



ADOBE STOCK

Active vs. passive

The opposite of sitting isn't standing—it's moving.

BY TURNER OSLER, MD

HUMANS ARE DESIGNED TO MOVE. INDEED, FOR AT LEAST three million years, people lived as hunter gatherers, foraging, running after prey, running from predators, remaining fairly active all day, every day. So it was an immense change when, about 100 years ago, farming became mechanized and the majority of workers sat down at desk jobs. This was an unplanned experiment on a massive scale and, unfortunately, it hasn't gone well.

We now sit most of our waking hours, 11 hours each day on average. Sitting for meals, sitting in the car, sitting in meetings, sitting at the PC at work, sitting at the PC at home, watching television, and then it's time for bed—it all adds up.

And, because chairs aren't designed to help people sit well, they typically sit with poor posture: the rounded spine, the absent lumbar lordosis, the extended neck. This posture is commonly referred to as “the computer slump.” Although the human spine is a versatile and magnificent structure, after a few decades of the computer slump, it finally runs out of compensatory responses: the core musculature has atrophied, the discs and facet joints are worn, and the elegant balance of the spine is lost.

An epidemic problem

We are faced with an epidemic of episodic low-back pain: About 80 percent of Americans make at least one visit to the emergency room for

back pain at some point in their lives. Perhaps because the condition is self-limited, low-back pain hasn't been well studied, and its etiology isn't well understood.¹

However, epidemiologists know that low-back pain is strikingly less common in developing nations, and in countries where the Western chair-centric approach to sitting is less common. In Japan, where traditional sitting postures are still ordinary, low-back pain is virtually unknown.

So, while the evidence is circumstantial, the conclusion is clear: Our addiction to Western chairs has created a good deal of spinal mischief.

But there's more, and much worse. It turns out Western chairs not only force us to sit *poorly*, they also force

us to sit *still*, and of the two problems, sitting still creates far more serious issues. Although sitting poorly leads to self-limited episodes of low-back pain, sitting still also distorts human biochemistry so profoundly that it has been dubbed “sitting disease.” The constellation of obesity, diabetes, heart disease, as well as some forms of cancer and increased all-cause mortality have now been definitively linked to prolonged passive sitting.²

A new meme takes hold

In the U.S. in particular, the addiction to Western chairs isn't just hurting the public; it's literally killing them. The problem is so profound that it has spawned the meme “sitting is the new smoking,” a threat to people's health and survival able to hide in plain sight because sitting passively in Western chairs is assumed to be our normal resting position. Actually, chairs have only quite recently become the default furniture, and now we are finally discovering just how bad a bargain they've turned out to be.

It was initially hoped that getting adequate exercise at the gym would protect against sitting disease but, counterintuitively, this simply isn't true. It turns out the problem isn't a lack of exercise, rather the problem is sitting still per se. Yes, exercise is good for everyone, but it can't undo all the problems caused by sitting still for many hours each day.

Standing desks have their own issues

It was also hoped that standing desks could replace sitting at desks. Unfortunately, because standing desks aren't comfortable for everyone, they won't be everybody's solution and moreover won't be anybody's best solution; a recent paper in the *American Journal of Epidemiology* found that heart attack rates were twice as high for people at standing desks compared to a control group in

standard Western chairs.³

This result was unexpected and hasn't yet been well explained, but it seems that standing desks aren't likely to be the ultimate solution because *standing* isn't the opposite of sitting. As far as biochemistry is concerned, *moving* is the opposite of sitting. Standing is just another stress posture at which human anatomy rebels.

So what's to be done? Well, returning to a hunter-gatherer lifestyle with constant physical activity is the obvious choice, but it isn't practical for most. It's the 21st century and there's no turning back. People's jobs, recreation, transportation, and even architecture require that they sit, and do so for many hours each day.

Changing the way we sit

The solution that may work well for most people is to making sitting an active, rather than a passive experience. A variety of chairs are now available that encourage sitting while actively allowing—even requiring—continuous readjustment of posture.

This type of sitting can result in spontaneously improved posture and increased metabolic rate. Because active sitting is a relatively recent addition to sitting options, it hasn't been well studied yet, but early research suggests that metabolic rate increases by nearly 20 percent, and anecdotal reports cite improved posture and decreased back pain.


Active sitting has been popular in Europe for the last two decades and is now arriving in the U.S. At least a dozen different chairs promoting active sitting are available, and more are certainly on the way. Because active chairs are more complicated than typical Western chairs, they have been more expensive; but newer offerings from public-spirited companies are now bringing down the cost of active sitting, with the goal of making active sitting available to everyone.

Active sitting is perhaps best

thought of as an adjunct to spinal health, used as a prophylaxis against back pain and sitting disease. Although it has not been studied, it is unlikely that active sitting has a role in the therapy for an acute attack of low-back pain.

Teach your patients

Active sitting will be of greatest interest to patients who are subject to intermittent episodes of low-back pain, and will likely also be of interest to patients who merely wish to add more activity to their chair-centered jobs. Chiropractors are well positioned to help change the way the world sits.

Because chiropractors are trusted sources of information about back pain and are the primary providers of care for low-back pain, they will likely play a pivotal role in introducing their patients to active chairs, perhaps by introducing active chairs into their waiting rooms. Because active sitting will be new to most of their patients, chiropractors may also need to instruct their patients in how to get the most out of active sitting. 



TURNER OSLER, MD, FACS, MSc (Biostatistics), is a graduate of the Medical College of Virginia. After a career as an academic trauma surgeon and

researcher, he began to study the epidemiology of low-back pain and was introduced to the idea of active sitting by a Feldenkrais teacher. Osler is currently an emeritus professor with an active research career. You can learn more about active sitting from Osler's blog at QOR360.com.

References

- ¹Evaluating and Managing Acute Low Back Pain in the Primary Care Setting Atlas SJ, Deyo RA. *J Gen Intern Med.* 2001;16(2):120-131.
- ²Rothcranz M. “Sitting vs Standing: Sitting is the New Smoking.” MarkusNews.com. <https://www.youtube.com/watch?v=x7UtVfdIHCE>. Published Aug. 2016. Accessed July 2018.
- ³Smith P, Ma H, Glazier RH, Gilbert-Ouimet M, Mustard C. The Relationship Between Occupational Standing and Sitting and Incident Heart Disease Over a 12-Year Period in Ontario, Canada. *American Journal of Epidemiology.* 2018;187(1):27-33.