SITTING AT THE COMPUTER

IS THE RIGHT ANGLE REALLY RIGHT?

Most of us are familiar with the standard diagram showing the correct posture at a computer, where everything is at right angles: the calves are at a right angle to the thighs, the thighs at a right angle to the trunk, the forearms at a right angle to the upper arms. But is this really the best way for a human being to sit and work at the computer? These days, experts say no.

For example, a very high quality study was carried out in 2002 in which researchers followed 632 newly-hired computer users. They were just starting work in eight large organisations in Atlanta, USA. None of them had any prior musculoskeletal symptoms and all of them anticipated using a computer for at least 15 hours a week. Over that year, **more than half** of the participants developed musculoskeletal symptoms related to their work.

During the study, the researchers collected data on participants' posture and computer setup, while participants themselves kept a diary on how many hours they used a computer each week, other hand-intensive activities and their symptoms. In this way, it was possible to work out which postures and ways of using the computer led to musculoskeletal symptoms.

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NECK AND SHOULDER SYMPTOMS

To avoid pain in this area, elbow position was important – participants whose elbows were below the level of the keyboard were more likely to suffer from musculoskeletal symptoms of the neck and shoulders. The ideal angle at the elbows was more than 120°, with arms sloping downwards to the keyboard. Twisting the shoulder out more than 25° to reach the mouse was also associated with increased symptoms. Using chairs with armrests was associated with fewer symptoms, while using a shoulder telephone rest caused more problems.

HAND AND ARM SYMPTOMS

Here, the position of the keyboard was crucial. People whose keyboards were higher were at greater risk, as were those whose keyboards were closer to the edge of the table. Having the "J" key on the keyboard more than 12 cm from the table edge was related to fewer symptoms. Using more force on the keys was associated with an increased risk of disorders, as was turning the wrist inwards to use the mouse. Surprisingly, using a keyboard wrist rest was a definite risk factor. Monitor height made a difference, with fewer symptoms for those whose heads tilted downwards to look at the monitor.

The authors conclude "in the light of the results of the current study, the seated position traditionally recommended for computer users – upper arms perpendicular to the floor, elbows kept at a right angle, forearms parallel to the floor and the keyboard at or above elbow height and near the edge of the disk tray – may not be the lowest risk posture. Although promulgation of this posture is widespread, it appears to have gained its near universal acceptance without epidemiological evidence of its efficacy."

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What about the traditional advice to sit with your back at 90° to the chair seat? According to Cornell University ergonomics web, this kind of erect sitting is "NOT relaxed or sustainable". They recommend a posture where you are leaning at the angle of 100 to 110°, in which "the chair starts to work for the body and there are significant decreases in postural muscle activity and in intervertebral disc pressure in the lumbar spine."

DO's

- ✓ Angle your elbows down to the keyboard, at around 120°.
- ✓ Use a chair with armrests.
- ✓ Position the keyboard so that the 'J' key is more than 12cm from the edge of the desk.
- ✓ Tilt your head downwards to look at the monitor.

DON'Ts

- ✗ Have the keyboard above your elbows.
- ✗ Use a shoulder rest.
- ✗ Twist the shoulder out to move the mouse.
- ✗ Twist the wrist inwards to move the mouse.
- ✗ Use force when depressing keys.
- ✗ Use a wrist rest.
- ✗ Sit with your back at a 90° angle to the chair.

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