



Computer Vision Syndrome

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ABSTRACT

Computer Vision Syndrome, also referred to as Digital Eye Strain, describes a group of eye and vision-related problems that result from prolonged computer, tablet, e-reader and cell phone use. Many individuals experience eye discomfort and vision problems when viewing digital screens for extended periods. Treatment requires a multidirectional approach combining ocular therapy with adjustment of the workstation. Proper lighting, anti-glare filters, ergonomic positioning of computer monitor and regular work breaks may help improve visual comfort. Lubricating eye drops and special computer glasses help relieve ocular surface-related symptoms.

KEYWORDS Computer vision syndrome, Digital eye strain

INTRODUCTION

Computers are now an integral part of our day. This advancement of science has brought about a vast change in our lives that we wonder what life would have been without it. With all its benefits come certain health related issues, awareness of which is minimal. But the shift from paper to computers has been so rapid and strong that the eye has not adapted to the new demands put on it to work at near in a new visual environment for extensive hours and in stressful environments. In the world it has been estimated that nearly 60 million people experience vision problems as a result of computer use. This computer related ocular condition is called Computer Vision Syndrome (CVS) ¹.

What is Computer Vision Syndrome? (CVS)

Computer Vision Syndrome, also referred to as Digital Eye Strain, describes a group

of eye and vision-related problems that result from prolonged computer, tablet, e-reader and cell phone use. Many individuals experience eye discomfort and vision problems when viewing digital screens for extended periods. The level of discomfort appears to increase with the amount of digital screen use².

Risk Factors of CVS

- Age more than 40 years
- Xerophthalmia-(dry eyes) is a medical condition in which the eye fails to produce tears. It may be caused by a deficiency in vitamin A
- Dry environment
- Lens use
- History of vision problem
- Farsightedness & Near sightedness
- Person who work with computer more than three hours/day
- Dry eye syndrome- Normal blinking rate= 16-22 times per minute. During computer use humans blink only 4



to 6 times per minute. Lower blinking rates cause eye moisture to evaporate.

- Heat – the air quality is poor in many offices.
- Dust - contact with dust and dust particles.
- Air-conditioning – poor air conditioning leads to dry environment.

- Cigarette smoking- Incidence of CVS is more among cigarette smokers.
- Use of hair dryers, which can make eyes dry.
- Mental status can also interfere with normal vision³

Pathogenesis of CVS⁴

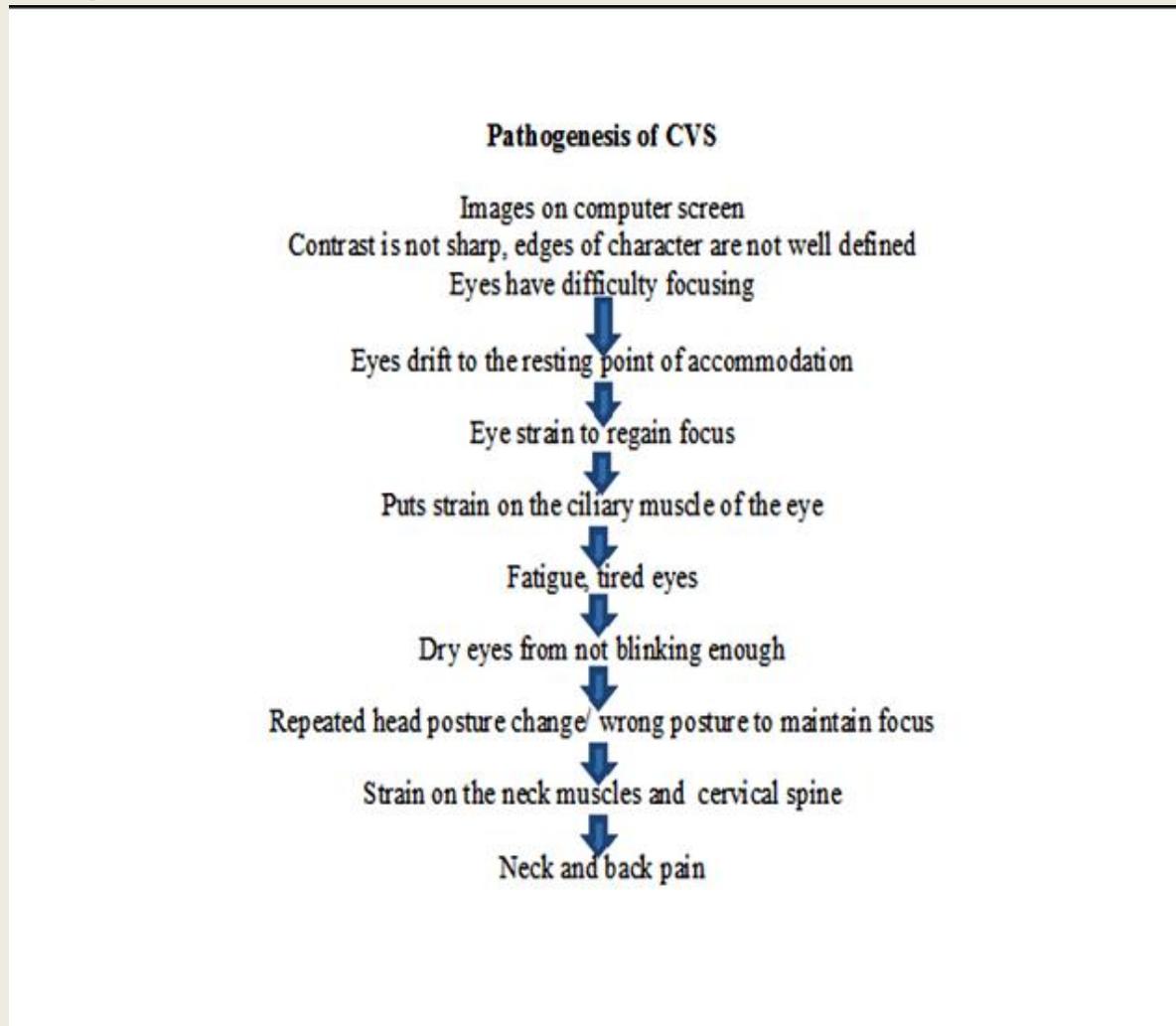


Figure 1 Pathogenesis of computer vision syndrome

Symptoms of CVS⁵

• Eyestrain (sore or fatigued eyes)-
Due to glare from surrounding lamps and lights.

- Neck, back & shoulder pain
- Headache
- Eye irritation (burning, dryness, redness)



Diagnosis of CVS

- Usual ophthalmic examination
- Eye health evaluation
- Evaluation of arrangement of computer workstation
- Testing how the eyes focus, move and work together

Treatment of CVS

- According to National Institute of Occupational Safety and Health (NIOSH), computer users should have an eye examination before they start working on a computer and every year thereafter
- The work environment should have proper lighting.
- Have a break: Full time computer users should take 10 minutes break every hour to reduce strain.
- Refocus your eyes.
- Look away from your computer every 10 to 15 minutes and focus for 5 to 10 seconds on a distant object outside or down the hallway.
- Blink more often to cool your eyes
- Adjust your workstation to a correct height
- Match the computer screen to the brightness of the environment
- Use eye lubricants
- Try to position your monitor about 20 to 26 inches away.

- Breathing regularly will bring more oxygen to your eyes and reduce stress on your vision.

Tips for Eye-Exercise

- Take off your glasses or contact lenses, you will then feel more comfortable and relaxed.
- Blinking helps if you have dry eyes.
- Splashing improves blood circulation.
- Near - far focus improves eye flexibility.
- Hydrotherapy improves blood circulation.
- Head rolls relax your neck, head and face muscles and shoulder tension.
- Clockwise rotation exercises will stretch your extra ocular muscles⁶

Self- Care

- General diet rich in vitamins and minerals is recommended.
- Drink lots of water, at least 8 to 10 glasses of purified water daily.
- Avoid carbonated, caffeinated and alcoholic beverages.
- Manage your stress – meditate, take a walk in nature, practice yoga, visualisation technique or prayer on a daily basis.
- Exercise daily, do at least 20 minutes of aerobic exercise daily like walking and swimming.



- Eye exercises can help to bring energy and blood to the eyes thereby

helping to drain away toxins or congestion in the eyes.

Computer Vision Syndrome (C.V.S.)

Commonly known as Dry Eye, is a very common problem with most of the computer users due to the prolonged usage of computers.

Tips to remember



Monitor Location:
Ideally more than 25 inches from eye & 6 inches below the horizontal eye level.



Anti - glare screen:
Will decrease the amount of light reflected from the screen.



Light effect:
Use suspended lights from ceiling & windows with shades, blinds or curtains. Avoid light hitting directly on eyes.



Sitting posture:
Use chairs with armrests which are able to provide, support while typing, position of head slightly tilted downwards & height of the chair adjusted appropriately so that the feet rest flat on floor.



A.C. Distance:
Avoid sitting at a location with direct blow of air on eyes from a blower or an A.C. or for a long period in a room with low humidity.



20-20-20 rule:
Take short breaks for your eyes every 20 minutes between your work for 20 seconds then look at objects that are at least 20 feet away.



Eye Exercise:
Close your eyes & slowly roll your eyeballs clockwise & anticlockwise. Repeat it three times.



Blinking:
Blink frequently to keep the front surface of your eye moist.

Consult your doctor regarding lubricating eye drops which moisturize and provide comfort to the eyes.

Figure 2 Tips to remember



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