

Sensory Integration Occupational Therapy

Making Sense of the World



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Sensory Integration Therapy: Definitions

*The brain must organize all of our sensations if a person is to **MOVE** and **LEARN** and **BEHAVE** in a productive manner*

Ayres, Jean A PhD, Sensory Integration and Learning Disorders, Western Psychological Services, USA, 1972, 1973

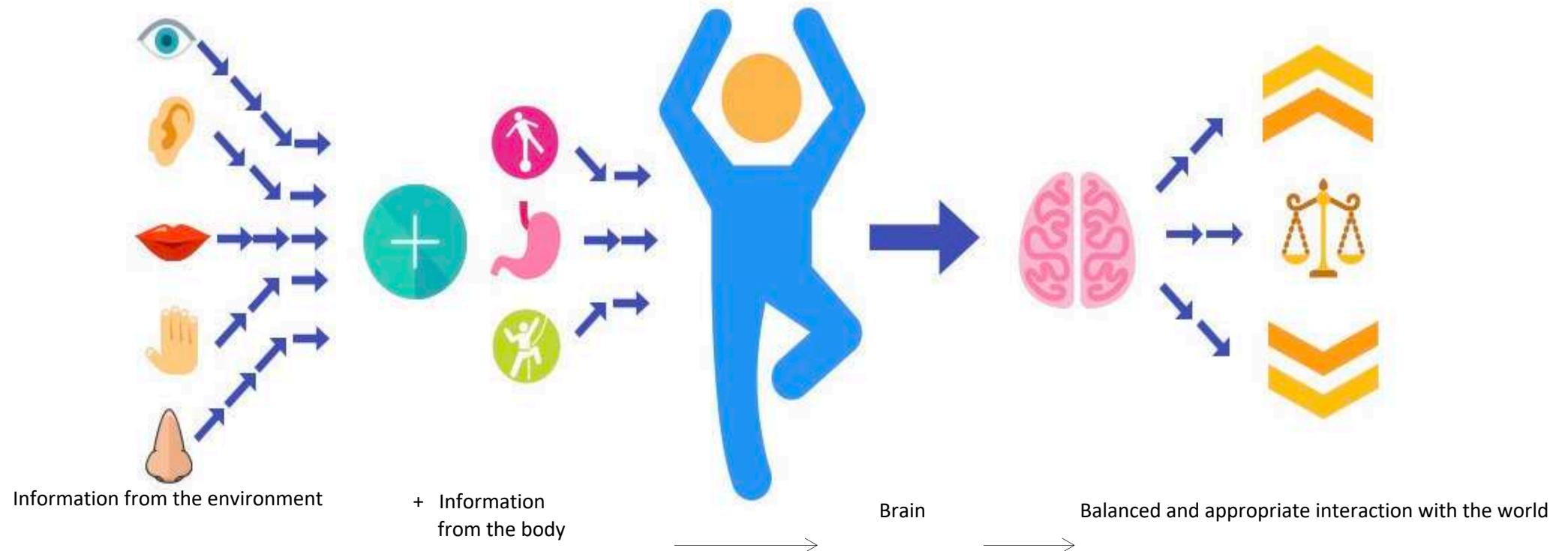


Sensory Integration Therapy



The OT formulates a
therapeutic hypothesis
based on the outcomes of
standardised assessment tools

Sensory Integration Therapy



Sensory Integration Therapy

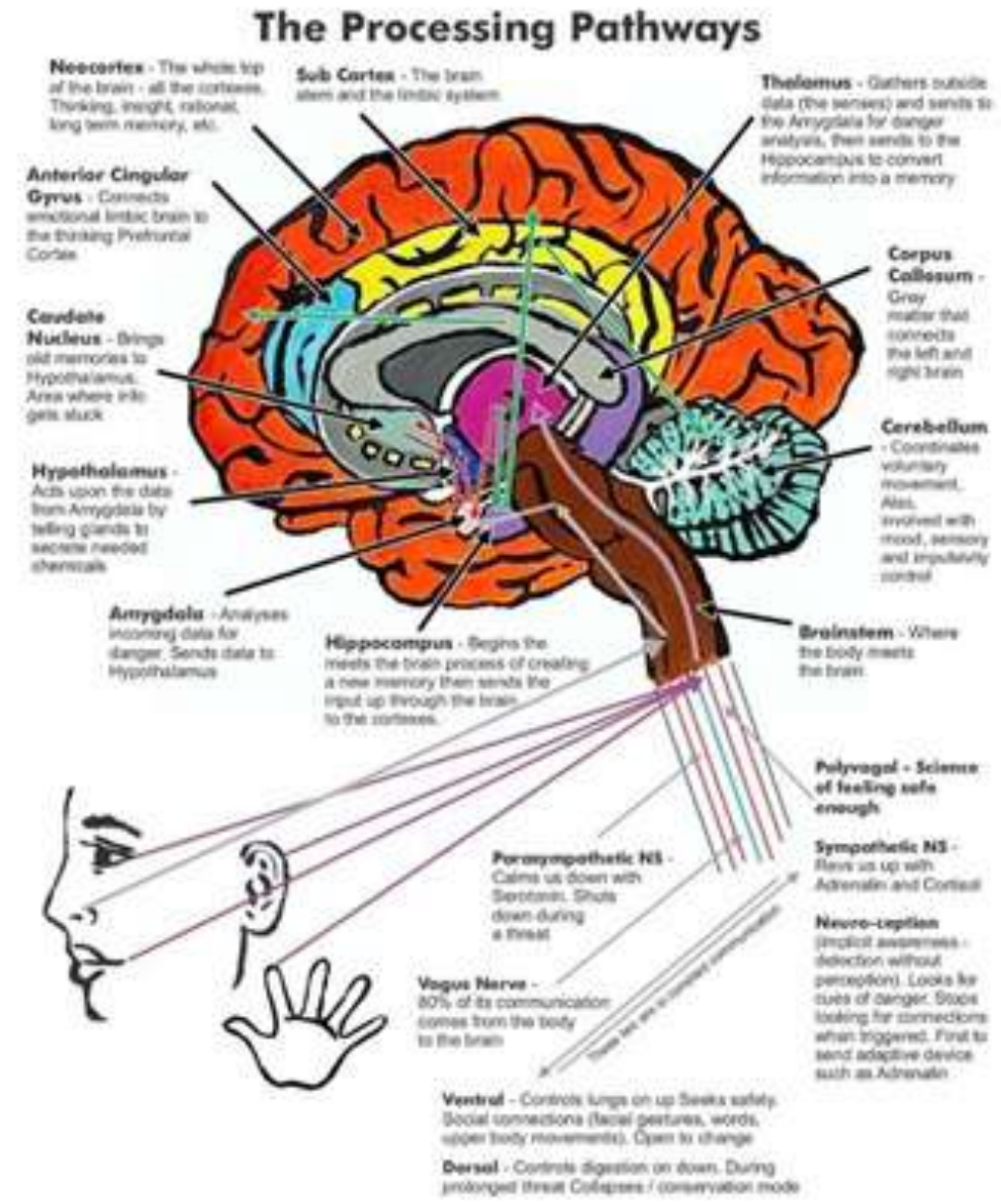


Figure 4 The Processing Pathways

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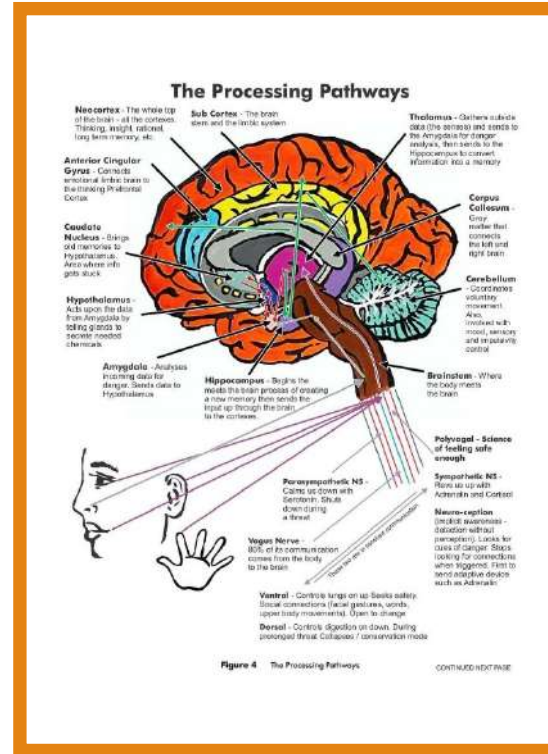
Sensory Integration / Processing

Processing Pathways of the Central Nervous System

Semi- and unconscious levels of awareness

Not teaching of skills

Experiential process/sensory rich environments

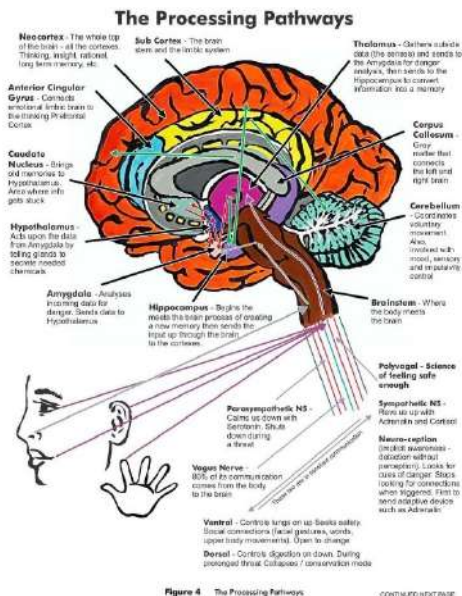


Sensory Integration / Processing

To develop the capacity of the brain to:

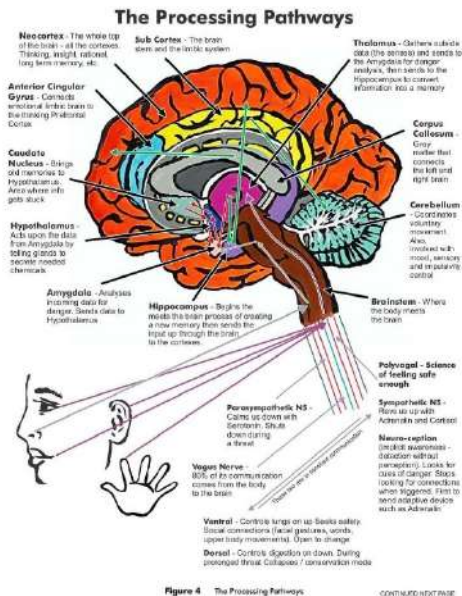
- perceive,
- remember, and
- motor plan,
- this ability is applied to mastery of skill on a variety of levels

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Sensory Integration / Processing

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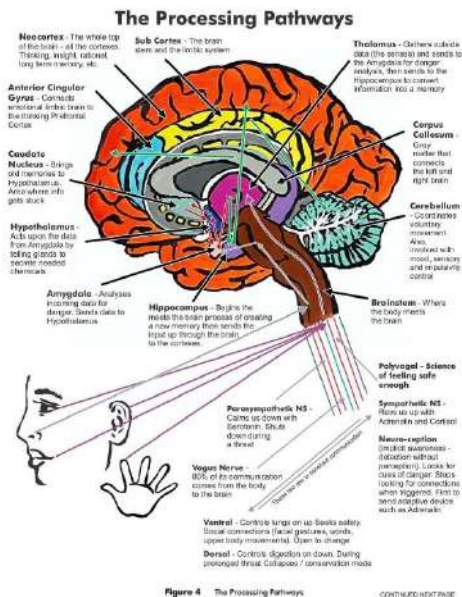
The cortex will not function optimally unless the lower centres of the brain are well organized

Sensory Integration / Processing

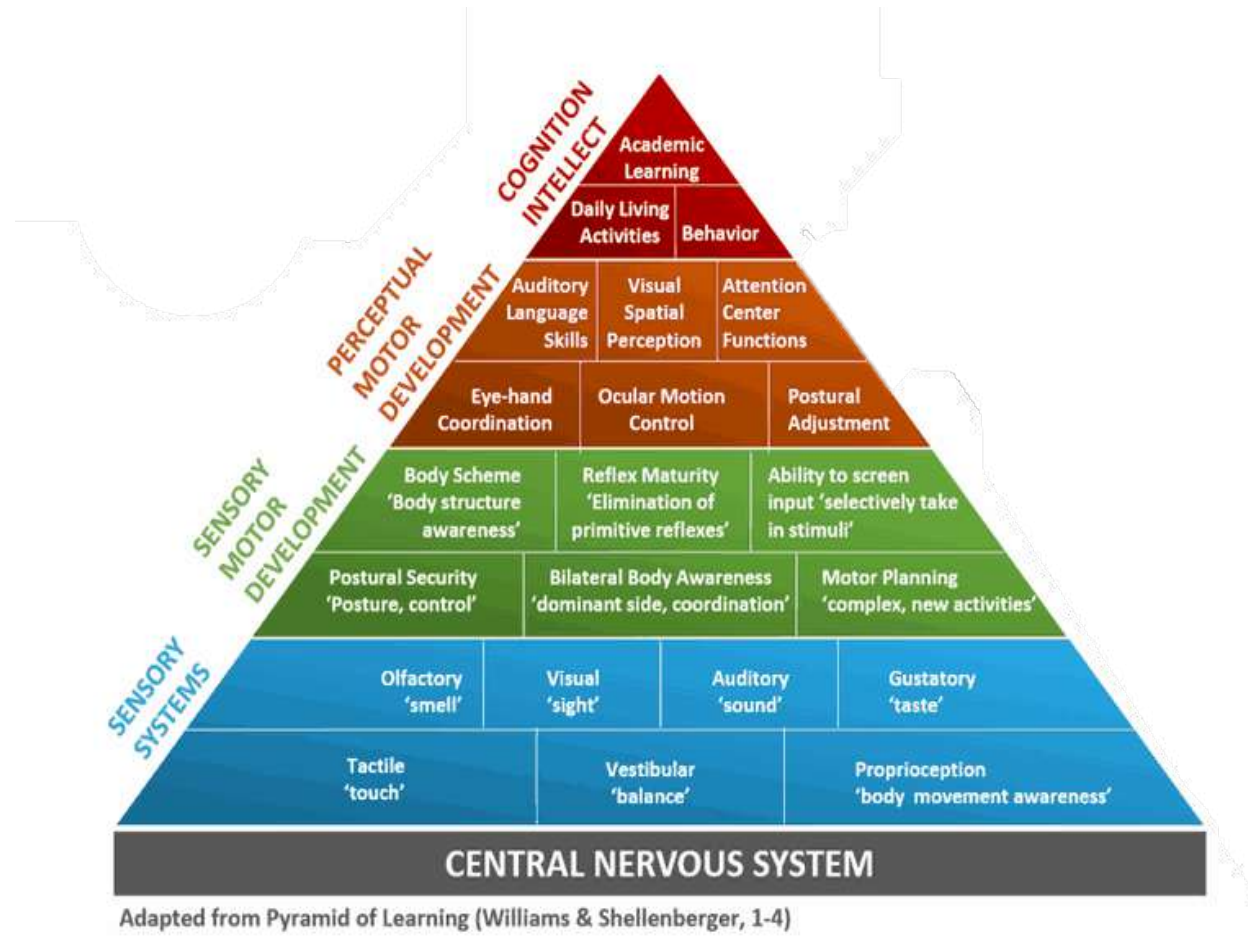
Disordered sensory processing:

- not feeling calm and safe
- anxiety, disorganization
- difficulty in motor coordination
- reduced participation in childhood occupations

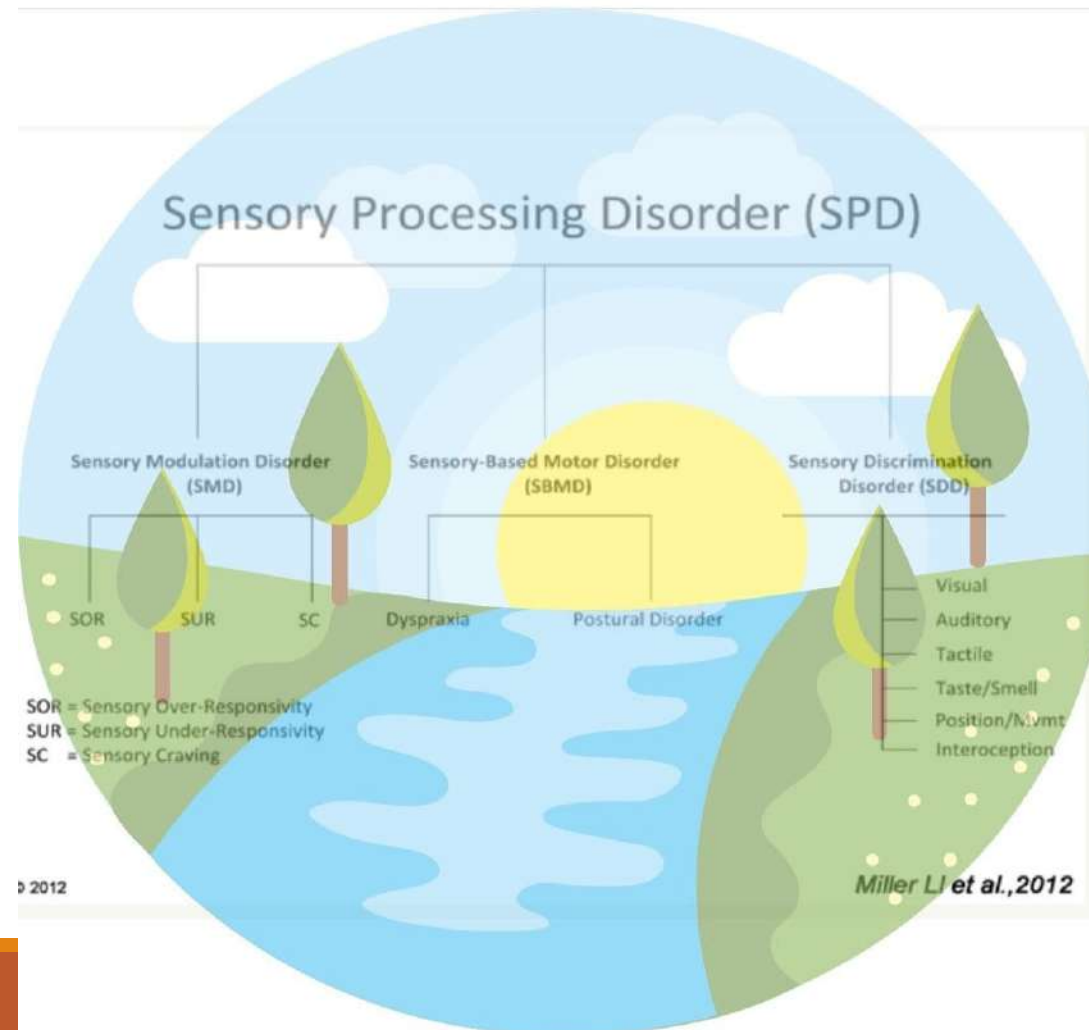
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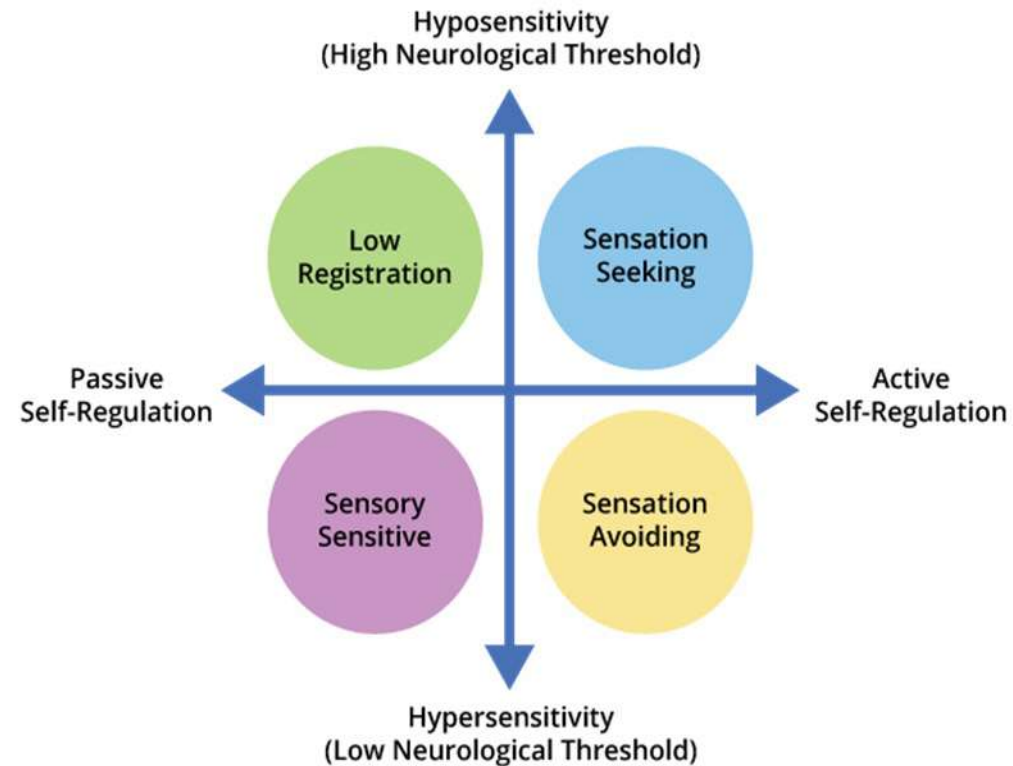
The Pyramid of Learning



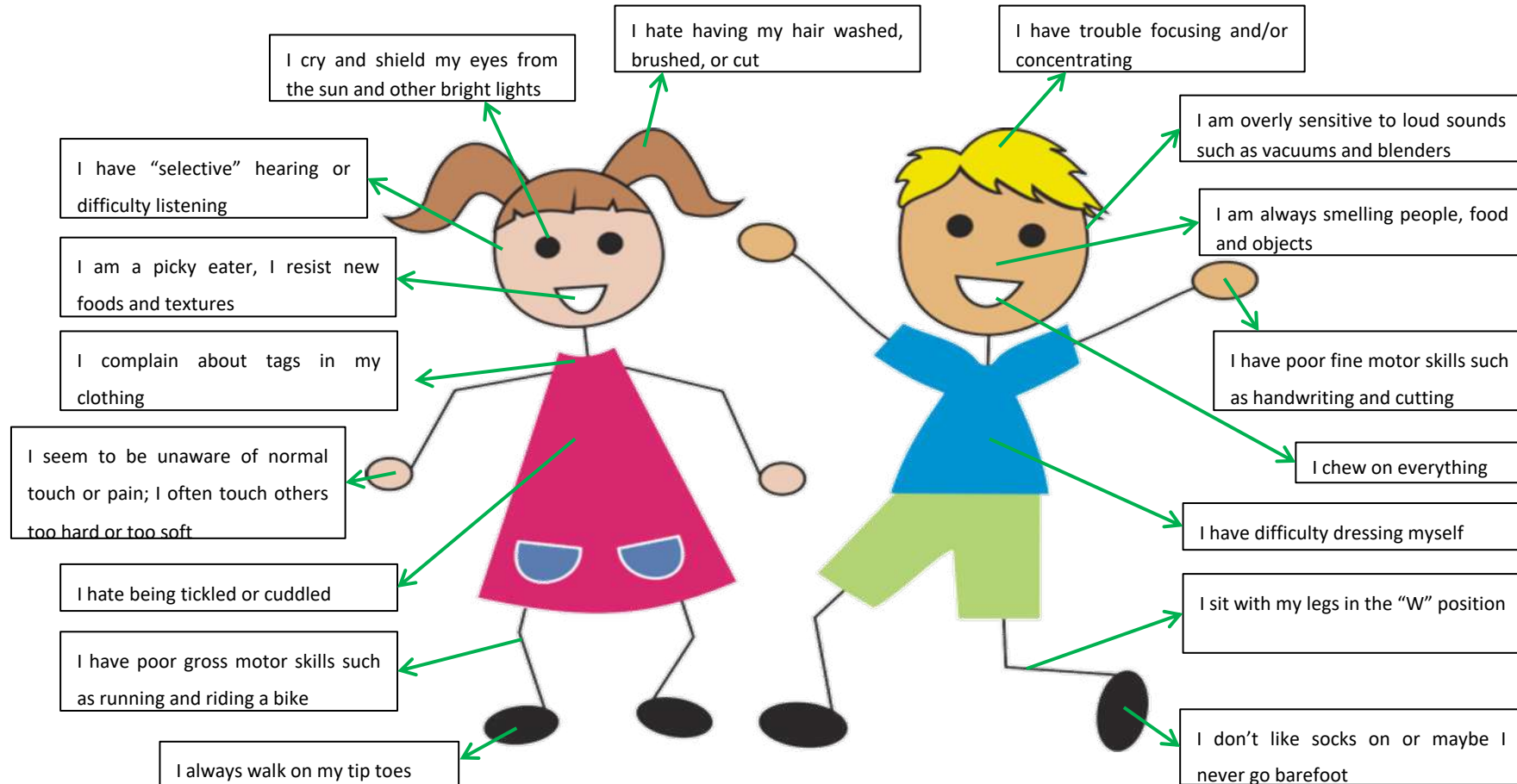
Sensory Processing Disorder



Sensory Modulation Disorder



Sensory Modulation Disorder





Sensory-Based Motor Disorders

Dyspraxia clumsy child; limited feedback from body	Postural Disorders limited feedback from body
Triad of Somatosensory Systems Involved: <ul style="list-style-type: none">➤ Vestibular➤ Proprioceptive➤ Tactile	Somatosensory Systems Involved: <ul style="list-style-type: none">➤ Vestibular➤ Proprioceptive
Functional challenges: <ul style="list-style-type: none">➤ School - handwriting/ letter formation➤ Sports - gross motor delays➤ Emotionally challenged – low self esteem	Functional challenges: <ul style="list-style-type: none">➤ Frequent falling & balance challenges; impacting gross motor & sports skills➤ poor maintenance of sitting posture impacting fine motor coordination

Sensory Discrimination Disorder



Lucy J Miller, Darci M Nielsen, Sarah H Schoen. Attention Deficit Hyperactivity disorder and sensory processing modulation disorder: a comparison of behaviour and physiology. *Research in Developmental Disabilities*. 2012



The Prevalence of SPD

- 1 in 20 children / Kindergarten (Ahn et al., 2004)
- 1 in 6 children / 7- to 11-year-olds (Ben-Sasson et al., 2009)
- Not all SPD = Autistic Population
- Sensory differences in Autistic Population = 69-95%

Beyond Controversy



Validating the diagnosis of SPD using EEG technology:

These results present **empirical evidence** that children with SPD display *unique brain processing mechanisms* compared to children who are typically developing and provide external validity for the diagnosis of SPD

Davies, P. L., & Gavin, W. J. (2007)

Early Intervention Infants and Toddlers



- Difficulties with eating and/or sleeping
- Refuses to go to anyone but their mom for comfort
- Irritable when being dressed; uncomfortable in clothes
- Rarely plays with toys
- Resists cuddling, arches away when held
- Cannot calm self
- Floppy or stiff body, motor delays

Early Intervention Infants and Toddlers



Early identification can prevent secondary challenges:

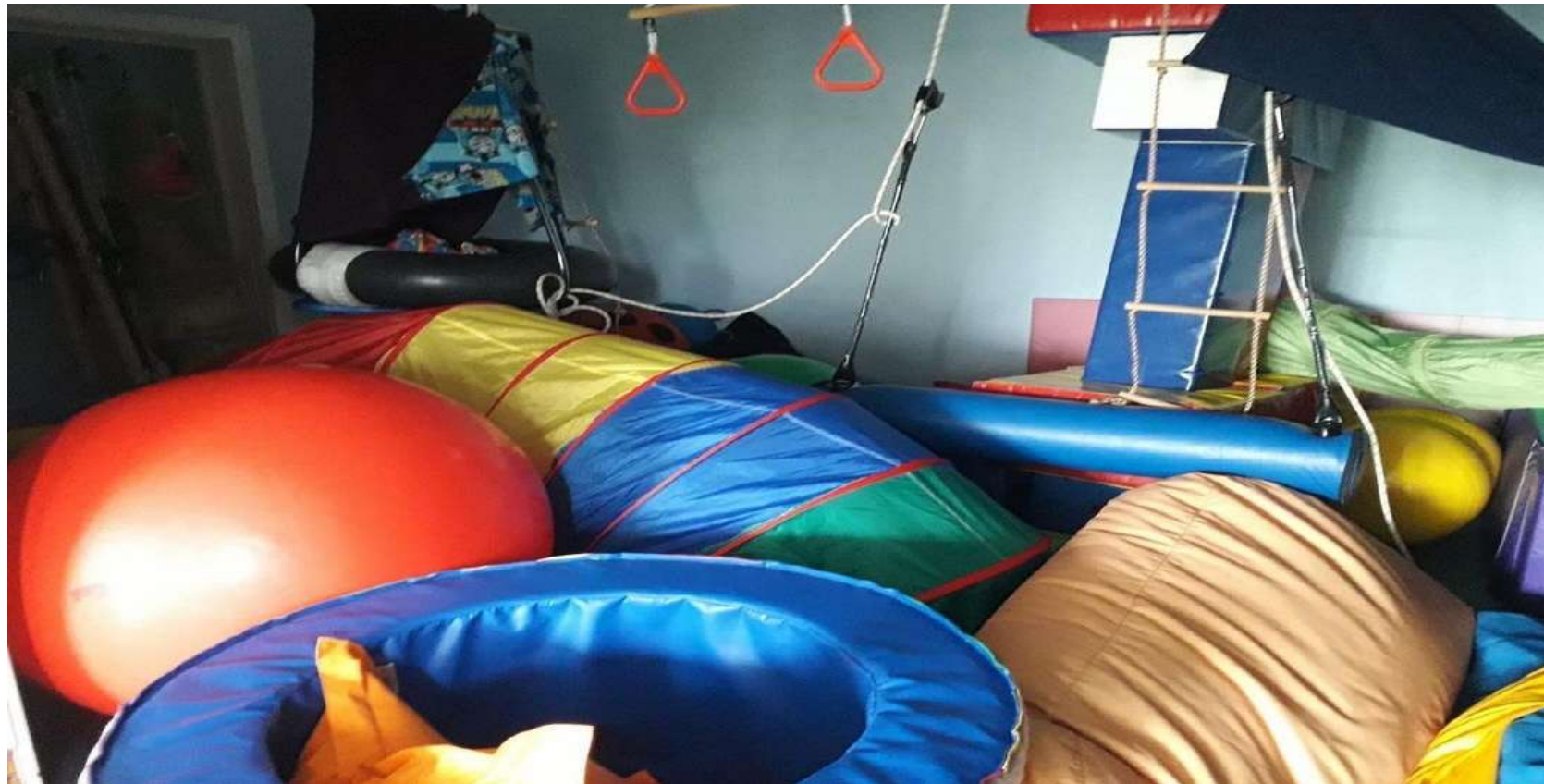
- Behaviour
- Attention
- Emotional self-regulation/ moods & anger
- Social relationship
- Limited participation in school & community activities
- Poor self-esteem



SI OT – HOW does it work...

- **Sensory-rich environment** called the OT Gym
- The therapist guides the child through **fun activities** that are **subtly structured**
- The child is **constantly challenged** but **always successful**
- **JUST-RIGHT challenge**

The OT Gym: A Sensory Rich Environment



The OT Gym: A Sensory Rich Environment



The OT Gym: A Sensory Rich Environment



The OT Gym:

A Sensory Rich Environment



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SI OT – the art of therapy

...competence is more than technical proficiency; it approaches an art

...the art of SI therapy is analogous to psychotherapy ...similarities helps to clarify the nature of SI therapy

...it is the child who must change within himself; the therapist can only promote and guide

The HAPPY Brain

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The Autonomic Nervous System & The Polyvagal Theory

...a call for: when we know
better, we do better

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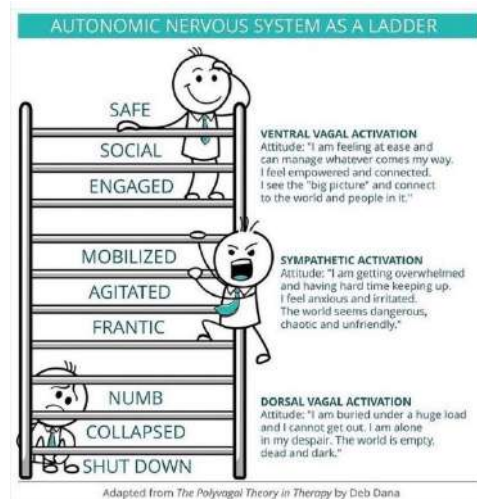


The Autonomic Nervous System & The Polyvagal Theory

ANS regulation is the **platform for optimal sensory processing** and child development

The significant importance of feeling safe

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The ANS & PVT

Historical view of ANS:

- Parasympathetic – rest/ digest/ heal
- Sympathetic – fight/ flight

ANS through the lens of the PVL:

- Ventral Vagal Activation – SAFE STATE
- Sympathetic Activation – MOBILIZED STATE
- Dorsal Vagal Activation – SURVIVAL STATE

Dr Stephen Porges (1995)

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PVT: 3 primary principles

Hierarchical in nature:

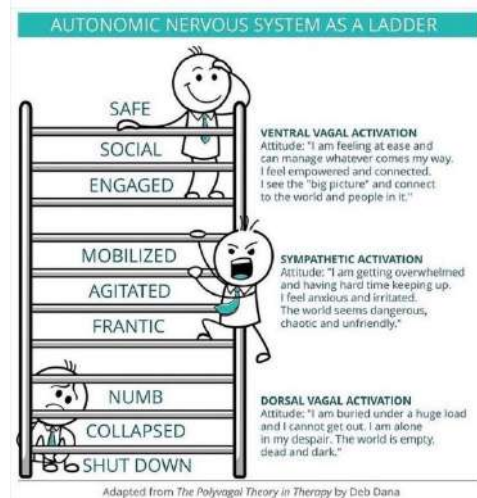
- Dynamic movement in this order

Neuroception:

- Automatic & unconscious process – no cognitive reason
- **80%** sensory fibres vs **20%** motor fibres

Co-regulation:

- How the nervous system connects with others
- The brain is a **social organ**



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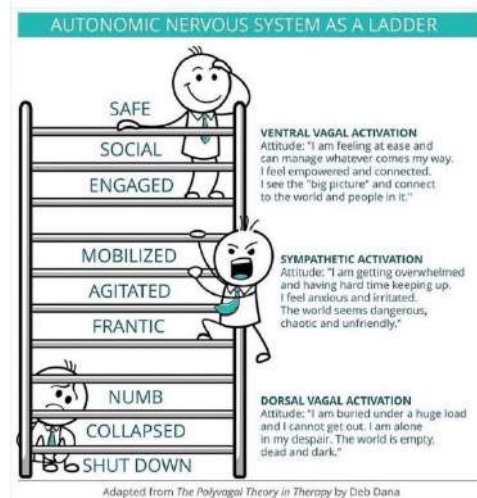
PVT: Social Engagement System

Ventral Vagal Activation state:

Allows to connect/ communicate/
collaborate using:

- facial gestures
- vocal prosody
- body language

...to receive, and signal safety, to
others



A Psychological Perspective: Sensory Processing Sensitivity



The Highly Sensitive Child



Sensory Processing Sensitivity (Aron 1995)

Constitutes 15-20% of over a 100 different species

“...an independent group of people who are **qualitatively distinct** from all the others concerning their way to perceive and process stimuli”

Borries (2012)

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Presenting SI OT to Parents / PARENT COACHING

Conclusions: how to present SI to parents



- Organic and dynamic – no recipe
- The silent partner
- The background music
- The filing/ organizational system of the brain
- Like gardening - *preparing the soil* prior to planting the seeds of skills development

Dr Louis Cozolino

International SI Conference 2022



“My personal understanding of the exquisiteness of what you do in Ayres Sensory Integration can be compared to neurosurgery without a knife...”

Thank You

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