

Caring for your Spine

Postural Awareness

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AWARENESS OF POSTURE

The term posture refers to the relationship between the head, spine and the extremities in relation to the line of gravity. Correct posture requires continual bodily adaptation to maintain against the force of gravity. Good posture signifies health, vitality and energy. Posture can be divided into two primary categories, which are:

Static posture refers to the position of your body when you are not moving. Examples of static postures include sitting or standing.

Dynamic posture refers to the position of the body during movement. Examples of dynamic posture include, walking, running, bending, twisting and lifting.

The foundation of postural support is provided by the feet. The feet are a relatively small surface area that balances the axial skeletal frame. The body is equipped with sophisticated neurological mechanisms, which sense change in the orientation of the body and each of its parts. These neurological control mechanisms work as a feed-forward and feed back servomechanism to help us get through the day without falling. The feet have specialized nerve ending called pressure receptors which monitor changes in pressure distribution along the bottom of the foot and from all of the joints and soft tissues of the feet. The inner ear (vestibular) and visual systems monitor the bodily positions relative to the external environment. The synchrony of all sensory input provides awareness of posture to help you avoid positions that cause or aggravate back pain.

Sensation and Postural Control

The vestibular system of the inner ear provides information about the velocity of bodily movements and about static posture. To maintain posture the brain also receives information from neck reflexes. There are countless specialized nerve endings (receptors) within the joints of the neck and around the vertebrae. The nerve input from the neck helps drive postural reflexes. The head-righting reflex helps the eyes orientate during head movements.

Disorders that decrease nerve input or which result in abnormal input can significantly alter static and dynamic postures. For example, an individual who has decreased sensation along the bottom of the feet due to severe spinal stenosis (narrowing) in the low back will have difficulty walking. An individual who has very limited neck movement due to painful arthritis will also have difficulty with balance. In both cases, the individual will adapt their posture in order to maximize nerve stimulation (sensory) input. Some abnormal appearing postures are necessary to provide adequate input to maintain posture and to perform movements.

Posture and Center of Gravity

The center of gravity of the human body is very close to the base of the sacrum (end of the spine). When the human body is upright in a vertical position there is an optimum (normal) gravity line. This line passes from the head down through the bodies of the vertebrae along the front of the base of the sacrum. It passes through the sacroiliac joints to the head of the femurs (hips) through the lower extremities to the feet.

Any distortion of spinal posture changes the gravity line. Postural deviations lead to greater expenditure of energy. An abnormal distribution of weight through the spine because of a shift of the body's center of gravity will cause some parts of the supporting structures to carry more weight.

How Poor Posture Develops

Poor posture is easier to assume than good posture. Good posture requires greater muscle activity and energy expenditure. Good posture requires a conscious effort and conditioning of postural muscles. Most individuals do not pay attention to their posture until somebody points their bad posture out to them. Poor posture tends to be habitual and is more often seen in individuals with low self-esteem, degenerative problems, pain, depression, and in those who are deconditioned. Obese and overweight individuals also are more likely to assume abnormal postures. Poor postural habits can be developed secondary to social or work-related trends. For example, children may be required to carry huge overloaded backpacks. Adults carry heavy briefcases to work. Many individuals spend numerous hours per day hunched over a desk or a keyboard.