

Don't let your laptop hurt you

Is your laptop a pain in the neck? The arms? The back? There are some real problems with using laptops, but there are also good solutions.

Notebook computers were originally designed as a temporary solution - a short-term replacement for the traveler's desktop computer. But as they improved, laptops became many people's primary computer.

Basic Laptop Ergonomic Problems

The first thing to know about laptops is that they are not designed ergonomically. With a fixed design, if the keyboard is in an optimal position for the user, the screen isn't and if the screen is optimal the keyboard isn't. Many laptops feature keys that are smaller than those found on traditional keyboards - a potential cause of hand and finger pain. Older laptops have button mice, which are probably the worst mouse design, but even touch screen mousing can cause muscle fatigue. Then there are the monitors. Most are fixed to the keyboard. Screens are typically smaller as well. The standard desktop screen is 17" while the laptop screen are often 13-15", so notebook users are trying to view the same amount of information in a smaller space. You can't reposition the screen slightly to eliminate glare because this also repositions the keyboard!

All of these problems can result in poor posture, with the head tilted down and the arms held too high. If these postures are maintained for long periods, musculoskeletal problems can develop.

The laptops' use of an LCD screen is a big plus - these are considered ergonomically superior to CRTs. Unfortunately, LCDs generally look best at just one resolution. Changing this resolution distorts type and tends to make it look less legible. This may make it more difficult for people with vision problems.

Carrying laptops can be an ergonomic problem of a different sort which is discussed later.

Finally, laptop bases get hot. They are designed to sit on a hard surface where they can dissipate the heat. Placing them on your lap, bed or other soft surface can cause a heat build up which can either burn you or damage the laptop.

At the Work Place

From document holders and external keyboards to screens that detach entirely from the notebook to let you place them anywhere, there's no lack of solutions to improving your laptop experience. Here are a few helpful products that can make life with your laptop more productive and less painful.

- Docking Stations let laptop users enjoy the comfort of full-sized peripherals at the office while preserving a notebook's portability for travel. Docking stations contain connections for standard-size peripherals such as keyboards, monitors, and mice. When at your desk, you plug the notebook into the docking station, which serves as an interface between the components and essentially creates a desktop computer. When you're ready to leave, you remove the notebook from the docking station.



- Laptop Stands resemble a music stand; laptops are placed on a height-adjustable platform which allows a wider variety of adjustment. In essence, it's a portable desk - meaning you're not confined to the height of whatever desks or countertops happen to be available.
- External Keyboards allow you to more freely position your keyboard, meaning that you can independently adjust both the screen and the keys to obtain a better ergonomic position.
- External Mice are often used by people who find the laptop's built-in touchpad or trackball difficult to negotiate. The bigger size of a traditional mouse lets you use your entire hand to move the mouse, distributing the motion over a wider area and leading to a more comfortable experience for many users.



Other adaptive equipment includes glare filters, privacy filters, laptop lights, detachable screens and document holders.

So how can you avoid these potential aches and pains? First, take more frequent breaks. When using the laptop, you're usually more cramped than you would be at your desk - so taking short breaks and changing your posture is particularly important. Here are some basic things you can do to adapt your laptop

- Maintain a comfortable viewing distance from the screen.
- Tilt the screen at an angle for easy viewing so you are not stretching or compacting your neck to view the screen.
- Keep glare off screen to avoid eye strain.
- Keep laptop keyboards at a height and angle that maintains your shoulders, arms and wrist in neutral position.
- Optionally, place a separate, full-sized keyboard on an adjustable height, negative tilt keyboard tray so your shoulders can relax and arms rest easily at your side.
- Position laptop keyboards directly in front and close to you to avoid excessive extended reaching.
- Your mouse (one that is independent of the laptop) should be placed adjacent to the keyboard and at the same height. Avoid extended and elevated reaching for either the keyboard or mouse. Maintain the back of your wrist flat in a neutral position.
- If you have a separate keyboard connected to your laptop, place it on a "negative tilt" keyboard tray (angled slightly back) in order to help keep wrists straight while typing.

On the Go

When carrying the laptop, you can reduce pain by reducing the number of peripherals you carry. Many laptop accessories are removable (like disk drives, CD-Rom drives, etc.), so leave behind items you don't need. And while you're carrying that reduced-weight bag, consider switching to a backpack style bag. You can even buy a laptop bag with wheels, taking the weight off your shoulders entirely.

Finally, consider alternatives to the laptop. If all you're doing is retrieving email while gone, try using a wireless-enabled PDA like the Blackberry or Palm Pilot. They're just as functional, and a whole lot lighter. (With text-to-voice messaging services, you can even get away with using just a cell phone).

For further information, please contact Environmental Health and Radiation Safety at 215-707-2520.