

# Science Facts on Posture Health

The following are selected posts we have taken from other web sites.

“Deviations in the body’s center of gravity caused poor posture, which resulted in intestinal problems, hemorrhoids, varicose veins, osteoporosis, hip and foot deformities, poor health, decreased quality of life, and a shortened life span.” – Freeman JT., Posture in the Aging and Aged Body, JAMA 1957; 165(7),pp 843-846 JAMA <https://jamanetwork.com/journals/jama/article-abstract/321673?redirect=true>

40% of 11 year old children have poor posture - <http://www.ncbi.nlm.nih.gov/pubmed/17302855>

Poor Posture in the workplace results in 34% of all lost workday injuries and illnesses according to OSHA publication 3125.

"Loss of the cervical curve stretches the spinal cord 5-7 cm and causes disease." - Dr. Alf Breig, neurosurgeon and Nobel Prize recipient

“Better than 90 percent of the energy output of the brain is used in relating to the physical body in its gravitational field. The more mechanically distorted a person is, the less energy available for thinking, metabolism and healing.” - Dr. Roger Sperry, neurobiologist and won Nobel Prize in 1981

"For every inch of forward head posture, it can increase the weight of the head on the spine by an additional 10 pounds." (Kapandji, Physiology of the Joints, Volume 3)

Long-term forward neck posture leads to "long-term muscle strain, disc herniations and pinched nerves." (Mayo Clinic Health Letter, March 2000)

Taken from <http://www.myspine360.com/may>

## Top 7 Posture Research Studies of 2016

(<https://americanpostureinstitute.com/top-7-posture-research-studies-of-2016/>)

### 1) Posture Disorders in School Aged Children

The authors of this research study demonstrated that more than 50% of school-aged children in rural schools have postural distortion patterns. They concluded that the cause of postural disorders were due to many different reasons including lesions of bone and muscle systems, insufficiency of CNS functioning, inappropriate environment, and lack of physical activity. It was also noted that postural distortion patterns were most commonly seen in the upper trunk, shoulder muscles, and neck musculature.

This research study shows a need for proper postural hygiene training of school aged children to manage and prevent postural distortion patterns. The implementation of postural hygiene programs in schools is a beneficial public health initiative.

Radzevičienė, L & Kazlauskas, A. (2016) Posture Disorders and their Causes in Rural School Pupils. *Social Welfare Interdisciplinary Approach*, 6(1) p. 118-125.

## **2) Mobility and Upright Posture affect Cognition Function**

Upright posture and mobility were associated with different cognitive processes, showing better memory of older adults with proper posture. This important study provides evidence for a link between postural alignment and cognitive functioning in healthy older adults.

In this research study the authors define the terms “Mobility” and “Posture” and discuss how a decline of mobility and posture affects aging adults. They state that a decline in mobility with aging is associated with a decline in overall quality of life. Posture refers to the way the muscles and skeletal bones are coordinated to maintain an upright orientation against gravity. Older adults have a tendency to carry their heads and necks forward relative to their torsos. This was associated with decreased cognitive function.

Cohen, R. et al. (2016) Mobility and Upright Posture Are Associated with Different Aspects of Cognition in Older Adults. *Frontiers in Aging Neuroscience* 8(257).

## **3) Posture and Emotions are directly Correlated**

This research study highlights the direct correlation of posture and emotions stating that posture can affect emotions and emotions can affect postural presentation. The emotions of happiness, success, confidence, and optimism are associated with an open expansive posture.

In this study the authors show that when patients are angry they show an increased amount of head protrusion, shoulder elevation, and knee hyperextension. Angry patients also have the tendency of rolling their shoulders forward and crossing their arms.

Rosário, J. L., Diógenes, M. S. B., Mattei, R., & Leite, J. R. (2016). Angry posture. *Journal of Bodywork and Movement Therapies*.

## **4) Poor Posture Results in Decreased Proprioceptive Function**

Poor posture leads to a decline in proprioceptive function. In this study it was shown that forward head posture is correlated with greater repositioning error than a more upright posture. The researchers claim that a significant negative correlation was observed between the craniovertebral angle and position sense error for flexion and extension.

Forward head posture is a very common postural distortion pattern, affecting millions of people. This research study indicates that the affects of forward head posture is not just structural, that forward head posture also affect proprioceptive function and body position awareness.

Yong, M. S., Lee, H. Y., & Lee, M. Y. (2016). Correlation between head posture and proprioceptive function in the cervical region. *Journal of physical therapy science*, 28(3), 857.

### **5) Poor Posture Restricts Vital Respiratory Function**

The results of this study indicate that forward head posture can reduce vital capacity, likely because of weakness or disharmony of the accessory respiratory muscles. Meaning, that patients who present with postural distortion patterns have decreased forced vital capacity and forced expiratory volume.

Respiration is an activity influenced by complex biomechanical factors, thus postural stability of the cervical and thoracic regions of the spine is of great importance to smooth respiratory function. Forward Head Posture causes shortening and weakening of the SCM, scalene muscles, trapezius, and ES muscles, which reduces the endurance and proprioception of these muscles. In addition, forward head posture increases muscle tension around the thoracic spine, restricting the range of motion in the upper thoracic spine.

Han, J. et al. (2016) Effects of forward head posture on forced vital capacity and respiratory muscles activity. *Journal of Physical Therapy Science*, 28(1) p. 128–131.

### **6) The Need for Postural Training Programs in Physical Education Classes**

In this research study school aged children participated in a physical education course of doing posture exercises two times per week. The exercises can easily be replicated in other schools.

The researchers found that after the implementation of postural correction exercises in PE classes, children demonstrated better posture post intervention. It was indicated that the implementation of posture exercises in more schools is an intelligent and effective strategy for preventing early onset postural distortion patterns. Implementing this into schools can help children develop proper postural hygiene habits early in life.

Ruivo, R. et al. (2016) The effects of training and detraining after an 8 month resistance and stretching training program on forward head and protracted shoulder postures in adolescents: Randomised controlled study. *Manual Therapy*, 21 p. 76-82.

## **7) Strengthening and Stretching Protocols for Improvement of Forward Head Posture**

This research study demonstrates the value of performing posture rehabilitation for patients who present with forward head posture. In this study it was shown that both stretching and strengthening protocols were shown to be effective for the reduction of forward head posture.

The researchers also showed that postural balance increased in the “Strengthening” group. This indicates that postural rehabilitation focused on strengthening the weak musculature of Posture Quadrant 1 is beneficial for structural correction and for improvement of dynamic balance ability.

Lee, S. & Lee, J. (2016) Effects of strengthening and stretching exercises on the forward head posture. *Journal of International Academy of Physical Therapy Research*, 7(2) p.1046-1050.