



Sensory Integration

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About Sensory Integration (SI)

Sensory Integration provides a way of understanding how the sensory system contributes to learning and development.

Jean Ayres developed Sensory Integration in 1972, to understand the relationship between neurological patterns and the bodies interaction with its environment. The theory developed assessments and identified dysfunctional integration systems. The definition of Sensory Integration is defined as "the organisation of sensation for use" Ayres. 1979.



WHAT WE TOUCH



WHAT WE SEE

WHAT WE SMELL



WHAT WE HEAR





SENSATIONS MUST BE PERCEIVED,
ORGANISED AND INTERPRETED TO:

Ensure individuals :

Organised and able to maintain
attention

Emotionally regulated

Interacting socially

Coordinated motor planning and
praxis

Organised behaviour patterns and
responses

The importance of SI

The Tools in SI

OCCUPATIONAL CHOICES

Support to help individuals understand who they are and why they enjoy the occupations they choose to engage in by identifying how individuals:

Distinguish and interpret sensory input (meaning of sensation)

React to sensory input (modulation, arousal and reactivity)

Process sensory information (the way sensory information goes through your nervous system)

Register sensation (notice sensation)



Target Group

People who have:

Cordination issues



Poor ability to conceptualise, plan and organise novel actions

Poor awareness of body in space

Poor coordination of eye and body movements

The sensations we process



INTERIOCEPTION

Inside your body - pain,
tiredness, blood pressure

PROPRIOCEPTION

Awareness of body in
space

EXTEROCEPTORS

Taste, smell, touch,
vision, hearing

The sensory system



There are actually 7 senses: Touch, smell, taste, hearing, sight, vestibular (balance), and proprioception (awareness of body in space)



Sensory Reactivity



Our brains are constantly processing sensory information. Sensory Integration identifies when we have a hyper or hypo-responsive sensory system, and assists to identify the "Just right" sensory challenges. SI helps individuals to develop our adaptive responses to the sensory challenges in our environment

Tactile Perception



Tactile perception is essential in the early development, attachment, and social relationships.

Touch is important in the development of motor control.

Vestibular Peception

Vestibular perception is important for the development of our bodies against gravity, head neck and eye control, our abiility to stand up straight and our ability to make coordinated movements.



Proprioception Perception

The proprioception system is the sensory system that supports our understanding of where our body is in space. It helps us to not bump into things, to stand up straight and to make coordinated movements.



Taste and smell Perception

The ability of our sensory system to tolerate strong tasting foods and different smells.



Seeing and hearing Perception

Our ability to tolerate sound, light and fast moving visual stimuli.



What is Praxis?

Fine and gross motor skills including the ability to plan and organise movement. It is the ability to figure out how to use our bodies in skilled tasks such as playing with toys, building, straightening the room. It is also the ability to be organise yourself to complete the tasks.

(Ayres, 1985)



Praxis

It is essential to perceptually understand the body and the environment in order to be able complete tasks and meaningful adaptive responses to the activities we are wanting to complete, such as play, toileting, dressing, getting ready to learn.



Dyspraxia

Dyspraxia is difficulty with completing new motor tasks. Children with dyspraxia can learn motor task but have difficulty generalising those tasks in their environment.

Dyspraxia children know what they want to do they just can't remember how to do it. They find the environment difficult and often become avoidant.



Motor deficits and praxis

Muscle weakness

Reduced muscle patterns

Ataxia

Dyspraxia - inability to complete complex
muscle movements not explained by the above



Praxis & SI

There is a relationship between Tactile discrimination and praxis

Visual information supports construction abilities

Ideation supports the sensory integration that informs language and ideas



Sensory Reactivity

The responses to sensory information in a graded way. The reaction and intensity of response is in context to the incoming sensation intensity. The ability to: pay attention, to get up and go, to focus and shift attention, screen out unwanted information, avoid unpleasant things.



Populations with atypical reactivity

Autism

Attention Defecit Hyperactivity Disorder

Failure to thrive

Regularatory disorders

High risk trauma children

Environmental deprivation

Undiagnosed with sensory sensitivity



Under and over reactivity to sensation

OVER REACTIVITY

Avoidant

Defensive

Antisocial

Sensitivity to light, sound and messy environment

Low threshold to sensory information

UNDER REACTIVITY

Reduced awareness of sensation

Sensory seeking

Reduced pain response

Crashing, bumping, jumping, looking for excessive amounts of Vestibular input

High threshold to sensory information



Anxiety and self regulation

The ability to manage the emotional response such as anxiety, in context to the environment stimulus. seeing a better regulated state, where someone is not over or under reacting to stimulation. Self regulation is choosing behaviours that are appropriate so there is no aggression or self harm, anxiety goes down, and executive functioning goes up, and someone has better effortful control of impulsive behaviours



Sensory Interventions

Sensory Diet - customised
Graded sensory activity plans
Inhibitory activity identification
Alerting activity identification
Heavy work activities
Developing routines and activities for high and low arousal times
Education of children, family and teachers
Regulatory programs such as alert program and zones of regulation, identifying when strategies are needed.
Environmental modification
Sensory equipment, such as wobble cushion, weighted vest, therapy ball, theraband, compression garments

