

Symmetric Tonic Neck Reflex

The symmetric tonic neck reflex, (STNR) is a brief, transient reflex, which shows up some time between 6 and 9 months, and is generally integrated by 9 to 11 months.

Because it shows up after birth, it is not considered a primitive reflex, but a postural reflex, though it is often lumped with primitive reflexes, because its retention can limit other developmental milestones, such as the integration of the tonic labyrinthine reflex. It helps strengthen muscles of the back and neck and thus supports good posture. Its retention can also delay the development of hands and knees creeping. These are the children who might slide around on their bottoms as a substitute for creeping.

An active STNR looks like: the baby in the quadruped position, when their chin is moved down toward their chest, will bend their arms and extend their legs. If you tip the head back, the legs flex and the arms straighten. This reflex is known to be a bridge to, or preparation for, hands and knees creeping and upright sitting.

Interestingly, this reflex also shows up temporarily after birth and may contribute to the baby's ability to push up the mother's tummy to find the breast, as the flexion of the legs pushes the body forward. The reflex then disappears and shows up later as part of the development of hands and knees creeping.

In addition to preparing the baby for creeping, the STNR has a role in vision development. When the baby lifts the head and straightens the arms and prompts baby's focus on distance, whereas when the head is flexed forward and the arms bend, the baby is prompted to focus on near/midrange/arm's length distance. A retained STNR can also interfere with the development of vertical tracking.

In regards to creeping, the STNR will get the baby up on hands and knees, but forward movement will be difficult if the reflex is retained, because the movement is at the mercy of the head. So, a tilt of the head up or down can interrupt the forward momentum of creeping. This is also because the STNR teaches the baby how to use the upper and lower halves of the body separately from each other, but does not train the body to work in synchrony, with upper and lower each doing their role in the activity of creeping.

There are many neurodevelopmental challenges that have been linked to a retained STNR. I will list some of these with the caveat that many of these issues are not linked solely to a retained STNR but may be due to any number of gaps in the child's development. So, I advise you to *not take any of these as 'diagnostic'*, but, rather a part of the larger profile to be considered as we do a thorough NeuroDevelopmental Movement Assessment.

- Poor posture sitting and standing and an 'ape like' walk
- Low muscle tone
- Usually skips creeping
- Poor ball-catching skills (due to visual tracking issues)

- Likewise, problems looking from far to near objects, like copying from a chalkboard
- Poor vision and tracking skills in general; poor eye/hand coordination
- Problems with attention especially in stressful situations
- Difficulty learning to swim
- Difficulty reading
- Dyslexia
- AD/HD
- Hyper activity or fidgety
- “W” sitting, which is actually comfortable for a child with STNR still present
- Sloppy eating because the hand never quite knows how to find the mouth
- Generally clumsy

In a typical reflex integration program, the exercises that are used to integrate the STNR include:

- Cat/Cow exercises
- Crawling on tummy
- Bear walks
- Playing Wheelbarrow – holding up the child’s legs while they walk on their hands

All of these are fine activities, but do not need to be assigned separately from a NeuroDevelopmental Movement Program.

In a NeuroDevelopmental Movement program:

- You may notice symptoms of a retained STNR if your clients creep with their hands turned outward or their feet raised (the latter can also be attributed to a retained Landau reflex, the former may also be attributed to other balance issues).
- You will note that the **Push-Pull exercise** which is one of the “**English 5**” patterns, actually helps bring the STNR on board, with the head arching back as the knees come up to the chest, and the legs straightening as the head tips down. This pattern will show up before the STNR is available to the infant and will help them fulfill the purpose of the STNR and move through it effectively.
- The child will be doing **Creeping**, which breaks up the STNR reflex. **Cat/Cow** activities can be assigned at 15 per day, once or twice a day. **Rocking back and forth just prior to creeping** can also help inhibit the STNR.
- The child with a retained STNR may have problems rotating the head in the homolateral and cross patterns without having to adjust the legs and arms. These patterns may have to be done in the preferable, passive manner called ‘patterning’, wherein adults move the arms and legs into the appropriate positions.

- **Bear Walks** are also a part of the developmental sequence and can be used, just as they are in reflex integration programs, to put this reflex to rest.
- As well, the **Brachiating Walking Patterns** contribute to final integration of STNR.

While reflex integration programs have a great deal that is correct and developmentally appropriate to address the STNR, we are considering this reflex here in order to establish the fact that it does not need to be treated outside of the context of an already established NDM program. Once a reflex has been triggered, played out its role, and then integrated, it is used to usher in and support the next phase of reflex, motor, and sensory development. So, we never advocate for simple reflex integration outside of the context of a well-rounded NDM program.

The flow from reflex to movement to sensory shifting is the developmental sequence used in our NDM programs.