



# Embodiment and Sensory Systems



Inspired by the webinars delivered by:

Nathalie Shek (OT Helping Kids Shine)

&

Dan & Kay Louise Aldred (Embodied Education)

October 2023

The PDA Space Portal  
([www.thepdaspacespace.com](http://www.thepdaspacespace.com))

Created by Helen Edgar



# The Sensory System

As children grow up they learn about the world around them by connecting with the sensory world.

Our sensory systems help to keep us safe and regulate us so we can function. Our senses can bring feelings of joy when we are balanced.

Having a better understanding of the sensory system and ways we can become more embodied will help us and also our children to live our best lives.

What are the 9 sensory systems ?

- Visual (sight)
- Gustatory (taste)
- Olfactory (smell)
- Auditory (hearing)
- Tactile (touch)
- Vestibular (movement)
- Proprioception (body position)
- Interoception (internal sensory system)
- Neuroception (polyvagal theory)

We will summarise some key information about the different sensory systems and also share some key ideas about the polyvagal theory which could help you understand and reframe some challenging responses. We hope these ideas help, please share what works for you by joining us in The PDA Space community.



*“We learn through our senses. What we see, what we hear, what we touch, and what we experience through the perception of movement of our joints and muscles are our foundations for learning. Sensory integration is a way of looking at how the brain and the body work together to process sensory information”*

*(Jean Ayres, 1984)*

Your sight helps you interact and make sense of your environment

Vision helps integrate the senses especially the vestibular and proprioceptive senses

Bright lights and colourful patterns can be distracting for some but for others may be calming.



Dark, dimly lit spaces / sunglasses can help some people feel soothed and safe, for others it may cause anxiety.

## Sight

Some children enjoy watching spinning light toys, lava lamps, bubble tubes, water and sand timer type of sensory toys/ mirrors and favourite photos. There are also some great visual apps to try out.

**What sights/ colours/ patterns do you or your child prefer?**



Many children prefer to eat the same foods with the same textures/ tastes as it helps them to feel safe. They know what to expect and it can reduce anxiety.

Due to interoception difficulties some people may not be able to interpret their body signals and know when they feel hungry or if a food is too hot.

Lots of autistic and PDAers can struggle with eating, reducing demands and enabling them to eat when and where they feel safe helps.

### Calming

Soft  
Chewy  
Creamy  
Plain  
Warm



## Taste & Eating

### Stimulating

Crunchy  
Crispy  
Spicy  
Citrus  
Sour  
Ice

Think about what tastes good and how you or your child respond to different food. What food helps you calm or wakes you up?  
**Do you have any go to 'safe' food or places where you feel more comfortable eating?**



Your sense of smell is linked directly to your limbic system for emotional responses and survival.

Your sense of smell helps you make sense of your environment and can also alert you to danger.

Smells can be closely related to memories and trigger a range of emotions and responses.

Calming & reassuring:

Perfume of special person,  
Favourite food smells,  
lavender,  
Nature/flowers



Stimulating & awakening:

Perfume of special person,  
Citrus scents  
Peppermint scents

## Smell

Our sense of smell can be really powerful but essential oils need to be used with care and following advice.

**What scents help you or your child feel good?**



Everyone responds to sounds in different ways depending on how we feel at that moment. Familiar or repetitive sounds may feel safer and be reassuring.

Our auditory system helps us to locate where sound is coming from, screen out noises and focus attention.

Our auditory system helps us to filter out background sounds and pay attention to other sounds to help communication.

### Calming

Some sounds may help and soothe eg white /pink/brown noise.

ASMR

Certain music, slower rhythm and beats, familiar voices and songs



## Hearing

### Stimulating

Some sounds may help energise eg types of music, certain rhythms and fast beats, creating own sounds

Ear defenders & headphones may help some people regulate noise input. Listening to music or something else whilst working may help some children focus and concentrate.

**What sounds help you or your child feel relaxed or more energised?**



We have two different touch receptors:

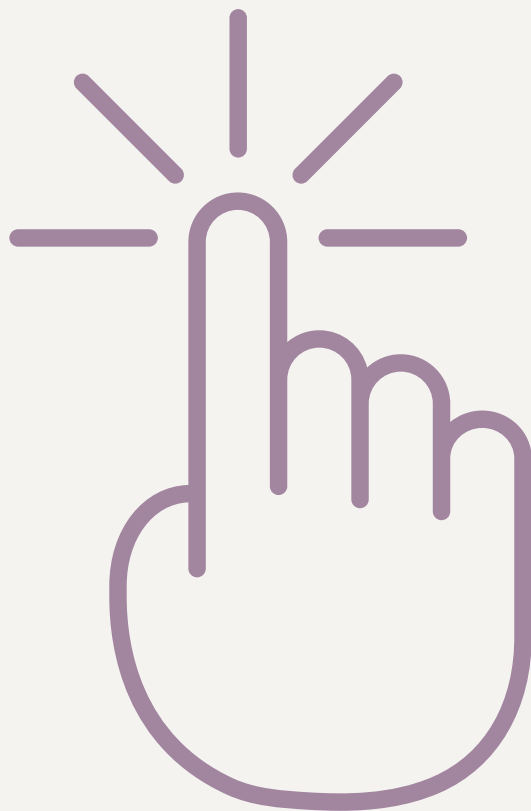
1. Protective
2. Discriminative

Your sense of touch may vary depending on the moment and may be hyper or hypo sensitive.

Touch helps you understand temperature, pain, texture, vibrations, pressure through the skin.

### Calming

Some textures may be calming eg silk, fur, soft fluffy fabric, smooth, things to squash & squeeze, warm, heavy weighted items, deep pressure.



# Touch

### Stimulating

Some textures may be energising eg spiky, rough, hard, light touch, cold items

If a person has difficulty with their interoception sense they may not be able to interpret if they are touching something that could be harmful or cause pain.



The Vestibular system tells us where our body is in space, it helps us balance and coordinate our movements. It is like your body's internal GPS system.

The vestibular system is a major organizer for all systems and input can last a long time (hours).

**Calming**  
fidget toys to twist, turn, squeeze, rocking, wobble boards, swinging, hanging



**Stimulating**  
Jumping, spinning, rolling, shaking, dancing, gym activities, crashing into cushions

## Vestibular (Movement)

Depending on how the vestibular system is responding it may mean some people avoid certain movements and positions or they may seek fast, spinning, swinging or hanging upside down sensations.

**How does your or your child's vestibular system respond? What helps to calm or energize?**





The proprioception sense tells us where our body is and what it is doing. The body naturally wants to feel 'just right' but achieving this can be difficult. Proprioception activities can help to improve body awareness and co-ordination and regulation.

If your proprioception system is not balanced you may avoid physical activities or find co-ordinating yourself more difficult. Some people may walk over things, mouth or chew items or crash into things.

### Ideas

Heavy work such as pressing against things, carrying, pulling and lifting items, blowing bubbles



### Ideas

Tight squeezes, deep massage, playdough, stretching, chewy food

## Proprioception (body position)

We need to be proactive and try and give children regular opportunities for sensory breaks through the day rather than only reacting when they are struggling.

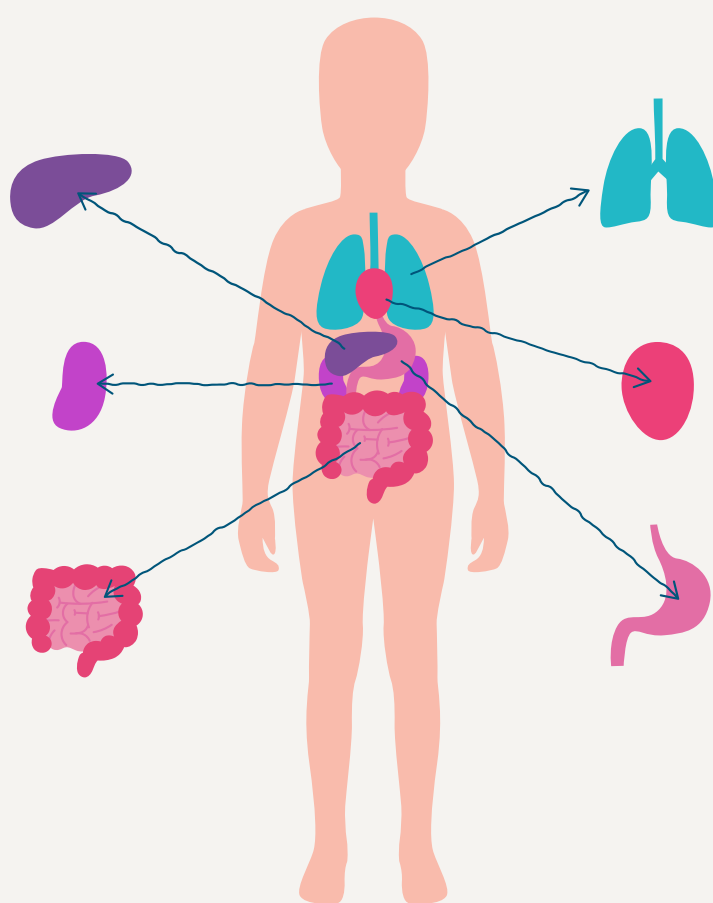
It can help to have various opportunities and fun activities set up around the home for them to explore without it being a demand.



Your interoception system is your internal body sense. Interoception tells you what is happening inside your body.

If you have difficulties processing your interoception signals you may not be able to identify if you are feeling hot, cold, in pain, hungry or need the toilet it can make you feel anxious and dysregulated.

For some people working on body scanning activities can help them identify feelings for others this may cause more anxiety.



If you are not able to easily identify how your body is feeling it can cause anxiety and dysregulation.

## Interoception (internal sense)

If you are able to identify your internal body signals you will be in a better position to know if you need to dress in warm clothes, have a drink, go to the toilet or if you need to see a doctor if you are in pain.

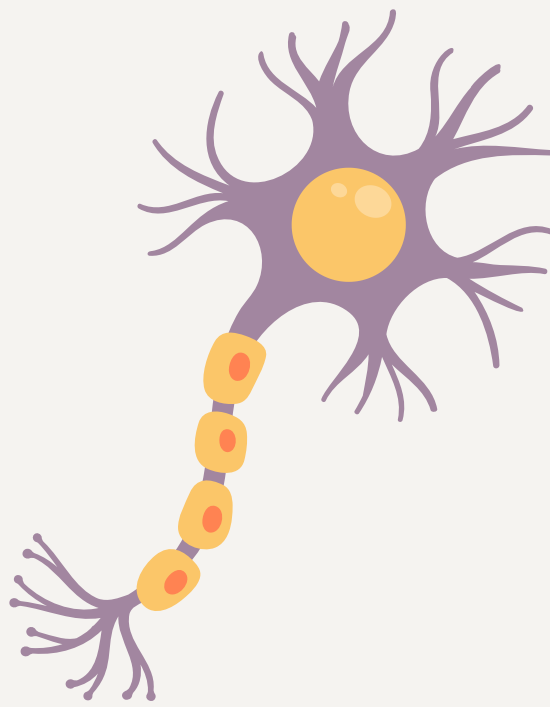
**Keeping to a routine can help with some interoception difficulties so you always eat / drink / sleep / go to the toilet at regular intervals when possible.**



Neuroception is a term coined by Stephen Porges to explain the **Polyvagal Theory**.

Neuroception is our subconscious internal sensory system that alerts us if we are safe or in danger.

The sympathetic nervous system is activated when your mind and body feels it is in danger, it activates a state of freeze/fight/flight or fawn.



The parasympathetic nervous system is the 'rest and digest' system. It helps our mind and body rest and enables us to engage in life and feel safe and connected.

## Neuroception

There is a 'window of tolerance' and opportunity where people feel safe, connected, regulated and ready to learn.  
**Adopting a co-regulation technique can help children learn ways to balance their sensory system.**



# Sensory Seeking vs Sensory Sensitive

## Sensory Preferences

### Sensory Seeking

climbing on  
furniture

spinning and  
jumping

preferring loud  
sounds/speaks  
loudly

enjoys strong  
flavoured food /  
crunchy

prefers being  
barefoot

likes bright lights

### Sensory Sensitive

likes dens and small  
spaces

prefers to sit or  
move less

may need ear  
defenders or avoid  
noisy places

may prefer bland /  
soft food

prefer loose clothes  
and no tags

may like dim  
lighting / prefer  
hoodies/ sunglasses

Make a note of the ways you or your child may be sensory seeking or sensitive through the day. You may notice some part of your sensory system need more input than others, some may be more sensory seeking and others more avoidant. You may find that needs also change day to day.



# Polyvagal Theory

**Polyvagal theory** was developed by Stephen Porges in 1994. He proposed that we have a three-part autonomic nervous system (ventral vagal, sympathetic vagal and dorsal vagal system).

**Co-regulation** can help people that are struggling with an over or under active nervous system (including sensory system) to support them to feel safe again and reconnected.

## **Dorsal Vagal - Sympathetic Nervous System**

### **Freeze**

Burnout, shutdown, depression, disassociation, mind and body may physically go into survival mode to preserve energy

## **Sympathetic Nervous System**

### **Fight, Flight, Fawn**

Anxiety, anger, panic, worry, frustration or trying to please and 'mask'

## **Ventral Vagal - Parasympathetic Nervous System**

Feelings of safety, connection, joy, in the present and ready to learn and engage



# Embodiment

## What does it mean to be embodied?

For our children to feel safe they need to feel connected and regulated. We need to support them to understand the way their mind, body and sensory system all work together and to feel 'embodied'. When people are regulated they will be able to learn, enjoy life and be the best version of themselves.

**Embodiment:** to stay present in our own bodies to sensations, emotions and the external environment without going into dysregulation without going into fight/slight/freeze/fawn

**Somatic:** soma is 'of the body', being able to be in a relationship with the body and to support the body to do what it needs to do to be healthy. This may involve releasing what we hold physically in the body (ie a trauma response).

(Definitions from Kay Louise & Dan Aldred's Embodied Education Webinar, October 2023 for The PDA Space)



# Be A Space Holder

If children are 'disembodied' they will be dysregulated. There can be a lot of pressure in schools for children to remain on task, to keep working (and masking) almost at all costs without stopping to think about how their actual body feels and what may help them learn better and be more regulated.

Over time without the opportunity to tune in, rest and understand their own body and mind working together, it can cause mental health difficulties and affect learning outcomes too.

They may display more challenging behaviour and will be more likely to experience sensory overwhelm (meltdowns and shutdowns).

A **space holder** is someone who can create and hold a safe space for a person so they can be themselves around them, knowing they will not be judged, they will be understood, valued and have an authentic meaningful connection.

As adults, we need to try and be embodied, calm and grounded to support our children to regulate, rather than expecting a child or young person to modify their behaviour themselves or change for external reward systems. We need to be a space holder for them.



# Being Embodied

## Self-Soothing Technique and Co-Regulation

- Create a safe relationship between your hand and your body
- Place your hand on your body wherever it feels tight or you may hurt (this may be your heart or tummy).
- This helps to create your own safe space and tells your body that you are safe and present.
- You may feel calmer. You may become more aware of yourself. What ever you feel is ok and is right for you now.

It may also help to practise this with your child/young person so they can also learn this technique and mirror you.

It can also be a nice activity to do at bedtime with your child so they associate this with their own safe space too.





# Know your Sensory System

What stimulates your sensory system  
and wakes it up?

What helps to calm and soothe your  
sensory system?

What activities or toolkit can you create with  
your child that may help in different places - will  
things need adapting for home/school/days out/  
holidays?

Children do well if and when they can.  
They may need us to co-regulate with them to help  
balance their mind and body.



# Signposting

1

[www.thepdaspace.com](http://www.thepdaspace.com)  
Family support workshops, webinars,  
coaching and online peer support groups.  
(Founder: Nicola Reekie)

2

[www.helpingkidsshine.co.uk](http://www.helpingkidsshine.co.uk)  
Occupational Therapy for children,  
young people and their families

3

Embodied Education  
By Kay Louise and Dan Aldred  
[Purchase book here:](#)

4

[www.autismunderstood.co.uk](http://www.autismunderstood.co.uk)  
Website designed by autistic young  
people, for autistic people

5

[www.autisticrealms.com](http://www.autisticrealms.com)  
Helen Edgar's website - Autism/  
education/ mental health articles and  
resources

*Please seek professional advice if needed.*





A free community resource  
to support the webinars delivered by

Nicola Reekie, Nathalie Shek, Kay Louise and  
Dan Aldred

Created for  
The PDA Space

By  
Helen Edgar  
Autistic Realms

October 2023

Book created with images used from Canva

© 2023

