Occupational Therapy and Sensory Processing

The aims of this booklet…

- To briefly outline what Occupational Therapy is.
- To give you an overview of sensory processing.
- To help you understand how it impacts on the child's ability to learn
- To give you a few ideas about how to help.

What is an Occupational Therapist?

- Often known as an OT
- OT is a protected title and OT have a BSc(hons) degree
- Our biggest asset and main training is in activity analysis
- Cover physical and mental health

Who do Occupational Therapists work with?

- Work across the age ranges from birth to death
- The OT's you see in school have specialised in paediatrics
- They tend to work in specialist areas such as CAMH's, Physical disabilities, ASD.
- We use occupation to promote health.

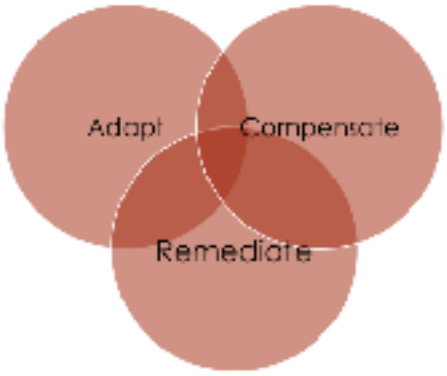
What is occupation?

- Everything we do throughout the day
- Personal Activities of Daily Living
- Domestic Activities of Daily Living
- Work
- Leisure /play
- Meaning, purpose, structure
- What we do, often defines who we are!

How do Occupational Therapists work?

- Holistic and child centred
- Consider the social and physical environment
- Consider the child, from both a physical and mental perspective

What do Occupational Therapists do?



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Sensory Processing

Imagine if…

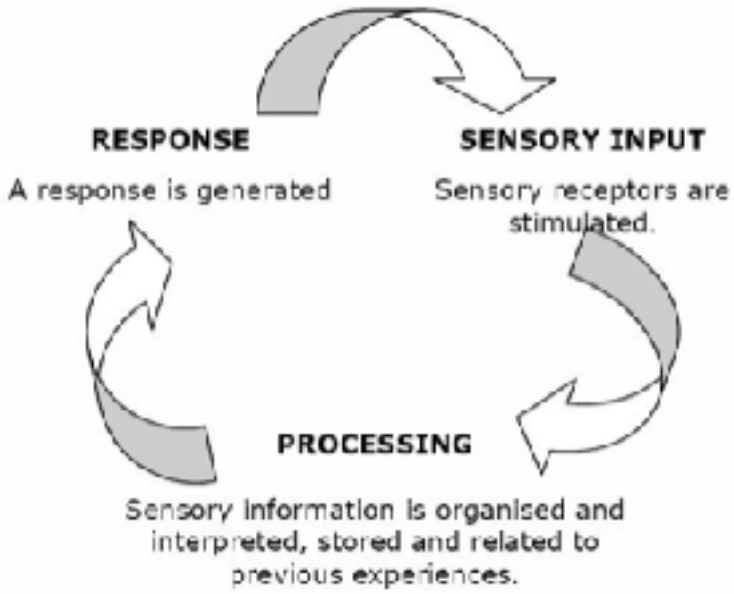
- Your clothes felt like they were made of fibre glass
- Every time you try to write you break your pencil
- Every time someone brushes past or the wind on your skin makes you feel like your skin is on fire
- The lights were so bright it gave you a headache
- The hum of the light or ticking of a clock was louder than my voice
- It took you 5 seconds to form every letter, you can see the letter but can not make your hand write it.

So what is Sensory Processing?

It is the ability of the brain:

- To receive information from all of the senses.
- To process all of the information.
- To then integrate this information and tell the body how to respond appropriately for the situation.
- To be able to attend and complete the task at hand.

The sensory processing cycle



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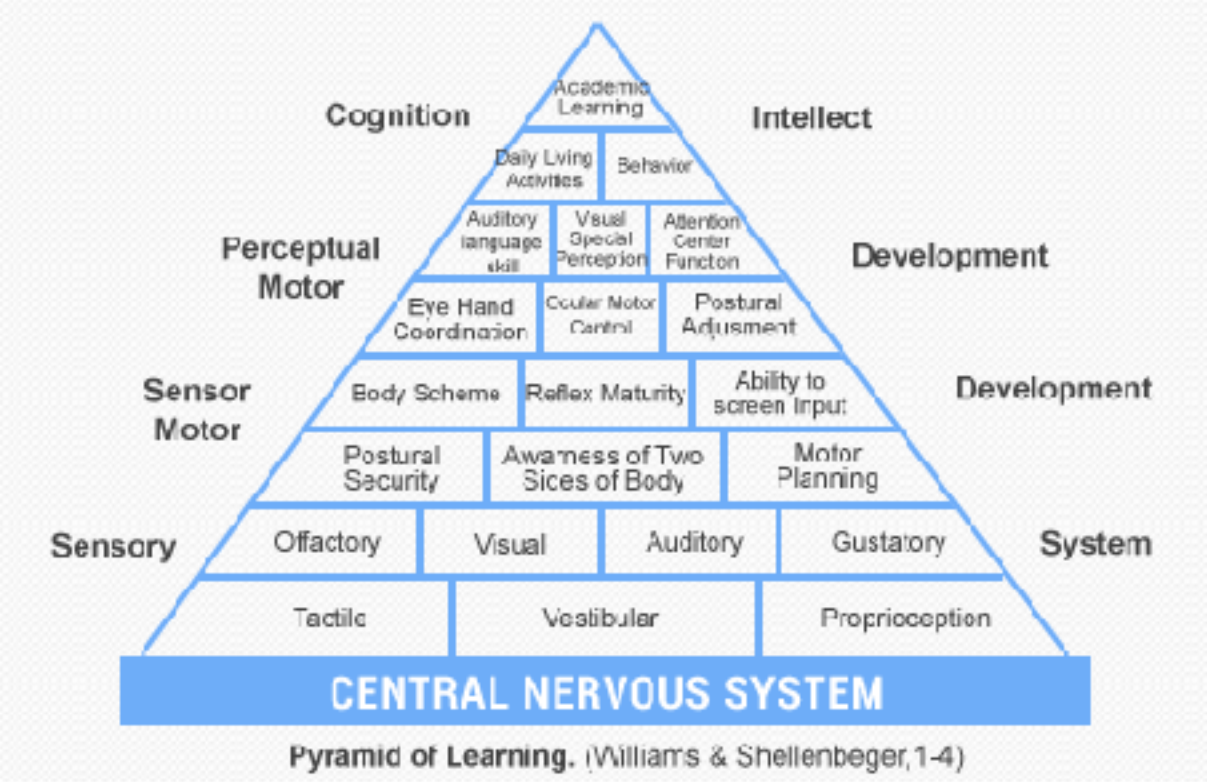
Sensory Systems

The background

- Sensory integration theory, developed by Dr Jean Ayre's who published Sensory Integration and the Child in 1972.
- Sensory Integration has parts
- Sensory processing is a neurological process happening all the time unconsciously. It's part of normal development
- Diagnosis = Sensory processing difficulties
- Ayre's Sensory Integration Therapy – Practiced by specially trained therapists.



Pyramid of Learning. (Williams & Shellenbeger,1-4)

There are actually seven sensory systems that take in information from the environment and send our brain different messages. The five commonly known senses are

1. TACTILE. - Touch
2. AUDITORY - Hearing
3. GUSTATORY - Taste
4. OLFACTORY - Smell
5. VISUAL - Sight

There are also two 'hidden senses'

6. VESTIBULAR - Movement processed in the inner ear - Balance
7. PROPRIOCEPTION - Body position processed in the muscles, tendons joints and skin

Sensory Systems

Touch (Tactile)

There are receptors in the skin for:

- Temperature
- Pain
- Light touch - protective
- Deep pressure - calming
- Purpose of skin is for discrimination
- Deep and proprioception follow same pathway
- Tactile input can last 1-2 hours
- Issues with tactile can affect motor development

What do difficulties relating to the 'touch' system look like?

Tactile defensiveness

- Light touch can feel like pain or burning
- Rain and wind can be a major problem
- Personal hygiene issues
- Struggle with clothing
- Struggle with food textures (face and mouth different pathway)
- Feet, hands, mouth and sexual areas have the most receptors

Under sensitive skin

- Doesn't notice when touched
- Will seek touch sensation
- Doesn't register pain and/or temperature changes
- Has difficulty learning motor tasks
- Can not discriminate things by touch alone

Sight (Visual)

- This system provides information about objects around us and in front of us.
- It is closely linked to the vestibular and proprioceptive systems.
- 80% of all sensory input starts with this system.
- Helps us judge distance, depth and edges as move and negotiate space.

What do difficulties relating to the 'sight' system look like?

- Not about short or long sight but being overwhelmed by too many visual images at once.
- Too many things moving at once.
- Lights that are too bright.
- Notice things flashing that others don't.
- Visual perception problems.
- Under sensitivity, stares at things for a long time.
- Takes time to take in visual information.

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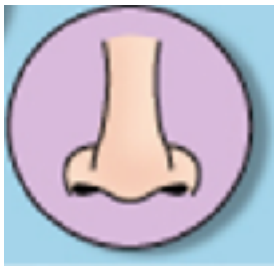
Sound (Auditory)

- Sound can be transient and variable.
- Closely linked to emotion and memory.
- Helps spatial awareness.
- High frequency sounds – can be alerting and can be painful.
- Low frequency sounds– is felt through bone conduction more than air conduction.
- Can be threatening and trigger anxiety.

What do difficulties relating to the 'sound' system look like?

- Over sensitivity - can become distressed when they hear certain sounds.
- Poor modulation
- Under registration - may be unaware of sounds, could put the child in danger if they are not able to be fully aware of their surroundings.
- Children who have a history of ear infections are particularly likely to have problems with sound

Smell (Olfactory)



Taste (Gustatory)

- Taste and smell are early warning systems in situations when auditory or visual cues are not available.
- Smell = Olfactory bulb system is part of the limbic system and goes straight to Amygdala - very associated with memory.
- Taste = Protective bitter tends to indicate poison.
- Both can be involved in emotional tagging
- Quickest way to reach an emotionally distressed child

What do difficulties relating to the 'taste' and 'smell' system look like?

- Over sensitive – gagging and running away
- Under sensitive – seeking strong smells, licking windows
- Poor modulation
- Emotional associations
- When a child licks you - this is often a form of communication

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The Hidden Senses

Muscle Sense (Proprioception)

This is the feedback we get from the muscles and joints.

- It tells you where your body parts are in space, your body awareness.
- Helps you to know where you are in relation to other things.
- Allows you to grade the amount of force you use.
- Calming and lasts 1-2 hours.
- The Levelling sense.

What do difficulties relating to the 'muscle' system look like?

- Unable to grade force
- Poor co-ordination
- Poor development of body scheme (the knowledge of ones body parts and their relative positions)

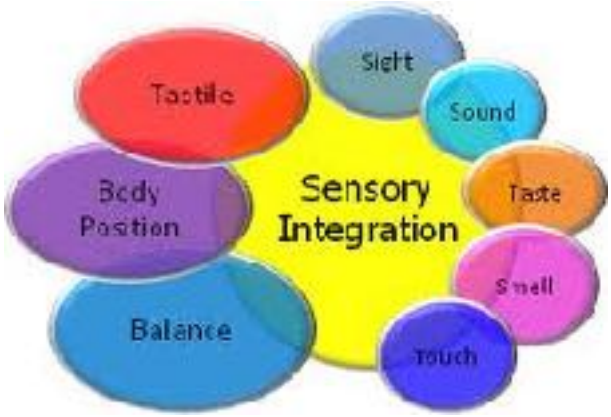
Balance Sense (Vestibular)

The Vestibular system Is responsible for…

- Our sense of balance and head position
- Our sense of movement both acceleration and deceleration
- Controls muscle tone
- And is partly responsible for what and how we see when we are moving.
- Our sense of gravity
- The "you are here" dot on the map.

What do difficulties relating to the 'balance' system look like?

- Vertigo and dizziness
- Imbalance and spatial disorientation
- Vision disturbance
- Hearing changes
- Cognitive and/or psychological changes. : Difficulty concentrating, issues with memory, easily confused..etc



All of our senses work together to make sense of the world.

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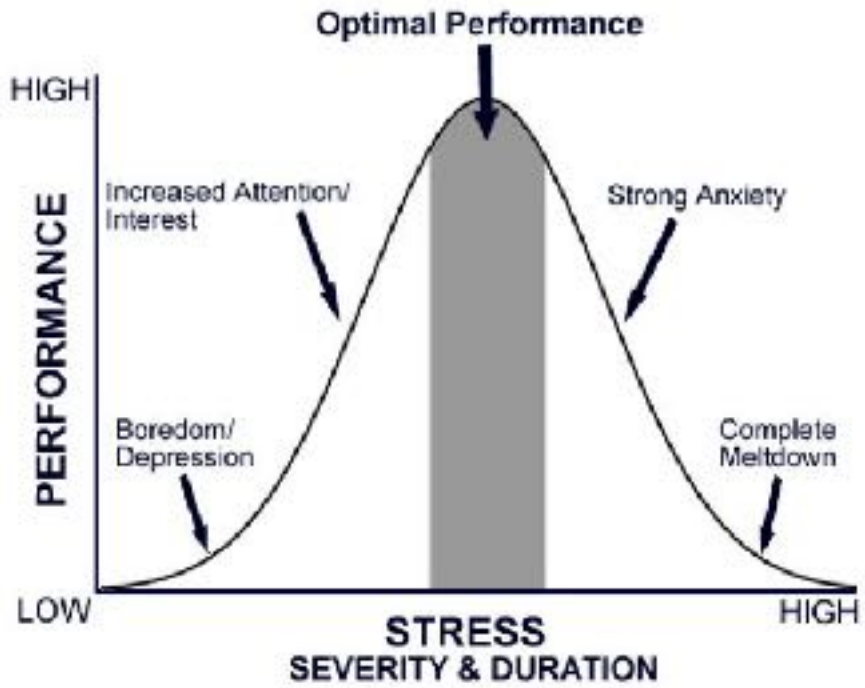
Self Regulation

Self regulation is the ability to control are own level of alertness

- If there is not enough stimulation we will seek it or be in in a lethargic switched off state. Think about when you have been in a long meeting, some of us doodle, click pens etc - to seek more stimulation.
- If there is too much we will start to experience all the symptoms of stress.
- We will try to move away, try to avoid the stimulus or feel irritated by it.
- If we can not get away will start to show signs of stress. May start snapping at people, may be aggressive when something small happens or cry.
- It times of stress out Fight, flight or freeze response is triggered.
- To prevent this we will naturally take action
- But people with Autism Spectrum Condition often can not do this without being



Stress impacts our performance - A low level of stress can lead to boredom however a high level of stress can lead to a total meltdown. We all need some stress to help up perform to the best of our ability. This is called Optimal Performance

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Sensory Modulation

- Sensory modulation is a neurological function and is the organisation of sensory information for on-going use.
- The brain screens the environment for potential threats all the time.
- We learn to ignore that things that don't matter.
- We block out unimportant sounds.
- We ignore things we have learned are not a threat like our clothes moving on our skin.
- This allows us to pay attention to the task at hand and concentrate.
- Many people on the spectrum struggle to do this.

Scan the following QR code for a video example of sensory overload … or type the following URL into your internet browser… https://www.youtube.com/watch?v=Lr4_dOorquQ

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