

Computer Vision Syndrome

“Penalty for Civilisation”

The prevalence of eye symptoms among computer users ranges from 25-93% as reported by various investigators. Computers have become indispensable in the workplace. The professionals spend increasing amounts of time sitting at their computer work-stations. At the same time productivity is increasing and workers are exposed to working at high speed and to tight deadlines.

The combination of fixed and constrained body postures, work overload and unsuitable workstations can lead to health problems. The most common complaints among computer users are aches and pains in the shoulder, forearm, wrist, hand, back and neck and eye strain.

RSI (Repetitive Strain Injury) is a blanket term that is used to describe many different types of work-related disorders and injuries to the upper limbs as a result of muscular overload. This overload is usually caused by repetitive movements and/or overuse of specific muscle groups (categorized as static load), especially if the joints adopt extreme positions.

This chapter is intended to prevent health problems among computer users. Clearly a large percentage of computer workers experience eye symptoms and subsequently seek eye care. Computer Vision Syndrome is that set of eye and vision symptoms related to near work which are experienced during or related to computer use. These symptoms can include:

- Headaches
- Neck aches
- Eyestrain
- Back aches
- Blurred vision
- Light sensitivity
- Dry or irritated eyes
- Double vision

These symptoms are often a result of a combination of three factors:

1. your workplace conditions
2. your working habits
3. your visual condition

The computer workstation

The chair

When you sit, the weight on your lower back is one and a half to two times bigger than when you stand. A good chair must accommodate your body sizes and must be adjustable in the following areas:

- **Height of the seat:** when your feet rest comfortably on the floor, a 90 degree angle between the upper and lower legs is desirable. In this position, your upper legs are virtually horizontal.
- **Depth of seat:** the clearance between the front edge of the seat and the back of your knee must fit a clenched fist.
- **Backrest:** the backrest must support the area from the upper ridge of the pelvis to the shoulder blades. The curve in the backrest must support the hollow in your lower back. An adjustable tilt is desirable.

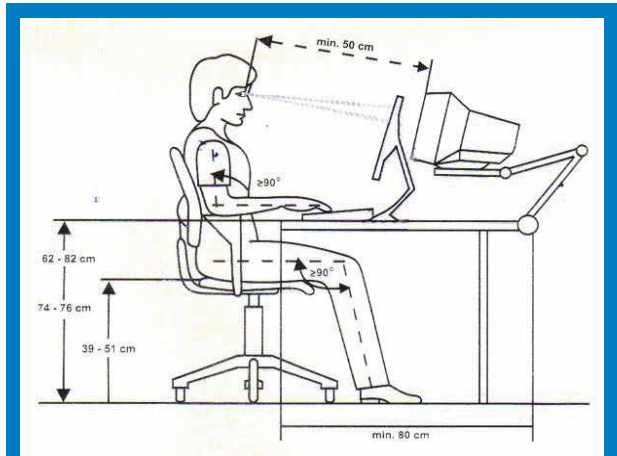


Fig. (11.a) Ideal Position

What are the primary factors that determine discomfort for computer users?

- Nature of the task

- Length of time spent on the computer
- Reduced rate of blinking
- Lack of coordination between the design of the workstation and the design of the glasses or contact lenses used for the task.

Here are some examples of situations that usually increase user discomfort especially to the eyes.

- Intense tasks such as games
- Tasks with few breaks from the screen
- Tasks which require constant looking from the copy to screen such as data entry.
- Detailed tasks such as desk top publishing or Computer Assisted Design(CAD)
- Eye level placement of screens cause eyes to be wide open causing faster drying.
- Eye level screens are too high for most bifocal wearers unless they have specially designed glasses for this task.
- Many glasses exacerbate the restriction of movement which is a consequence of most computer tasks causing neck, shoulder and arm problems.

The average rate of blinking is 12-15 times per minute. This is frequently reduced during intensive tasks, leading to visual fatigue and dry eyes. Therefore, reading from a screen reduces blinking, which in turn leads to discomfort.

Eye to monitor - the ideal distance

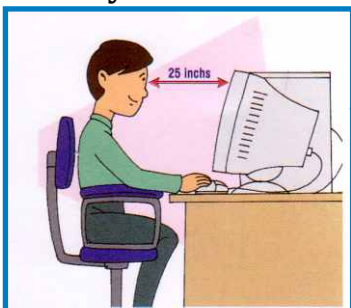


Fig. (11.b)

Your computer monitor should be straight in front of you ideally at a distance of more than 25 inches from your eyes.

Monitor Location

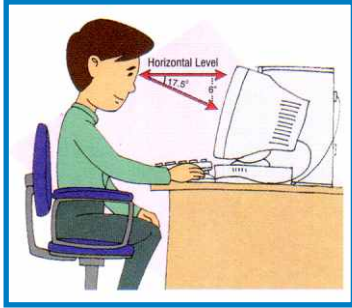


Fig. (11.c)

The ideal viewing area of the monitor is 6 inches, below the horizontal eye level.

Preferably work with fonts of darker shades on light background & vice versa.

Font colour selection

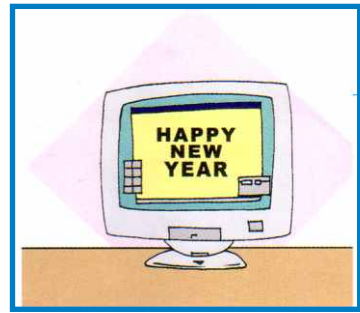


Fig. (11.d)

Anti - glare screen



Fig. (11.e)

Attach an anti - glare screen in front of the monitor, which will decrease the amount of light reflected from the screen.

Document holder



Fig. (11.f)

Use suspended lights from ceiling & windows with shades, blinds or curtains. Avoid light hitting directly on eyes.

Light effect

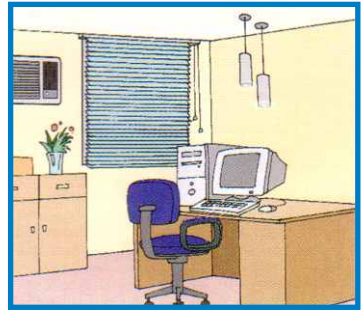


Fig. (11.g)

Sitting Posture



Fig. (11.h)

Use chairs with armrests which are able to provide, support while typing, position of head slightly tilted downwards & height of the chair adjusted appropriately so that the feet rest flat on floor.

A. C. Distance

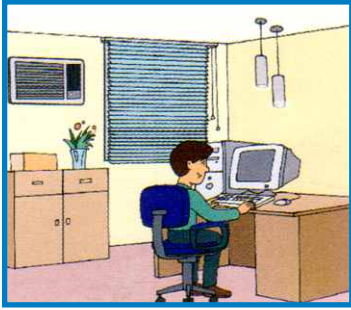


Fig. (11.i)

Avoid sitting at a location with direct blow of air on eyes from a blower or an A. C. or for a long period in a room with low humidity.

Take short breaks for your eyes every 20 minutes between your work for 20 seconds then look at objects that are at least 20 feet away.

20-20-20 rule

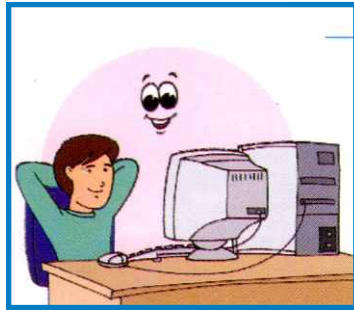


Fig. (11.j)

Eye exercise

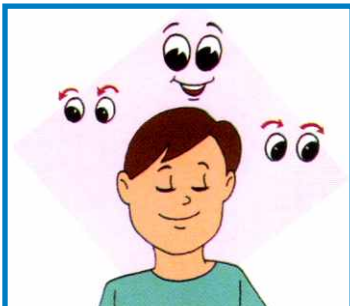


Fig. (11.k)

Close your eyes & slowly roll your eyeballs clockwise & anticlockwise.

Repeat it for three times.