

SENSORY INTEGRATION

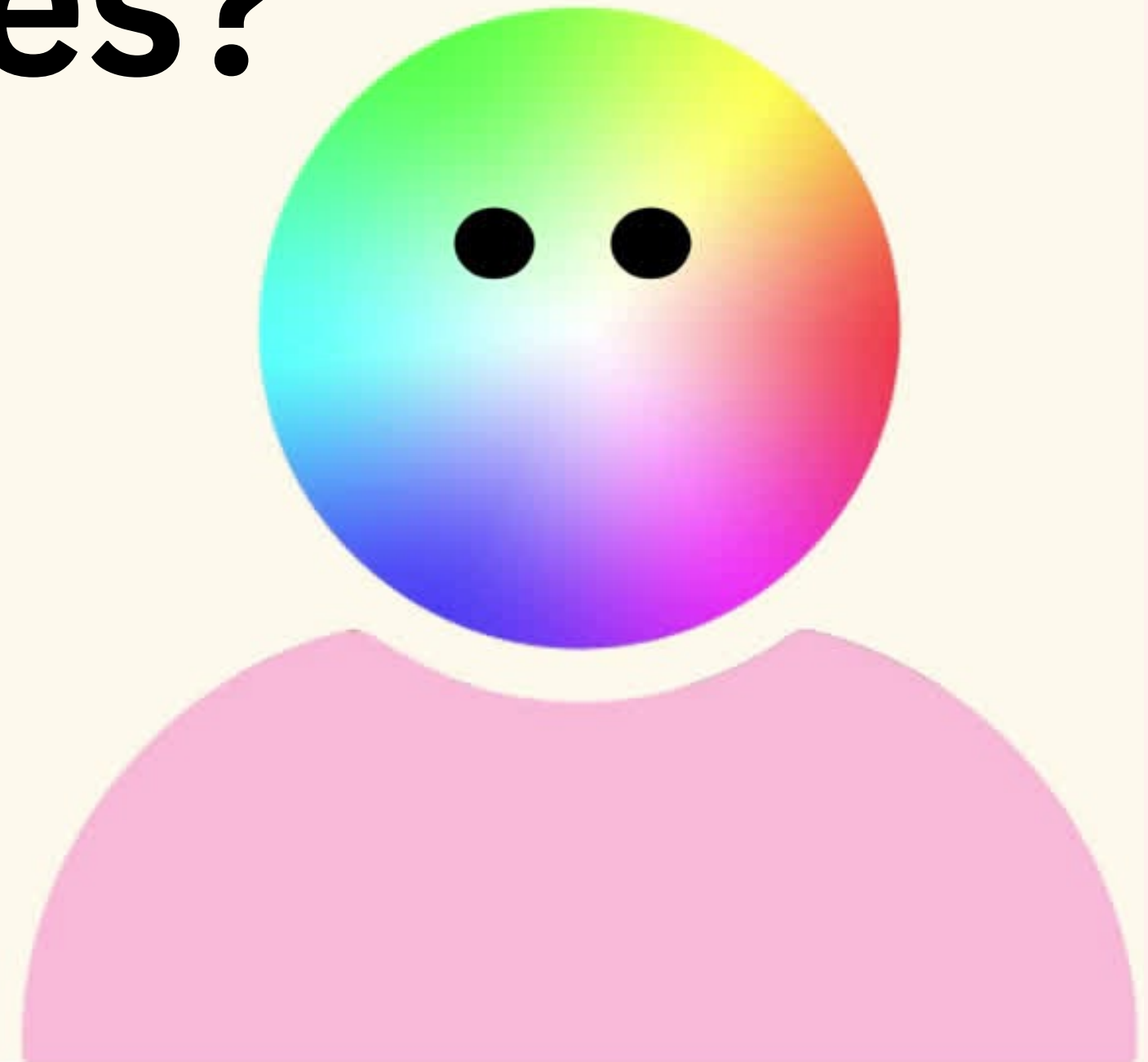
The brain-body theory

WHAT IS YOUR SENSORY PROFILE?

WHY IS IT IMPORTANT IN PSYCHOLOGY?

Andrea Smitten -MSc, PGCE, Advanced Practitioner in Sensory Integration

Let's review our senses?



<https://www.youtube.com/watch?v=V-kUKyfu0as&t=1s>

Five you have probably heard of,

What is Sensory Processing?

Sensory Integration - The neurological process that organizes sensation from ones own body and the environment and makes it possible to use the body effectively within the environment.

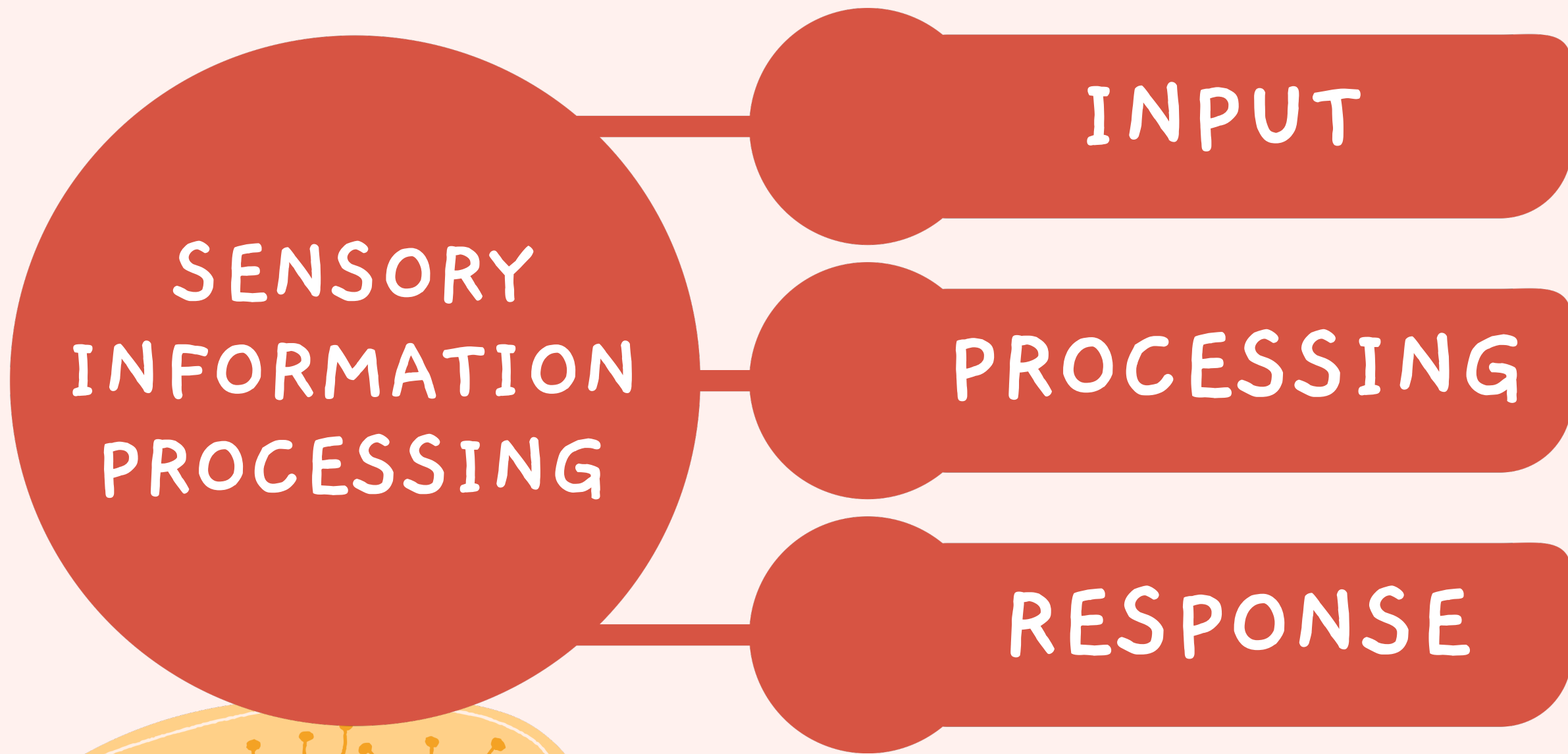
(Ayres, 1972)

Sensory Processing - The process of sensation detection and transmission through the central nervous system. (Ayres, 1979)

Sensory Modulation - Ability to monitor and regulate information in the interest of generating an appropriate response to particular stimuli.

(Dunn, 1997)



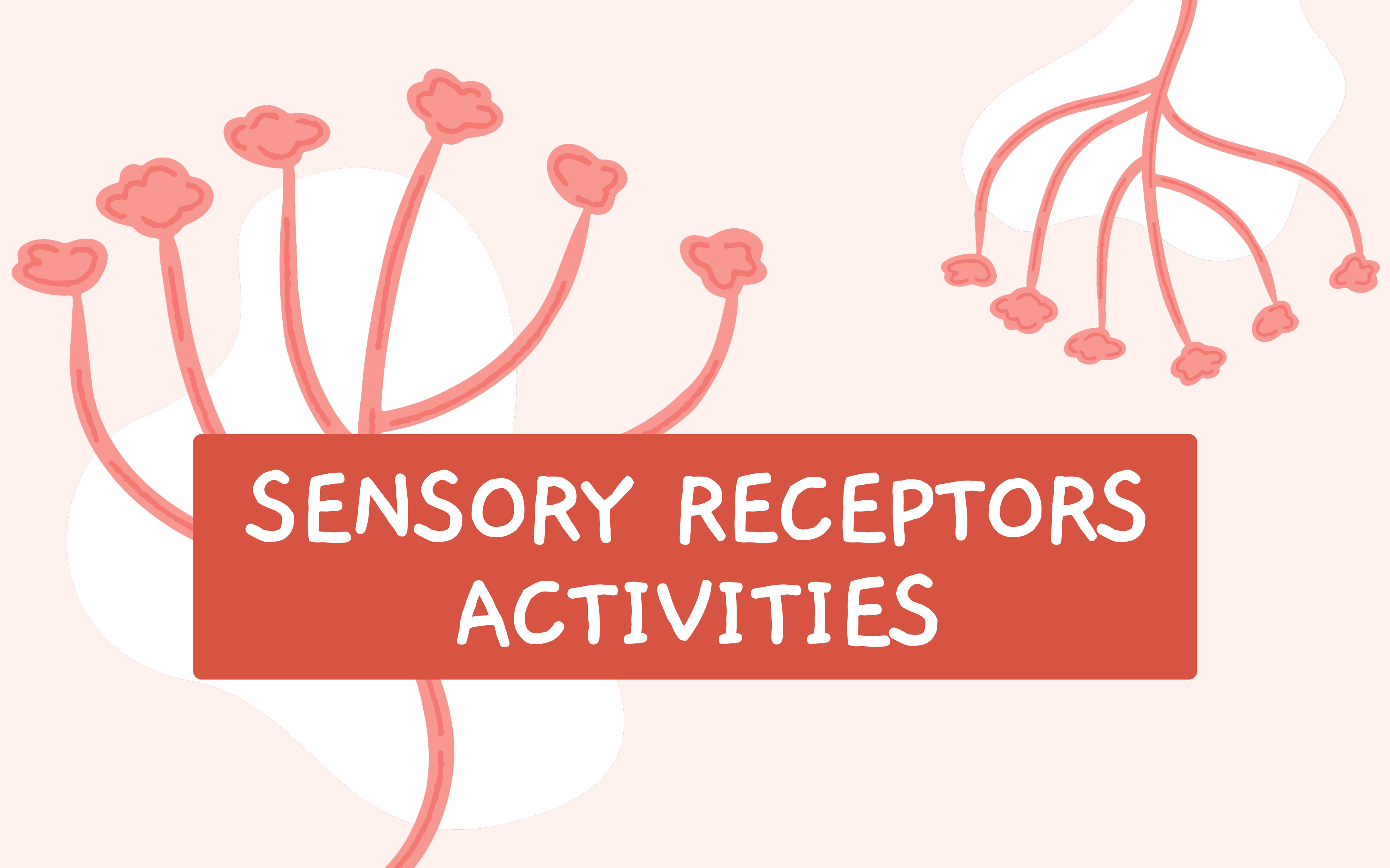


An input is received by a sensory receptor.

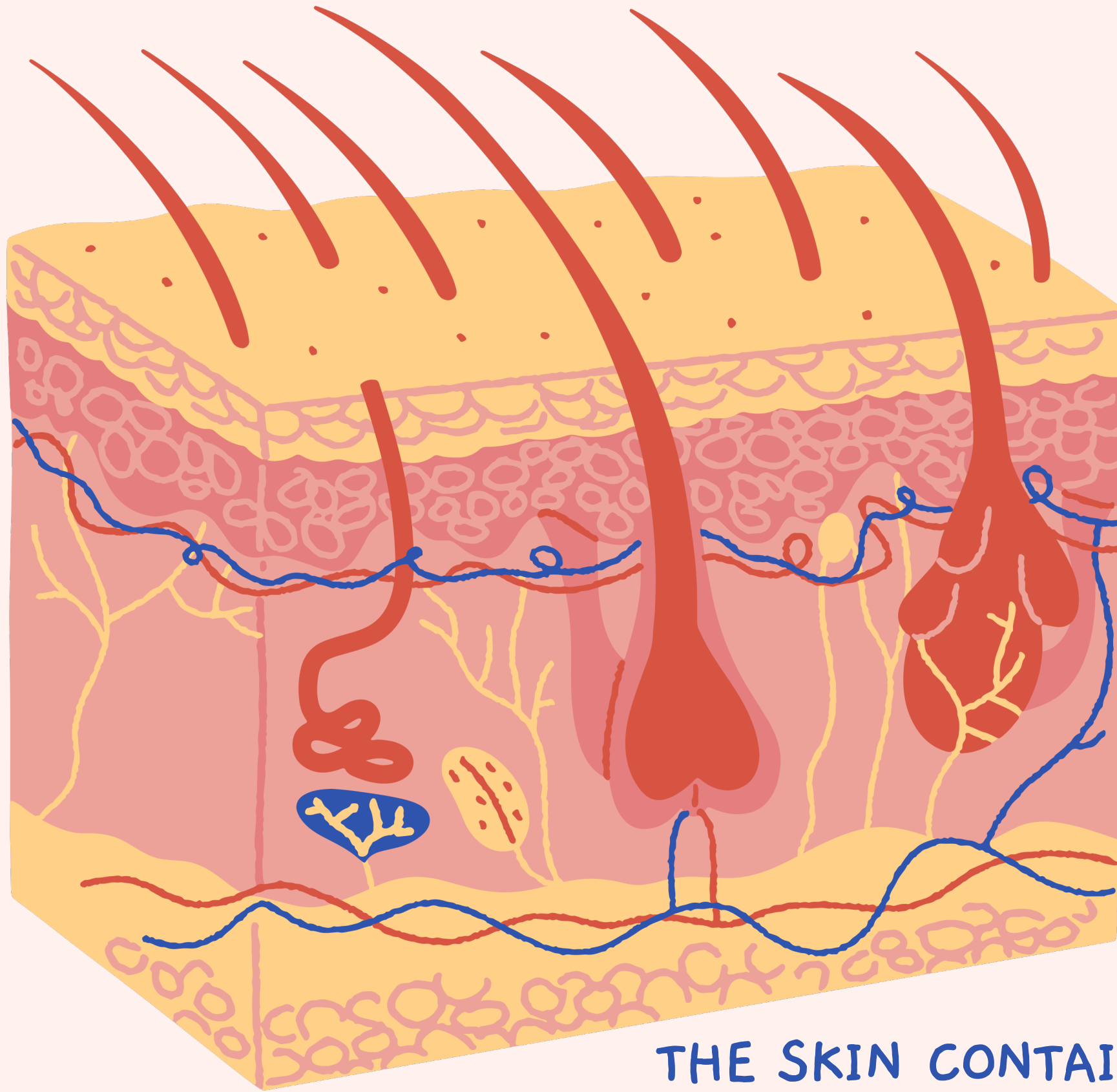
Information is organised, interpreted & stored (memory) by the brain.

An appropriate response is generated based on the input.





**SENSORY RECEPTORS
ACTIVITIES**



THE SKIN CONTAINS
MANY MECHANICAL
RECEPTORS.

MECHANICAL RECEPTORS

Mechanical receptors respond to touch pressure and vibration.

Receptors in the skin convert mechanical pressure (touch) into electrical signals that travel to the brain.

UTRICULAR MACULA

- *Horizontally oriented*: detects horizontal movement
- *Receptors arrangement*: kinocilia face towards striola

SACCULAR MACULA

- *Vertically oriented*: detects vertical movement
- *Receptor arrangement*: kinocilia face away from striola

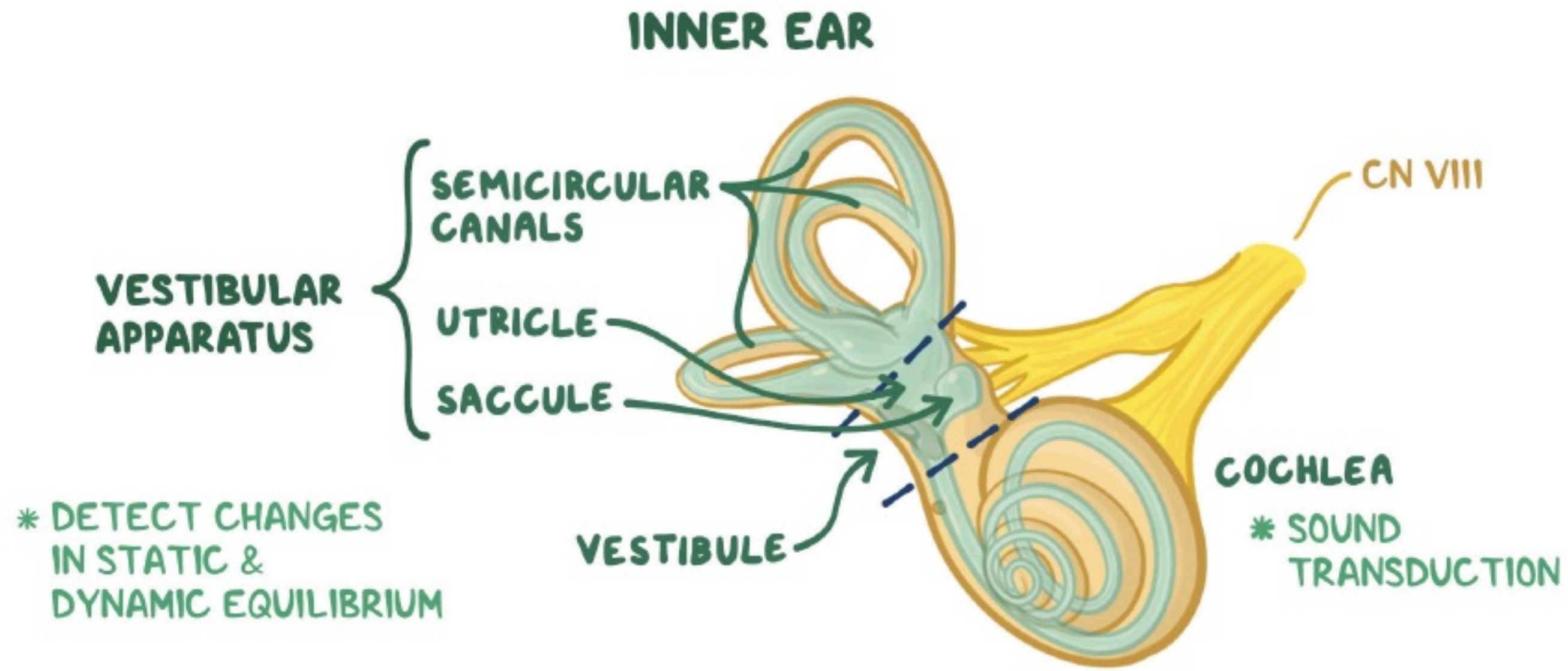
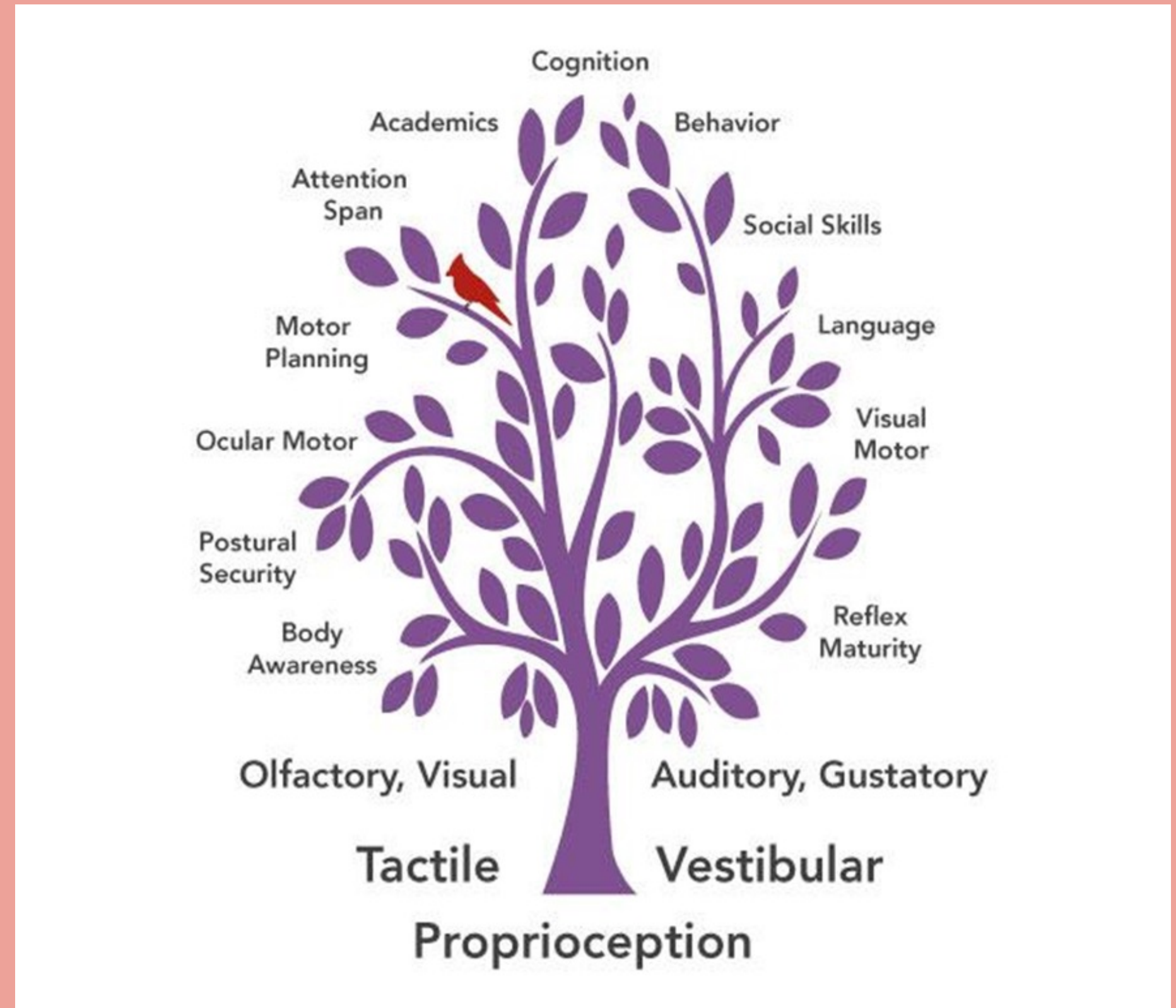


Figure 55.16 Anatomy of the inner ear.

Sensory integration processes underlie the development of:

- Self-regulation
- Development of motor & sensory skills
- Development of social, language & interaction skills
- Sense of self
- Cognitive & attention skills
- Academic skills
- Behaviour



3 Categories of **Sensory Processing Disorder**

Sensory Modulation

- Avoiding
- Seeking
- Low registration

Sensory Discrimination

- Visual
- Auditory
- Tactile
- Taste/smell
- Position/
movement
- Interoception

Sensory Motor

- Difficulty
with
movements
and
sequencing
- Poor
postural
control

Adapted from Miller 21 et al., 2012

Prevalence & Current Picture

The prevalence of SPD among children in the United States is about **5%–16%**.

Although the **Interdisciplinary Council on Developmental and Learning Disorders Task Force** included sensory processing disorder in its [Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood](#), it has not yet been recognized as a stand alone mental disorder in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) or International Classification of Diseases, Tenth Edition (ICD-10) medical manuals.

However, in the revised ASD criteria, the **DSM-5 now includes hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment**; and it is noteworthy that among children with ADHD, [various studies](#) have found **46-69 percent** to show **symptoms of sensory over-responsivity**.

<https://www.autismspeaks.org/autism-diagnosis-criteria-dsm-5>

6:30 a.m.



My name is Sara



<https://www.youtube.com/watch?v=-1aTVfKstrs>

WORTH PUBLISHERS

<https://www.youtube.com/watch?v=pMEROPOK6v8>

Sensory Integration Education



7,338 followers

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This new study investigated the impact of the environment on the **#SensoryHealth** of **#OlderAdults** - the researchers found that neighbourhood characteristics influenced self-rate visual processing along with olfactory processing in study participants.

#SensoryProcessing

<https://lnkd.in/ej7Zy37R>

JOURNAL ARTICLE ACCEPTED MANUSCRIPT

Sensory Health among Older Adults in the United States: A Neighborhood Context Approach

Alyssa W Goldman, PhD ✉, Jayant Pinto, MD

The Journals of Gerontology: Series B, gbae003,

<https://doi.org/10.1093/geronb/gbae003>

Published: 24 January 2024 **Article history** ▾

T

With **#ADHD** - the researcher found that **#SensoryProcessing** difference impact on execution function and anxiety in children with ADHD and as a result influence their quality of life

https://lnkd.in/g-7v_K6d



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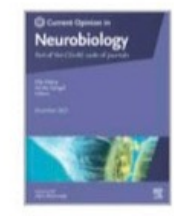
This new study investigated **#SensoryProcessing** differences in individuals with Post Traumatic Stress Disorder (PTSD). The researchers found changes in sensory regions and patterns of connectivity which affect how individuals with PTSD process sensory information.

<https://lnkd.in/eFQ7chDR>



Current Opinion in Neurobiology

Volume 84, February 2024, 102821



Sensory alterations in post-traumatic stress disorder

Leland L. Fleming^{1,2}, Nathaniel G. Harnett^{1,2}, Kerry J. Ressler^{1,2}

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<https://doi.org/10.1016/j.conb.2023.102821> ↗

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experiences, making everyday activities potentially challenging and unpleasant - but how does this impact their mental health? The following studies investigated the relationship between sensory reactivity and mental health symptoms in autistic



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This recent study investigated the effectiveness of a rhythm and movement intervention delivered by teachers in improving the **#SelfRegulation** skills in children aged 3-4 years. The study found that this intervention improved children's ability to self-regulate and demonstrated the value of training teachers to support children through the use of a school programme.

<https://lnkd.in/gi-UFvhy>



Early Childhood Research Quarterly

Volume 65, 4th Quarter 2023, Pages 115-128



Rhythm and movement delivered by teachers supports self-regulation skills of preschool-aged children in disadvantaged communities: A clustered RCT

Kate E. Williams , Laura A. Bentley, Sally Savage, Rebecca Eager, Cathy Nielson

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<https://doi.org/10.1016/j.ecresq.2023.05.008> ↗

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0 CrossRef citations to date

Research Article

The Contribution of Atypical Sensory Processing to Executive Dysfunctions, Anxiety and Quality of Life of Children with ADHD

Batya Engel-Yeger ✉ & Maayan Mevorach Shimoni
Published online: 09 Jun 2023

<https://doi.org/10.1080/0164212X.2023.2220975>

SELF ASSESSMENT



Sense: Vestibular

'Regulating use' means how we might seek out input in this sensory area to help us regulate ourselves. The use may be stimulating (S) or calming (C), depending on our initial mood.

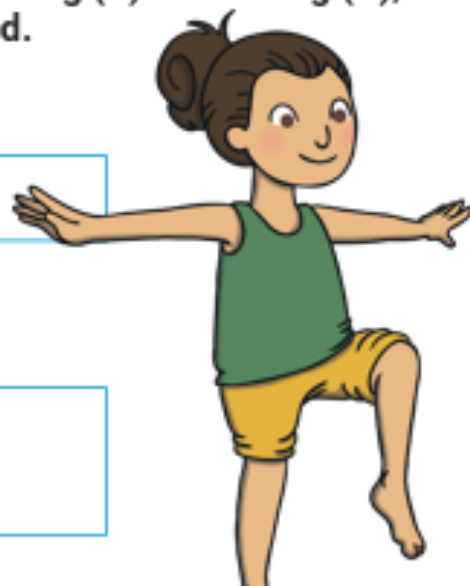
Practical Uses

Balance. Identifying if we are falling, spinning, moving fast or slow.

Regulating Uses

Gentle rocking or swinging in a rhythmic/linear movement. (C)

Spinning, hanging upside down. (S)



Hypersensitivity

Signs	Gets motion sickness.
	Avoids tumbling, spinning activities.
	Avoids taking feet off the ground.
Tools	Avoids the playground equipment.
	Build tolerance slowly.
	Respect this hesitance to engage and find less challenging activities to start with.

Hyposensitivity

Signs	Does not register movement.
	Has poor balance.
	May appear clumsy.
Tools	Support them to build confidence and competence slowly.
	Encourage them to use other senses such as sight to warn them if they are falling.

Discrimination Disorder

Signs	Gets lost easily as finds it hard to orientate self.
	Does not register how fast they are going, or whether they are getting dizzy.
	May not register they are falling until it is too late.
Tools	May overreact to unexpected movement.
	Build discrimination skills with exposure to, and discussion of, similar but different movement activities – fast/slow swinging, linear/spinning on swing, bikes, scooters.
	Do activities in different positions – sitting, standing, lying down.

Sensory Craving

Signs	Moves all the time!
	Hangs upside down, spins, runs.
Tools	For all cravers: balance enough input to get them stimulated, with calming activities to stop them from being overwhelmed.
	This profile is like having a fuel tank with a hole in: it can take a lot of fuel to fill it, as some is always leaking out. At any moment it could explode. Tread carefully!

Sense: Proprioception

'Regulating use' means how we might seek out input in this sensory area to help us regulate ourselves. The use may be stimulating (S) or calming (C), depending on our initial mood.



Practical Uses

Awareness of where our body is, what the parts of it are doing and how much force we are using to lift, carry, push, throw.

Regulating Uses

Deep pressure from being wrapped in a blanket, hugged, squashed into a small space. (C)*

Heavy work: digging, swinging on monkey bars, punching, throwing, hitting a ball. Using big muscles with intention. (C)(S)*

Hypersensitivity

Signs	May avoid movement activities.
	Uses a too-light grip on pencils or cutlery.
	Sleeps with no coverings.
Tools	Cannot tolerate hugs or tight clothes.
	Build tolerance slowly.
	Respect this hesitance to engage and find less challenging activities to start with.
	Use pencil grips or other adjustments.

*Note: Deep pressure and heavy work are considered 'organising and regulating' activities. Build them into any child's day – and your own.

Hyposensitivity

Signs	Coordination issues.
	Lack of awareness of where body parts are, bumps into things.
	Needs deep proprioception input to settle to sleep.
Tools	Support them to build confidence and competence slowly.
	Weighted blanket

Sensory Craving

Signs	Seeks big activities like climbing, crashing into things and people, throwing, punching, squeezing into small spaces, not respecting personal space.
	(Many challenging behaviours are actually proprioception seeking activities – the child is trying to regulate themselves.)
Tools	For all cravers: balance enough input to get them stimulated, with calming activities to stop them from being overwhelmed.
	This profile is like having a fuel tank with a hole in: it can take a lot of fuel to fill it, as some is always leaking out. At any moment it could explode. Tread carefully!

Discrimination Disorder

Signs	Uses an incorrect amount of force: slams door, drops a cup, pinches hard, hits instead of patting to get attention.
	May squeeze pets with too much force (unintentionally).
Tools	Build discrimination skills with exposure to, and discussion of, similar but different amounts of force – target games, sensory play.
	Supervise to ensure the safety of babies and pets.

Sensory Assessments Adults

- 1 Adolescent/Adult Sensory Profile**
- 2 Adult Sensory Processing Scale**
- 3 Clinical Observations (Neuro)**
- 4 Visual Integration Tests**
- 5 Older Adults Sensory Screening**

Self-Assessment Tools-Sensory Strengths

<https://sensoryintelligence.com/self-assessments/> <https://sensooli.com/my-account/your-personalised-sensory-profile/>

AASP-Sensory Profile-Dunn

<https://www.youtube.com/watch?v=4BL7edloc0A>

DASH-17+

<https://www.pearsonclinical.co.uk/store/ukassessments/en/Store/Professional-Assessments/Motor-Sensory/Detailed-Assessment-of-Speed-of-Handwriting/p/P100009280.html?tab=product-details>



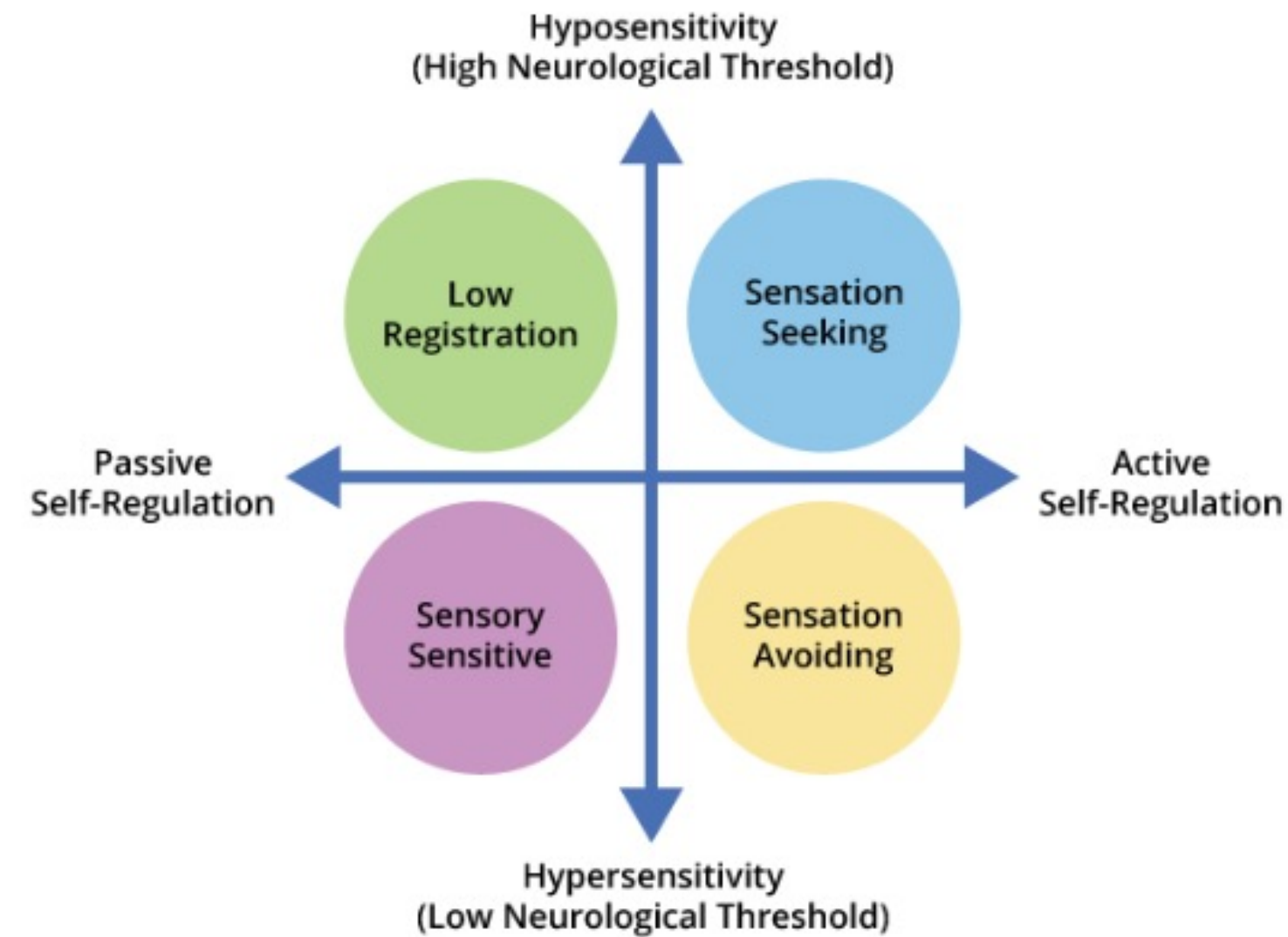
**Thank you very much
for your attention &
participation!**

Stay sensory aware!

Dunn's Model & Assessments of Sensory Modulation

Dunn's Sensory Processing Framework

PROFILE.2



(Dunn, 2007)

Registration – “Misses”

- Needs help to find objects that are obvious to others
- Seems oblivious to messy hands or face.
- Rushes through coloring, writing, drawing.

Seeking – “Obtains”

- Touches people or objects to the point of annoying others
- Rocks in chair, on floor, or while standing
- Watches everyone when they move around the room

Sensitivity – “Detects”

- Struggles to complete tasks when TV or music is on.
- Limits self to certain food textures.
- Becomes anxious when standing close to others.

Avoiding – “Bothered by”

- Reacts Strongly to Unexpected Noises.
- Shows an emotional response to being touched.
- Is sensitive to criticism.

Self Regulation Continuum

Neurological Threshold Continuum