Computer Vision Syndrome (CVS)/Digital Eye Strain (DES) is the number one computer related complaint in the US today. It is the physical eye discomfort felt by computer and digital device users. As much as 90% of computer workers are known to suffer from CVS - at largest risk are those who spend more than 2 continuous hours on a computer or digital screen device. The latest reports show that up to 90% of Americans spend more than 2 hours on a digital device, often using multiple devices simultaneously.

**Do you have CVS?**

Symptoms of CVS include eyestrain (35%), headaches (25%), blurred vision (25%), dry eyes (24%), and neck/shoulder/back pain (36%). Lesser associated symptoms are (intermittent) double vision, tired, and red eyes. Known causes include uncorrected
vision problems, poor lighting, screen glare, improper viewing distances, and poor ergonomics.

**Why does it happen?**

The eyes have to maintain focus (accommodate) and look at the same point in space (converge) in order to see a single, clear image. This distance is typically 16 inches when using a computer and most digital devices. However, the natural resting distance for accommodation is approximately 31 inches, and that for convergence is approximately 45 inches. The continual readjustment of the visual system - computer screen, drift to rest distance, readjust to computer screen, repeat - results in eye fatigue. Additionally, computer and digital device use, like most activities that require sustained visual attention, result in decreased blink rates. Blinking has two important roles in vision - to provide a smooth surface to bend coherent light onto the back of the eye for clear vision, and, to protect and lubricate the eye surface for comfort, preventing dryness/irritation. Consequently, the effects of reduced blink rates are blurry, red, dry, and/or irritated eyes.

**How do I avoid it?**

The effects of CVS are minimized by optimizing use of the visual system and the workspace:

**(a) Optimize your vision**

A comprehensive eye exam optimizes your vision. Correcting any refractive error, however small, will reduce stress on the visual system. Your eye care provider is also able to identify and correct any focusing or convergence problems. Newer lens designs and lens options - for example, aspheric designs, anti-reflective (no glare) coatings and special lens tints - generally perform better. Since the computer is at a specific intermediate distance requiring sustained focus, specialized computer glasses that have your prescription modified for your workspace, especially when wearing progressives (no-line bifocals) or contact lenses, are a tremendous benefit.

Blink more frequently for clear, comfortable vision. Try this blink lubrication exercise.
Eye exercises that improve your focus (the 20-20-20(-20) rule) and convergence (the 10-10-10 rule) also provide relief from eye strain. Remember to take breaks that move you away about or from the workspace to help reduce neck, back and shoulder pain. Answer our easy CVS questionnaire to discuss at your next eye exam.

**Optimize the workspace:**

Ensure proper lighting - to avoid excessive brightness, the screen should be approximately the same brightness as the surroundings. The type of light source is also important - incandescent, halogen or “full spectrum” fluorescent lighting is better. Whenever desk lamps are used for directed lighting they should be aimed away from the eyes.

Avoid being adjacent to highly reflective surfaces such as walls, or glass windows, and use shades/drapes to minimize glare whenever possible. Also consider an anti-glare screen (you may need to increase your screen brightness). Adjust screen tilt angle to avoid reflections - tilt screen top ~10-20 degrees away from you. Keep screens (and eye glasses) clean to reduce glare and increase clarity. Additionally, minimize blue-light exposure using a monitor screen filter or as an eyewear lens option (also available with your no-glare lens option).

Adjusting screen settings such as font size, background, and display settings can also have a significant impact on the reduction of eyestrain. A larger font size is easier to see (but results in smaller field of view). Choose a high contrast background - e.g. black on white - and use uncrowded image backgrounds whenever possible. Also, adjust your screen color temperature to warmer colors (cooler hues such as ‘blue’ are more associated with eyestrain).

Finally, seating ergonomics are also important. Use an adjustable page-stand/copy holder to keep documents close to the screen since this reduces changes in focus & head movements. Adjusting the screen center to approximately 10-15 degrees below horizontal eye level to lower the required convergence effort. A proper seat-to-monitor distance is considered to be 20-30 inches away from eyes.
Our easy CVS pre-exam questionnaire to discuss with your eye care provider

– How many hours a day are you on the computer or digital device?
– What is the lighting like in your workspace?
– How far away are your eyes from the screen?
– What kind of vision correction do you wear while working on the computer, if any?
– Are you taking any medications (whether over-the-counter or by prescription)