

# Ergonomics

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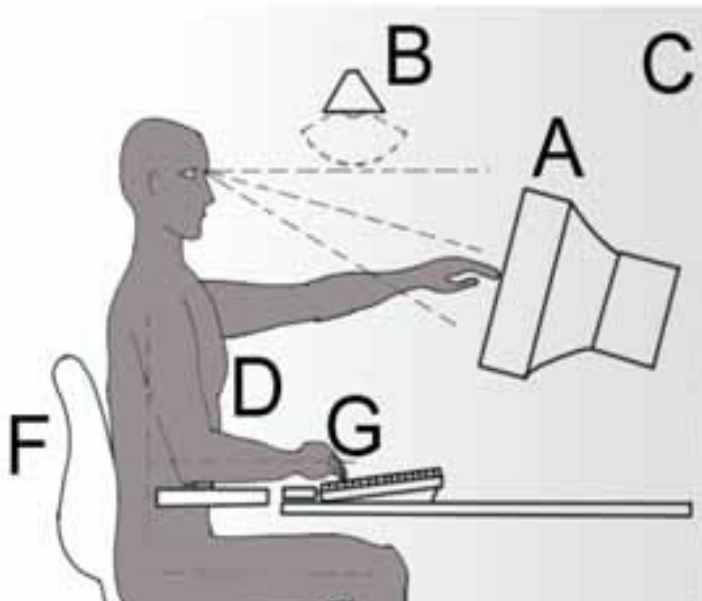
## ERGONOMICS IN THE WORKPLACE & AT HOME

Ergonomics is fitting the work station to the individual and not fitting of the individual to the work station. If you suffer undo fatigue or pain during a work task you may be doing it ergonomically incorrect. Please consult the following if you have a question about repetitive work stress.

### Principles of Ergonomics

- Back Pain
- Proper Hand Positions
- Knee Whiz
- Best Way to Lift Anything
- Tickle Your Keyboard
- Computer Mice
- Micropipettes

### PRINCIPLES OF ERGONOMICS



- A- Position monitor 18" to 24" away (approximately arm's length) and about 15° to 30° below your line of sight.
- B- Don't let light shine in your eyes or on your screen.
- C- Square screen to your line of vision.
- D- Forearms 90° from your spine.
- E- Thighs 90° from your spine.
- F- Use a well-made, adjustable office

1. Keep Everything in Easy Reach
2. Work at Proper Heights
3. Reduce Excessive Forces
4. Work in Good Postures
5. Reduce Excessive Repetition
6. Minimize Fatigue
7. Minimize Direct Pressure
8. Provide Adjustability and Change of Posture
9. Provide Clearance and Access

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10. Maintain a Comfortable Environment

11. Enhance Clarity and Understanding

12. Improve Work Organization

## BACK PAIN

Your back is always on the job.-

1. **APPLY RELIEF** Try a heating pad or ice pack, whichever feels better.

If needed, take a non-prescription, anti-inflammatory pain reliever containing ibuprofen, aspirin, naproxen or ketoprofen.

2. **REST**- If your pain is severe; consider 1-2 days of complete bed rest. *But remember:* Too much bed rest can actually be bad for your back. Experts say longer than 48 hours may weaken the muscles that help support the spine and delay your recovery.

3. **TRY THE "LAZY S"** - When resting, lie on your side with your knees bent. If you prefer lying on your back, tuck a pillow under your knees. Avoid sleeping on your stomach, which causes the back to curve excessively. And always use a firm, comfortable mattress.

4. **KEEP MOVING** - Research suggests that continuing normal activities as pain allows, may speed recovery even better than bed rest or special back exercises. But do remember to limit lifting, twisting, bending, prolonged sitting or wearing high heels-all of which can further strain your spine.

### \*\*IMPORTANT\*\*

While most back pain isn't caused by anything serious, it sometimes results from damage to the vertebrae, disks that cushion the bones of the spine. Call your doctor if symptoms persist for more than 3-4 weeks, or if pain greatly limits activities, steadily worsens or travels down the leg. Signs to seek *immediate medical attention include:* tingling or weakness in arms or legs, pain accompanied by fever, bowel or bladder problems, numbness in the groin or rectal area, or if you've had cancer.

## PROPER HAND POSITIONS

Holding your hands and wrists in as "neutral" a position as possible when working at a desk is one way you can prevent or help lower your risk of developing a chronic trauma disorder, or CTS (like carpal tunnel syndrome). When keyboarding, keep wrists in line with forearms with little bending up and down, or to the sides; keep shoulders back and relaxed; maintain an approximate 90-degree bend in the elbows; and hold forearms horizontal, parallel with the floor.

## KNEES

Knees can be injured when they've been "quiet" too long. If you're a sales clerk, desk worker, or assembly line worker, use this move before you get up after sitting for a long time, or if you've been standing for extended periods. This exercise is also beneficial anytime your knees feel stiff or creaky.

1. Slide forward on a chair, and extend your legs straight out so that only your heels rest on the floor.

2. Tighten the muscles on the front of your thighs (quadriceps). Hold for 5

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seconds, then release.

3. Repeat three times, and then do another set. By contracting your thigh, you strengthen that part of your quadriceps muscle that supports and stabilizes your kneecap, says James Garrick, M.D., director of sports medicine at St. Francis Memorial Hospital in San Francisco.

## THE BEST WAY TO LIFT ANYTHING

You've probably heard, "Lift with your legs, not your back; but there's more to it than that. Here are the best ways to lift so you don't injure your back (assuming, of course, that the weight of the item is within reasonable limits).

**Boxes:** When picking one up from the floor, squat with your feet shoulder-width apart, "surround" the box with your arms, keep your stomach muscles tight, and stand with your back straight. This gives your back an assist from your legs and gluteus muscles. Keep the box close to you. When you turn, point your feet in the direction you're turning first, so you don't twist your back. Set the box down on something that's about as high as you're holding it.

**Briefcases and laptop computers:** The bulkier a case is and the further away from your body you carry it, the more stress you put on your lower back. The best ways to avoid damage are to use a shoulder strap or to carry two slimmer cases, one in each hand. Tip: Never stretch sideways across an airplane aisle to shove a briefcase or laptop into an overhead compartment, instead, face the compartment and stand as close to it as possible.

**Tickle Your Keyboard:** Ease work-related pain with a lighter touch. Anyone who spends long hours at a keyboard is at risk for carpal tunnel syndrome, tendinitis, and other Work Related Upper Extremity Disorders (WRUEDs). But there's a key (no pun intended) to lowering your risk, say experts, and here it is:

Lighten up! When researchers used special equipment to measure how hard a group of office workers hit the keys when they typed on computers, they noticed two things. First, everyone used much more force than necessary-four or five times more, on average, than was needed for the keystrokes to register. Second, those who used the most force had the strongest symptoms of WRUEDs (*Journal of Occupational and Environmental Medicine*, December 1997).

## COMPUTER MICE

Many people feel that the use of a mouse eliminates the possibility of Carpal Tunnel Syndrome (CTS). Unfortunately mice present new ergonomic problems in and of themselves. They require repeated arm movement and place more work on a couple of fingers instead of spreading it around. Mice also present a similar problem with the wrist by not keeping it straight. Don't hyper-extend your arms to reach the more you may develop upper back pain in a few weeks.. Please don't think that mice will cure your CTS, they only present different hazards that must be dealt with.

## **II MICROPIPETTES**

Micropipettes are thumb operated and in a single day a lab technician may make hundreds of transfers. It is from this type of operation that some technicians have developed tendinitis of the thumb and hand. Consider acquiring one of a number of different automated devices available.

**For more information and/or suggestions contact the Environmental Safety Compliance Officer (ESCO) at Ext. 8441 or Email [hpl-safety@hpl.umces.edu](mailto:hpl-safety@hpl.umces.edu)**

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