

Help Desk

Keeping CAD pain free

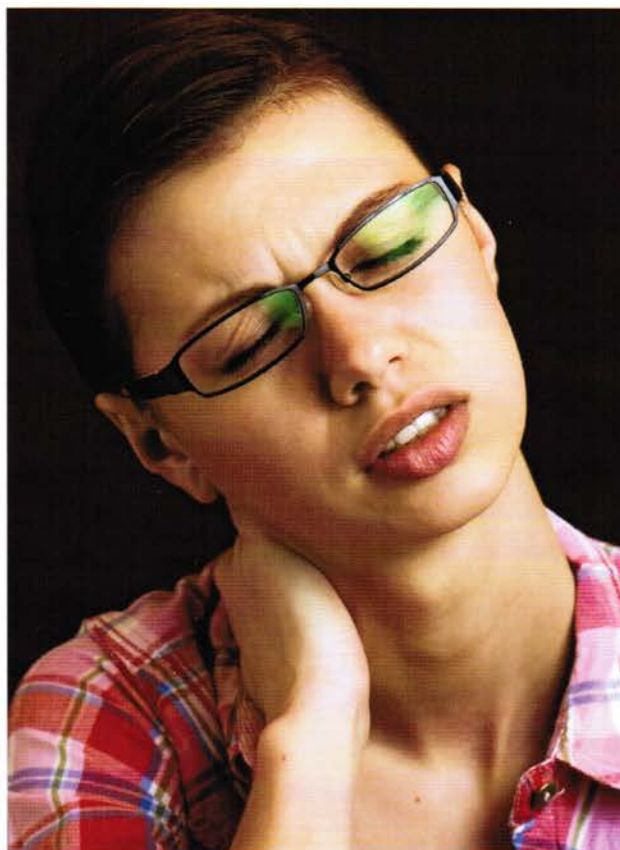
By Sharon Elaine Thompson

Designing with CAD does not come without risk of injury. Painful shoulders and wrists, numb fingers, and headaches...these are the warning signs of repetitive stress injuries due to improper computer use. These stress injuries cost workers, companies, and insurers tens of thousands of dollars a year; the cost in worker's compensation runs into the billions. Yet all it takes is a little thought and common sense to prevent or reduce the risk of pain and injury.

Stick to Right Angles

Muscles need blood to stay healthy—and joint angles of less than 90 degrees not only impede blood flow, they pinch, irritate, and inflame the nerves passing through those joints. Starved of oxygen, muscles can cramp, go numb, and accumulate waste products that irritate damaged areas in overworked muscles.

"Turns out, your mother was right," says Doug Hall, a jewelry manufacturing arts instructor at Gemological Institute of America (GIA). Hall is a member of GIA's ergonomics team who was instrumental in setting up the institute's new CAD workstations. Hall adds, "Sit up straight, don't slouch, keep your feet on the floor"; this familiar parental advice translates well to



keyboard, mouse, and monitor use. Among the key points:

- Sit with your feet flat on the floor, thighs parallel to the floor, and back rest conforming to the small of your back.
- Get an ergonomic chair that you can adjust to fit you and your workstation.
- Arrange your keyboard, tablet, and mouse so that your upper arms hang comfortably from the shoulder and with your elbows at a 90 degree angle, forearms parallel with the floor, hands extended in a neutral fashion, and wrists not tilted back or forward.

- Try using the keyboard flat, instead of extending the small legs or risers underneath it. Hall says this has made a significant difference for a number of people, as even that small tilt can strain nerves in your wrists, causing hands to go numb. However, pay attention to what works best for you. For Kitty Hundley, co-owner of Sierra Design Studio (a CAD/CAM service provider located in Philadelphia and San Francisco), the opposite is true: "When using my tablet, it's propped up slightly. Using it flush on the desk seems to hurt my wrists."

- Install a pullout shelf under the desk if you need to bring the keyboard and mouse to the right height.

- Raise the monitor if necessary, making sure the top of the monitor or screen is even with your eyes and about an arm's length away.

- Use a full-size keyboard to prevent cramping in your shoulders.

- If you work with customers while doing CAD design, make the working situation comfortable for everyone. Seat customers next to you, use a screen that swivels to the customer's side of the desk, or use two screens that show the same image, one on the customer's side of the workstation and one on yours. ♦