



CLINICAL TIPS

FHP and Neck Pain in Adolescents: Clinical Pearls

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Forward head posture (FHP) is the most common postural distortion in the sagittal plane, and is found in both adolescents and adults. Moreover, neck pain can be as high as 86.8 percent in the general population and up to 17.2 percent in adolescents. A meta-analysis (Mahmoud, 2019) found a significant correlation between FHP and neck pain in adults and the elderly; and Sikka's study (2020) of neck pain in adolescents found FHP to be a significant variable.

FHP is determined by measuring the cranial vertebral angle (CVA). The CVA is the angle formed by the line from the tragus to the tip of the C7 spinous and the line from the tip of C7 spinous to the horizontal. Analysis is easily performed with photographic assessment; the higher the angle, the less FHP is present. Normal measurement is 49.9 degrees.



The mechanical load placed on the cervicothoracic musculature increases significantly with FHP and can lead to alterations in ROM and the cervical lordosis, with a potential to favor degenerative joint changes and intervertebral disc disease. However, the cervical lordosis can be maintained, increased or decreased in FHP. The test of choice to determine the integrity of the cervical lordosis is a lateral radiograph.

Clinical Tip: Cervical hypolordosis requires restoring segmental extension of the cervical spine via CMT, as well as passive extension. Traditional cervical pillows and cervical traction in extension are indicated, but if a normal or increased lordosis is present, flexion-biased exercises are a better choice.

The importance for the adolescent population is the cumulative microtrauma created by FHP on the contractile and non-contractile elements of the cervical spine. FHP creates irregular rotation and gliding movement inside the articular capsule, which results in a decreased number of sarcomeres and muscle fiber shortening. The result is reduced muscular contraction and abnormal movement patterns – patterns that will persist until corrected.

Typically, FHP presents with tightness in the posterior neck muscles, (upper trapezius, suboccipital and levator scapulae) and weakness in the anterior cervical muscles (deep cervical flexors). Therefore, addressing the deep cervical flexors is a common rehabilitative approach. (Readers will recall a previous article ("Chronic Neck Pain Treatment: More Than Just Exercises," that noted the importance of strengthening of the cervical extensors is equally effective.) FHP also creates asymmetrical muscle activation in the trunk and can be demonstrated as a lateral inclination of the pelvis.

Clinical Tip: Activation of an isolated muscle group in the treatment of FHP is not as effective as strengthening all of the weakened muscles and lengthening all of the tight muscles, as proposed by Janda.

Rehab Strategies

Rehabilitation of FHP can be the mainstay of any chiropractic practice, regardless of your style of practice. First, the deep cervical flexors need to be activated. Lengthening of the tight upper trapezius, suboccipital and pectoralis muscles can be achieved via stretching or any soft-tissue technique to release the myofascial component. The third phase involves activation of the global cervicothoracic muscles to repattern the corrective care provided. Of course, the patient must have any hypomobile segments adjusted to improve spinal biomechanics and compliance.

CMT is often needed in the suboccipital and upper thoracic regions. Studies indicate that the combination of upper thoracic spine mobilization and mobility exercise demonstrates better overall short-term outcomes in CVA compared with upper cervical spine mobilization and stabilization exercises.

The added value of a chiropractic approach to rehabilitation is the whole-body approach we utilize. As far back as 2000, Murphy suggested pelvic distortion can cause dysfunctions in the cervical spine, and cervical range of motion improved after the pelvic distortion was corrected. Lee's findings also support earlier studies that lumbar posture is related to cervical ROM.

Underscoring the importance of assessing and correcting FHP in adolescents is the relationship between head position and respiratory function. Zafar found immediate loss of diaphragmatic strength occurred when subjects were placed in FHP as well as in torticollis (full left cervical rotation and right lateral flexion). The mechanism can be from limited chest expansion, increased intra-abdominal pressure from the postural approximation of the rib cage to the pelvis or perhaps spontaneous entrapment of the phrenic nerve. Regardless, the implications of sustained FHP on breathing, respiratory function and core stability are clearly significant.

Clinical Tip: Craniocervical flexion exercises as described by Jull is a well-referenced deep cervical activation and strengthening exercise. Underscoring chiropractic's whole-body approach is Jeong's findings that this exercise immediately increased hamstring flexibility, popliteal angle, CVA and cervical ROM in neck pain patients.

Clinical Pearls

Long-term correction of FHP requires CMT, corrective exercises, postural re-education, and ergonomic advice. Our youth are facing a silent health threat as FHP insidiously develops due to the hours on electronic media devices and reduced physical activity. The effects are far-reaching beyond neck pain and disability, and include trunk postural imbalances, respiratory dysfunction and core instability. As doctors of chiropractic, we are in the perfect position to address this growing health issue.

Resources

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