

## ERGONOMICS

Ergonomics is the study of efficiency, comfort and safety of people in their working environment.

### Using Computer Hardware

#### *Keyboard*

The keyboards should be placed to allow the operator to work with his or her elbows at a 90-degree angle. The following steps can reduce strain on the hands and wrists.

- Use padded wrist rest placed in front of the keyboard
- Don't pound the keys. This sends shockwaves up the arms that can create or aggravate problems with the fingers, wrists and arms.
- Don't overreach when reaching for the function keys. This causes the finger tendons to stretch. Move your hand closer to the desired key before pressing it.

#### *Mouse*

The mouse should be positioned so that it is within easy reach, on a level surface. Place your hand so it rests on the mouse with your index finger resting on the left mouse button, your middle finger resting on the right mouse button and remaining two fingers at the right of the mouse. The mouse is positioned at the right or left of the keyboard. A wrist rest helps to prevent RSI problems from occurring.

#### *Monitor*

Poor visibility can cause eye irritation and headaches. An anti-reflective or polarizing filter or treatment may be attached or applied to the monitor to cut down glare and help reduce radiation. You can also avoid radiation by ensuring you are not seated at the side or back of other monitors.

To prevent eyestrain, take the following steps.

- The top of the screen should be just below eye level. To do this, you may need to reposition your system unit and use a separate stand for you monitor.
- Adjust your monitor for maximum contrast and minimum brightness.
- Reduce reflections by tilting the screen and avoid locations where the monitor directly faces towards or away from bright window light.
- The monitor should also be adjusted to avert the glare from direct lighting. A glare screen and dark clothing can help reduce reflections.
- Blink often when using a computer to prevent eyes and headaches and look away from your screen often.

## *The Chair*

A well designed, adjustable chair is one of the most important factors in preventing posture problems. Your chair should be adjustable vertically (usually between 38cm and 52cm in height) and be adjustable while you are seated.

You should be able to sit with both feet on the floor and there should be no pressure against the lower back or your thighs- you should be able to fit one hand- width between the seat and the back of your knee.

Sit comfortably in your chair... not too far back, and not perched on the edge of your seat.

## *The Desk*

If the height of your chair and foot-rest are fixed then you must be able to adjust the height of your desk. Normally, a desk should allow the keyboard to be around 60cm to 78 cm off the ground and give you around 40 cm of leg room.

The table should allow you to position the center of the screen at a height to suit you. If the desk is not adjustable then it is even more important for the chair to be adjustable.

The desk should be big enough to allow the keyboard, screen controls (on/off, brightness), documents, copy-holder, and any other items which you use regularly (telephone, desk caddy, etc) to be within easy reach. It should also be as thin as practical, ideally less than 2.5cm to give you maximum knee room.

## **DÉCOR AND LIGHTING**

In order to reduce glare, rooms should be decorated in pastel shades. Blinds should be used to prevent strong sunlight from entering the room. Workstations should be located away from windows and positioned to avoid reflections. Where possible use natural light and blinds to control the light. In most offices a combination of natural and artificial light is used. Fluorescent lighting is usually standard lighting used in office situations.

## **ROOM TEMPERATURE AND VENTILATION**

Computers produce heat which can make your work space warmer than the rest of the office. Make sure the screen is not hard up against a wall or partition and that there is plenty of air flow around the unit. A small desk fan may be necessary if you are working in a confined space. Windows can be used for additional ventilation.

The combined effects of heat and humidity can produce dryness and eye irritation. The best environment is with a relative humidity of 45 per cent or greater. Air conditioning can lead to a dry atmosphere.

## **NOISE**

People and equipment, ie printers, photocopiers, phones etc contribute to the noise factors within an office. If possible such equipment should be placed in areas away from where people are working to reduce noise levels.

## HEALTH PROBLEMS

Occupational overuse syndrome (OOS) and repetitive strain injury (RSI) are collective terms for a range of conditions, including injury, characterized by discomfort or pain in the muscles, tendons and other soft tissues, with or without physical signs. Symptoms can include:

- Fatigue
- A burning sensation
- Aches and pains
- Weakness
- Muscle discomfort
- Stiffness
- Soreness
- Numbness and tingling

The risk factors for OOS or RSI can be summarized as.

- Poor planning for VDU work
- Poor work organization
- Inappropriate selection of computer hardware and software
- Inappropriate selection of office furniture
- Poor workstation layout
- Lack of education, training and skills

It is important that steps be taken to prevent these health problems from occurring. Repetitive tasks should be minimized and work breaks taken. Exercises should be used to stimulate blood flow- to help reverse the effects of muscle tension and help you to relax. Ensure that your posture is correct at all times and report any aches and pains promptly so that they can be dealt with before they become severe or chronic.

## WORK BREAKS

Operators should be given frequent breaks away from their terminal in order to avoid eyestrain and posture problems. Try to vary tasks and take a break from your computer to do filing, make business phone calls, etc.

### ***Micropauses***

A micropause is a short break in work for muscle relaxation. Specifically, it is 5-10 second break in work for muscle relaxation every three minutes or so. Micropauses allow for the restoration of blood flow to muscles which have been held tense. It is when the muscles relax fully that Micropauses are of most value. They help you be more productive. A variation to exercises is simply to count your breaths.