

Caution:

Road hazard on the information superhighway

Carpal tunnel

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The disease is caused by repetitive motions that make the median nerve work improperly. The median nerve runs down the arm and through the wrist. As it enters the wrist, it passes through a tunnel of wrist bones, the carpal tunnel. Ligaments and tendons also pass through the carpal tunnel, and as these tendons move and become irritated they swell and crush the median nerve.

"Eventually the pressure reaches a point when the nerve can no longer function normally. Pain and numbness in the hand begins," reported the Medical Multimedia Group in its pamphlet "A patient's Guide to Carpal Tunnel Syndrome."

Pain and numbness are two early signs of CTS. The pain usually shoots through the wrist and fingers, while the numbness affects the thumb and first two fingers. Often CTS sufferers are awakened by numb or stinging fingers. "Commonly, patients will complain first of waking in the middle of the night with pain and a feeling that the whole hand is asleep. If so pinch your pinky to see if it is unaffected; this is a sign of carpal tunnel syndrome," the Medical Multimedia Group wrote.

It is important that any computer user can recognize all the symptoms of CTS. "Delay in diagnosis and treatment can lead to irreversible loss of sensation and function in the affected fingers," said Bill Anderson, an orthopedic and hand surgeon.

Other symptoms include a discomfort in the forearm, upper arm, armpit, shoulder and neck, muscle weakness, aching, burning, limited range of motion, numbness and tingling.

Laptop computers are especially dangerous because their compact design requires the user to be in a non-ergonomically sound position.

"The laptops are nice in that they are compact, but they lack the spread-out room that a desktop has, so we do see a little bit more laptop users with this problem," Dr. Browning said.

Currently, the use of proper ergonomics to reduce the chances for Carpal Tunnel Syndrome in employees is a hot topic in North Carolina.

"North Carolina is intent on become the second U.S. state to implement an ergonomics standard. Unlike California, the North Carolina Department of Labor Officials reportedly have started a regulation that will cover all repetitive stress injuries, including Carpal Tunnel Syndrome," reported CTDNews at its web site (<http://www.ctdnews.com/government.html>). The hearings about the new ergonomics bill began August 17, 1998, in Winston-Salem and will end today in Raleigh.

Despite the local business hype and the overwhelming damage that CTS can cause, most students on this campus are not concerned about the issue. They feel the risks associated with a laptop use do not outweigh the value of their ThinkPad.

"It's more convenient," junior Renee Randolph said.



When asked if she feared contracting CTS, junior April Stuart said, "No, not at all; I guess it's the ignorance of youth."

But the "ignorance of youth" will not save students from developing this disease.

"I do think it's a concern students should be having. It's definitely getting to be a concern for anybody doing work on any type of keyboard," Browning said.

"College students with RSI symptoms say they weren't aware of such recommendations until it was too late. And some say that despite the pain it causes, they don't want to cut back on typing now because they would be unable to graduate on time," Salmon wrote.

Brendan Connell, an 18-year-old in Montgomery County, Md., was diagnosed with the disease this past year.

Now he must wear special braces on his wrists 24 hours a day, he can no longer take his own written notes in class and can work on the computer for only

15 minutes at a time.

"When he goes to college in the fall, he will have to use special software so he can dictate instead of type his papers," Salmon wrote.

Wrist braces are one of many treatments developed for CTS. During early stages of the disease, most doctors recommend an over-the-counter pain reliever and advise against potentially straining the wrist.

However, numerous stretching exercises have been developed to battle the disease and can be a method of prevention.

"Specially designed stretching exercises can result in a very high degree of relief for sufferers of Carpal Tunnel Syndrome as well as other repetitive strain injuries," Paul Marxhausen said on his Web page "Computer Related Repetitive Strain Injury" (<http://www.engr.unl.edu/ee/eeshop/rsi.html>).

However, if these options are not successful, surgery can serve as a last resort.

"If all previous treatments fail, there are several

different surgical procedures designed to relieve pressure on the median nerve. The most common are the traditional open incision technique and the newer (method) using a smaller incision and a fiber-optic TV camera," the Medical Multimedia Group said.

Surgery, like all other forms of treatment for CTS, is not guaranteed to cure the patient or remove all of the pain.

"The standard surgery often has side effects and symptoms tend to reoccur," La Voie wrote.

Thus the best solution for CTS is prevention. CTS is caused not only by rapid movements, but also by bad body positioning and posturing while doing constant rapid movements.

In the work world, most businesses ensure an ergonomically correct environment; however, on campus students are left to fend for themselves. With uncomfortable, nonadjustable desk furniture, often cramped space and the inability to spread out their computer components, many students can easily develop the disease.

Since students prefer laptops and since the campus furniture is not likely to be replaced in the next couple of weeks, students must learn how to position their bodies differently.

Knowing what positions to avoid and the proper typing posture can save them from future problems.

Students should be sure to stretch before typing. One easy technique involves holding one arm straight forward and pulling back on the outstretched hand. After holding this stretch for a few seconds, switch hands.

The keyboard should be kept near if not on the computer user's lap. However, holding an entire laptop in this position may be too awkward or uncomfortable.

If this is the case, the computer user should consider purchasing a separate keyboard that will connect to his or her ThinkPad. Then the keyboard can be held in the lap while typing.

Another benefit of a separate keyboard is that it will allow the computer screen to be farther away than normally possible.

"Conventional wisdom for monitor distance is that it should be 18 to 20 inches away. This is wrong. The best distance is as far away as possible while still being able to read it clearly. Longer distances relax the eyes," said Chris Grant, Ph.D., and Anne Arbor, MI, in their article "Conventional Wisdom vs. Current Ergonomics."

"To help prevent Carpal Tunnel Syndrome, try to arrange your work space so that you can keep your wrists straight and relaxed when you're typing," UT Southwestern Medical Center said.

Wrists should be supported and resting comfortably. The curve in the wrist should be rounded inward, not sharply bent or facing outward.

Also, if typists use an excessive amount of pressure on keyboard keys they can increase their chances for CTS.

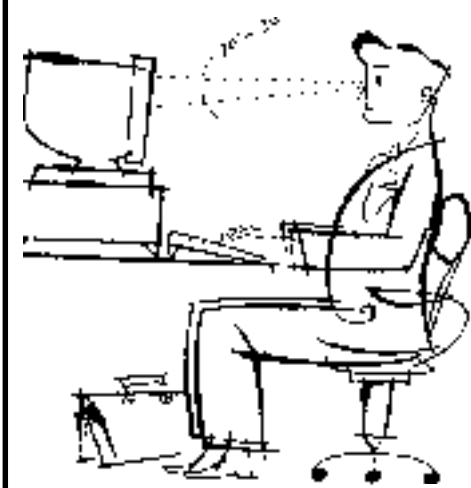
"Research finds that typing on a computer with excessive force may increase a person's risk of developing Carpal Tunnel Syndrome," reported the 1997 December issue of the *Journal of Occupational and Environmental Medicine*.

Prevention equals protection: Uncovering myths

By Suzanne DuBose

Computer Posture Myth #1:

Several ergonomic guides suggest positioning the top of the computer screen at eye level or slightly below. With a laptop this is extremely difficult because the keyboard would then be too high to use efficiently. In reality, the best position for a monitor is quite low. "It is well documented that the visual system works best when eyes look downward because they can focus with less strain and are less likely to become dry and irritated," according to Herman Miller, Inc., "What's your e.q.?" Keeping the laptop on the user's lap will not only benefit the eyes, but also create a proper wrist position.



False: The best computer screen position has the top edge of the monitor directly aligned with the eyes. The eyes and head should not have to move more than 20 degrees.

True: The lower the screen is placed, the better. Looking downward is more relaxing for the eyes. Also, the screen should be kept as far away as possible while still able to be seen without straining the eyes.



Computer Posture Myth #2:

Often good computer posture is mistaken for an attentive military pose with shoulders back, eyes straight ahead and a 90 degree angles at the waist, knees and elbows. In actuality a rigid posture is not only uncomfortable, but it can cause more damage than help. When sitting perfectly straight, there is 25 percent more pressure on your spine than when leaning back. Also, an upright posture is top heavy, putting 25 percent more pressure on the lower back.



False: While at the computer you should sit attentively, with back and shoulders perfectly straight. Both the knee joint and waist should make 90 degree angles to ensure proper computer posture.

True: When typing, the best posture is a comfortable one. In fact, computer users should not sit up straight because it puts too much pressure on the spine. Leaning backward while at the computer for long intervals is best - this creates an open posture and puts the least amount of pressure on the spine.



Computer Posture Myth #3:

It is no myth that feet should be flat on the floor when using a computer. With non-adjustable desk and chair heights, many people use footrests to ensure their feet are flat and comfortable. This is not a solution. "Footrests constrain workers to a limited range of postures. People constantly need to shift postures to offset fatigue and redistribute weight to avoid pressures on the body," according to Herman Miller, Inc. Also, any tasks that require reaching or stretching will automatically require students remove their feet from the rest to gain proper balance.



False: Computer users must keep feet flat on the ground to achieve proper back and leg support. If your feet cannot touch the ground at your computer station, use a footrest to ensure proper leg support.

True: Footrests are not a viable solution. Feet do need to be kept flat on the floor while at the computer; however, footrests do not provide support for any movement away from the computer. Also, footrests limit potential leg positions which can cause cramping. A shorter chair should be used instead.



Graphics by Herman Miller, Inc.