

Computer Workstation Ergonomics

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What is ergonomics? “Ergonomics is a discipline that involves arranging the environment to fit the person in it. When ergonomics is applied correctly in the work environment, visual and musculoskeletal discomfort and fatigue are reduced significantly.” (Centers for Disease Control)

According to the U.S. Occupational Safety & Health Administration/OSHA:

- ☞ Each year 1.8 million workers in the U.S. report work-related **musculoskeletal disorders** (MSDs) such as carpal tunnel, tendonitis, and back injuries. MSDs result when there is a “mismatch” between the physical capacity of workers and the physical demands of their jobs.
- ☞ About 600,000 MSDs are serious enough to cause workers to take off for recovery. Important Note: **PREVENTION** is the most important strategy when dealing with work-related musculoskeletal disorders and problems.

--“Preventing” MSDs—Designing Your Workstation--

📄 For comprehensive ergonomic solutions, go to www.osha.gov. Other computer topics include: lighting & glare, exercises, statistics, & related sources, etc. You can also research ergonomics for other industries at this site.

GENERAL POSITIONING: Always use good posture—sit back in your chair and upright. Keep your work (keyboard and monitor) directly in front of you. *NEVER position your monitor to one side of your keyboard requiring you to turn your head!* Keep your spine and wrists in a “neutral” position. Don’t crowd your workspace—leave enough room for your feet and legs under your desk and enough room around your keyboard to correctly position a document holder, mouse pad, and commonly used work materials. Lastly, *the more adjustment options the better because you can “customize” your workstation to your specific body.*

☞ **Important Note:** These are “recommendations” for preventing MSDs. **Can you get by without following them? Probably--but if you are a frequent user of computers, you would greatly benefit your health by making ergonomic adjustments to your workstation.**



CHAIR: Your chair is one of the most important changes you can make to prevent MSDs. You can get a decent ergo chair for about \$350+...not cheap but much cheaper than surgery and rehab and easier on your body than pain. Smart companies have learned that investing in good chairs saves money and time because of decreased sick leave and medical claims.

- ✓ **Height:** Adjust so your feet are **flat** on ground. You should have 2-3” of space left between the bottom of your desk and top of your legs. Your knees should be bent at about a 90° angle. Keep back of thighs from pressing too hard into seat edge; this prevents cutting off circulation to your lower legs. Knees should also be slightly lower than hips to preserve lumbar curvature of spine.
- ✓ **Armrests:** Use padded armrests to reduce pressure on soft tissues. Adjust so your elbows bend at about a 90° angle. Forearms should be parallel to floor. Wrists should be straight in a “neutral” position. Some chairs also have armrests *width* and *angle* adjustments—use them to customize for comfort. *Caution: Don’t get your armrests too high because elevated arms can cramp your shoulders, and keep elbows in closer to body not overly extended.*
- ✓ **Seat Edge:** You should also have a “waterfall” edge on your chair—this means a *rounded* edge instead of a *sharp* edge. A sharp-edged chair will cut off circulation in your lower extremities and cause “blood pooling” from poor return circulation.
- ✓ **Foot Rest:** If the best chair position for your arms and wrist elevates your feet so they are not entirely flat—then you need a footrest to reduce pressure on the undersides of your legs.

- ✓ **Lumbar Support:** Good chairs have a protrusion for your low back (lumbar spine). Your low back naturally curves forward—it is not “flat.” If your chair doesn’t have lumbar support, you can buy a small lumbar support cushion. Your trunk and upper legs should form an angle between 90 to 115 degrees. Don’t use a “square” chair or one that doesn’t have proper lumbar support—OUCH! ☹

DOCUMENT HOLDER: For word processing (See OSHA website for “data entry” positions that are slightly different.), position holder right next to monitor and at the same height. Adjust so documents are the same distance away from your eyes as the monitor so you don’t have to frequently change focus. *Important: You should be able to look back and forth between the monitor and document **without turning your neck.***



KEYBOARD: First make sure your chair is adjusted properly! Position your keyboard **directly in front of you** and within comfortable reach. Adjust armrests to maintain a “neutral” position in your wrists—they should be straight and flat and not bent. *Caution: Only use keyboard feet to maintain a “neutral” position.*

- ✓ **Ergo Keyboard:** Consider using an alternative or ergo keyboard that is “split and rotated.” These keyboards keep your wrists in “neutral” and minimize MSDs like carpal tunnel. Many ergo keyboards also have built-in wrist rests.



LAPTOP: Follow the same guidelines for maintaining “neutral” positions. Angle screen parallel to your neutral head and neck. When possible, use an external mouse. Using a small laptop touch pad instead of an external mouse for extended periods of time causes discomfort.



MONITOR: Position 18-30” from your eyes and directly in front of you. Top of screen should not be higher than your eyes. With head and neck in “neutral” positions, keep screen parallel to your face. Clean the screen to reduce dust and smudges. Adjust lighting and window shades to reduce glare. A 19” monitor is good for most general applications—but nothing smaller.



MOUSE: Find an “ergo” mouse designed to fit your hand; left-handed versions also exist. You’ll need to experiment to find the best one. Go to the computer store mouse display and handle different styles and brands. Some mice have “trackballs;” however, some trackballs may cause discomfort and possible injury—experiment to find what’s best for you. *Important Note: Padded “gel-type” mouse wrist rests are especially helpful and comfortable.* ☺

WRIST REST: Only use when resting—not while keying. Use padded wrist rests to minimize pressure on soft tissues. **NEVER** allow wrists and forearms to rest on a sharp-edged surface; this can put dangerous amounts of pinpoint pressure on soft tissues that are very sensitive.

OTHER ERGO TIPS: Use **wide-bodied pens** like the Pilot “Dr. Grip” to minimize carpal tunnel pressure. Consider a **phone headset** or **speaker phone** instead of “cradling” the phone with your head and neck—phone cradling reduces circulation and can compress your cervical nerves. **Move around!** Try to get up every 20-40 minutes—go to the restroom, get a drink, make some copies, get a snack—all of these activities work to prevent “blood pooling” from static sitting.

References: www.osha.gov (Occupational Safety & Health Administration) & www.cdc.gov (Centers for Disease Control)

* Ron Jones (10.30.07)

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