



ERGONOMICS / POSTURE / SLEEP HABITS

## Sitting Is the New Smoking

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In the [May 25, 2013 edition](#) of the *Los Angeles Times*, Anup Kanodia, a physician and researcher at the Center for Personalized Health Care at Ohio State University's Wexner Medical Center said, "Sitting is the new smoking." He cited an Australian study published in October 2012 in the *British Journal of Sports Medicine* that compared sitting and smoking. According to the study, every hour of TV that people watch, presumably while sitting, cuts about 22 minutes from their lifespan, while it's estimated that smokers shorten their lives by about 11 minutes per cigarette.

This information is important for us to share with our patients, especially if we want to become known as healthy-aging doctors. I encourage each practitioner to focus on the fundamental messages - taking microbreaks, getting up from sitting and moving around frequently, maintaining good posture, a little about proper diets, a little about functional fitness, a little about stress reduction and proper rest. These basics take care of the majority of cases quite nicely. I relate a healthy-aging theme throughout all of my treatment programs in my office. [See Dr. Tucker's four-part series on healthy aging online, beginning with [part 1](#) in the March 1, 2013 issue.]

No one wants to grow old with low back pain. As we sit on our butts more, manual therapists should remain aware that the possible etiology of "inhibited," "weak," "poor motor control," "underactive" [gluteal muscles](#) in patients with low back pain can be from hip flexor tightness as a result of excess sitting. Prolonged and excess sitting is common, and it especially relates to those cases with chronic low back and hip pain.



Professor McGill uses the term *gluteal amnesia* as a prevalent complication in chronic low back pain people who "forget" to recruit the glutes! I prefer to tell my patients they need *gluteal reawakening* and then start to teach them a progression to "get off their butt." One simple recommendation is to start walking at least 30 minutes every day. However, getting people up and walking does not ensure good gluteal muscle activation. Abnormal gait can cause low back pain (symptom), excess sitting is a part of the cause, and the disease may affect multiple muscles, nerves and joints.

Prolonged periods of sitting are bad for the back, but prolonged sitting without proper lumbar support or loss of neutral in the lumbar spine is worse. Prolonged flexed or slumped postures can cause disruption of the disc, leading to radial and/or circumferential tears. Disc thinning can cause the facets to bear more weight, and once tears occur in the innervated part of the annulus or when the facets bear more weight, the body overreacts to this damage and starts producing increased muscle tone. More nerve fibers are irritated and then you get the vicious cycle of chronic pain.

The patient presents with increased sensitivity to sitting, awkward postures, or increased sensitivity to certain movements or unexpected movements. The cascade of chronic low grade back pain or recurrent episodes of acute pain is evident. Pain in and of itself can cause inhibition of the deep lumbar and hip stabilizer muscles, which further destabilizes the spinal segments, allowing excessive aberrant motion. The weakened disc is likely to suffer further tears from uncontrolled segmental movements or sudden motions, especially first thing in the morning and bending over, or after sitting and standing, or going from sitting to standing to lifting or carrying. Lumbopelvic-hip complex "instability" is a common scenario in our offices; if you can break the pain cycle, the patient will feel better.

A common frustration for patients (and doctors) with discogenic back pain is that the patient starts to feel better, muscle tone begins to improve, motion improves and then something happens ... they sit on a long plane flight, they sit in a restaurant leaning forward too long, they sit through a long

movie, they go on a long car drive, some random, sudden event happens, or they overdo it trying to start an exercise program back up. What happens? Pain increases (flares up), the stabilizer (inner) muscles become inhibited again and the global (outer) muscles become hypertonic.

The lesson we have learned is that the deep or local [stabilizer muscles in the low back](#) and hips don't automatically come back to normal. Then we are right back where we started, telling patients to "move." But have we prepared them for this?

In previous articles, I have discussed that standing upright, walking and running all require gluteal muscle activation. If the patient has poor lumbar stability, the multifidus and glutes may need reawakening for these activities. Running presents more of a challenge for frontal-plane stability because pelvic stabilization must occur with only one foot on the ground.

The gluteus medius is a stabilizer muscle and plays a very important role in providing frontal-plane stability for the pelvis during running.<sup>1</sup> For runners, a weakened gluteus medius could play a role in running-related injuries such as iliotibial band syndrome (ITBS) and patellofemoral pain syndrome (PFPS).

Hip abductor weakness has been observed in [distance runners](#) with ITBS when compared with the uninjured limb.<sup>2</sup> After six weeks of gluteus medius-specific exercise training, 22 of 24 athletes were pain free and able to return to running. Based on this study alone, it is hard to tell if weakness in the gluteus medius contributed to ITBS or if ITBS caused gluteus medius weakness. Regardless, increasing the strength of the gluteus medius paralleled symptom improvement and return to activity.

Over the years I have seen some serious cases of ITBS. Some have even required surgery. Gluteus medius strengthening often helps some cases, but not all of them. I still consider the glute medius an important component of my "reawakening" and strengthening programs for all of my low back pain patients, as well as my training routines for all of the runners I see.

I like to include glute exercises as part of a dynamic warm-up. Based on research by David M. Selkowitz, et al., to determine which exercises are best for activating the gluteus medius and the superior portion of the gluteus maximus, while minimizing activity of the tensor fascia lata (TFL),<sup>3</sup> the preferred exercises for recruiting the gluteal muscles while minimizing TFL activity are unilateral and bilateral bridging, quadruped hip extension (knee flexed and extending), the clam, sidestepping, and squatting.

What we can conclude is if the goal of rehabilitation is to preferentially activate the gluteal muscles while minimizing TFL activation, then the clam, sidestep, unilateral bridge, and both quadruped hip extension exercises would appear to be the most appropriate.

For glute activation in the more athletic patients, they seem to like the single-leg deadlift toe touch, single-leg step down, exercise band loops wrapped around the ankles or knees while side walking, and [kettlebell swings](#). I also like to include some glute-specific exercises following running to challenge the abductors in a fatigued state.

I also found that weak abductors and valgus stress have been common factors in people experiencing plantar fasciitis. Follow the logic in the case of a patient who presents with months of suffering from plantar fasciitis. Patient is in her 50s. About five months ago she increased her walking program because she was told she was sitting too much in front of the computer, contributing to her low back pain.

She has an underactive glute medius, as demonstrated in the side-lying hip abduction test. She also demonstrates the need for lumbar stability training. The glute medius attaches to the anterior ilium and is related to decreased core strength. The underactive glute medius allows the knees to adduct (internally rotate) during gait; the tibia abducts, causing the navicular to drop; eversion occurs; a forward talus occurs; a lengthened posterior tibialis muscles occurs, leading to plantar fasciitis.

How will I ever get this complex case to walk again? I used a new technology called radial shock-wave therapy to the plantar fascia; I taught her how to get the "knots" out of her hip flexors, and foam roll her TFL; I taught her how to lengthen the calf muscles, hip flexors, adductors and TFL; I taught her how to activate the glut med with side-lying hip abduction exercises; activate the multifidus with the "bird dog"; and I taped the plantar fascia so she could walk without repeating the cycle. If I can keep her feet feeling better, I can keep her moving more frequently and help her reset the "siting is the new smoking" dysfunction.

### *References*

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2. Fredericson M, Cookingham CL, Chaudhari AM, et al. Hip abductor weakness in distance runners with iliotibial band syndrome. *Clin J Sports Med*, 2000;10(3):169-75.
3. Selkowitz DM, Beneck GJ, Powers CM. Which exercises target the gluteal muscles while minimizing activation of the tensor fascia lata? *J Ortho Sports Phys Ther*, 2013;43(2):54-64.

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