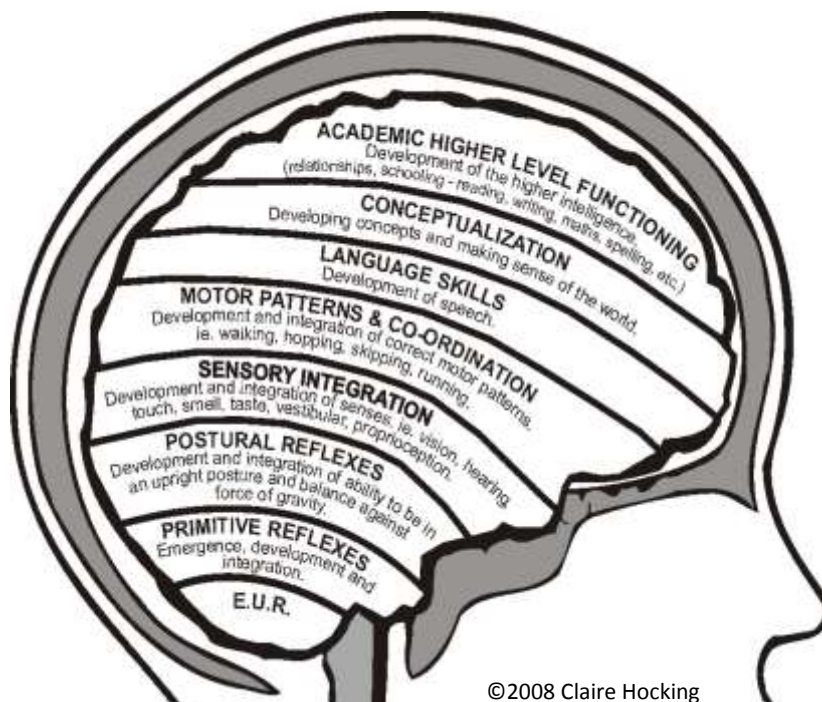


The Relationship between Retained Primitive Reflexes and Sensory Integration by Claire Hocking

Reflex development underpins all other development including sensory integration. Integration of retained reflexes and the sensory system both mature basic neural connections and pathways needed for mature development, learning and wellbeing. Balancing and maturing retained reflexes and the sensory system will help improve sensory input and output, and organisation of the central nervous system.



If the early and primitive reflexes are not integrated in sequence, the development and integration of subsequent reflexes and sensory processing is disturbed despite normal development in other areas. If the person's foundation, their early uterine, primitive and postural reflexes connections are unstable, weak or have gaps in their development, they will undermine all other areas to some degree. Many variables can interfere with this development, including genetics, stress, trauma, injury, etc. If there are problems in the underlying organization, any connections that are dependent on this organization will cause inherent weaknesses and the person will need to learn to compensate.

Sensory Integration is the neurological process of organizing the information that we get from our bodies and from the world around us for use in our daily life.

- The Near Senses: -The Vestibular System – Sense of Balance and Movement
-The Proprioception System – Sense of Body Position
- The Far Senses: -The Ocular System — Sense of Sight
-The Auditory System — Sense of Hearing
-The Tactile System – Sense of Touch
-The Olfactory System - Sense of Smell
-The Gustatory System- Sense of Taste

The main task of our central nervous system is to integrate the senses via the brain stem. The brain filters the millions of sensory sensations that bombard the brain every minute of the day. Most are irrelevant to the current situation. The brain therefore inhibits the irrelevant information so that we can more effectively pay attention to relevant information.

When the brain is efficiently processing information, then we respond automatically and appropriately. The brain is equipped to modulate sensory messages. It does this by regulating its own levels of activity creating balance. An efficiently functioning nervous system maintains this balance by turning on or turning off the neural switches of all the sensory systems.

Sensory integration begins in the womb, and is normally well developed by the time a child enters school. There is a specific developmental process that the child goes through in the development of their senses. Throughout our lives we build on sensory experiences to expand our understanding of the world and our ability to operate within it. Using our integrated reflexes and senses are crucial to this.

If any of the sensory systems are slow in developing, then further learning takes place in a vacuum – “out of synch” with the normal developmental stages. The child about to enter school needs to have a solid sensory foundation to support their learning process.

Sensory dysfunction occurs when the neural connections and pathways are immature or unintegrated, interfering with the effective and efficient processing of information.

- **Input by the Sensory System.** The brain takes in too much or too little sensory information. Hypersensitive individuals will avoid stimuli that excessively arouse them. Hyposensitive individuals will either ignore the stimuli, or will crave stimuli to arouse themselves. The results are not being able to react or behave in a meaningful, appropriate way.

Some people can exhibit both hypersensitive and hyposensitive sensory traits. The brain of a person who displays both cannot correctly modulate their senses. Their over- or under-sensitivity may often depend on what retained reflex is active, level of stress, tiredness or coping with illness or other life situations or traumas. Retained active reflexes can activate unintegrated sensory activity and visa versa.

- **Organisation by the Nervous System.** Sensory data is either not received, received inconsistently, or disconnected from the correct sensory messages. If those neural pathways are not complete or mature, it can interfere with the effective and efficient processing of information along those pathways. The person's system may attempt to find other connections, but they are usually far less effective as the mature and direct neural connections. Retained reflexes affects the process by which our brain interprets sensory information that we gather from our senses then attempts to output a meaningful response.

- **Output of Movement, Speech or Emotion.** Output problems can reflect a muscle control problem or may be the result of faulty input or processing. The early, primitive and postural reflexes form the basic neural pathways from the motor cortex to the muscles. Balance, touch, hearing, vision and proprioception all senses connected to movement and are crucial to mature and appropriate behaviour, learning and future wellbeing. The early, primitive and postural reflexes form the basic neural pathways from the motor cortex to the muscles.

Learning new things is one of the most taxing activities on the central nervous system and this can easily lead to overload. In the early years of life and school, new learning is a constant and demanding activity. Further demands of growth and development, higher education and other life traumas may add to the overload on the central nervous system.

An overloaded system may be affected in many ways. As we are complex individuals this will vary from person to person. If unintegrated, become increasingly evident, especially when the central nervous system is stressed, tired or traumatised. The most commonly affected areas are related to growth, health, behaviour, concentration, schoolwork, learning, vision and balance or frequently, combinations of these. The complex learning environment causes some children and adults to either 'switch off' or become disruptive due to their inability to cope with incoming stimuli. The person is often labelled as 'day dreaming', 'not concentrating', 'lazy', 'defiant', 'uncooperative', 'dyslexic', 'trouble maker' or 'ADHD', despite constant efforts by the child, parents and teachers.

If a person has failed to benefit from conventional teaching strategies and interventions, then consideration must be given to any unintegrated early and primitive reflex and sensory activity that may be affecting their academic learning and behaviour. They may resurface when the person moves to more intensive learning situations where the demands of higher learning are greater & the pressure for academic progress is more urgent. They can also re-emerge or become active again following any neurological, biochemical, emotional or physical trauma.

The Brain Gym movements simulate many of the developmental movements that babies and young children naturally perform, and improve the processing of reflex and sensory information. The Brain Gym movements can give the brain and body a 'second chance' at integrating reflex and sensory movement patterns to provide the person with more mature patterns of response.

As early and primitive reflex and sensory activity is integrated, many of the physical, academic and emotional problems of the person will decrease and/or disappear. As the ability to confidently and comfortably cope with learning and working situations improves, so do the chances of academic success may become easier. The aim is to have all the different areas of their brain and body working in a well-integrated fashion successfully doing what they were naturally designed for.

Sensory Red Flags

- Unpredictable, emotional instability, cries easily, aggressive, volatile temper
- Poor sense of rhythm, falls easily and often, walks with uneven gait
- Fear of swings and slides, high places and elevators
- Tendency to be clumsy and bump into things, drops things
- Tendency to be fearless, climbs high places with no apparent concern
- Fussy picky eater, poor eating habits
- Poor reading, writing, spelling, maths, reverses letters, words, numbers
- Inability or poor comprehension to follow or carry out instructions
- Forgetful, always losing things, absentminded
- Impulsive behaviour, unable to sit still, always on the move
- Unusual quietness and lethargy
- Constant interrupting, won't wait his turn to speak
- Persistent chattering, often unrelated to topic
- Excessive repetition in speaking and questioning and playing
- Easily upset with others, upsets others without understanding why
- Difficulty with cross crawl, skipping, hopping and jumping
- Clumsiness in catching and throwing balls
- Difficulty in manipulating scissors, pencils, beads, shoelaces, bows, etc.
- Erratic or slow in completing work, doesn't get down to their work tasks
- Unusual inactivity characterised by daydreaming and lack of focus
- Trouble with game playing and following group rules
- Behaviour gets worse in crowded, noisy places
- Confused sense of time and distance
- Difficulty in expressing ideas, sequencing pictures, events and times

Brain Gym for Sensory Integration

Sense of Touch - Water, Arm Activation, Hook-Ups, Lazy 8s (on a surface), Double Doodles (on a surface), Belly Breathing

Sense of Smell - Water, Hook-Ups, Positive Points, Belly Breathing

Sense of Taste – Water, Energy Yawn, Hook-Ups, Positive Points, Belly Breathing

Sense of Proprioception – Water, The Owl, Arm Activation, Footflex, Calf Pump, Gravity Glider, The Grounder, Lazy 8s, Alphabet 8s, The Energiser

Sense of Balance – Water, The Grounder, Hook-Ups, Positive Points, Balance Buttons, Cross Crawl, Lazy 8s, Neck Rolls, The Elephant

Sense of Hearing – Water, The Owl, Thinking Caps, The Elephant, The Rocker, Cross Crawl Sit-Ups

Sense of Vision – Water, Brain Buttons, Earth Buttons, Space Buttons, Balance Buttons, Lazy 8s, Double Doodles, Neck Rolls, Belly Breathing

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