

Cervical Axial Rotation Test

Cervical axial rotation is usually limited to the left, secondary to right accessory respiration muscle development and its position and lengthened state. Because the right shoulder is usually depressed, the cervical spine functions in a left sidebending state as upright cervical spinal function is maintained. Rotation of the cervical spine, as an axis on the thorax, is limited to the left because of this frontal plane issue.

The cervical spine rotation occurs primarily between C1 and C2 (50% of total spinal rotation). The PRI Cervical Axial Test is addressing rotation at C7 T1 where there is usually high extension force across this intervertebral segment in the sagittal plane. The base of the cervical spine is usually oriented to the right. Therefore, soft tissue and osseous restriction on the cervical spine, limits C7 and ascending cervical vertebral rotation to the left. Since sidebending and rotation follow the same direction below C2 and since the cervical spine's base is oriented to the right, the cervical spine's compensatory pattern is one of sidebending and rotation to the left.

Neutral position of the neck on a thoracic spine that is oriented to the right, would exist if the neck was placed in a slight side bent state to the right at C7 T1 and rotated to the right 20 to 45-degrees. Therefore, with the neck and cervical spine appearing "neutral" as the patient lies on their back, with head facing straight forward, the patient's neck is literally in a left side bent and left rotated position. This makes passive cervical rotation at C7 T1 to the left difficult, because of the C7 T1 end-range position. Passive cervical sidebending to the right, anywhere from C7 to C2 is also difficult, because of the cervical vertebral orientation and rotational position to the left. You cannot sidebend the cervical spine at C5 to the right if the corresponding vertebrae cannot rotate to the right. Until the base of the cervical spine is rotated to the right and slightly sidebent to the right axial rotation to the left and vertebral sidebending to the right will be difficult at best. Of course this all becomes a moot point if the thorax orientation of the cervical spine remains in a true neutral position and normal hemi-thoracic respiratory function is not limited and vestibular and cervical ocular reflexes are not limiting hemi-cranial respiratory function.