



IMPROVING
VISUAL
HEALTH IN
THE DIGITAL
AGE

DIGITAL EYE STRAIN

A quick reference guide



Prepared By:

**Occupational
Optometry Services
Sankara Nethralaya
&
Optometry
Confederation of India**

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DIGITAL EYE STRAIN

American Optometric Association (AOA) defines “Computer Vision Syndrome (CVS) or Digital Eye Strain (DES) as a group of eye and vision-related problems resulting from prolonged usage of computers, tablets, e-readers, and cell phones, which causes increased stress to near vision in particular”.

SYMPTOMS ASSOCIATED WITH DES

Visual Symptoms: Blurred near or distance vision after computer use, double vision, eye strain, difficulty in focusing and refocusing.

Ocular Symptoms: Burning sensation, squinting, increased blink rate, dryness, irritation, redness, gritty sensation, tearing, and sensitivity to bright light

Extra Ocular Symptoms: Headache, neck stiffness, shoulder pain, backache, and general fatigue.

Factors contributing to the occurrence of the above mentioned symptoms can be broadly classified into four groups

FACTORS CONTRIBUTING TO DES



Visual

- Uncorrected Refractive Error
- Uncorrected Presbyopia
- Accommodative anomalies
- Vergence
- Dysfunction

Ocular

- Reduced Blink Rate
- Untreated Dry Eye
- Use of Contact Lens
- Increasing age
- Female Gender
- Poor Lid Hygiene

Environmental

- Poor Air quality
- Low Humidity & High Temperature
- Glare on the Screen
- Poor Workspace Illumination

Device related

- Screen Resolution
- Text Size
- Increased workload
- Ergonomics

PREVENTING AND MANAGING DIGITAL EYE STRAIN

MANAGING VISUAL FACTORS



Correct Vision Problems

Correcting astigmatism and/or presbyopia reduces eye strain



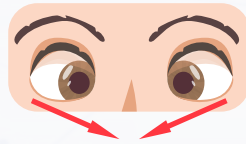
Blue-Blocking Filters

These filters are often recommended but no proven evidence to reduce digital eye strain



Anti-Reflection Coating

Glasses with this coating can reduce glare and improve comfort



Vision Therapy / Eye exercise

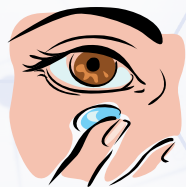
Can help managing symptoms of accommodation & vergence issues

MANAGING OCULAR FACTORS



Dry eye

Prolonged screen use leads to reduced blink rate, & tear evaporation causing dry eyes



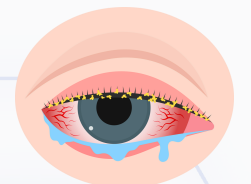
Contact Lenses user

Contact lens users are more prone to irritation and blurred vision due to dry eyes



Age and Gender

Older age and female gender are associated with an increased risk of dry eyes



Eyelid hygiene

Poor lid hygiene can block oil glands in the eyelids causing dry eyes

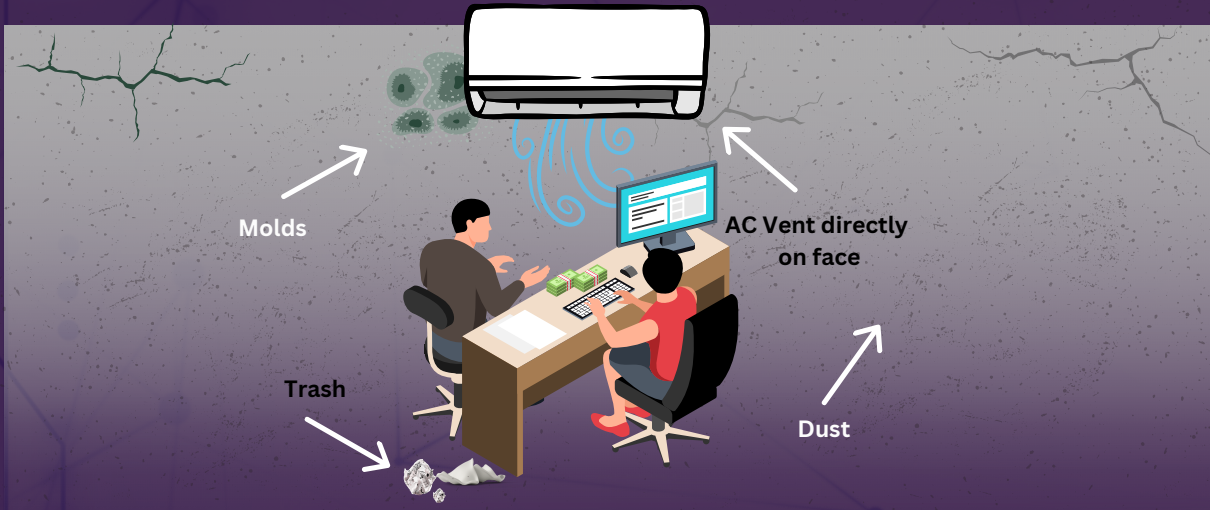


Lubricating Drops

Relieve dryness, irritation, discomfort, and tiredness as prescribed by an eye care practitioner

PREVENTING AND MANAGING DIGITAL EYE STRAIN

MANAGING ENVIRONMENTAL FACTORS



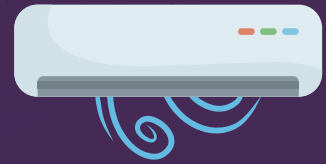
Poor Air Quality & Ventilation

Pollen, dust, aerosols, chemical irritants, molds can cause irritation and dryness.



Humidity & Temperature

Low humidity and high temperatures increase tear evaporation and dry eye



Direct Airflow

Sitting near AC vents / fans that blow dry air directly on face cause tear evaporation

LIGHTING AND GLARE

- Excessive light from windows or overhead sources creates screen reflections, causing glare and visual fatigue.
- Reflections from polished surfaces (walls, tables, keyboards) can reduce visual comfort and performance.



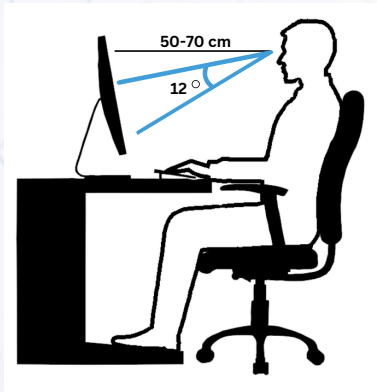
Potential risk of reflection and glare from window behind



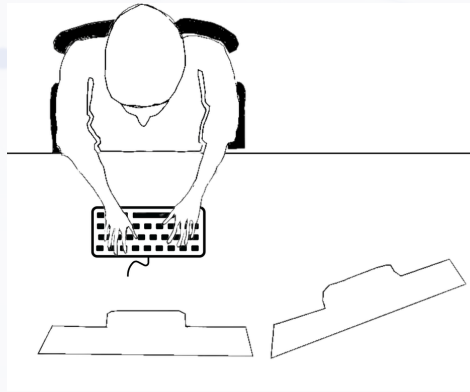
Potential risk for visual strain due to improper position of the room light & windows

PREVENTING AND MANAGING DIGITAL EYE STRAIN

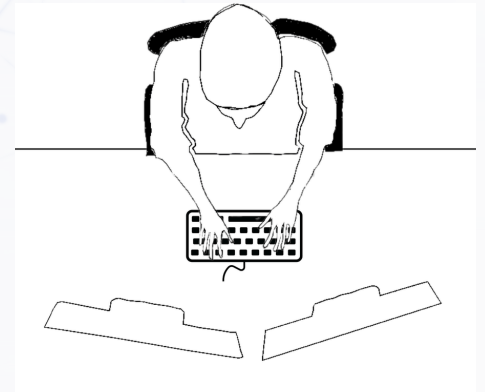
MANAGING ERGONOMICS FACTORS



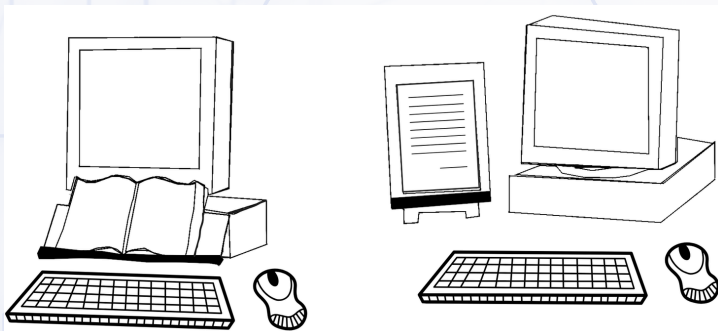
Ideal position and screen distance



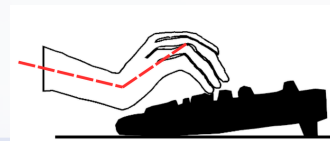
Recommended position when secondary screen is used less frequently than the primary screen



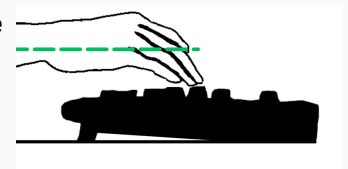
Recommended position when both primary and secondary screens are used frequently



Ideal position to place the reading and reference materials



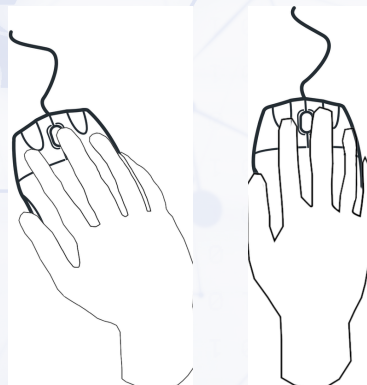
Improper wrist posture while typing



Ideal wrist posture while typing



Ideal foot rest position



Improper vs. Proper wrist posture while using mouse



Correct workplace ergonomics



DIGITAL EYE STRAIN - PREVENTIVE MEASURES

Practice good visual hygiene

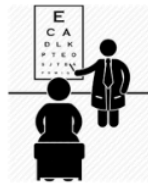


- Follow 20-20-20 rule



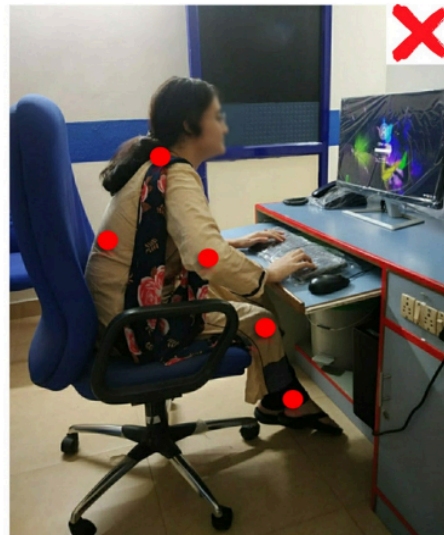
- Blink Frequently - Avoid dry eyes

- Make sure your glasses meet the demand of your job: Have a comprehensive eye examination

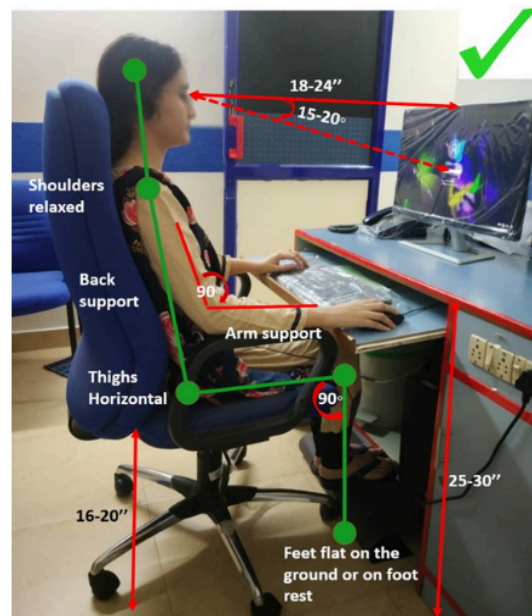


- Make sure the light source is directed at the level of target/work and not directly onto the eyes
- Avoid glare or shadow: Position your computer screen to avoid glare, particularly from windows. Use blinds or drapes on windows
- Adjust brightness and contrast of the screen according to your comfort

Adjust your workstation



Maintain a correct upright position while working





DIGITAL EYE STRAIN - PREVENTIVE MEASURES

Stretching exercises during work



- **Neck stretch**

Side bend and Diagonal bend for 15 seconds on both sides



- **Wrist stretch**

Hold arm straight out and pull your hands backwards and then pull downward for 15-20 seconds



- **Executive Stretch**

Lock your hands behind head and bring your elbows back as far as possible and then hold for 20 seconds



- **Warming Up**

Stretch slowly and hold each position for 20 seconds



N.B. Repeat each step 3-4 times while you settle down to stretch and perform these steps at least once every 1-2 hours during work

Take care of yourself



- Maintain an active life-style
- Practice regular yoga, exercises and meditation
- Drink plenty of water to keep your body hydrated
- Have an adequate sleep of at least 7-8 hours
- Limit yourself from excess usage of digital devices
- Avoid using smartphones before bedtime



WHEN YOU WORK WITH DIGITAL DEVICES !

1. Make sure prescribed refractive correction is worn, as this will help to meet the visual demands while using digital screens.
2. Practice the habit of frequent blinking, as it will reduce symptoms of dryness.
3. Ensure the workplace maintains the recommended temperature of 20°C to 24.5°C and humidity standards of 40-60%, which helps to decrease the occurrence of ocular dryness.
4. Avoid sitting directly in front of an AC vent to minimize the chance of evaporative dry eyes.
5. Position the digital screen 15 to 20 degrees below eye level for better posture and visual comfort.
6. Ensure reference materials are located above the keyboard or below the monitor.
7. OSHA recommended workspace lighting should be between 300-500 lux for better visual comfort and the brightness of the screen should match the lighting levels of the workspace.
8. Ensure the digital screen is free from reflections caused by room lights or windows/doors.
9. Follow recommended ergonomic practices to maintain a neutral position for the head, shoulders, back, and feet, which helps to reduce the risk of work-related musculoskeletal disorders.
10. Take visual microbreaks every 15-20 minutes and stretch breaks every 60 minutes.

For further details refer to

Improving Visual Health in Digital Age - A Comprehensive Guide to Manage Digital Eye Strain

Optometry Confederation of India

Sankara Nethralaya Occupational Optometry Services