

Primitive reflex patterns

by Susan Kerton

Primitive reflex integration is a key component in treating individuals with sensory processing disorder (SPD), autism spectrum disorder (ASD), attention deficit disorders (ADD/ADHD) and other challenges. In this blog we talk about primitive reflex patterns, their influence on 'typical development' and the difficulties that arise when primitive reflexes don't integrate.

What are primitive reflexes?

Primitive reflexes are automatic motor responses to sensory stimuli. Primitive reflexes, once activated by a specific sensory stimulus, result in a specific, simple, motor response/action. This movement cannot be stopped or changed by our thoughts.

Primitive reflex patterns develop before a child is born and activate during birth or shortly after. These simple automatic patterns are vital in early development.

Primitive reflexes have 2 functions:

- Protection
- Exploration.

If everything develops 'according to plan,' the protection mode of the primitive reflex pattern is 'turned down' as the infant begins to build a sensory 'memory file.' The infant who is able to build his sensory memory files is able to explore and

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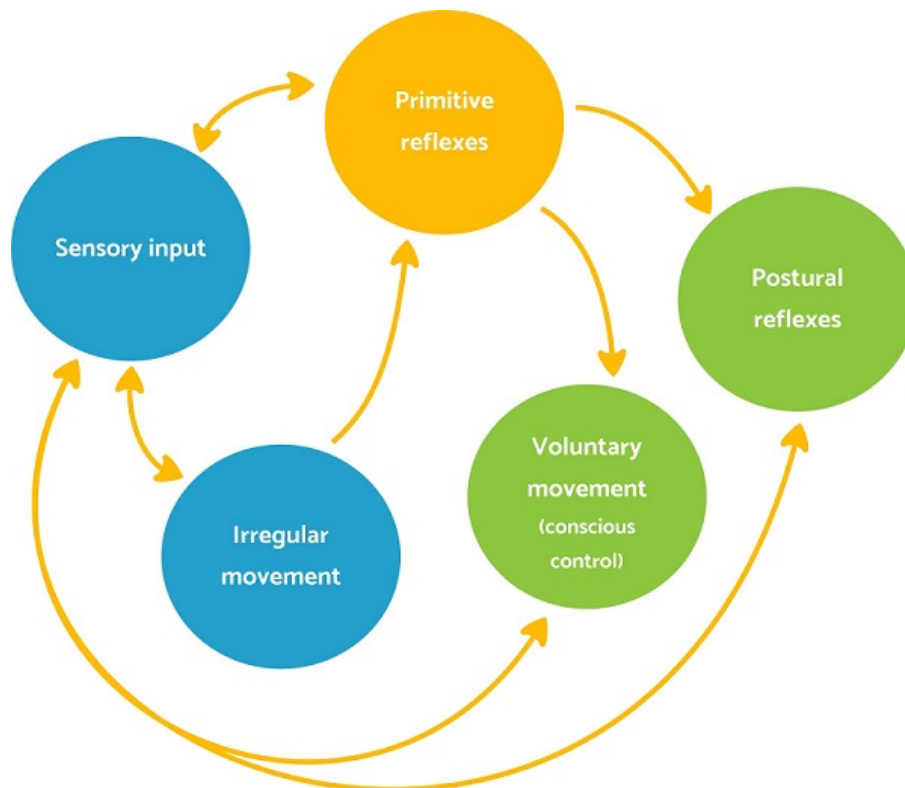
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Primitive reflex patterns

The connection between sensory processing

learn about the world comfortably, safely and easily. As his sensory repertoire expands, the sensory stimulus doesn't activate the primitive reflex– and voluntary, complex movement patterns begin to dominate.

Primitive reflex patterns do not go away completely but are integrated into the mature voluntary movements we use as we grow and develop. These patterns are the component parts of motor coordination. Primitive reflexes only re-emerge when the child needs to protect himself immediately and automatically.



How primitive reflexes fit into the whole sensory-motor system

The impact of retained primitive reflexes on sensory processing and development

Primitive reflex patterns are simple and effective in the early stages of development but are not adequate in supporting complex skill development as the child gets older. It has been estimated that a child with retained primitive reflex patterns has to work 10 times harder than a child whose reflexes are

and primitive reflexes

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integrated.

If there is a problem with sensory processing (building the sensory memory file) then there will be a problem with the development of voluntary motor patterns (motor coordination). If the sensory stimulus does not register as familiar, the protection mode of the primitive reflex patterns will continue to activate, blocking, delaying or interfering with new motor patterns.

The impact of primitive reflex patterns varies in intensity and may not be obvious to the untrained eye. The intensity is impacted by stress (real or imagined). If primitive reflex patterns activate, the child's attempt to perform a task will be unsuccessful, delayed, incorrect and frustrating. Motor, social, emotional and cognitive development are impacted.

Retained primitive reflexes can be seen in children who have skill gaps, developmental delays, autism spectrum disorder (ASD), attention deficits (ADHD/ADD) or specific learning disabilities (SLDs) like dyslexia.

A closer look at some primitive reflex patterns

The Moro pattern

The Moro pattern is activated by changes in the position of the head or the feet in relationship to the body.

Moro pattern helps us to process movement information (vestibular sensory input) and develop optimal muscle tone. The emotional aspect of the pattern is associated with feeling safe and comfortable. These feelings help the baby to adapt to change and cope with stress.

When the Moro pattern remains active or in protection mode, there are problems processing movement information and the child is likely to have poor posture, with a weak core. Dealing with change and developing resilience to stress is challenging. Chronic stress can translate into issues with the immune system and/or digestion.

Asymmetrical tonic neck reflex (ATNR)

ATNR is activated initially by neck/head movement to the left and right side. Later the pattern can be activated by touch, sound and visual information.

ATNR pattern gives the baby a sense of the midline of the body and asymmetrical movement of the sides of the body, each side performing a different action at the same time. It is important in the development of hand dominance and specialization. The pattern helps to connect vision with hand use and later visually-led movement.

The pattern is important in the ability to use both eyes and both ears together and in the development of language and attention.

When ATNR remains active or is in protection mode, the child is likely to have problems processing movement, touch, visual and sound sensory stimuli. Balance when turning the head will be challenging and there will be problems with midline, bilateral integration and cross lateral patterns. Skilled use of the hands will be impacted, especially activities where each hand does something different, like buttoning.

A child with an active ATNR may be woken by sounds during the night.

Symmetrical tonic neck reflex (STNR)

STNR is activated by movement of the head/neck initially, then by visual and sound stimuli.

This reflex helps an infant get into position for crawling. This position helps the child develop stability in the shoulders and hips and is important in the development of postural control, particularly sitting positions. The stability and postural control associated with the integration of STNR pattern is vital for optimal development of fine motor skills.

STNR pattern is important for calming motor activity to allow engagement via the senses. This pattern helps in developing vision patterns including using both eyes together and looking from near to far and vice versa.

When STNR remains active or in protection mode, the child tends to be fidgety, uncomfortable sitting at his desk and inattentive (due to sensory distractions). Vision difficulties can lead to challenges with reading, writing, spelling, and copying from the board or worksheets. An active STNR is associated with attention problems.

Fear paralysis reflex (FPR)

FPR is activated by touch, sound or visual sensory stimuli.

FPR pattern sets a child's breathing patterns and helps her to process touch, sound and light. It helps the child deal with unfamiliar situations and new sensory information. When she is able to do this easily, the child will develop confidence and be able to cope when things are not going according to plan.

When FPR remains active or is in protection mode, the child is likely to have difficulty processing touch, sound and visual sensory information. The child may have irregular breathing patterns, sleep disturbance and food related challenges. Retained FPR pattern is also associated with anxiety.

The Babinski pattern

The Babinski pattern is activated by touch stimuli to the outside edge of the foot.

It helps a child to develop balance and whole body coordination. This supports a sense of being 'balanced and grounded.'

When Babinski remains active or is in protection mode, the child will have whole body coordination problems sometimes called dyspraxia or incoordination. The child may have poor balance and seem ungrounded or 'spacey.'

Spinal Perez

Spinal Perez is activated by touch information along the spine, or sounds.

The Spinal Perez pattern helps a child to process touch and sound information. It is necessary for crawling and walking at the developmentally appropriate time.

When Spinal Perez remains active or is in protection mode, there will be problems with processing touch and sound information. The active pattern is associated with allergies, GI issues, problems with the spine and continence problems.

Spinal Galant

The Spinal Galant pattern is activated by touch and sound information on either side of the spine.

This pattern helps a baby to process touch and sound sensory information. The pattern is associated with rolling to both sides. Activation of Spinal Galant can cause the bladder to void.

When Spinal Galant remains active or is in protection mode, a child may be sensitive to touch and sounds. There will be difficulty rolling to either or both sides. Potty training is likely to be delayed because of Galant's association with the bladder. Children with an active Galant may have difficulty wearing belts and tight clothing. They often hike their pants up high above the waist.

Robinson grasp

The Robinson grasp pattern is activated by touch information to the palm of the hand.

It is important in the development of opening and closing the hand (initially both hands together). This pattern is the foundation of grasping, in hand manipulation and other fine motor skills.

When Robinson grasp remains active or is in protection mode, the child will have difficulty developing a variety of grasp patterns and in knowing his right from his left hand. Tasks

where the hands do different things at the same time, such as stabilizing paper while writing/drawing, will be challenging.

Children with a retained Robinson grasp may be shy and/or lack confidence.

Babkin Palmomental

This pattern is activated by touch information to the center of the palm.

Babkin-Palmomental pattern is associated with the development of fine motor skills like shoe tying and handwriting. It is also important in feeding, speech development and articulation because it is connected to movements of the mouth.

When Babkin remains active or is in protection mode, the child may have tension in the body (especially the jaw and hands), difficulty with self-care tasks like buttoning and shoe tying, and delays/challenges in pre-academic fine motor skills. The child may also have articulation or other speech-related problems. The child may grind his teeth or bite nails/cuticles.

Children with a retained Babkin may have difficulty feeling satisfied and expressing their feelings particularly anger, appropriately.

Next steps...

- Read about how [sensory processing and primitive reflexes](#) work together to support a child's early development.
- We will discuss other primitive reflexes and the significance of retained reflexes on social, emotional and cognitive development in future blogs.

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