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Cornell University Ergonomics Web

10 Tips for Using a Computer Mouse

The following tips should help you avoid a mouse-related musculoskeletal injury. The same posture principles apply to other input devices (e.g. trackball, touchpad, pen, digitizing puck etc.). Postural variation is a key factor for good ergonomics. Try to regularly vary your posture when you work with a mouse, and in this way you will help to minimize the risk of ergonomic problems. remember, the best ergonomic mice are designed to allow you to vary your posture while working with the mouse.

1. **Mouse Grip** - don't throttle your mouse (it's already dead)! Hold the mouse gently to move it over a mousing surface.
2. **Mouse from the Elbow** - don't skate or flick the mouse with your wrist. Make controlled mouse movements using your elbow as the pivot point and keep your wrist straight and neutral.
3. **Optimal Mouse position**- sit back in your chair, relax your arms then lift your mousing hand up, pivoting at the elbow, until your hand is just above elbow level. Your mouse should be positioned somewhere around this point. Don't use a mouse by stretching to the desk or out to the side of a keyboard. With a **flat mouse platform**, position this 1-2" above the keyboard and over the numeric keypad if you are right handed - you can easily move it out of the way if you need to access these keys. With a **downward sloping mouse platform**, position this close to the side of the keyboard so that you can use the mouse in a neutral wrist position. Position adjustable mouse platforms are commercially available (e.g. Humanscale, Flexrest, 3M etc.)
4. **Protect your wrist** - if you look at the anatomy of the wrist it is curved away from any contact surface (you can easily see this by resting your hand/arm on a flat surface - you'll see light under the wrist and can probably even pass a thin pen under this). The forearm is shaped liked this for the wrist to remain free of surface pressure contact.
5. **Avoid restricting circulation** - For may people there are exposed blood vessels near the skin at the wrist, which is where the pulse is often taken. Any pressure in this region will disrupt circulation into the hand and this will increase the risks of injury.
6. **Don't use a Wrist Rest** - research has shown that using a wrist rest doubles the pressure inside the carpal tunnel, because the floor of the tunnel is a more flexible ligament that transmits external pressure changes directly into the carpal tunnel (the roof of the tunnel is bone so the pressure doesn't get transmitted on through the hand). Indeed, one test for carpal tunnel syndrome (CTS), know as Tinel's sign, simply involves tapping on the palmar surface of the wrist, which is enough to cause tingling and numbness in someone developing CTS.
7. **Avoid Restricting Arm Movement** - with a softly padded wrist rest, especially one that is rounded, or a soft chair arm rest the forearm becomes "locked" into position and this encourages people to make mouse movements by flicking the wrist, which also increases intracarpal pressure.
8. **Keep the Mouse Free Moving** - The base of the palm of the hand is the part of the body designed to support the hand when resting on a surface. For keyboard use a broad palm support is best. However, mouse use is different from keyboard use. With a keyboard the best posture is for users to float their hands over the keyboard when typing and then to rest on the palm support in microbreaks between typing bursts. You can use rest-breaking software (e.g.Break reminder etc) to help track and advise on your mouse use. With mousing this doesn't happen. A mouse is used by moving its position over a surface, and resting usually occurs when mouse

movements stop but with the mouse still being held in the hand. Mouse movements should be made using the elbow as the pivot point, not the wrist. Anything that impairs free movement of the forearm/hand and mouse will increase injury risks.

9. **Mouse shape** - choose a mouse design that fits your hand but is as flat as possible to reduce wrist extension. Don't use a curved mouse. Use a symmetrically shaped mouse. Consider a larger mouse and there are several new interesting products on the market , such as the Whale mouse or the Perfit mouse, that encourage arm rather than wrist movements or that encouirage postural variety and one or two-handed use. Pen-based mice designs also allow a more comfortable grip. Some types of mouse palm support can be attached to the mouse, such as the Mouse Bean.
10. **Load sharing** - if you want to load share between your right and left hands, that is using the mouse for some of the time with each hand. For this you need to choose a mouse platform that can easily be configured to the left or/and right, and a symmetrical shaped mouse that can be used by either hand.

Other input devices - whether you choose a different mouse design, a trackball, a joystick, a pen, a touchpad, a multitouch pad or some other input device, make sure that your position this comfortably, and that your wrist is in a neutral position when using the device.

Summary recommendations for mouse position:

If you are using your mouse on a surface then:

- **Best** arrangement for a mouse is a platform over the number keypad and just above the keyboard.
- **Good** arrangement is a pad on an angled platform to the side of the keyboard.
- **Poor** arrangement is a flat surface to the side of the keyboard
- **Worst** arrangement is on the desk out to the side of the keyboard.

Other input options that don't cover the numeric keypad

If you needs to frequently use the numeric keypad consider the following:

- an angled mousepad close to the side of the keyboard (e.g. Humanscale platform; Flexrest platform)
- a keyboard that has a touchpad built into the keyboard (e.g. Crystal vision; Cirque smooth cat)
- a minikeyboard with either a built-in pointing device or an adjacent mouse and a separate keypad

More information on our Mouse research studies.

NOTE: Inclusion of links to manufacturer and product web sites is provided for user convenience and does not constitute endorsement of these products by Cornell University.

Send comments or suggestions to Professor Alan Hedge.