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## Editorial

### Computer Vision Syndrome

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Computers have become an indispensable part of modern life.

Working for long hours in front of the computer is no longer confined to the office. Computers are now extensively used in schools and at home as well. With increased popularity of notebooks, tablets, smartphones and e-book readers, use of digital devices is no longer only limited to desktops. People use digital display devices for work, web surfing, social networking and playing video games. In this techno-age, children as young as two years are given touch screen devices like iPads to play and learn with. Professional video game players in South Korea are known to spend as long as 18 hours per day in front of their screens at a stretch.

These accoutrements of modern living may give rise to a number of visual and ophthalmic problems collectively called the Computer Vision Syndrome (CVS).

The American Optometric Association defines computer vision syndrome as a group of eye and vision-related problems that occur due to prolonged computer usage. The ocular discomfort appears to increase with the amount of computer usage. Up to 90% of computer users may experience visual symptoms like blurred vision, eyestrain, headaches, ocular discomfort, dry eye and diplopia.<sup>1</sup> In addition, there may be neck and shoulder pain.

Dry eye is intimately related to CVS as either cause or effect.<sup>2,3</sup> Contributing factors may be reduced rate of blinking, environmental factors (air-conditioners, heating, low humidity), corneal exposure due to higher gaze angle in desktop monitor viewing, increasing age and female gender.<sup>4</sup>

The other causes may be uncorrected refractive errors and other visual problems, glare on the screen, incorrect sitting posture, or a combination of all these factors.

The diagnosis of CVS requires a comprehensive workup with a proper history and a thorough eye examination including visual acuity measurement, refraction, assessment of convergence and accommodation, and evaluation for dry eye.

The management for CVS may include a variety of strategies as follows:

- Correction of any refractive errors and use of occupational glasses as required.
- Treatment of dry eyes.
- Proper lighting at the workplace: reflected glare from windows and lighting should be avoided. Anti glare screens may help.
- Proper positioning of the monitor: it should not be too high. Ideally, the centre of the screen should be about 6 inches below the straight-ahead gaze.
- Monitor display quality: High resolution LCD monitors with matte finish reduce eye strain. Older CRT monitors should be set to their highest refresh rates to minimize flicker.
- Advice to blink frequently: this re-wets the cornea and helps prevent dryness and irritation.
- Rest breaks: 20/20/20 rule - after every 20 minutes of computer viewing, one should look into the distance 20 feet away for 20 seconds to allow the eyes to refocus. The American Optometric Association suggests a break of 15 minutes after 2 hours of continuous computer use.

In conclusion, it is a given that computers and other digital display devices will remain a part and parcel of modern life, with their use likely to increase exponentially in all spheres of activity. Such usage starts at an early age in education and carries over to the workplace. This may bring about a variety of ocular problems. Early diagnosis and management may go a long way in alleviating these symptoms. Last, but not the least, educational programs are essential to sensitize not just the workforce but also schoolchildren so that such problems can be minimized by inculcating a few good habits for computer usage.

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