about ‘No climbing’ indoors.
- Provide frequent movement breaks between focused activities.
- Taking the child’s socks and shoes off and placing a cushion under their feet when they are sitting, will help them to feel grounded and calm.
- Provide lots of fun fine motor activities.

Hyposensitivity:

Children who have under-sensitive proprioceptive skills appear to have a lack of processing information and can be quite sedate. They seem to prefer low key activities and can be reluctant to play and prefer to stand by and watch others. They can stand too close to others because they cannot measure their proximity to other people and judge personal space. These children will sometimes spin, rock, fall or bump into things to seek out stimulation to the proprioceptive system. They often have difficulty negotiating around obstacles and may bump into people. Children may also have difficulty with planning how to get into and out of play equipment.

General tips for hyposensitivity:

- Provide the child with a safe haven, such as a pop up tent, to go to if the setting is becoming too much to cope with but encourage short periods of time with a small group to begin to desensitise the child to play activities.
- Allow the child to play with low key activities alongside a busier group for short periods.
- Allow the child to be a spectator of more active play, with no pressure to join in but offer invitations to play when they feel ready.
- Place the occasional obstacle in the child's way. Support the child in recognising this item and learning how to move safely around this.
- Try sitting the child on a beanbag. As the bean bag wraps around the child's body, it provides proprioceptive feedback
- Teach the child how to use an 'arm's-length rule' to judge personal space. This means standing an arm's length away from other people.

Activities to try:

- Bouncing on a trampoline is a good way of providing extra body awareness (proprioceptive) input. Alternatives include bouncing on a space hopper or playing 'jumping beans' games. The child may need you to hold their hands and jump up and down on the spot with them.
- Provide lots of opportunities to practice ball games. Use a balloon or beach ball to start with as this is easier for a young child to catch. Try target throwing, drawing a target on the wall or on a pavement with chalk. Vary the distance the child stands away from the target, so they learn to use different amounts of force.
- For older children teach them how to play 'wheelbarrows' as this is good for developing upper limb strength, which in turn helps to develop an awareness of force and pressure. Alternatively, lie the child over a gym ball and get them to 'walk' with their hands on the floor in front.
- Walking is a good regulating activity as it provides a rhythmical and predictable sensory input. Walking up hill increases resistance and so provides a stronger proprioceptive input.
- Provide lots of opportunities for dancing and moving to music.
- Yoga is a good way of supporting children with proprioceptive difficulties to develop body awareness. Cosmic Kids Yoga have a series of online videos to help introduce yoga to young children through story and rhyme. (www.youtube.com/user/CosmicKidsYoga)
- Any activities that involve pulling, pushing, or carrying heavy objects provide regulating proprioceptive inputs. Some ideas include digging in wet sand and soil, kneading dough, pushing a wheelbarrow, sweeping up using a child-sized long handled broom and joining in the actions to the 'Row, row your boat' song with a partner. Lycra bands are also useful for playing pulling and pushing games.
- Devise obstacle courses for the child to navigate around. Include tunnels and blankets to crawl under as well as obstacles to climb over.
- Provide a series of different textured surfaces for the child to walk across with bare feet e.g. bubble wrap, sand, grass, carpet squares, feathers etc.
- Use different textures on the child's feet such as paint brushes, loofahs, soft cloths etc. Let the child apply the texture themselves to enable them to tolerate it better.
- Finger rhymes and songs will help the child develop hand and finger awareness.
- Bubble blowing, blowing feathers across the floor or using a straw to play blow football with cotton wool balls are all good ways for a child to develop proprioception of their oral motor skills.



The Interoceptive system (the sense of how we “feel”)

Our interoceptive system is responsible for understanding and feeling what is going on inside our bodies. Sensations such as hunger, thirst, bathroom needs, heart rate, breathing rate, temperature, and emotional regulation are all part of this system. Gradually, children learn to recognise different internal feelings in their body. As a result, they begin to develop an internal literacy so that they can respond to particular feelings in adaptive ways, for example if they feel cold, they know to put on warm clothing or get a blanket. Our interoceptive system helps us to regulate our emotional self so that if our feelings become heightened, we can work out a way back to an emotionally calm, stable state.



Difficulties with Interoception:

We need to be able to process internal signals, such as a racing heartbeat or a tense stomach, in order to understand what we are feeling and why. People who experience differences to their interoceptive system may have difficulty in processing these internal signals. This results in a lack of understanding about why they are feeling as they do, which creates a stress response. This, in turn, can make the internal signals even more intense. Differences in interoceptive awareness can significantly impact on emotional intelligence and mental health. Improving interoceptive awareness may reduce meltdowns and challenging behaviors and improve self-regulation.

Activities to support children with developing interoception:

The following is a list of activities that can be used to help build body awareness and teach children how to notice the things happening inside their bodies.

- Provide regular opportunities for extended exercise and ‘heavy work’ activities, such as pushing a loaded wheelbarrow, carrying a large water bottle, sweeping up or digging. The adult should draw the child’s attention to their body sensations after the exercise, such as their heart racing, fast breathing, and feeling hot. After 5 minutes of rest, talk to the child about the changes in their body as it reverts to normal.
- Yoga’s focus on listening to your body and providing good vestibular and proprioceptive input is helpful for interoception. It encourages children to slow down, pay attention to the present and become aware of how their body is feeling.
- Any activities that involve mindfulness make great interoception activities for children because mindfulness is all about being in the present moment. Sitting still for a minute or two and focusing on an object, such as a snow globe or listening to the surrounding sounds are good ways to help children actively ‘notice’. Use visual prompts to practice ‘flower and candle’ breathing. Teach the child to pretend to smell the flower (take a deep breath in), and then blow the candles out (blowing a deep breath out).
- Play simple games with emotions cards or toys. As well as teaching the child about the names of different emotions, talk about how each emotion makes someone feel physically.
- Children who struggle with interoceptive input often have difficulty with temperature regulation, for example they may not realise that they need to wear a coat in cold weather. Provide plastic drinks bottles, one filled with ice cold water and one with hot tap water (with the cap securely fastened) for the child to explore. Talk with them about hot and cold and how the bottles feel to touch and hold. Another helpful activity is to have dressing up clothes for different weather conditions and to play games to practise dressing for the weather.
- Use visual prompts to support the child’s understanding of needing the toilet, knowing how often to get a drink, remembering when it is time to eat or that they need to wear a coat to play outside etc. Use these consistently throughout the day.
- Social stories are also a great way to talk about concepts that may be hard for children with interoceptive difficulties to understand and remember. These can be designed to focus specifically on toilet training, temperature regulation or feeling hungry or thirsty etc.



Useful Websites to support early years practitioners working with children with sensory processing differences

https://www.berkshirehealthcare.nhs.uk/media/168255/bh_cypitoolkit_sensoryprocessing_pr1.pdf

<https://www.beaconhouse.org.uk>

https://resources.leicestershire.gov.uk/sites/resource/files/field/pdf/2017/1/31/early_years_sensory_processing_resource_pack_multiagency_final_march_2014.pdf

All of the above are useful early years' toolkits to help identify specific sensory needs, together with possible solutions for parents and practitioners to try.

<https://www.understood.org/en/learning-thinking-differences/child-learning-disabilities/sensory-processing-issues/understanding-sensory-processing-issues>

A comprehensive website with fact sheets, videos, and ideas of activities to support children with sensory processing difficulties.

<https://www.youtube.com/watch?v=D1G5ssZIVUw>

This YouTube film presents a 'Child's view of Sensory Processing' and is a useful way to help understand sensory differences.

<https://www.sensoryintegration.org.uk>

<https://sensoryattachmentintervention.com>

<https://www.zonesofregulation.com/index.html>

These three websites all provide ideas for activities to support sensory integration.

<https://www.spdstar.org/basic/home-activities>

This website contains lots of information and ideas for parents and carers about how to support sensory integration through everyday activities at home.

<https://www.ot-mom-learning-activities.com/sensory-integration-activities.html>

Parents can make use of the simple sensory integration activities and exercises contained within this website.

<https://www.sheffieldchildrens.nhs.uk/services/child-development-and-neurodisability/sensory-processing-difficulties/>

As well as useful videos and top tips for everyday routines and activities, this website also has a new downloadable booklet 'Making Sense! A guide to helping with sensory issues during lockdown'.

www.rhymingmultisensorystories.com

This website has been put together by a SEN literacy teacher and is full of useful information, ideas, inspiration, and free resources based around multi-sensory stories which can be adapted to suit a range of ages and abilities.

<https://sensory-processing.middletonautism.com/sensory-strategies/strategies-according-to-sense/#proprioceptive>
Middleton Centre for Autism has developed several online resources designed to support autistic children and their parents. The information will also be useful for settings.

Online training

<https://www.griffinot.com/sensory-processing-disorder-training/>

A free introductory online training module about sensory processing. The course takes about an hour to complete.

Further reading

'The out of sync child' – Carol Kranowitz

'Sensory Processing 101' – Dayna Abraham, Claire Heffron, Pamela Braley & Lauren Drobnjak

'Sensory Processing, Coordination and Attachment' – Ruth Stephens.

'Making sense of sensory behaviour' – Falkirk Council

'Strategies for everyday life for children and young people with sensory processing difficulties' – Jean Pugh and Bernie Fahy – Includes lots of practical support and approaches to support a range of sensory difficulties.

