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03

Symmetrical Tonic Neck Reflex (STNR)

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Symmetrical Tonic Neck Reflex (STNR)

- The STNR is directly related to the TLR - because the STNR assists the infant with moving from prone (laying on belly) into quad (on all 4s - pre crawling position), it additionally assists with integrating the TLR.
- The STNR develops between 6-9 months after birth.
- The STNR should be integrated - not present - by 9-11 months of age (a very short life span compared to some of the other Primitive Reflexes).

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Symmetrical Tonic Neck Reflex (STNR)

- **The Symmetrical Tonic Neck Reflex (STNR) appears approximately *6-9 months after birth*.**

It is typically inhibited / integrated by *9-11 months after birth*.

There are two components to the **STRN**:

- **Flexion** - while in a quadruped position (on hands and knees), *flexion of the head* results in *flexion of the arms* and simultaneous *extension of the legs*.

- **Extension** - while in a quadruped position (on hands and knees), *extension of the head* results in *extension of the arms* and simultaneous *flexion of the legs*.

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Why is it important?

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Symmetrical Tonic Neck Reflex (STNR)

- The **STNR** is a contributing factor in many different areas of development.

•Assists with moving from *prone into quadruped* (tummy time to crawling).

•Assists with *inhibiting / integrating the **TLR***.

•Divides the body in half - lower body vs. upper body, therefore assisting with *bilateral coordination*.

•Assists with training the eyes to move from near to far distances, thus assisting in the development of *ocular motor skills*.

•*To align the pelvic and occipital (back of the head) regions of the spine in preparation for the upright stance;*

Symmetrical Tonic Neck Reflex (STNR)

- **If the STNR is *retained* (meaning, it does not integrate, or go away, naturally), some signs / symptoms may look like:**

•Refusal to crawl on hands and knees, resulting in a "funky crawl" or skipping the crawling phase entirely.

•Dislike of playing on the floor during infancy (before 1 year of age).

•Unusual crawling movements, such as hands rotating, locked elbows, poor fludity, etc.

•Challenges with visual tracking.

•Stooped posture (slouching).

•Clumsy.

•Dislike of sports.

•Messy eater.

•Tendency to w-sit.

•Challenges with reading and writing.

•Difficulty learning to swim.

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Symmetrical Tonic Neck Reflex (STNR)

- Research has shown that a high percentage of children with *reading difficulties* actually skipped the creeping and crawling stages of development.

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Symmetrical Tonic Neck Reflex (STNR)

EVIDANCE BASED TESTS OF RETAINED STNR REFLEX FROM OCCUPATIONAL THERAPY POV.

OBSERVE THE PRESNTER.

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Symmetrical Tonic Neck Reflex (STNR)

• Clinical Observations:

1. Integrating top/bottom
2. Shifting weight from top to bottom
3. Unable to assume 4-point with equal weight bearing in equal extremities
4. Difficulties with vergent eye movements (convergence and divergence)
5. Ball skills

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Symmetrical Tonic Neck Reflex (STNR)

Some activities:

Balance and toss
Kneeling scooter board surfing
Bear walk soccer drill
Beanbages in a bucket

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Symmetrical Tonic Neck Reflex (STNR)

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

04

Asymmetrical Tonic Neck Reflex (ATNR)

04

Asymmetrical Tonic Neck Reflex (ATNR)

- **The Asymmetrical Tonic Neck Reflex (ATNR)** appears in-utero, at approximately *18 weeks after conception*. **It is typically inhibited / integrated by *approximately 6 months of life*.**

The **ATNR** facilitates in-utero kicking as well as contributes to muscle tone development, vestibular stimulation (therefore creating balance and neural connections), and plays an active role in delivery.

- *During the birthing process, a fully developed ATNR will allow the infant to "unscrew" down the birth canal in rhythm with the mother's contractions.*

- *Therefore, it is believed that an infant born with the use of forceps or via C-section may be a high risk for delays (as well as delays in integrating the ATNR).*

04

Asymmetrical Tonic Neck Reflex (ATNR)

- **Trigger** for the ATNR is:
  - Movement of the head side-to-side.
- When triggered, the ATNR **produces a physical reaction**:
  - Extension of the arm and leg on the side that the head was turned.
  - Flexion of the opposite arm and leg.
  - *"Fencing position."*

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Why is it important?

04

Asymmetrical Tonic Neck Reflex (ATNR)

- These physical reactions contribute/important to:

•Development of muscle tone, particularly **extensor** tone.

•Training one side of the body at a time - the basis for **reaching movements** later in life.

•**Hand-eye coordination**.

•It is also believed that the ATNR may contribute to the infant's ability to turn the head to get a breath of air while prone (tummy time).

04

Asymmetrical Tonic Neck Reflex (ATNR)

- **If the ATNR** is *retained* (meaning it does not integrate, or go away, naturally), some signs / symptoms may look like:

•Challenges with creeping and crawling.

•Poor balance when learning to walk.

•Challenges crossing midline - potential for one-side neglect as well as potential for not establishing a hand dominance.

•Challenges with reading and handwriting.

•Poor grasp development.

•Decreased success with multi-tasking.

04

Asymmetrical Tonic Neck Reflex (ATNR)

EVIDANCE BASED TESTS OF RETAINED ATNR REFLEX FROM OCCUPATIONAL THERAPY POV.

OBSERVE THE PRESNTER.

04

Asymmetrical Tonic Neck Reflex (ATNR)

Clinical Observations:

1. Midline jump- oculomotor screening
2. Stress at midline with turning the head
3. Balance activities, more extension on the stable side and flexion on the unweighted side
4. Asymmetry with extremities when unstable

04

Asymmetrical Tonic Neck Reflex (ATNR)

- The Lizard exercise
- In addition to completing the Lizard exercise, there are a variety of other activities / exercises that will assist with integration of the ATNR.

Crawling with head turns

Tall kneel (or walking) mummy walk with head turns

Hands-and-knees position - head turns to read visual charts

04

Asymmetrical Tonic Neck Reflex (ATNR)

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