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# Tonic Labyrinthine Reflex (TLR)



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- The TLR is closely linked to the Moro Reflex and is seen with movement of the head forwards or backwards - providing a method of response to gravity.
- The TLR develops in utero and has a direct influence on the development of muscle tone throughout the body.
- The TLR should be integrated - not present - by as late as 3 years old. However, it can be integrated as early as six months.



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- The Tonic Labyrinthine Reflex (TLR) is composed of 2 reflexes:

- Forwards - emerges in-utero and is considered the flexion component of the TLR.

- *It is typically inhibited / integrated by ~ 4 months of life.*

- Backwards - emerges at birth and is considered the extension component of the TLR.

- *This component of the TLR has a gradual inhibition / integration period. It ranges from ~ 6 months - 3 years of life.*

- *It is also involved with postural reflexes - head righting reflexes, STNR, and Landau).*



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- The TLR provides a newborn with a **response to gravity** - something that a newborn did not experience in womb. The *flexion (forward)* and *extension (backward)* patterns of the TLR are **triggered** by head movement.
  - Movement of the head **forwards** facilitates flexion of the arms and legs.
  - Movement of the head **backwards** facilitates extension of the arms and legs.

As head control develops, the response should change (this is where the reflex will begin to integrate and produce higher level reactions, such as head-righting reflexes).

# Why is it important?

- Help birth birth process , worm-infant movement pattern
- Facilitates contraction and extension of major muscle groups to develop muscle tone and muscular control
- Help with hold the head upright against the gravity
- Develop ocular motor skills
- The foundation of the balance.

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- If the TLR is *retained* (meaning, it does not integrate, or go away, naturally), some signs / symptoms may look like:
  - Challenges with creeping and crawling.
  - Gravitational insecurities (fear of heights).
  - Difficulty judging space, distance, depth, velocity.
  - Difficulty locating sound (easily disoriented).
  - Challenges with sequencing.
  - Challenges with directionality - up, down, left, right, front, back.
  - Poor endurance.
  - Stooped posture.
  - Toe walking.
  - Dislike of sports.
  - Low / floppy muscle tone.
  - Car sickness.

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- Additionally, if head control is lacking, eye functioning will be impaired.
  - Challenges with ball skills tasks.
  - Balance will be affected due to faulty visual information.



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- **EVIDENCE BASED TESTS OF RETAINED TLR REFLEX FROM OCCUPATIONAL THERAPY POV.**

**OBSERVE THE PRESENTER.**



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- **Clinical Observations during the test:**
  1. Change in tone in the trunk relative to movement of the head
  2. Postural control during movement

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- EVIDENCE BASED ACTIVITIES TREATMENTS AND THE PROCESURAL PROTOCOL.

- For forward component TLR:

- Saucer spin
- Spinning on a large ball.
- Scooter board

- For backward component TLR:

- Punch ball volley
- Horizontal mountain climbing

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Watch how the presenter will do each of the activity in detail and listen to the protocol of each of reflex.