Dynamic Chiropractic

Sitting Posture Evaluation and the Importance of Microbreaks

Jeffrey Tucker, DC, DACRB

With so many people sitting in front of a computer all day long, driving to and from work, and watching TV, teaching clients to sit properly and take "microbreaks" to avoid muscular imbalances is vitally important. One of the most simple microbreaks to perform is to stand up, reach overhead with both arms / hands while pretending you are climbing the rungs of a ladder. Perform this maneuver for 30 seconds every 30 minutes.

I am a rehab exercise-based chiropractor; postural analysis, functional movement assessments, and experimental exercises are integrated into my examination and treatment process. I use static and movement assessments to understand how to reduce compensatory movement patterns that can increase the risk of injury or perpetuate pain syndromes.

Sitting Posture Evaluation

Whatever I observe in the static standing postural evaluation, I often see magnified in a seated assessment. For example, someone with a lumbar hypolordosis while standing will most likely not be able to get true lumbar extension or proper hip flexion when seated. This changes the normal kyphosis of the thoracic spine and creates typical poor posture: a forward head position. Although the compensation is thoracic flexion and forward head, the underlying dysfunction is posterior positioning of the pelvis. Observing patients sitting in a chair helps to determine how the body is compensating; this compliments the standing static postural assessment.

To perform the sitting observation, I ask the patient to sit toward the front of a chair with feet hip-width apart and pointed straight ahead. I ask them to sit upright by rolling the pelvis forward and hold the position for 10-20 seconds (sitting in extension test). I then assess whether the individual is able to attain the position by rolling the pelvis forward.

I ask if they experience pain through this ROM. I look to see if they are able to generate the movement from the pelvis or whether they just pull the shoulders back. Does the trunk move anterior or posterior over the hips? Do they stay centered or deviate to the right or left? Do their legs remain hip-width or do they abduct or adduct to generate hip flexion? These are all important questions to ask to generate appropriate conclusions that will help to create a successful corrective exercise program.

During the "sitting in extension" test, I will palpate the lumbar spine to identify if the patient is achieving true lumbar extension. If they are unable to achieve extension, there is most likely a dysfunction across the hips and pelvis or up the lumbar spine. If they are able to roll the hips forward, but cannot achieve lumbar extension, I could hypothesize that they are able to generate hip flexion, but there is no coordination with the lumbar extensors.

If the patient can roll the pelvis forward and achieve lumbar extension, but the legs go into adduction or abduction, then the lumbar extensors are probably doing the work of rolling the pelvis anteriorly. Also, if one leg abducts and the trunk shifts, this trunk rotation may indicate the inability to recruit the hip flexors on the side of the thigh that's moving into abduction. A fixed posterior pelvic tilt is commonly associated with a flat back or decreased lumbar lordosis, and this can be caused by short hamstrings. If muscle imbalance is present, it must be addressed through appropriate lumbopelvic mobilization / manipulation, fascial therapy and corrective exercises.

The Consequences of Sitting

Generally, maintaining the normal spinal curves is considered to be beneficial during sitting; however, a common tendency for most people, especially those sitting at computers with improper screen height, is to assume a forward head posture, along with kyphosis of the thoracic spine. Forward head posture has been shown to increase the incidence of neck and shoulder trigger points and pain, along with alterations in shoulder muscle activity.[1]

As a result, individuals who regularly sit with FHP may be more prone to conditions like cervicoscapular injuries, and scapulothoracic and shoulder impingement syndromes, upon starting an exercise program if not properly assessed and corrected. Therefore, helping patients, particularly athletes, maintain (at the very least) a normal head position while sitting can be a beneficial part of designing an appropriate exercise program.[1-3]

I constantly try to educate patients on proper posture, but because people (myself included) spend so much time driving and sitting for prolonged periods of time, we all struggle with control over the situation because we are not always aware of whether our posture is good / correct, or poor and contributing to deformation of tissues.

Most patients are on their own when it comes to car-seat posture, and have no clue if they are applying good posture or poor posture. Poor posture while driving can produce a repetitive load to the tissues that causes sustained stress. Daily prolonged drives apply loads to the spine that can cause viscoelastic tissues to slowly deform and creep. Simply staying in the car seat with poor posture long enough will eventually ensure damage. Sustained load and resultant deformation/creep causes a progressive reduction in tissue strength.

Next time you are on the freeway, notice how many people drive with only one hand on top of the steering wheel. For example, notice that driving with the left hand on top of the steering wheel may make the left shoulder elevate. That could perpetuate trapezius and levator scapulae tightness on the left. Unless you are holding the steering wheel at 9 and 3 o'clock or even lower, you are probably elevating and protracting the shoulders.

With your hands in the proper position on the steering wheel, the thoracic spine, scapula and glenohumeral joint have a better chance of remaining in neutral. I frequently find myself holding the wheel with my left and leaning my torso to the right because I rest my right arm on the center console. By leaning on the center console, I notice the right iliac crest and 12th rib approximate; this will contribute to shortness (tightness) of the quadratus lumborum or latissimus dorsi on the right side.

If the pelvis is rotated, it will contribute to lumbar or SI pathology and overactivity of the TFL. If the knees are even slightly superior to the hips, then there will be hip flexor (iliacus, psoas, tensor fasciae latae, rectus femoris, sartorius, adductor longus, adductor brevis, pectineus) overactivity or shortness, and gluteus medius, maximus or adductor magnus inhibition or weakness. Prolonged sitting on the glutes can cause poor circulation and lack of oxygen to the tissue, contributing to inhibition. If either knee abducts, it can further tighten the TFL.

A person driving with a clutch who has poor or limited ankle dorsiflexion can perpetuate overly active hip flexors because they will pull the foot off the clutch using the hip flexors, instead of dorsiflexing at the ankle.

Teaching Microbreaks

An example of a "microbreak" for driving in the car is squeezing the shoulder blades together for 20-30 seconds and repeating 2-3 times. Repeating anterior and posterior pelvic tilts and lateral tilts for a minute or two is sometimes helpful. Other microbreaks for driving include cervical range of motion, and shoulder retraction with elevation and depression.[4] I also encourage clients to do the "fiddle factor" with the car seat by changing positions frequently (every 30 minutes), especially if they have electric seats. I would love to hear what you recommend for low back microbreaks while driving in the car.

Checklist for Proper Sitting

If I had to make a checklist for proper posture while driving a car, it could include these suggestions:

- Sit up against the back of the seat with a tall spine.
- Adjust the seat-pan length so you can permit a fist to pass between the front of the seat and the back of the upper calf.
- Adjust the backrest up and down to your comfort level. It should be placed firm against your back and may be tilted a bit backward for more comfort.
- Adjust your hips so they are level and square.
- Lightly draw your belly button in toward your spine.
- Lightly push the back of the head against the headrest while maintaining a level chin.
- Plant your left foot firmly on the floor and dead pedal.
- Lift the sternal notch.
- Slightly set the scapulae by rolling them back and down, or back and up (depending on neutral scapula position).
- Holding this good posture, reach your hand toward the steering wheel at 3 and 9 o'clock or lower and, like I want you to be in life, "keep your foot on the gas pedal."

References & Resources

1. Weon J-H., Oh J-S, Cynn H-S, Kim Y-W, Kwon O-Y, Yi C-H. Influence of forward head posture on scapular upward rotators during isometric shoulder flexion. *Journal of Bodywork and Movement Therapies*, 2010;14:367-374.
2. Kendall FP, McCreary EK, Provance PG, Rodgers MM, Romani AR. *Muscles: Testing and Function With Posture and Pain, 5th Edition*. Lippincott Williams & Wilkins, 2005.
3. Claus A, Hides J, Moseley L, Hodges P. Is ideal sitting posture real?: Measurement of spinal curves in four sitting postures. *Manual Therapy*, 2009;14:404-408.
4. Clark M, *NASM Essentials of Corrective Exercise Training. 1st Edition*. Lippincott Williams & Wilkins, 2010.

AUGUST 2012

©2025 Dynanamic Chiropractic™ All Rights Reserved