



# COMPUTER VISION SYNDROME: 20-20-20 RULE

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## ABSTRACT

Computer is very indispensable in today's world and it became a requirement. It is used in various organizations, institutions and homes today. Computer vision syndrome is one of the most common 21 century leading occupational health hazard also known as digital eye strain. Prevalence ranges from 64% to 90% among computer users. Approximately 60 million people suffer from CVS globally. It is mainly caused by long time use of digital screen, appropriate poster & angles, poor lighting and distance, uncorrected or under corrected vision problems. People with CVS manifest dry & irritated eyes, eye strain, blurred vision, headache, pain in neck and shoulder etc. It can be corrected and prevented by vision therapy, using contact lenses prescribed to meet the unique visual demands, proper viewing, (proper lighting, chair comfort, proper angle and position). Most importantly it can be managed by following 20-20-20 rule; taking a 20 seconds break to view something 20 feet away every 20 minutes.

**Keyword- Computer vision syndrome.**

## I. INTRODUCTION

A computer is one of the most widely used workplace tools in the world. It had become a requirement, and it was routinely utilized in a variety of organizations, institutions, universities and homes today. Computer vision syndrome (CVS) is the most common 21st-century leading occupational health hazard. It is a serious public health issue resulting in decreased workplace productivity, higher error rates, lower job satisfaction, and compromised visual ability.

CVS also known as digital eye strain refers to a set of eye- and vision-related problems that develop as a result of prolonged use of digital screen computer, tablet, e-reader and cell phone when the task's demands exceed the viewer's capacities.

## II. INCIDENCE

- Prevalence ranges from 64% to 90% among computer users. Approximately 60 million individuals globally suffer from CVS, with 1 million new instances occurring each year.
- Many individuals experience eye discomfort and vision problems and the level of discomfort increases with the amount of digital screen use.

## III. CAUSES AND PREDISPOSING FACTORS

- Viewing digital screen often makes the eyes susceptible to development vision-related symptoms.
- Previous history of eye disease, frequent use of a computer.
- Uncorrected or under corrected vision problems can increase the severity of CVS.
- The eye focusing and eye movement requirements for digital screen viewing place additional demands on the visual system.
- Inappropriate postures or angles can result in muscle spasms or pain in the neck, shoulder or back.
- Poor lighting, glare on a digital screen
- Improper viewing distances and sitting posture

#### IV. DIAGNOSIS

CVS, or digital eyestrain, can be diagnosed through a comprehensive eye examination.

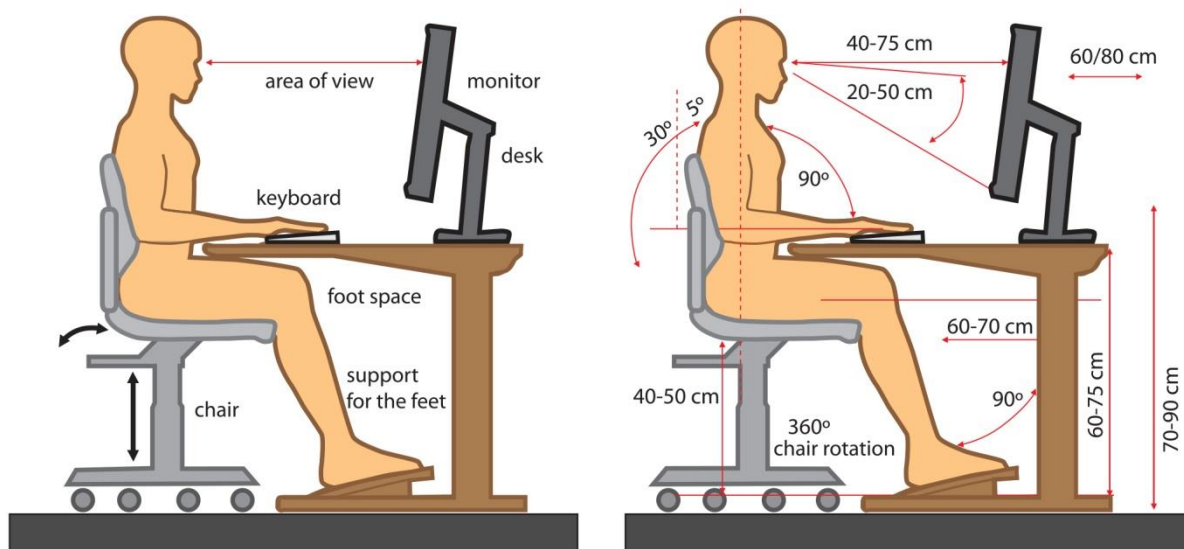
- Patient history to determine any symptoms and the presence of any general health problems, medications taken or environmental factors that may be contribute to the symptoms.
- Visual acuity measurements to assess the extent to which vision may be affected.
- A refraction to determine the appropriate lens power needed to compensate for any refractive errors.
- Testing how the eyes focus, move and work together.

#### V. SYMPTOMS OF CVS

- Dry and irritated eyes
- Eye strain/fatigue, blurred vision, double vision
- Excessive tears, red eyes, burning eyes
- Headache
- Pain in the neck, shoulder or back.
- Light/glare sensitivity
- Delay in shifting focus and
- Color perception irregularities

#### VI. MANAGEMENT

1. Eyeglasses or contact lenses prescribed for general use may not be helpful instead lenses prescribed to meet the unique visual demands of computer viewing may be needed. Special lens designs, lens powers or lens tints or coatings may help to maximize visual abilities and comfort.
2. Vision therapy: Some computer users experience problems with eye focusing or eye coordination that can't be adequately corrected with eyeglasses or contact lenses. A program of vision therapy may be needed to treat and also called visual training, is a structured program of visual activities prescribed to improve visual abilities. These eye exercises help remediate deficiencies in eye movement, eye focusing, and eye teaming and reinforce the eye-brain connection.
3. Proper viewing: Proper lighting conditions, chair comfort, location of reference materials, position of the monitor, and the use of rest breaks prevent or reduce the symptoms of CVS which includes:



- **Location of the computer screen.** Most people find it more comfortable to view a computer when the eyes are looking downward. Optimally, the computer screen should be 15 to 20 degrees below eye level (about 4 or 5 inches) as measured from the centre of the screen and 20 to 28 inches from the eyes.

- **Reference materials.** These materials should be located above the keyboard and below the monitor otherwise a document holder can be used beside the monitor.
- **Lighting.** Position the computer screen to avoid glare, particularly from overhead lighting or windows. Use blinds or drapes on windows and replace the light bulbs in desk lamps with bulbs of lower wattage.
- **Anti-glare screens.** If there is no way to minimize glare from light sources, consider using a screen glare filter. These filters decrease the amount of light reflected from the screen.
- **Seating position.** Chairs should be comfortably padded and conform to the body. Chair height should be adjusted so the feet rest flat on the floor. Arms should be adjusted to provide support while typing and wrists shouldn't rest on the keyboard when typing.
- **Rest breaks.** To prevent eyestrain, try to rest eyes when using the computer for long periods. Resting the eyes for 15 minutes after two hours of continuous computer use. Follow the 20-20-20 rule; take a 20-second break to view something 20 feet away every 20 minutes.
- **Blinking.** To minimize the chances of developing dry eye when using a computer, try to blink frequently. Blinking keeps the front surface of the eye moist.
- **Tweak settings.** Adjust the brightness, contrast, and font size that is best and comfortable for use.

## VII. BIBLIOGRAPHY

1. Logaraj M, Madhupriya V, Hegde S. Computer vision syndrome and associated factors among medical and engineering students in chennai. *Ann Med Health Sci Res.* 2014 Mar;4(2):179-85. doi: 10.4103/2141-9248.129028. PMID: 24761234; PMCID: PMC3991936.
2. Anshel J, editor. New York: Taylor and Francis; 2005. *Visual Ergonomics Handbook.*
3. Hayes JR, Sheedy JE, Stelmack JA, Heaney CA. Computer use, symptoms, and quality of life. *Optom Vis Sci.* 2007;84:738-44
4. Sen A, Richardson S. A study of computer-related upper limb discomfort and computer vision syndrome. *J Hum Ergol (Tokyo)* 2007;36:45-50.
5. Adane, F., Alamneh, Y.M. & Desta, M. Computer vision syndrome and predictors among computer users in Ethiopia: a systematic review and meta-analysis. *Trop Med Health* 50, 26 (2022). <https://doi.org/10.1186/s41182-022-00418-3>
6. Bass M, Van Stryland EW, Williams DR, Wolfe WL. *Handbook of optics.* New York: McGraw-Hill; 1995.
7. Gangamma M, Poonam MR. A clinical study on "Computer vision syndrome" and its management with Triphala eye drops and Saptamrita Lauha. *Ayu.* 2010;31(2):236.
8. Charpe NA, Kaushik V. Computer vision syndrome (CVS): recognition and control in software professionals. *J Hum Ecol.* 2009;28(1):67-9.
9. <https://www.aoa.org/eye-and-vision-conditions> › com..
10. Wimalasundera S. Computer vision syndrome. *Galle Med J.* 2009;11(1):25.