



Neuro – Developmental Therapy (NDT) (INPP Method)

Introduction

We are all born with reflexes which are primitive actions which help us survive the first few months of life – these are known as **Primitive Reflexes**. As the baby matures into toddler stage, the Primitive Reflexes are matured and transformed, enabling the **Postural Reflexes** to develop. The Postural Reflexes then stay with us for the rest of our lives.

Research has shown that a **continued presence of a cluster** of Primitive Reflexes beyond 6 months of age and or a cluster of under-developed Postural Reflexes above the age of 3½ years of age can hinder children from achieving their full potential. This is defined by The Institute of Neuro Physiological Psychology in Chester, as Neuro Motor Immaturity (NMI) or Neuro Developmental Delay (NDD).

Please find below, a definition of each reflex and how their continued presence or under-development may impact how your child behaves and learns.

Defining the Reflexes;

The Primitive Reflexes

The Moro Reflex

The infant Moro reflex acts as a baby's fight/flight reaction. It is normally inhibited at circa 4 months of post-natal life to be replaced by an adult "startle" reflex. The more mature startle reflex is characterised by a startle reaction followed by scanning the environment to seek out the source of danger. If no danger is found, the child will ignore the stimulus and return to what it was doing.

The Moro reflex on the other hand, sets off an instantaneous reaction to the stimulus before the conscious part of the brain has had time to assess the situation and direct an appropriate response. Children who still have a Moro reflex tend to be over reactive to minor stimuli, exhibit immature behaviour and have difficulty filtering out unwanted



sensory stimuli in a busy environment. This can result in “sensory overload” and can influence attention and behaviour.

The Tonic Labyrinthine Reflex (TLR)

The TLR is elicited by the movement of the head forwards or backwards, above or below the spine. A retained TLR in the older child is significant because it can affect muscle tone and interfere with the development of later righting and equilibrium reactions which provide the basis for proprioceptive integration, co-ordination and the control of eye movements. Stable eye movements are essential to focus and maintain visual attention, for reading, writing and aligning columns correctly in maths.

The Asymmetrical Tonic Neck Reflex (ATNR)

Evidence of the ATNR can be seen when movement of the head to one side causes the arm and leg on the same side to extend and the occipital limbs to flex. A retained ATNR in the older child can play a part in specific writing problems and interfere with hand-eye co-ordination. The ATNR creates an invisible vertical midline barrier within the body which can affect co-ordination in various ways; for example, a right-handed child who has an ATNR will find it uncomfortable to write on the left side of the page; the eyes will not cross the midline easily and this can affect co-ordination, reading and writing. A residual ATNR is sometimes a factor in the child who can solve problems orally but who cannot produce the same result when asked to write them down.

The Symmetrical Tonic Neck Reflex (STNR)

The STNR creates a horizontal midline in the body meaning the upper and lower sections of the body perform opposite movements. Thus, a retained STNR has been linked to difficulties with upper and lower body integration and hand eye co-ordination, both of which are needed for adequate performance in P.E. The STNR has also been linked to poor posture, ability to sit still and attention. (O’Dell & Cook, 1996. – “Stopping Hyperactivity – A New Solution”). The STNR is implicated in slow visual accommodation (speed of refocusing between different visual distances), which can affect speed and accuracy when trying to catch a ball or copy from a blackboard/smart board or book.



The Spinal Galant Reflex

This reflex can be seen when stimulation of the back to one side of the spine results in hip flexion towards the stimulus. A link has been found between a retained Spinal Galant reflex and continued bedwetting above the age of 5 years in certain children. It is also associated with difficulty sitting still and paying attention.

The Rooting and Sucking Reflexes

These reflexes are obviously key to ensure survival of the new born baby and its ability to feed. The Retention of the Rooting and Sucking reflexes can affect control of facial muscles around the mouth, the position of the tongue in the mouth and the swallow pattern which then sometimes affects speech and articulation. It is also associated with hypersensitivity to touch in the mouth region.

The Plantar Reflex

Pressure to the sole of the foot will result in involuntary closure of the toes. A retained Plantar reflex can be either symptomatic of underlying problems with the control of upright balance and/or result in an unstable base for balance.

The Palmar Reflex

A light touch or pressure to the palm of the hand will result in involuntary closure of the fingers. A retained palmar reflex can affect development of independent finger movements and dependent skills such as handwriting.



The Postural Reflexes

The Ocular and Labyrinthine Head Righting Reflexes

Head Righting reflexes help to maintain the head in a midline position despite movement of the body. They linked to centres in the brain involved in the control of eye movements. Under-developed Head Righting reflexes can interfere with balance and the development of ocular- motor abilities necessary for reading, writing, copying and catching a ball.

The Amphibian Reflex

This reflex marks an important stage for crawling on the tummy – the elevation of the pelvis on one side, eliciting automatic flexion of the hip to affect the knee on the same side. Under-development will impede cross pattern crawling and creeping and may contribute to hyper-tonus in later life.

The Segmental Rolling Reflexes

When the head is turned, the body should follow in line with the head in a ‘log roll’ movement. Its function is to facilitate changing body positions giving fluidity to movement such as running, jumping, ski-ing etc. Thus, under-developed Segmental Rolling reflexes can influence gross muscle co-ordination, particularly integration in the use of two sides of the body and upper and lower halves of the body.