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Aug. 21 — Since computers became a staple of offices nationwide, many workers have been diagnosed with repetitive stress injuries, especially carpal tunnel syndrome. But now some researchers say that, contrary to popular thought, carpal tunnel may not be associated with computer use at all. Some skeptics go so far as to say they don't believe any workstation-related factors contribute to the various ills collectively known as RSI. The majority of doctors, however, counter that such a broad stance ignores the science.



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AS THE GOVERNMENT considers whether to require ergonomics regulations to protect workers in a range of professions, controversy is heating up over the suggested link between computers and RSI. Fueling the debate is a study out of the Mayo Clinic in Rochester, Minn., that found that heavy computer use — up to seven hours a day — was not associated with an increased risk of carpal tunnel syndrome.

“For 15 years, we’ve thought that RSI equals carpal tunnel,” says study author Dr. J. Clarke Stevens, a neurologist at Mayo. But there’s no convincing evidence to date for a link, he maintains.

Nevertheless, Stevens says he isn’t completely ruling out an association, largely because there’s not a lot of research on this issue from which to draw conclusions. “The issue needs more study, and the surprising thing is the lack of studies,” he says.

One’s lifetime risk of developing carpal tunnel is about 10 percent, according to Stevens. “So a lot of people who use the computer are going to have carpal tunnel,” he says.

But that doesn’t mean computers are necessarily the culprit. Many other factors have been implicated in carpal tunnel, including diabetes, pregnancy, thyroid

disorders, rheumatoid arthritis and sprains or other types of trauma, Stevens says, adding that about half of cases have no known cause.

The symptoms — pain or numbness in the hands and wrist — occur when the median nerve at the wrist is compressed. And these complaints can mimic other common aches and pains, such as tendonitis, that have been linked to computer use but don't garner the attention of carpal tunnel, Stevens says.

In the study, published in June in the journal *Neurology*, Stevens and colleagues analyzed questionnaires completed by 257 employees of the Mayo facility in Scottsdale, Ariz., who were regular computer users. Carpal tunnel syndrome was diagnosed in 27 (10.5 percent), and nerve conduction studies confirmed the diagnosis in nine (3.5 percent). However, employees with or without carpal tunnel syndrome had similar occupations (many had secretarial/administrative jobs), years using a computer (an average of about nine) and time spent using the computer during the day (six to seven hours).

ALL A MYTH?

It is studies like this one that arm those who say there is no relationship at all between computer-related tasks and the various aches and pains that fall under the umbrella of RSI, including tendonitis, back pain, nerve entrapment disorders such as carpal tunnel and radial tunnel syndrome (compression of the radial nerve), epicondylitis ("tennis elbow") and garden-variety muscle soreness in the neck, shoulders and arms.

"We are loaded with data that says it is a myth," says Dr. Nortin M. Hadler, a rheumatologist and professor of medicine at the University of North Carolina at Chapel Hill.

"We're not worried about the computer being a problem, we're worried about jobs," says Hadler, who asserts that a hellish, hard-driving boss and other stressful working conditions are the health hazards — not the work equipment.

He believes most people aren't bothered by an ache or pain unless they have some other dark cloud in their lives, such as hating their job, feeling undervalued at work or facing corporate downsizing. "Then, the likelihood is that you will find your next episode of arm or back pain incapacitating," he says.

So then what causes the pain?

“It comes and goes and we don’t have an answer,” Hadler says. “We don’t have an answer for headache either.”

Many sharply disagree with his view that there is no association between computer use and injuries.

"The evidence to date is clearly in the opposite direction," says Dr. David Rempel, director of the ergonomics program at the University of California, Berkeley. "The people who understand the literature have a general agreement that musculoskeletal disorders are related to computer use."

Dr. Jeffrey N. Katz, a rheumatologist and associate professor of medicine at Harvard Medical School in Boston, agrees.

“There’s good evidence that the risk is modest — two-fold — but there is an elevated risk,” Katz says. “And so many people are at risk [because many use computers and do so for extended periods] that it’s probably resulting in a fair amount of symptoms and disability.”

Both Rempel and Katz were among members of a committee convened by the Institute of Medicine, a research arm of the prestigious National Academy of Sciences, to review the available studies on work-related injuries. A final report released by the group in January concluded that musculoskeletal disorders, including those associated with computer use, are an important national health problem that results in about 1 million people taking time off from work each year.

However, in a dissenting opinion in the report, the computer controversy cropped up again, particularly for the diagnosis of carpal tunnel syndrome. “The scientific evidence fails to be definitive in connecting occupational hand use and proven carpal tunnel syndrome,” wrote Dr. Robert M. Szabo, a professor of orthopedic surgery at the University of California at Davis.

GOVERNMENT WEIGHS OPTIONS

The views of the handful of naysayers generated a lot of attention as they were voiced this summer along with those of other health-care professionals, labor groups and industry representatives who testified at contentious Labor Department hearings on ergonomics.

Federal ergonomics regulations passed last year by the Clinton Administration were considered by industry to be too costly to implement and were shot down earlier this year by the Bush Administration. Among other provisions, the Clinton rules required businesses to inform employees about job-related risks and to take action to fix workplace conditions that could result in injury.

Labor Secretary Elaine Chao is expected to make an announcement as soon as September as to what course of action the government will pursue next. A less costly alternative, possibly even a voluntary standard, is likely, observers say.

COMPLEX ISSUES

Politics aside, what researchers on both ends of the debate seem to agree on is that pain is not a simple issue. There has been a growing realization within the medical community that work-related injuries aren't just about computers or other equipment on the job.

“What physicians have gleaned the most over the last few years is the complexity of musculoskeletal pain,” says Dr. Mark Melhorn, a clinical assistant professor of orthopedics at the University of Kansas in Wichita. “What we used to view as a simple model is actually a very complex model.”

Teasing out how specific tasks at work may contribute to an injury is complicated by the fact that there are many other factors that could play a role, such as age, gender, genetics, disease and on-the-job issues such as deadline pressure, according to Melhorn.

As a result, treating work-related pain is not just about adjusting a monitor or getting a new keyboard, though ergonomic modifications may be very important, many experts say. Workers also need to learn to modify bad habits, such as not taking rest breaks, and to get help for health problems that may be exacerbating their pain, they say.

Research is also elucidating which types of injuries are most closely related with work tasks — and which jobs pose the greatest risks.

With carpal tunnel, for instance, the computer may

only play a minor role, Rempel says. But for other types of upper-extremity pain, such as tendonitis, the computer can be a much bigger factor, he says.

“Tendonitis and neck-and-shoulder problems are clearly related to computer use and the risk is high,” he says. “With carpal tunnel syndrome, the risk is lower.”

Adding to the complexity of studying work-related injuries, many ailments do not result from the obvious suspects, says Dr. Emil Pascarelli, a professor emeritus of medicine at Columbia University in New York.

In a study in the March issue of the *Journal of Occupational Rehabilitation*, Pascarelli reported that many complaints in the forearms and hands of computer users appear to result from poor posture that leads to pinched nerves — not necessarily from grabbing a mouse or pounding on a keyboard. Because many nerves run from the neck down the arm, pain in the neck can radiate down the arm and cause trouble in the hands, he explains.

“These are complex problems that present differently in different people,” says Pascarelli, who spent an hour and a half carefully examining each of 485 patients in his study before diagnosing their ailments.

To those doctors who say there’s no link between work-related factors and injuries, Pascarelli responds: “To my mind, they’re not doing complete examinations. And the medical system doesn’t encourage that. It’s a shame, really.”