



Chicago Chiropractic & Sports Injury Centers Dr. Alden Clendenin DC, CCSP

Cervical Lordotic Traction

The soft forward [lordotic] curve at the middle of the cervical spine is critical as a shock absorber for the full weight of the head. Loss of cervical lordosis, often called military spine, creates increased potential for vertebral misalignment, disc compression and distortional overload on the supportive muscles of the neck, shoulders and back.

Forward biomechanical shifting of the neck's alignment is termed Anterior Head Carriage. If untreated, this can often degenerate to a complete reversal of curvature called cervical kyphosis.

The loss of shock absorption function and misalignment of the neck puts increased shock absorption duty on the cervical discs. This will ultimately compress the discs often to the point that the nerve exiting the spine is pinched either from the compression, the secondary inflammation, or the herniation of the disc. The most commonly herniated disc in the cervical spine is C5/6 because it is the apex of the lordosis.

Reestablishing lordotic curvature is of paramount importance in reversing osteoarthritis caused by prolonged cartilage [disc] compression as well as rehabilitating neck stability.

Normal Neck Curve



**Loss of C-Curve in Neck
("Military Neck")**



The Importance of Proper Alignment

The skull and spine house the Central Nervous System [CNS]. The CNS is composed of the brain, spinal cord and spinal nerves and totally controls ALL functions and healing in the human body. As the central electrical conduit for every nerve impulse emitted from the brain, it needs maximum protection. Thus, is the function of the spine and skull

To have "normal function"--and as a result be considered healthy--the Central Nerve System must work without damage, interference or obstacles. The two most effective ways to evaluate normal or abnormal spinal alignment are:



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1. Postural examination

When looking at a person from the front, the spine must be straight. The head, shoulders, hips and feet should be lined up. When looking at a person from the side, the ears should be back over the shoulders and the shoulders should be back over the pelvis.



Your posture and spine are *abnormal* if:

- Your head is visibly tilted, shifted or rotated in one direction.
- Your head is jutting out in front of your chest and shoulders.
- One hip is higher than the other, turned in one direction, or shifted to one side.
- One shoulder is higher than the other, rounded forward or shifted to one side.

In any case of abnormal posture, there is interference or obstacles, which can cause damage to your Central Nervous System.

2. Normal and Abnormal X-ray Findings

When looking at the front view X-ray, the spinal bones (vertebrae) must also be straight. The bones must not be rotated or tilted and no curvatures (scoliosis) can be present.

The side view X-ray must reveal three 63-degree arcs. The most important arc is in the neck (cervical spine) and should range between 34 and 43 degrees between C1 and C7 (the first and last cervical vertebrae). This cervical arc, often called the "Arc of Life" because impulses travel directly from the brain down this part of the spinal cord to innervate every part of the body. Losing this Arc/curvature can cause severe obstruction of nerve impulses to/from the brain, spinal cord and peripheral nerves.

The Effects of Anterior Head Carriage on Health

The human head, about the shape and weight of a bowling ball, is subject to the same Laws of Physics as other objects. As the head moves outside its natural stable point, gravity takes hold and wants the head to hit the floor. Think of a bowling ball with a cut-off broom handle stuck in one hole. The ball will balance when the broom handle is upright, but tilt the handle slightly forward and the bowling ball will fall to the ground. This Law of Physics affects the body 24 hours a day.



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Dr. Rene Cailliet, M.D., director of the Department of Physical-Medicine and Rehabilitation at the University of Southern California, identifies proper alignment as being the second most significant factor in maintaining health. He wrote about the effects of forward head syndrome in his book "Rejuvenation Strategy." (1987). In it, he points to the following facts:

- Incorrect head positioning leads to improper spinal function.
- The head in forward posture can add up to 30 pounds of abnormal leverage on the cervical spine.
- Forward head posture results in loss of vital lung capacity. In fact, lung capacity is depleted by as much as 30 percent. Loss of lung capacity leads to heart and blood vascular problems.
- The entire gastrointestinal system can be affected, particularly the large intestine. Loss of good bowel peristaltic function and evacuation is a common condition that comes with forward head posture and loss of spinal lordotic curves.
- Forward head posture can cause an increase in discomfort and pain. Freedom of motion in the first four cervical vertebrae can be a major source of stimuli that alters production of endorphins and many otherwise non-painful sensations can be experienced as pain.
- Forward head posture can cause loss of healthy spine-body motion. The entire body becomes rigid and the cervical discs compress as the range of motion lessens resulting in osteoarthritis.

The body works far more efficiently when the spine supports the weight of the body rather than the muscular system; when fatigue resistance drops, the spine is more vulnerable to injury.



The illustration above shows how an erect posture allows the head to rest in a neutral position. But slouch forward and the entire spine has to work harder to support the weight of the head.



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EFFECTS OF POOR POSTURE ON THE MUSCLES AND ON THE SPINE

Muscles habitually kept in a position beyond the physiologic resting position tend to weaken the stability of the spine and lose their elasticity.

Imbalances in the flexibility of hip, shoulder, and neck musculature cause asymmetric forces on the spine (which decrease load bearing capability and increase injury risk).

Kisner and Colby, in *Therapeutic Exercise, 3rd edition*, state that this adaptive shortening of soft tissues and muscle weakness, caused by prolonged cervical misalignment is detrimental to the stability of the spine and discs that a properly aligned musculoskeletal system could sustain. Good postural habits are necessary to avoid postural dysfunctions.

Long-term effects of AHC posture include: #1. Rounding of the shoulders. #2. Inward rotation of the arms. #3. Compressed thoracic cavity. #4. Increased compression on the discs and facet joints. #5. Loss of range of motion. #6. Increased likelihood of osteoarthritis. #7. Increased muscle tension in some areas causing ischemic headaches.

Corrective Chiropractic Care

If your spine and Central Nervous System are “not aligned” there is a need for corrective chiropractic care. This type of care will restore “normal” spinal position and alignment and thereby allowing your body to function and heal “normally.”

An “Orthopedic Pillow” and traction devices are designed to assist in restoring the normal lordotic curve of the neck, which can be affected by everyday activities—such as typing on a keyboard, reading, not sitting up straight and sleeping with the neck in odd positions.



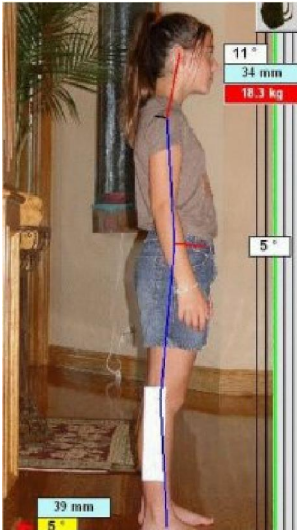


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Clinical Results

EXAMPLE: 11-year-old female presenting with a typical Forward Head Posture deficiency. This is seen all too often in young children, especially those that play a lot of hand held video games, or carry an overloaded backpack.



In this picture the child's head at rest is 34 mm in front of the shoulder. Normal, neutral position is 0mm.

With cervical lordotic traction, an orthopedic pillow and Chiropractic adjustments the child was able to correct the bio-mechanical deviations.



A posture exam* performed following the completion of a treatment plan showed the dramatic improvement. The 34mm of Forward Head Travel was reduced to 0. This relieved over 18 kilograms of tension pull from the child's neck muscles! It also flattened her tummy as the pelvic tilt was reduced.

Research:

¹ Journal of the American Geriatrics Society
Volume 52 Issue 10 Page 1662 - October 2004
doi:10.1111/j.1532-5415.2004.52458.x

² The Impact of Positive Sagittal Balance in Adult Spinal Deformity
Spine Volume 30(18), September 15, 2005 pp. 2024-2029

³ Effects of abnormal posture on capsular ligament elongations in a computational model subjected to whiplash loading

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