

# Primitive Reflexes

## **Development in Early Life:**

In the womb and early life, before the decision-making process is fully developed, the brainstem controls several reflexes known as 'primitive' reflexes. These reflexes are automatic and help with survival during early childhood.

## **Role of Occupational Therapy:**

Occupational therapists often work with children who have retained primitive reflexes. They help these children improve their functioning and engage more effectively in daily activities.

## **Impact of Retained Reflexes:**

Primitive reflexes are involuntary motor responses triggered by specific stimuli. When these reflexes are not integrated, they can lead to difficulties in various areas, depending on the reflex. Retaining primitive reflexes has been linked to issues such as challenges with gross motor skills, poor fine motor coordination, visual-perceptual difficulties, behavioral problems, and underperformance in reading.



# Assymetrical Tonic Neck Reflex (ATNR)

When a newborn's head is turned to one side, the arm and leg on the side they are looking at will straighten, while the opposite arm and leg will bend. This reflex is often called the "fencing reflex" or "bow and arrow" because the infant's posture resembles that of a fencer.

**Age of onset and integration: Birth to 4-6 months**

## **Potential challenges if ATNR is not integrated:**

- Difficulty with eye-hand coordination
- Difficulty with bilateral coordination
- Difficulty with crossing the midline
- Poor handwriting
- Awkward pencil grip
- Difficulty copying from blackboard
- Discrepancies between written and spoken performance



## **Tips & Tricks for integration of the ATNR reflex:**

- Crossing midline activities
- Marching in Place: Have the child stand in one spot with their arms straight out in front of them and fingers extended. Ask them to turn their head to the left while keeping their arms out straight, then march in place for 10 steps. After a short rest, have them repeat the exercise with their head turned to the right.

# Symmetrical Tonic Neck Reflex (STNR)

This reflex is the precursor for crawling

This stage of development is crucial for the eyes' ability to adjust focus, known as accommodation. Correcting any issues at this stage can help alleviate eye fatigue.

## **Age of onset and integration: Birth to 4-6 months**

In the Symmetrical Tonic Neck Reflex (STNR), when a baby is lying on their back (supine) and their head is flexed downward, the baby's arms will bend and legs will straighten. Conversely, when the baby's head is extended, the arms will straighten and the legs will bend. This reflex enables the child to shift weight toward the lower body and legs, helping the baby lift their head to focus on distant objects. The STNR is most noticeable before crawling, as the baby rocks back and forth on all fours. Children who have difficulty with the STNR may crawl later than expected or might not crawl at all.

## **Potential challenges if STNR is not integrated:**

- Poor muscle tone
- Eye fatigue
- Poor eye hand Coordination
- Tendency to slump when seated
- Difficulty sitting at desk
- Poor organizational and planning skills



## **Tips & Tricks for integration of the STNR reflex:**

Activities that involve child playing on all fours

Prone kinesio ball activity: With the child lying on their belly on an exercise ball and while supporting their trunk, have them roll forward until their hands touch the floor. Scatter various colored and shaped objects around. Ask them to pick up specific colors or shapes and sort them into different piles or place them in a bowl.

# Tonic Labyrinthine Reflex (TLR)

The Tonic Labyrinthine Reflex (TLR) involves the vestibular system, which helps the body maintain balance and orientation. It plays a crucial role in developing a sense of gravity and spatial awareness.

When a baby is placed in a supine position (lying on their back) and their head is tilted backward, the TLR causes the baby to arch their back, stiffen their legs, flex their arms, and clench their fists.

**Age of onset and integration: Birth to 4-6 months**

## Potential Challenges if Not Integrated:

- Floppiness
- Poor Balance
- Motion Sickness
- Orientation and Spatial Difficulties
- Visual Problems
- Difficulty Judging Space and Depth



## Tips & Tricks for integration of the TLR reflex:

**Prone Ball Pushes:** While lying face down, the child will try to roll or push a ball back to a partner. This activity requires substantial core and trunk control, along with proper head and neck support.

**Supermans:** In the Superman position, the child lies on their stomach with arms and legs extended. They lift their arms and legs off the ground, raising their head and chest, and hold the position for 10-15 seconds.

# Landau Reflex

When the baby is held in a prone (on belly) position with support under the stomach, the reflex activates the extensor muscles throughout the body, resulting in a posture similar to an "airplane position". This reflex helps to inhibit the TLR reflex and bridges the gap for the next stage of development

**Age of onset and integration: 3-4 months to 12-24 months**

## **Potential challenges if the landau reflex is not integrated:**

- Low muscle tone
- Poor posture
- Tension in the back of the legs or toe walking
- Delayed motor development
- Weak upper body
- Short term memory difficulties
- Challenges in coordinating movements that involve both upper and lower body parts
- Low muscle tone in the neck may affect proper stimulation to the prefrontal cortex, causing attention problems



## **Tips & Tricks for integration of Landau reflex:**

Obstacle courses that include balancing, coordination, and gross motor activities.

Spray Bottle Target Practice: Fill a spray bottle with water and have the child knock down targets placed around the room. The child can "shoot" at the targets while lying on their stomach, kneeling, standing, or sitting with their legs extended. Targets can be created using a toilet paper roll with a ping pong ball on top, or simply pieces of paper.

## References:

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