



Eye Discomfort in the Office

By Julia Sommerfeld, MSNBC

Office Ergonomics

Compiled by
R.Myles McMorris, B.Sc., O.D.



Photodisc file

Primary Eye Care Centre

205 - 52 High St.W.
Moose Jaw, Sask.
S6H 1S3

Phone: 306-693-8584
Fax: 306-693-4429
WebSite: www.pecc.sk.ca

What is the significance of "good" lighting?

Office work is visually demanding and has always required good lighting for maximum comfort and productivity. "Good" lighting means providing enough illumination so that people can see printed, handwritten or displayed documents clearly but are not blinded by excessively high light levels (a cause of glare).

What are signs of poor lighting?

The most common complaints resulting from poor lighting are:

- eyestrain,
- eye irritation,
- blurred vision,
- dry burning eyes, and
- headaches.

Poor lighting affects not only the ocular system but can also contribute to stiff necks and aches in shoulder area. These problems can occur when people adopt poor or awkward postures when trying to read something under poor lighting conditions.

Why do computers create a challenge for lighting designers?

The monitor itself is a source of light. As such, it does not require additional illumination from other sources. In fact, the screen itself can cause glare if the brightness and contrast controls are not properly adjusted.

An additional challenge occurs because most office work involves using the monitor and paper documents at the same time. Paper documents require a higher light level

than the monitor. A desk lamp (any type of soft task light) can be used to illuminate documents while avoiding excessive light near the monitor. Glare can also result from an improper match or excessive contrast in light levels between the monitor screen and the paper.

The monitor also acts as a mirror. Reflections of objects, shiny walls, and any light source (specifically windows and overhead lighting) all cause glare. Eye discomfort can result but glare also forces the user into an awkward position as they try to avoid having the glare in their eyes. These positions lead to aches and pains in the upper body that, in turn, can also aggravate eye strain!

The quality of the images on the monitor is another important factor. Reading and interpreting blurred, fuzzy, tiny, or otherwise illegible characters for hours a day can strain the operators' eyes.

What else in the computerized office contributes to eye discomfort?

Other examples of work-related risk factors that contribute to eye discomfort are:

- maintaining a fixed and close visual distance for a long time,



Depending on the amount of time you work at a keyboard, your optometrist may recommend bifocals, trifocals or even a separate pair of glasses for computer work.

- glare from the unshaded or un-diffused lighting fixtures,
- poor lighting, involving unchanged (and unchangeable) levels of illumination,
- unsuitable workstations (dimensions and arrangement),
- low ambient humidity,
- uncorrected vision problems, and
- lack of colour variety in one's surroundings.

Are there any non-visual effects of poor lighting?

When people are exposed to glare or have uncorrected vision problems, they tend to lean forward or backward in an attempt to compensate. An awkward body position leads to eye strain and accelerates postural fatigue that, in turn, contributes to musculoskeletal injuries (MSI).

How can eye discomfort be reduced?

Overhead lighting

- Use filters to diffuse overhead lighting.
- Dim overhead lights.
- Keep in mind that recommended level of light in offices 300 - 500 lux is not a must. It applies in the situation where there is no task lamp in use.

Windows and walls

- Cover windows with adjustable blinds.
- Use matte finishes on walls, floors and furniture.

Monitor

- Adjust the brightness and contrast according to your preference.
- Use a light colour for the background.
- Place the monitor parallel (not directly below) with overhead lights.
- Angle the monitor away from lights and windows.

Should anti-glare screens be used?

- In general, anything between the operator and screen compromises the quality of the image.
- It is far better to control glare by proper lighting design and placement of the monitor than by use of an anti-glare screen.
- Many monitors currently available are already equipped with low reflective screens.

What can you do to reduce eye strain?

- The ability to focus on objects at various distances decreases with age (presbyopia). Commonly, by their forties people cannot clearly see objects at close range with the naked eye. This is a gradual change, and has to be regarded as an important component in designing visual environments, particularly when the job involves computer work. Uncorrected vision may be an additional source of eye discomfort. It may have further consequences resulting in aches and pains because of awkward postures or positions adopted to "see better".
- Check your vision every one or two years, as recommended by your optometrist.
- Provide your optometrist with information about your job.
- Consider using task-specific computer glasses.
- Depending on the amount of time you work at a keyboard, the kind of vision correction needed, and your personal preferences, your optometrist may recommend bifocals, trifocals or even a separate pair of glasses for computer work.
- Focusing your eyes on objects at the same distance and angle for prolonged periods of time can contribute to eye strain.
- Every few minutes look away from the screen for a few seconds.
- Look around.
- Focus your vision on distant objects.
- Blink several times.
- Frequently "stretching" your eyes like this will prevent feelings of fatigue

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The introduction of computers in the 1970's increased the visual demands of office work and made lighting design even more challenging. While typewriters were being exchanged for computers, the need for redesigning or rearranging office lighting was commonly overlooked.



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