

Asymmetric Tonic Neck Reflex

This reflex is useful as a support to the birth process and is integrated by six months in a typically developing infant. It also serves as a support for eye-hand coordination, crossing the midline (or corpus callosum maturation), and visual tracking.

This is the pattern that is activated by a turn of the head. It is critical as we work with this pattern, to always initiate it from the head movement, which then triggers the arm and leg on the same side to extend, while the opposite limbs bend.

Most whole-body reflexes are initiated by head movement, and we have noted that with this particular pattern, those children who initiate it from the feet are also those children who write their letters from the bottom up. So, a poorly initiated pattern can indicate poor initiation of writing letters.

Recognized signs of an unintegrated ATNR (Asymmetric Tonic Neck Reflex) include:

- Poor hand-eye coordination
- Visual tracking difficulties
- Handwriting difficulties
- Dyslexia
- Poor ability in translating ideas into written text
- Challenges with multi-tasking

We are going to discuss why each of these issues may be the result of an unintegrated ATNR.

Poor hand-eye coordination as a result of an unintegrated ATNR is the result of the fact that the extended arm, with its emerging pointer finger, is the among the first opportunities the baby has to 'sight' a target, the pointer finger. The finger has begun to emerge from the grasp reflex and is a finger associated with speech. The index finger that is used as a pre-speech tool, such as when the infant points at a glass and says 'wawa', indicating that they are thirsty, is a precursor to speech that is highlighted in the ATNR. The eye-hand coordination of simply 'sighting' the index finger on the extended side of the pattern is a precursor to speech.

Similarly, as the child turns the head to look at the finger on the other side, they are tracking across the horizontal plane of their visual field, so this pattern supports horizontal eye tracking.

The emergence of the pointer finger announces the capacity for language. And since we have established that the pointer, or index finger, reigns supreme as a supporter of speaking and writing, we want that index finger to oppose the thumb in an integrated pincer grasp, or what is known as cortical opposition. When the index finger dominates in pen grip (rather than two fingers opposing a thumb wrapped around the pen as one of many examples of poor pen grip), we see greater ease in writing.

The reason that the unintegrated ATNR is a factor in dyslexia, poor midline skills, problems with multi-tasking, and difficulty putting words onto paper, is that all of these challenges arise from

an immature corpus callosum. The corpus callosum is the only bridge between our two hemispheres, and ALL of the above tasks require that left and right hemispheres work together to translate thoughts and feelings into words, to track a list of tasks while doing just one of them, and to maintain the capacity to remember and move on to the next task quickly. The corpus callosum is what gives us midline skills. Coordinating left and right side to ride a bike depends on a healthy corpus callosum.

Testing for the ATNR

There are a number of tests for the ATNR and when we have a definitive answer on one of these tests, we do not need to continue to test. The test we use in the NDM Assessment is the position sense test, in which you have been trained. This is the test in which a client who has their eyes closed or blindfolded, has a consultant moving one arm and asks the client to do the same thing on the other side. This is perhaps one of our most telling tests, but also a sensitive test, in that, if the client knows what they are ‘supposed to do’, they may override the test to do it ‘correctly’.

If you suspect the child is bright enough to override their own reflexes to do the test correctly, you can distract them while doing the test by having them do another mental task such as reciting the alphabet, counting backwards from 20, name all of their family members and friends, etc.

Other observations that can be made during the testing that can indicate ATNR/corpus callosum challenges are:

- When doing the supination pronation test, both arms turn right, then both turn left, rather than turning towards and away from each other
- When crawling, they will pull both knees up to the same side

(Please note that a series of tests for the ATNR, which integrates the corpus callosum, is not necessary once you have the information you need. Additional tests are only necessary if the first test was unclear or the client has cortically overridden the initial test.)

- On hands and knees, turn the head to one side. If the other side collapses, then the client has an unintegrated ATNR and poor corpus callosum functioning.
- “The Mummy”: With the client standing, arms held out parallel to the ground and eyes closed, turn their head to one side. The arms should stay straight ahead. If the arms follow the head, then you have an ATNR/corpus callosum issue.

NeuroDevelopmental Movement programs integrate the ATNR and support the corpus callosum through repeating the **Asymmetric Tonic Neck Pattern**, which have shortened to **Tonic Neck Pattern**, and through **Crawling**.

With its initial integration triggered by the ATNR, the corpus callosum (CC) continues to mature through age 12.

It has been typical of third grade children, who are still working on the maturation of the CC to do games that emphasize its use. Hand clapping games that cross the midline; cat’s cradle;

complex jump roping games, were all popular with girls in the 9-11 age range for decades. More recently boys have developed cup stacking, even to the level of competitive sport, as a way to use the CC.

The use of screens and online games has interrupted the natural development of games that can support this brain function. However, we have been known to assign these games in NDM programs.