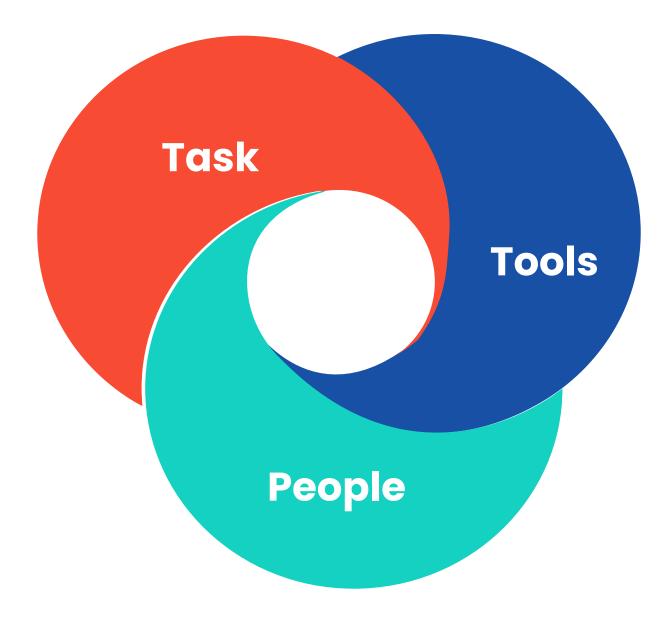# Eye Strain Prevention

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What we'll cover today

- Symptoms of eye strain
- Causes
- Behavioral solutions
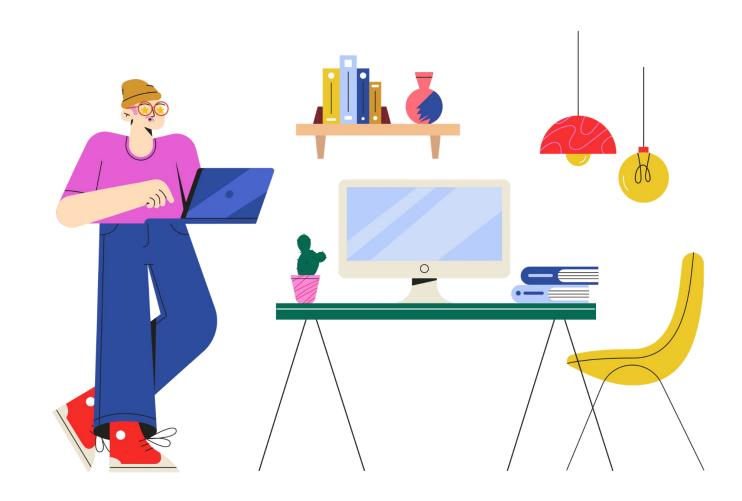- Environmental solutions
- Exercises
- Popular Questions

What is ergonomics?

Symptoms

What to look out for (in the eyes)

- Sore
- Tired
- Itchy
- Burning
- Watering
- Dry
- Blurred vision
- Sensitivity to light

What to look out for (in the body)

- Headache
- Difficulty Concentrating
- Sore Neck, Shoulders, or Back

Causes & Conditions

Causes of Computer Vision Syndrome (CVS)

- Decreased rate of blinking
- Incomplete blinking
- Incorrectly positioned screen
- Prolonged viewing of screen/absence of breaks
- Poor posture
- Low refresh rate
- Time spent at a screen
- Existing visual problems

Prevalence of CVS

- Estimated to affect more than 50% of computer users
- More common in women than men (65% vs 60%, respectively)
- More common in those who use more than one screen simultaneously (75% for more than one device, 53% for those using only one device)
- More common in those who wear contact lenses vs those who don't (65% vs 50% at 6 or more hours of screen use)

Effects of CVS

- Decreases comfort
- Decreases productivity
- Increases error rate
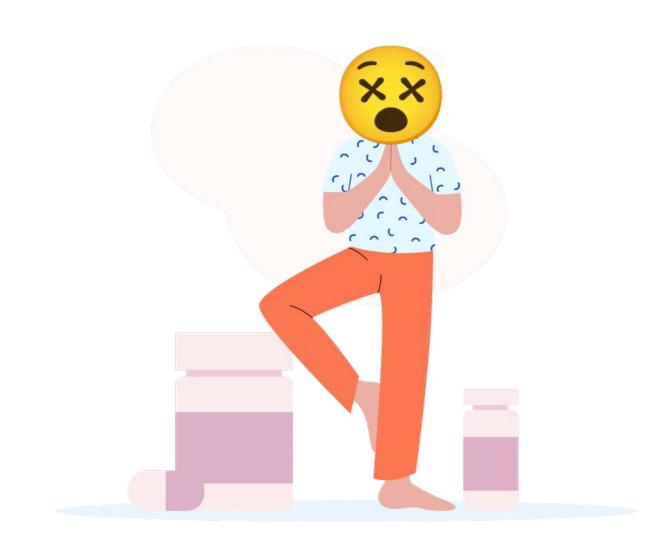- Increases stress
- Disrupts circadian rhythm

Other causes of eye strain

- Excessive reading from paper documents
- Stress and fatigue
- Lighting conditions
- Sleep deprivation
- Underlying/unaddressed vision problems
- Exposure to dry, hot, moving air
- Driving

Behavioral solutions

20-20-20

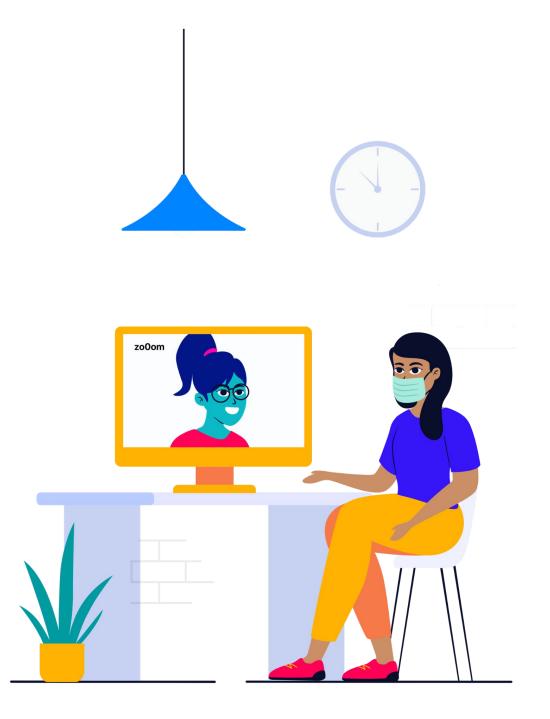# Don't rub your eyes

Use a humidifier or eye drops

Visit to the optometrist to upgrade your tools

- Bifocals/progressives
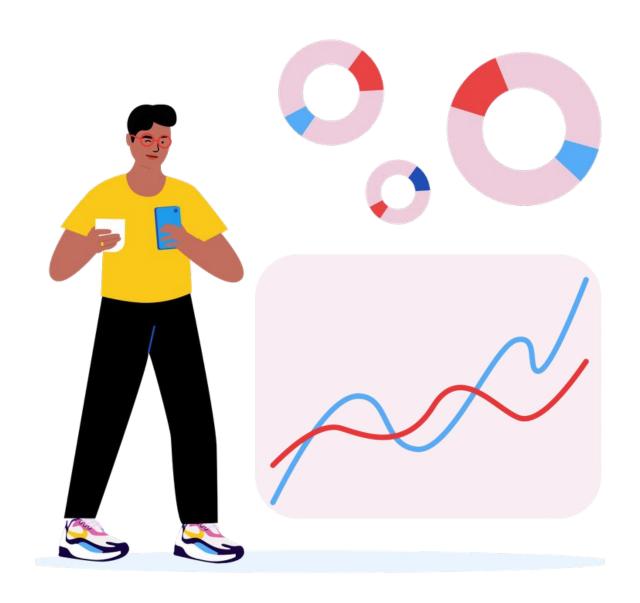- Contacts
- Reading Glasses
- Distance Glasses

Maintain good posture

- Sit upright or with a slight reclined back
- Slightly tuck chin
- Allow eyes to relax downward at 15-20 degrees

Limit video calls when possible

Screen Use Before Bed

- Limit screen use before bed
- Use "night mode"

Vision break - Focus on Distance

Vision break – Palms Over Eyes

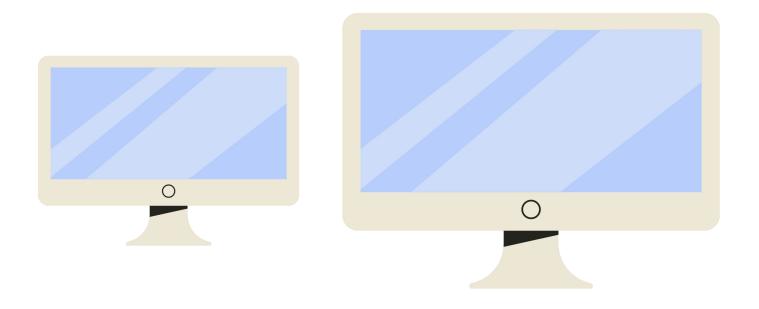# Take mini movement breaks

Recapping behavioral solutions

- Take 20-20-20 vision breaks
- Resist rubbing your eyes
- Use a humidifier or eye drops
- Visit the optometrist
- Maintain good posture
- Limit Zoom calls
- Limit screen time 2-3 hours before bed
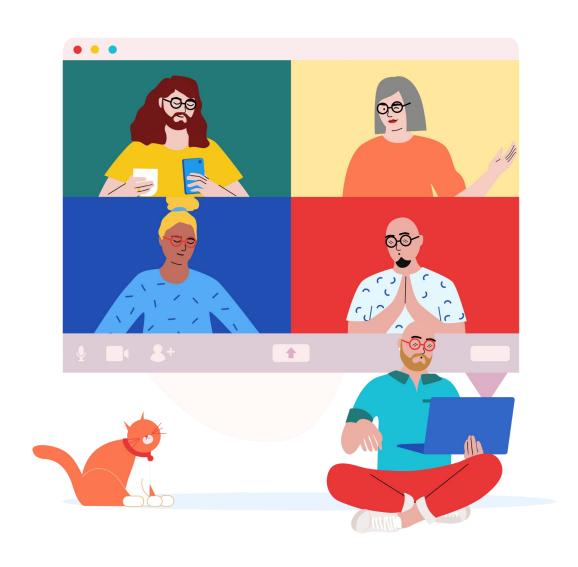- Use "night mode" for dimmer screens
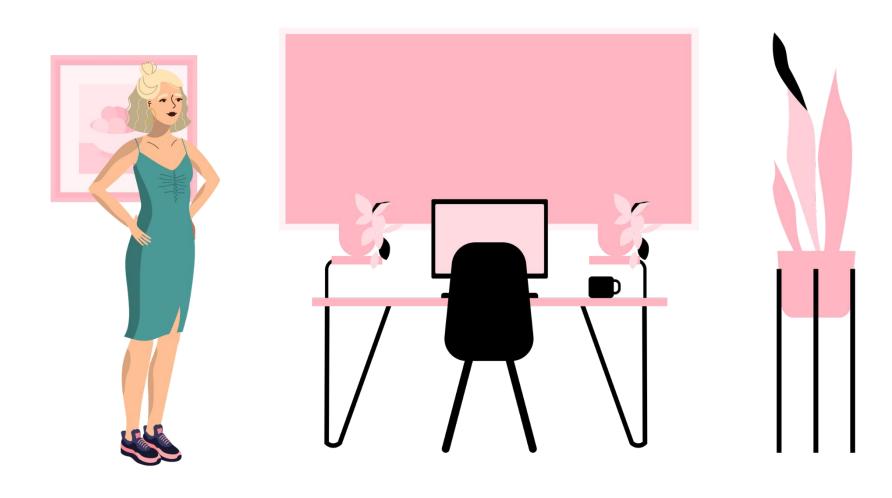
Environmental solutions

Command +

Position most viewed screen in the middle

Use a screen with a 70-85 Hz minimum refresh rate
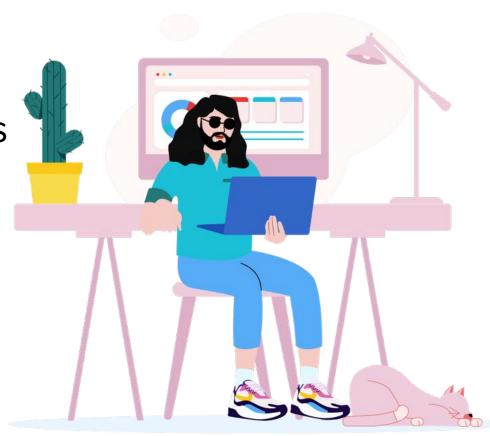
Reduce or eliminate glare on screens

Seated workstation

✅ Feet flat on floor

✅ Hips slightly higher than knees

✅ 1-2" clearance behind backs of knees

✅ Posture 90-120º with the floor

✅ Shoulders relaxed, elbows 90-100º

✅ Wrists straight, palms facing down

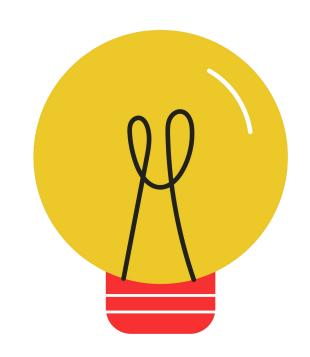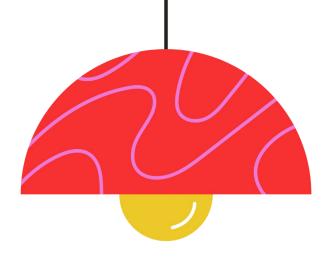✅ Top ¼ of monitor level with eye line

Standing workstation

✅ Prop a foot up while standing

✅ Shoulders relaxed, elbows 90-100º

✅ Wrists straight, palms facing down

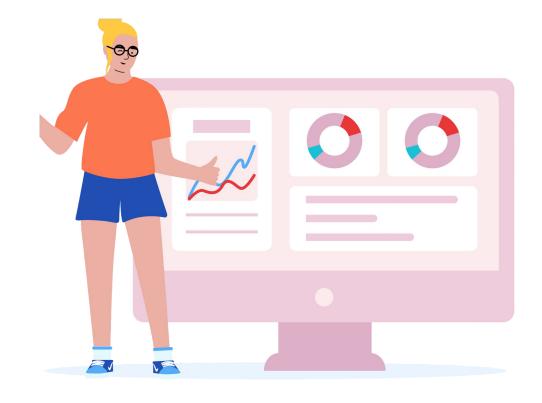✅ Top ¼ of monitor level with eye line

Use a dual light source for paperwork

Recapping environmental solutions

- Enlarge type ("Command" "+")
- Position monitors correctly
- Invest in screen with higher refresh rate
- Reduce/Eliminate glare
- Ensure sufficient lighting for paperwork

Common questions

Do computer glasses work?

- No evidence to support it

Is it bad to use a computer in the dark?

- Nope

Do fluorescent lights cause eye strain or headaches?

- Some studies suggest that certain *older* types of fluorescent lights may increase incidence of eye strain and headaches

End your workday and give your eyes a rest

- Put away screens
- Do a short meditation
- Work out
- Listen to a podcast
- Read a book

Thanks!

Resources

- https://www.mayoclinic.org/diseases-conditions/eyestrain/symptoms-causes/syc-20372397
- https://www.aoa.org/healthy-eyes/eye-and-vision-conditions/computer-vision-syndrome?sso=y#:~:text=Uncorrected%20vision%20problems%20like%20farsightedness,computer%20or%20digital%20screen%20device.
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4170366/
- https://uihc.org/health-topics/computer-vision-syndrome
- https://iovs.arvojournals.org/article.aspx?articleid=2716365#:~:text=Sleep%20deprivation%20(SD)%20can%20cause,risk%20of%20dry%20eye%20development.
- https://bmjophth.bmj.com/content/3/1/e000146
- https://www.aao.org/eye-health/tips-prevention/are-computer-glasses-worth-it
- https://www.health.harvard.edu/blog/will-blue-light-from-electronic-devices-increase-my-risk-of-macular-degeneration-and-blindness-2019040816365#:~:text=Blue%20light%20from%20electronic%20devices%20is%20not%20going%20to%20increase,your%20health%20or%20circadian%20rhythm.
- https://journals.sagepub.com/doi/abs/10.1177/096032718902100102?journalCode=lrtb
- https://www.scientificamerican.com/article/flickering-fallacy-cfl-bulb-headaches/
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Resources