We've all been told about proper computer posture. The mention of it probably conjures up a picture of a very straight back with a 90° bend at the thigh and the knee. But is this the best way to sit? With office work becoming more centralized, we're spending more time in front of our computers, with the ability to perform our jobs with the click of a mouse. Studies show that sitting is difficult on our bodies. Not only do we place different stresses and strains on the musculature depending upon how we sit, but we also place significant compressive forces on the discs in our spine.
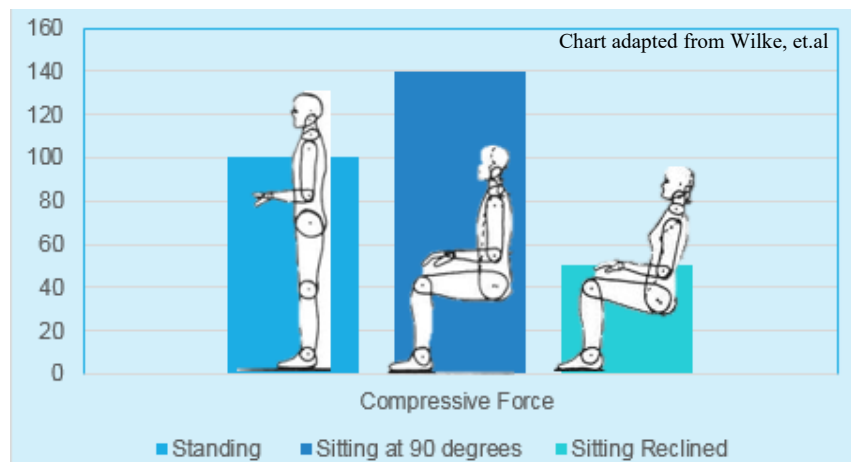
Photo courtesy of OSHA

With a good understanding of the concepts of neutral posture, we can take steps to minimize the stress on our bodies caused by sitting. Neutral posture is a comfortable working posture in which joints are naturally aligned. Working with the body in a neutral position reduces stress and strain on the muscles, tendons, and skeletal system while reducing the risk of developing musculoskeletal disorders (MSDs).

When we sit with our backs straight, we flatten the lumbar curvature of the spine, which changes the body mechanics and the ability for our bodies to tolerate the position. Therefore, what we've been taught about neutral posture isn't really neutral. The photo above has been the standard image for proper neutral posture when sitting. On the contrary, the standard 90° alignment of ankles, knees, and hips may not be the best position for our muscles, nerves, and joints.

Allowing your knees to extend beyond 90° while sitting can help prevent nerves in the back of our legs from being compressed. Assuming a slightly reclined trunk posture can improve the resting length of muscles through the hips and torso and allow gravity to work for the body instead of against it, pulling our shoulders back instead of forward.

Sitting with the trunk and neck in a vertical position also creates more compressive force on the vertebral discs in the low back, as can be seen in this chart.[1]  It's been reported that sitting with the lumbar support reclining by five to ten degrees, dramatically decreases compressive force on the low back.

Chart adapted from Wilke, et.al

Compressive Force

■ Standing   ■ Sitting at 90 degrees   ■ Sitting Reclined

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[1] Wilke, H., Neef, P., Caimi, M., Hoogland, T., & Claes, L. (1999). New In Vivo Measurements of Pressures in the Intervertebral Disc in Daily Life. *Spine, 24*(8), 755-762.

There are important considerations when attempting to maintain a comfortable neutral posture in your chair. Use these tips:

- Adjust your chair so that you are at the correct working height for your desk and keyboard. You should be able to access the desk without interference from your armrests and you should be able to place your feet solidly on the floor or on an adjustable footrest.
- Your lumbar support should be positioned at a height that allows the most comfortable back support. Your back should be supported by the backrest without the front edge of the seat pressing into the back of your knees. If the seat pan is too deep, ask for an additional lumbar support that can be attached to the backrest.

- Armrests should be adjusted so that you're able to maintain a relaxed position with your arms. The armrests shouldn't cause you to hike your shoulders up towards your ears or move your arms too far out to your sides. If the armrests interfere with the ability to get close enough to your keyboard and mouse, they should be removed. It's important to make sure that your armrests are adequately padded and don't create pressure points on your elbows or forearms.



Photo courtesy of OSHA

- Your chair should have a five-leg base of support. You should be able to move your chair in and away from your desk with minimal leg effort. If the force required to move your chair is significant, you may want to make sure the casters are appropriate for the type of flooring or add a floor mat to decrease the friction.

Regardless of how good your working posture is, working in the same position or sitting still for prolonged periods isn't healthy. Static work occurs when a set of muscles is generating muscular activity, or work, while maintaining a set posture or position. Without movement that generates a pumping action in the muscles, the muscles are unable to expel waste products and receive oxygen and other nutrients at the cellular level. It's believed that static work leads to muscle fatigue, which in turn, may lead to injury. To prevent this from occurring, you should change your working position frequently throughout the day. These microbreaks should occur every 30-40 minutes and last for at least 20-30 seconds. Keeping it simple is the key:

- Think in opposites of posture or position to how you are currently positioned and stretch your fingers, hands, arms, torso, and legs.
- Make small adjustments to your chair, backrest, or footrest.
- Stand up and walk around for a few minutes.