

[IMAGE]

Massage Today

March, 2003, Vol. 03, Issue 03

The Perils of Perfect Posture, Part II

By Erik Dalton, PhD

Editor's note: Part I of this article appeared in the January 2003 issue.

Postural Harm to the Viscera

Prolonged sitting can contribute to a significant loss of cervical and lumbar curve, while increasing thoracic kyphosis.

Just like the newborn, the result is one big C-curve, with all the facet joints sliding open - beginning at the sacrum and curving all the way up to the occiput. With the shoulders drawn forward and the chest flattened, the abdomen protrudes below the belly button, resulting in altered breathing patterns. Tension increases on the pericardium and its neurovascular contents, because the diaphragm is now lowered. Individuals who suffer from this condition may seek help from their physician for complaints of heart palpitations or respiratory infections, while ignoring the real cause - a potential alteration of visceral position and function.

Exploring Perfect Posture

To fully understand why aberrant postural patterns create chronic head, neck, back and hip pain, perfect posture must be clearly defined. Simply put, perfect posture is a condition in which body mass is evenly distributed. Muscles are not actively working toward appeasement of pain. Ligamentous tension must be perfectly balanced against compressive and tensegrity forces, so the typical activities of standing and walking require minimal energy expenditure. Because locomotion requires the controlled loss and regaining of balance, movement of any body part with respect to the rest of the body shifts its centerline of gravity, causing an inevitable change in overall balance.

Wasting Precious Energy

Ideally, during standing, postural muscles should be in a state of normal tonus and not actively contracting. However, as the body is subjected to micro or macrotraumas during the normal routines of life, postural balance becomes less than perfect. When this happens, active muscle contraction is required to redistribute body mass and effectively hold it in place. At this point, the muscles are working against gravity requiring them to perform the ligament's job of stabilizing the joints.

Muscle contraction requires energy; therefore, postural imbalances result in an enormous energy drain, proportional to the magnitude of the postural imbalance. Of course, this becomes lost energy unavailable for its original purposes. Energy drains have a dramatic effect on the limbic system - the highest cortical level controlling muscle tone. As whole-body tension builds, clients begin to report strange symptoms resembling fibromyalgia, chronic fatigue syndrome and digestive or hormonal disorders.

Faulty posture becomes magnified in clients who participate in athletic competitions. For example, short leg syndromes from a tilted pelvis can create a dramatic loss in time, strength, coordination and endurance in both amateur and professional athletes. In addition to energy loss, the body's joints are often subjected to abnormal mechanical stresses. When the spinal musculature is involved in lateral curvatures due to compensations from a tilted or side-shifted pelvis, shortening of the ligaments and muscles on one side and lengthening on the other occurs. Alterations in joint function, caused by capsular restriction or loss of joint play, inhibit or facilitate the muscles that cross the misaligned joint.

If proprioceptive impulses from sensory receptors located in joint capsules, ligaments, tendons, muscles, fascia and intervertebral discs become agitated from pelvic misalignment, compensations resound up and down the spine. Even the slightest alteration in the normal balance of the various spinal segments leads to some degree of soft tissue change. Nature inherently attempts to automatically restore equilibrium, by contracting and shortening certain muscles and inhibiting and weakening others.

When a joint's axis of rotation changes, one side of the joint capsule and its supporting muscles and ligaments become overstretched and weak. Meanwhile, sensitive mechanoreceptors imbedded in the articular cartilages and discs on the compressed side send a barrage of mechanical distress signals to the spinal cord.

Facet joints are possibly the most innervated structures in the spine. Their cartilages despise prolonged compression and soon become swollen, inflamed, and eventually degraded. As chemical inflammatory agents accumulate, chemoreceptors are stimulated and join the mechanoreceptors in flooding the neuronal

pool with warning bells of possible tissue damage. This stimulates the pain-producing nociceptors that cause the brain to tighten and shorten specific muscles to avoid further pain - the embodiment of our "crooked" clients in acute pain. The brain twists and torques the body in an attempt to alleviate the pain. Regrettably, the cerebellum has the ability to memorize these aberrant patterns and re-learn them as normal. This condition, when the deformed posture long outlasts the painful stimuli, is called neuroplasticity, reflex entrainment or spinal learning.

Feet-Shufflers

In the presence of joint blockage caused by capsular tightness and compression, normal articular reflexes may become so disrupted that when the tightened area of the joint capsule is overstretched, reflex inhibition of the overstretched muscle prevents further capsular elongation.

"Feet-shufflers," occasionally seen in malls and supermarkets, represent the perfect exaggerated embodiment of how a dysfunctional hip capsule can disrupt the firing order of muscles that cross a joint. During the walking cycle, the feet-shuffler's push-off leg can't extend backward, due to adhesions in the anterior part of the hip capsule. Therefore, he or she uses the hip flexors to throw the feet forward to walk. Therapists usually attribute this condition to tight hip flexors that won't allow the back leg to follow through in extension. However, during therapy treatment, attempts to increase hip extension by actively or passively stretching the hip flexors can cause an immediate firing of the joint and ligament mechanoreceptors creating a sort of stretch reflex. The adhesive capsule fools the joint receptors into believing the hip has already reached its end range of motion. A condition called arthrogenic muscular weakness inhibits the hip's prime mover, the gluteus maximus, and facilitates the already tight/short iliopsoas. This appears to be a local genetic protective device to prevent excessive hip extension and further jamming of the joints' compressed cartilage.

Regrettably, anterior hip capsule adhesions are a widespread and overlooked source of flexion addiction in our society. Some may conclude that this insidious hip condition is the reason for so many hip replacements being performed in this country each year. Athletes who complain of loss of speed in their competitive trials may also suffer from a lack of full hip extension in one or both hips. Hip flexor work alone just won't solve the problem. One helpful routine is to first dig-out, plunger and stretch the adhesive hip capsule, then tonify the weak gluteus maximus with fast-paced, spindle-stimulating maneuvers. To finalize this procedure, use techniques ranging from assisted stretching, myofascial release, trigger point therapy or muscle energy to

lengthen the tight iliopsoas.

Conclusion

The mysterious yet potentially stressful force of gravity affects each of us here on planet Earth. Our body's somatic system is intrinsically involved in its reaction to a shift in the center of gravity. Muscle and ligamentous tension is maintained by negative feedback from sensory receptors located in joint capsules and intervertebral discs. When the normal function of any part of the somatic system becomes overstressed, the vicious cycle of pain and dysfunction begins. Our job as bodyworkers is to maintain normal mobility of all components of the somatic system, to help minimize gravitational strain and any consequences from postural imbalance.

Emerging from an industrial society to one rich in technology, we now live in a world in which our external environment greatly impacts the healthful functioning of our bodies. As therapists working with a flexion-addicted population, we must garner a greater understanding and respect for the goal of perfect posture and its relationship to chronic pain, so we can teach our clients how to lead healthier, happier and more productive lives. May we all be graceful dancers, stretching artlessly to the sky.

Click [here](#) for more information about Erik Dalton, PhD.



Page printed from:

http://www.massagetoday.com/archives/2003/03/04.html?no_b=true