

TEXAS LAWYER

Advertising Supplement

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ERGONOMIC DESIGN:

The Office of the *Future*

by Jerome J. Congleton

As the office workplace changes, so do the problems associated with work.

Workers' compensation claims related to repetitive stress are up 770 percent from 10 years ago. It is estimated by the year 2000, over 50 percent of American workers will be using video display terminals (VDTs) and personal computers (PCs) to perform their work. Because the use of VDTs and PCs has resulted in carpal tunnel syndrome, neck, shoulder and back injuries, legislation regulating the office environment continues to increase.

More than 20 states are considering introduction of office ergonomic legislation. Europe has developed the DIN standard (Deutsche Industrie-Norm, German industrial standard), which limits VDT usage to four hours per day.

The focus in the future should be on comfort and adjustability. These are the keys to increase productivity and reduce medical costs, workers' compensation costs and sick days due to Repetitive Stress Injuries and Cumulative Trauma Disorders.

In response to the repetitive and sedentary settings of the office, the focus should be on employees' comfort through adjustable work areas or workstations. Movement promotes fatigue relief from sedentary jobs by removing lactic acid and providing nutrients to discs and muscles. Standing allows more stretching, and exercise, which increases metabolism and provides stress relief — both physical and mental — allows easier, safer and more efficient postural changes.

Such freedom gives the worker control to sit or stand (most likely the worker will spend time in this ratio: 80 to 85 percent sitting and 15 to 20 percent standing). Standing and making easy chair adjustments burn more calories, and thus are less likely to produce the feedlot syndrome of "sit, eat, sit, eat, sit, sleep."

Additional thoughts regarding the sitting and standing concept are developed in educational programs on manag-

ing stress at a VDT or PC, wellness and stretching/exercise. Relocating items used at the workstation (e.g., moving a printer to a shelf to encourage the worker to get out of his/her chair) also helps.

The Nuts and Bolts of a Better Environment

What would exist in such a comfortable and adjustable environment? The sit-and-stand workstation includes the following components: modular panel wall, an adjustable front work surface, an adjustable rear work surface and an adjustable chair. An employee can sit or stand while working and perform the adjustments to the workstation with fingertip ease and control. Physical movement and posture changes are encouraged.

A survey was distributed to all employees at a United Parcel Service data entry office that uses a sit-and-stand workstation, to determine how many times per day the workstation is adjusted. The results indicate that the employees adjust their workstations to a standing position an average of 3.6 times a day, spending 23 percent of their time standing. This percentage was consistent for both part-time and full-time employees.

Ninety-one percent of the employees adjust their workstation at some time during the day. Overall, the employees have provided very positive feedback about the new workstations and environment. They appreciate the ability to adjust the workstations to meet their specific needs and enjoy the opportunity to stand as they please.

In a production area, the goal is to reduce physical workload and posture changes, whereas in an office workstation, the goal is to encourage physical movement and posture changes. Standing allows more exercise and gives the employee a feeling of control.

The workstation of the future includes features with the

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following dimensions:

Workstation height for sitting and standing

- for the 5th percentile female: 48.25 cm (19 inches)
- for the 95th percentile male: 114.64 cm (45.13 inches)
- range of height adjustment: 48.25-114.64 cm (19-45.13 inches)

Work surface thickness

- less than 3.81 cm (1.5 inches)

Workstation depth

- minimum: 71.96 cm (28.33 inches)
- maximum: 113.21 cm (44.57 inches), which may cause problems because the forward functional reach of a 5th percentile female is 67.67 cm (26.64 inches), and a 95th percentile male is 86.70 cm (34.13 inches).

Workstation width

- 116.84 cm (46 inches) recommended

Monitor height range of adjustment

- 103.59 to 174.29 cm (40.78 to 68.62 inches)

Lighting

- 200 to 500 lux recommended

Acoustic noise

- 56 to 66 db recommended

Temperature

- 68 to 78 degrees Fahrenheit recommended

The chair of the future will meet the following specifications:

Seat height

- 38 to 53.5 cm (15 to 21 inches)

Seat width

- minimum 45 cm (17.7 inches)

Seat height adjustment

- 12.50 cm (4.92 inches)

Seat angle adjustment

- minus 15 degrees to plus 8 degrees

Backrest height adjustment

- 15.24 to 25.40 cm (6 to 10 inches)

Backrest depth adjustment

- 5.77 cm (2.27 inches)

Backrest angle adjustment

- minus 15 degrees to plus 8 degrees

Armrest height adjustment

- 17.57 to 27.87 cm (6.92 to 10.97 inches)

Armrest width adjustment

- 20.59 cm (8.11 inches)

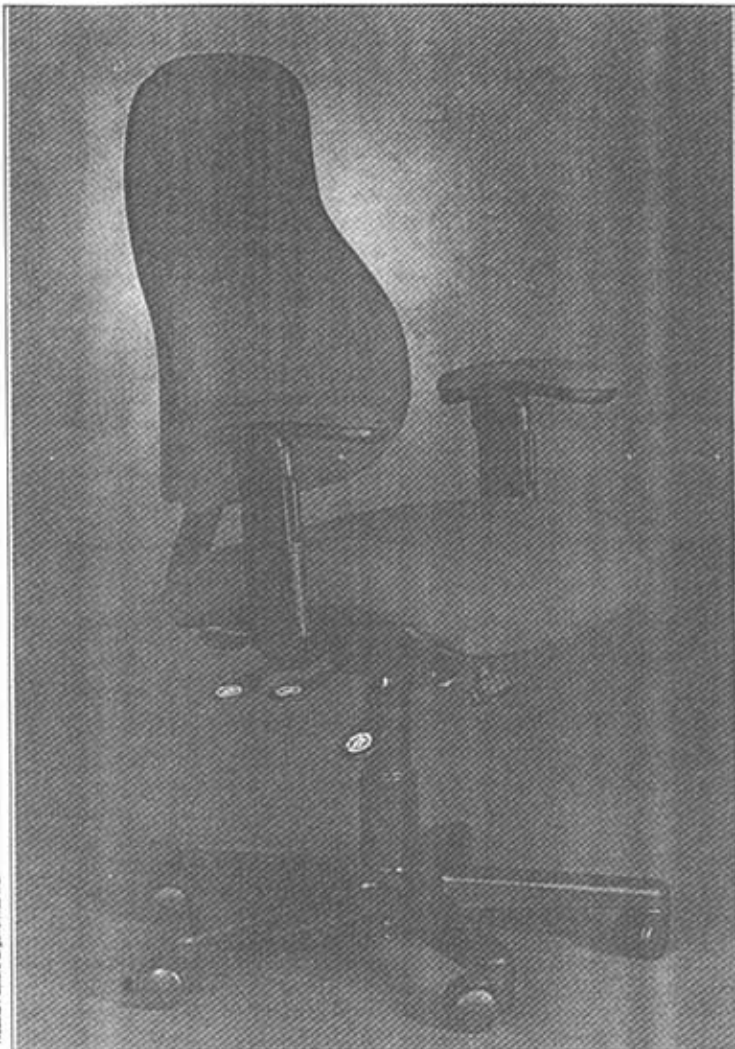
Armrest rotation

- 360 degrees

Other features that should be included are a wristrest designed to fit the exact dimensions of the keyboard, a document holder and glasses (for employees who wear them) made specifically for computer usage with the non-glare polycarbonate lens.

Why design for sitting and/or standing? Because it is the way YOU prefer to work. As members of

Neural Posture Ergonomics Inc.



PROPER DESIGN STARTS with an ergonomic chair (above).

the legal profession, you and your co-workers (or employees) know the consequences of poorly designed office spaces and the medical effects and costs incurred by employers.

The fast food restaurant's ideal scenario is: You eat, you drink, your butt hurts, you leave. The restaurant then has space for more customers. But at the hotel bar and restaurant, there is a padded bar to prevent injury to the ulnar nerve at the elbow, a foot rail to relieve disc pressure 50 percent in the low back and cushioned chairs or booths to tempt you to stay, eat and drink.

Which message is your firm sending to its employees? ■

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