Ergo Insights

Computer Vision Syndrome

Signs, Risks and Strategies to Manage

What is computer vision syndrome?

Computer Vision Syndrome (CVS) is a term used to describe a wide range of visual symptoms experienced by operators of visual display terminals (VDT).

What are the mechanisms of CVS?
Contributing factors in the workplace

Ocular Factors:

Image quality

- Too small and low resolution will make fonts difficult to decipher.
- High contrast or brightness tends to make the image blurry.
- A low refresh rate on the screen appears to the computer user as a flicker on the screen.

Workstation design

- If the monitor is too high, it can lead to an upward position of the eye, which increases surface exposure.
- Glare (overall light levels, reflected light on the screen and bright spots) increases difficulty in interpreting images and readability.

Environmental factors

- Dry air, high heating and excessive air movement can lead to evaporation of eye moisture.

Negative Visual Adjustments

- Squinting (improves visual accommodation and vergence), but it can lead to eye muscle fatigue.
- Reduced frequency and quality of blinking to view an image can lead to dry eyes.

Non-Ocular Factors:

Workstation setup

- Sustained viewing at the computer monitor can lead to increased activity of the trapezius muscle (upper back and neck muscles).

Poor image quality and cognitive overloading

- Link between poor image quality or inability to read the screen can cause a reduction in cognitive performance.

Signs and symptoms

Ocular Symptoms:

- Eye Strain
- Dry eyes
- Fatigue of the eyes
- Blurred vision
- Double vision

Non-Ocular Symptoms:

- Headache
- Decreased cognitive abilities
- Neck and Shoulder pain

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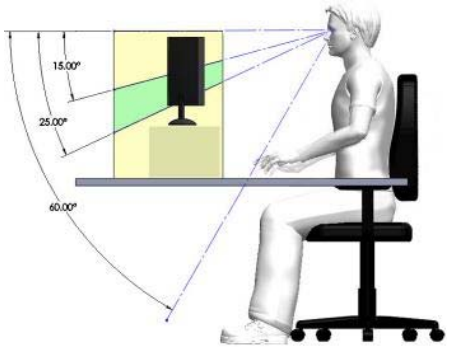
What can be done?

Recommendations for improving image quality

- Ensure font size and style are appropriate for the task and viewing distance.
- Dark characters on light colored background.
- Adjust contrast and brightness (if you have two screens, try to keep them similar.

Specifications on preventing screen glare

- Use blinds to limit natural daylight.
- “Warm” light within the office environment.
- Reposition monitor if glare source cannon be removed.



Specifications on VDT position relative to user

- Monitor should be positioned at least 20 inches from eyes.
- Monitor adjusted in height so main viewing area is 15-20 degrees below eye level.
- Proper placement of paper documents, input devices, adjustment of chair.

Other Strategies

- Regular eye exams
- Make sure you use proper corrective lenses
- Talk to your optometrist about strategies to help manage chronic dry eye
- Incorporate the 20/20/20 rule (every 20 minutes look away from the screen at an object 20 ft in distance for 20 seconds)
- Try using an app on your phone to remind you to take a regular eye break

Reference

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