

## ***PARENT/TEACHER HANDOUT PRIMITIVE & POSTURAL REFLEXES***

Primitive Reflexes are reflex actions originating in the central nervous system. They are exhibited by normal infants but not neurologically intact adults.

After conception, the tiny cell is already developing its own potential. Within the uterus, the foetus develops Primitive Reflexes to:

1. enhance its chance of survival
2. protect foetal development and
3. assist the baby during the birthing process and the bombardment of new sensory information.

These primitive reflexes within the first year are gradually taken over by actions known as postural reflexes or postural control. Developmental milestones such as crawling, sitting, standing, walking etc. play a big role in the brain's interconnections. For example, Motor development is reliant on Neuro development. As the baby adapts to its new environment these reflexes become integrated into the advanced brain. Primitive reflexes should be inhibited by six to twelve months and if one or more are retained they can result in behavioural problems, learning difficulties and poor posture.

Retained primitive reflexes are inhibited through movement and sensory integration enabling the child to build a stable foundation in which to learn.

### ***Effects on retained Primitive Reflexes***

- poor muscle tone, balance, fine motor, gross motor and posture
- midlines are often not integrated
- child may be mixed dominant
- child often finds ways to compensate for difficulties they are experiencing
- easily startled
- over sensitive
- low self esteem

### **MORO REFLEX**

The Moro reflex emerges approximately 9 weeks in utero, is fully present at birth and is inhibited between 2 and 4 months of age. It is the baby's startle reflex that triggers the "fight and flight" response. The "fight and flight" response activates the sympathetic nervous system causing:

- Instantaneous arousal
- Rapid inhalation; freeze/startle followed by a cry

If retained too long the Moro reflex may cause:

- rapid breathing, increased heart rate, increased blood pressure
- reddening of skin
- easily triggered, possible emotional outburst, anger, tears
- poor visual perception
- auditory confusion
- vision/reading/writing difficulties
- difficulty adapting to change
- low self esteem
- poor decision making, stamina, attention and concentration
- tense muscle tone
- sensitivity to bright light

### **TONIC LABYRINTHINE REFLEX – "TLR"**

The TLR develops in utero, is present at birth and is inhibited gradually from 6 months to 3 years of age. It acts as the flexor and extensor muscle in response to movement of the head forwards and backwards. If retained the TLR can present the following difficulties:

- Vestibular difficulties
  - poor balance, motion sickness
- May tire easily - child needs to make a more conscious effort to maintain posture, balance and a stable visual field
- Poor muscle tone
- Poor posture – stooped, walk on tip toes, slide down on their seat
- Vision, speech & auditory difficulties
- Poor time perception, time management and organisation
- Spatial awareness difficulties, sequencing, remembering things
- Visual-perceptual difficulties
- Dislike of sporting activities
- Dysfunction with eye movements – difficulty with reading and copying from the blackboard



### **PALMER REFLEX**

The palmar reflex emerges approximately 11 weeks in utero, is fully present at birth and is inhibited at around 3 months of age. This reflex needs to be inhibited for the development of voluntary reaching and pincer grasp and mobility of the fingers. If retained the palmar reflex may display the following symptoms:

- Immature palmar grip
- Poor fine motor skills, mobility of fingers
- Poor manual dexterity and pencil grip
- Movements with the mouth when writing or drawing – Babkin response. This may cause:
  - speech difficulties which is a continued link between the hand and the mouth.

### **ASYMMETRICAL TONIC NECK REFLEX – “ATNR”**

The ATNR plays a very active role from 18 weeks in utero until approximately 6 months of age. It stimulates the vestibular and helps develop muscle tone, balance and facilitates movement. If the ATNR is retained beyond 6 months it can result in the following symptoms:

- Poor eye tracking
- Difficulty copying from the blackboard
- Dyslexia
- Reading, listening, hand writing, written expression and spelling
- Difficulty with math's
- May use fingers when eating
- Poor hand eye co-ordination
- Poor balance - imbalance of tension in the muscles when the head is turning
- Difficulty crossing the midline - may not display a cross pattern movement when walking, marching or skipping.

### **SPINAL GALANT**

The Spinal Galant Reflex emerges approximately 20 weeks in utero, is actively present at birth and inhibited between 3 and 9 months of age. It assists with the birthing process and may help with sound conduction through the spinal column. If retained beyond 9 months of age the Spinal Galant reflex may display the following symptoms:

- Poor attention, concentration & short term memory
- Poor bladder control – bedwetting
- Child may wriggle & fidget
- Hip rotation to one side when walking

### **SYMMETRICAL TONIC NECK REFLEX – “STNR”**

The STNR is a “Bridging Reflex” and appears at around 6 to 9 months of age. This reflex helps to develop strength and co-ordination as well as training the eyes to work together. The following symptoms may be present if this reflex is retained:

- Low muscle tone, stooped posture
- Difficulty with writing and reading
- May slouch when sitting on a chair, poor attention span
- Difficulty with fine motor control or the wrist and fingers, messy eater
- Clumsy at ball games, sport & poor swimming skills
- Slowness at copying tasks

### **ROOTING REFLEX**

The Rooting reflex emerges between 24 & 28 weeks in utero, is fully present at birth and inhibited at approximately 4 months of age. If retained after 4 months of age the following symptoms may be present.

- Sensitivity and immature responses to the touch of the mouth area.
- Difficulties with chewing and swallowing – tongue may be too far forward in the mouth and have immature movements.
- Increased arching of palate (cathedral palate) – may need orthodontic treatment at a later age
- Dribbling
- Poor manual dexterity (Babkin response)
- Speech and articulation difficulties

### **LANDAU REFLEX**

The Landau reflex emerges at approximately 2 to 4 months of age and is inhibited by 3 years of age. It is a bridging reflex and helps to increase and strengthen muscle tone when in the prone position. If retained longer than necessary, it may show the following symptoms.

- May run stiffly and awkwardly
- Difficulty with skipping, jumping and hopping
- Poor balance when rapidly trying to change movement during an activity



### ***LABYRINTHINE HEADRIGHTING REFLEX (LHRR) & OCULO-HEADRIGHTING REFLEX (OHRR)***

The Labyrinthine and Oculo Headrighting are postural reflexes which ensure that the head stays in the midline position despite the movement of the body parts. These reflexes provide accurate information of the head position and are necessary for good balance. Effects of underdeveloped headrighting reactions are:

- Balance difficulties
- Difficulty with fixing the eyes on an object and being able to keep the head still whilst following it
- Poor reading, comprehension and spelling

### ***SEGMENTAL ROLLING REFLEXES***

The segmental rolling reflexes are postural reflexes which emerge approximately 7 months of age and are refined and integrated into the body for mature postural responses. They help to facilitate the sequence of development of sitting, creeping and standing as well as a fluent rolling movement. If underdeveloped they result in the following difficulties:

- Stiff body movements when changing positions:
  - Rolling
  - Running
  - Jumping

### ***AMPHIBIAN REFLEX***

The Amphibian reflex emerges between 4 and 6 months, is not inhibited but refined and integrated into a more mature postural response. It assists with mobility and allows for independent movement of the arms and legs needed for crawling, creeping and gross motor co-ordination. If underdeveloped the amphibian reflex may:

- Impede the cross-pattern movements in crawling and creeping
- Affect gross motor co-ordination later in life
- Cause difficulties with physical education sports

## **EQUILIBRIUM REACTIONS**

Equilibrium reactions emerge between 6 to 12 months of age and are refined reactions present throughout life. They are needed to maintain balance in the trunk and lower limbs so that the arms are free for skilled manipulation. Underdeveloped equilibrium reactions may cause:

- Poor balance
- Difficulty with upright posture – slouches when sitting on chair
- Difficulty with gross motor co-ordination
- Difficulty with sporting activities, running, jumping, hopping, riding a bike
- Tendency to tire easily as postural adjustments are not automatic
- Cognitive ability and learning may be affected

### **References:**

*“Reflexes, Learning & Behaviour”* – Sally Goddard - [www.inpp.org.uk](http://www.inpp.org.uk)

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