

## Scoliosis Complex

The **Fifth Neurological Unit** involves Scoliosis and optimally completed before finishing neurological unit 4. If treatment time permits, one can include the scoliosis complex as one completes the gait reflexes and cranial injury complex. However, as a practical clinical step, one may find oneself completing the scoliosis protocol on a follow up visit after completing neurological units 1-4. If this is the case, the astute practitioner will understand that one will need to go back and reset the centering reflexes (posterior and anterior gait reflexes pages 11 & 13 sections VII and XII) not individually but simultaneously (i.e. in an “X” pattern). Additionally the fascial release of neurological unit 3 pages 18-19 will need to be completed after scoliosis and any weight-bearing step.



**Note:** For instructional purposes, the Scoliosis Complex is discussed here as a separate entity in neurological unit five. Additionally, our discussion of scoliosis is being limited to adolescence and adult onset scoliosis. Infantile, paralytic, congenital deformity and postural distortion due to vertebral bone loss are not relevant to this discussion.

Although N.O.T. can say we understand 85% of what scoliosis is and we should hold ourselves out to be the gold standard of prevention and treatment for scoliosis, we cannot hold ourselves out to be the only expert. We cannot predict as of this writing, the severity or location of scoliosis development in the cervical-thoracic-lumbar spine and its proclivity to be mild, moderate, or severe prior to onset. As has already been discussed, although a majority of patients will present with this neurological deficit ranging from slight – mild – moderate and occasionally severe, not everyone will have scoliosis.

**Discussion:** Scoliosis is the classic example of the application of Neural Organization Technique. Traditionally adolescent scoliosis (the most common form of scoliosis) is recognized in N.O.T. as an adaptive reactive compensatory muscle imbalance bending the spine during pubescence growth times. The successful treatment outcome in N.O.T. is a resolution of the neurological condition driving the reactive muscles. Thus, one is treating the *neurology* behind the condition of scoliosis and the spinal distortion is recognized as one of the *external* visible symptoms. Straightening the spine is not goal or parameter to measure successful treatment. Prevention is a realistic goal, however once scoliosis has developed, stabilizing and preventing the condition from worsening is then possible. The condition of scoliosis in N.O.T. is not interpreted as a disease or a random event but as a naturally occurring *neurological* compensation.

Although the vestibular complex and in particular the vestibulo-ocular reflexes (V.O.R.) which N.O.T. primarily focuses on, appears to explain neurologically this aberrant physiological event, other components of the vestibular complex; i.e. the vestibulo-spinal (V.S.R.) ...and the reciprocal inhibition nuclei pathways within the grey matter of the spinal cord, and vestibulo-cerebellar loops (V.C.L.) ...which include the roles of the efferent cerebellar pathways and the inhibitory role of the Basal Ganglia in regulating paraspinal muscular activity may also play an additional role in our understanding of scoliosis and the neurology of maintaining an upright posture in both static and walking/running gait.

**N.O.T. Theory:** The vestibular system imbalance described above and in particular the vestibulo-ocular reflexes V.O.R. deficit appears to have a genetic predilection in most cases resulting from retained primitive reflexes of the flight/fight system. It is also understood in rare cases cranial birth trauma or severe head/brain trauma can induce a vestibular system reflex deficit capable of a gait aberration inducing a spinal distortion (scoliosis). Additionally as one reaches the 6<sup>th</sup>-7<sup>th</sup>-8<sup>th</sup>-9<sup>th</sup> decades of life, the aging process results in mineral bone loss and gravity begins to take its toll on spinal structures.

**Screening:** In the prone position, using an intact Hamstring muscle one can either stress the paravertebral muscles of the spine as shown in picture on right and then observe the homolateral reactive muscle conditional inhibition of the hamstring, or with a quick and deliberate pinch of a section of the paravertebral muscles (upper-middle-lower) and again look for a homolateral reactive hamstring muscle inhibition. Stressing or pinching of the paravertebral muscles triggers a sympathetic response activating the reactive hamstring. Because scoliosis is a compensatory state, it will not show reactive hamstring muscle inhibition until the complex is stressed. A right or left scoliosis is identified by the high side, i.e. the curve in the most cephalad position. Additionally the greatest angular curve does not have to be the high side. Naturally, the practitioner can identify the presence of scoliosis by finding a vestibular imbalance (V.O.R.) in cranial injury section of neurological unit II page 15. Also the right or left position can be verified by the side of fascial defense on page 18 or as indicated in the supine leg turn challenge.



**I. Prone ~ Reactive Muscles Corrections:** Once the high side and spinal level of the scoliosis is identified and activated, stimulate the appropriate muscles using spindle cells, neurolymphatics, and neurovascular reflexes. As a rule of thumb, use at least two forms of muscle stimulation with spindle cells preferred as one method. In the example below only the spindle cell treatment will be explained and it is assumed one will also include the neurolymphatic (NL) or neurovascular (NV) reflexes as well.

**Correction:** (For explanation purposes, the example below will assume a right thoracic high side curve with NL and/or NV steps omitted)

- Spindling down (defacilitation) → ← right thoracic paravertebral muscle group.
- Spindle *Up* (tonify) ← → right hamstring muscle.
- Repeat the same procedure on the opposite low side of curve (paravertebral and hamstring). At this point, the left hamstring will demonstrate a defacilitation state in the clear.
- Implement Fascial Release as described on page 18 on the posterior fascia.



*Supine ...Proceed with corrections in a bilateral fashion.*

- Spindling down → ← quadriceps muscles. Quadriceps muscles are now hypertonic in relationship to hamstrings.
- Spindle up ← → Abdominal muscles. Abdominal muscles are now hypotonic in relationship to quadriceps.
- Spindling down → ← Psoas muscles (NL & NV stimulation).
- Spindle up ← → Neck Flexors (SCM muscles bilaterally).



*Begin ...Unilateral corrections.*

- Spindling down → ← Upper Trapezius ...on high side of curve (right).
- Spindle up ← → Pectoralis Major Clavicular muscle.
- Spindling down → ← opposite Gluteus Maximus (left).
- Spindle up ← → Piriformis muscle.
- Spindling down → ← the opposite Splenius Capitus (high side of curve).
- Implement Fascial Release as described on page 19 on the anterior fascia.

## **II. Cranial and V.O.R. Corrections:**

- Spheno-basilar lift (gently traction occiput and frontal bones with 4-6 respirations. Rub lateral pterygoids.

*...the next section is essentially the same as the cranial injury complex.*

- Simultaneous stimulation of both ocular reflexes and labyrinthine reflex (on high side of scoliosis) with eyes open and closed.
- Rub Tonic Neck Righting Reflexes (eyes open and closed).
- Continue with Vestibulo-Ocular corrections as outlined on page 15 of section III (cranial injury complex) unilaterally:
  - Vestibulo-Ocular correction ...on the high side of curve.
  - TNNR-Vestibular reflex ...on the high side of curve.
  - TNNR-Ocular reflex
  - TNNR-Sphenobasilar reflex
  - TNNR-Pterygoid reflex



The next section is commonly done **Weight Bearing (standing)**. Prior to standing, the **Fascial Release** must be completed if it has not already been cleared.

- Stimulate Vestibulo-Ocular reflexes ...on the high side of curve.

- Stimulate Vestibular reflexes bilaterally while rubbing pelvic cloacal reflexes with eye movement (R.L.U.D).

- Stimulate Ocular reflexes bilaterally while rubbing pelvic cloacal reflexes with eye movement (R.L.U.D).

- Rub top of shoulders (acromial process) bilaterally while simultaneously rubbing pelvic cloacals with respiration and eyes open and closed.



Picture shown lying but commonly done standing and often done with patient participation.

- Stimulate Diaphragm muscles using NL & NV reflexes.
- Stimulate Psoas muscle using NL & NV reflexes.
- Stimulate Abdominal muscles.
- Stimulate Quadriceps muscle using NL & NV reflexes.
- Spheno-Basilar lift (gently traction occiput and frontal bones with 4-6 respirations. Rub lateral pterygoids.

This completes the Scoliosis Protocol.

**III.** If the practitioner is completing the Scoliosis Protocol on a separate treatment date having completed the fight/flight previously, i.e. now adding in the scoliosis protocol after completing all other components of the fight/flight system, then one must now augment the Scoliosis protocol with an additional step; Category II's Cranial Pelvis with eyes open and closed (page 21).

The rationale for this additional step is to complete the final rebalancing of the cranium to the newly centered spinal column and supporting musculature.

**Comments:** \_\_\_\_\_

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