

Visual discomfort when using a computer

Eye discomfort is a common health problem experienced by computer users.

Eyesight naturally deteriorates with age. However, several long-term scientific studies comparing computer users and non-computer users show that these changes are not necessarily increased through computer use (Blehm et al, 2005).

Often, people are unaware of existing visual problems that may only come to light when they begin using computers because the demand on the visual system of this work can be very high. They usually get rapid relief when they are provided with glasses or contact lenses that are suitable for computer screen use.

Vision is a complex perceptual process that is often mistakenly believed to be purely mechanical. The complexity of human vision means that almost a fifth of the brain is devoted to visual processing cells. Small wonder then that some people experience problems when using computer screens for long periods without a break.

Fortunately, vision problems are generally only temporary and will decline after stopping computer work at the end of the day. However, some people may experience continued visual impairment even after work. A significant percentage of individuals who experience symptoms of visual discomfort will be found to have uncorrected vision problems. All computer workers should have a comprehensive eye examination prior to or soon after beginning computer work and periodically thereafter.

The symptoms of visual discomfort vary and include:

- Sore eyes.
- Red eyes.
- Watery eyes.
- Blurry vision.
- Eyes feel 'heavy' or 'gritty'.
- Dry eyes.
- Headaches.

Like all our muscles, the eye muscles need periods of relaxation. Because computer users tend to work with the screen a fixed distance away, the unchanging demand on the eye muscles can lead to them becoming fatigued.

Other problems can be caused by the angle of gaze. If the position of the screen results in the user having to widen the eye and expose more of the eye surface to the air, there is a risk of eye fatigue and dry eyes.

Other problems may arise from:

- Uncorrected eyesight problems that only become apparent with computer use.
- The wrong glasses or contact lens prescription for computer work.
- Lighting (too little or too much, or the position and type of lighting.)
- The way the computer is set up and position of the screen.

People suffering from persistent eye trouble need to consult an optometrist without delay. This will enable a thorough assessment of eye health and vision function. If the problem is limited to computer use only the optometrist will need to know details about the person's computer use in order to recommend a solution.

Relevant factors include:

- the size of screen,
- the distance from the eyes to the screen,
- average hours of use per day,

Often the solution is simple and if required, appropriate glasses/lenses are provided. Optometrists have forms on which you can write this information before your consultation.

Addressing vision problems arising from computer work might include:

- ✓ Specific lenses to meet the unique demands of computer work.
 - Lenses that are focused for the distance of the computer screen,
 - lens designs that incorporate near and intermediate focusing distances,
 - or lens tints or coatings which may help to maximize vision and comfort.
- ✓ A program of optometric vision therapy.
 - Some workers may experience problems with eye focusing or eye coordination that cannot be adequately corrected with lenses.
- ✓ A preventive approach to reducing visual stress from computer work.
 - for example, the use of rest or alternate task breaks throughout the workday,
 - or frequently looking into the distance to reduce focusing fatigue.
- ✓ Adjustments to the lighting to reduce glare and minimise variations in light levels.

- ✓ Adjustments to computer software to ensure that font size and screen display settings meet the visual needs of the user.
- ✓ Adjustments to the work equipment, such as screen, keyboard, mouse, paperwork and chair.

The NZ Association of Optometrists provide a booklet on 'How to adjust a Microsoft Windows Computer for people with Low Vision'. www.nzao.co.nz

Placing your screen:

Eyes are more comfortable with a downward gaze for near work, so a low screen is better for the eyes and neck than a high screen. Make sure that top of the screen is at or below eye level when the head is held naturally and that you are sitting comfortably.

Spectacle wearers:

Bifocal, trifocal and progressive lens wearers tend to view the screen through the lower part of their glasses. This often means they tilt their heads back to see the screen which can result in strain being placed on their neck. This can be exacerbated by larger screens. Options include:

- using single vision lenses with appropriate focal length for computer work
- try a smaller screen
- lower the screen to achieve a more comfortable viewing angle