

Visual Ergonomics and Electronic Media

Jennifer Zolman, OD, FCOVD

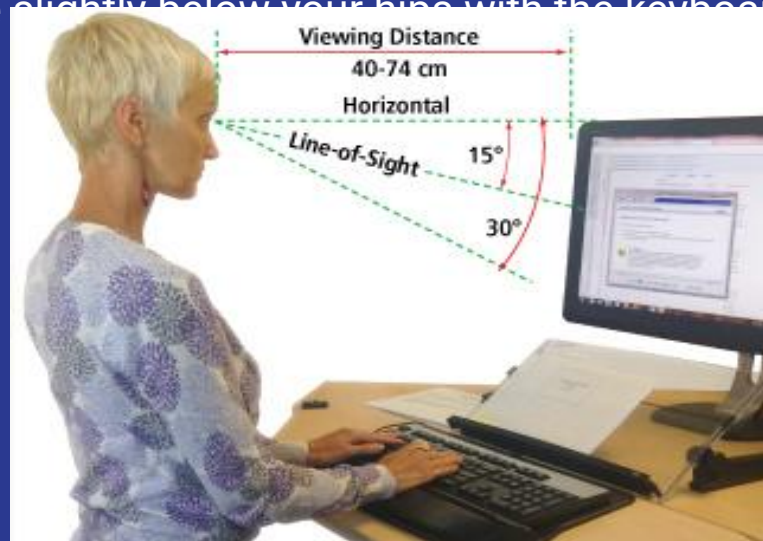


What is Visual Ergonomics?

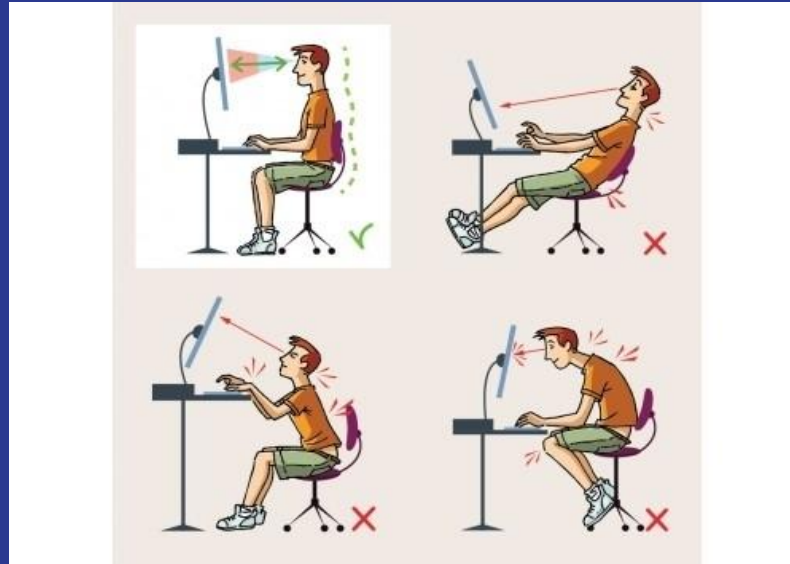
- Multiple environmental factors that impact our ability to see the details of a given task easily, comfortably and accurately
- These factors include: proper lighting, furniture and physical set-up of computers and devices
- Implementing properly designed desk, chair and lighting for a child (and adult) improves the near visual performance on computers and digital devices so that the child can stay on the task longer before fatigue sets in.

Physical Set-up of computer

- The line of sight is 15° below horizontal eye-level; therefore, the ideal monitor position for an optimal neck posture is aligning top line of text to eye-level.
- Placement of the monitor should be such that the center is 10 to 20 degrees below the horizontal.
- Viewing distance of the screen should fall between 16-30 inches: Lean back and extend your arm, the tips of your middle finger should land on the screen
- Chair Height: your feet should rest on the floor in front of you (not dangling), your thighs should be slightly below your hips with the keyboard 1-2 inches about your thighs.



www.ccohs.ca/oshanswers/ergonomics/office/monitor_positioning.html
[ps://www.ccohs.ca/ergonomics/office/monitor_positioning.html](https://www.ccohs.ca/ergonomics/office/monitor_positioning.html)

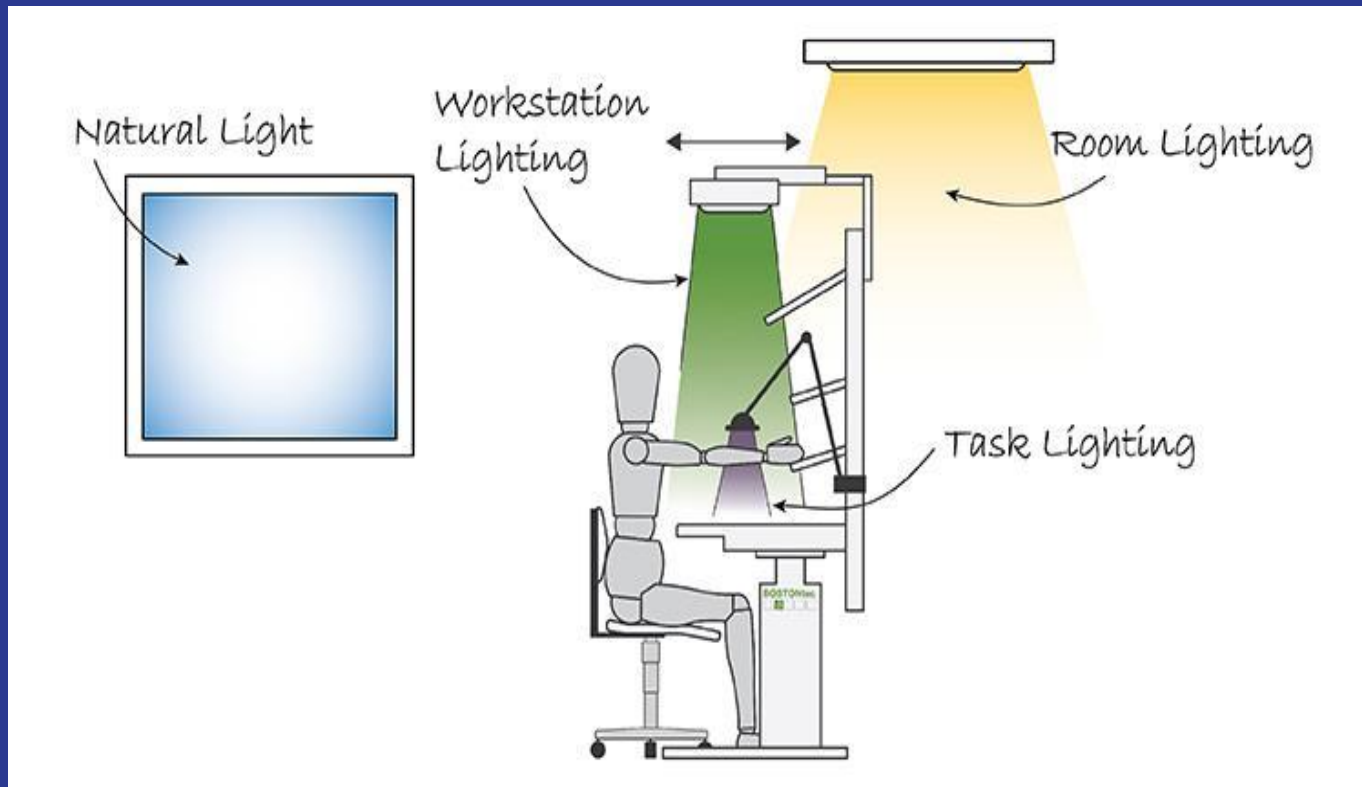


<https://www.gvsu.edu/officeergonomics/computer-monitor-8.htm>

Physical Set-up of computer

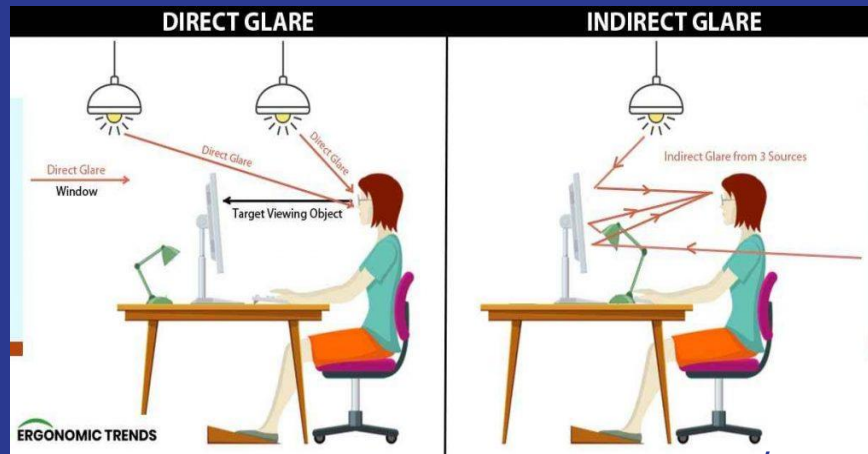
- You should not need to tilt or bend your neck forward to properly see the monitor, along with sitting back in your chair to view the screen
- Sit with good posture, close your eyes, and when you open your eye, they should be looking at the top or the screen toward the address bar
- If possible, set up your monitor perpendicular to a window to avoid glare. If your office is bright, tilt the monitor slightly down to reduce reflections and glare from overhead lighting
- Note: lap top computers should be set up for use as close to a desk top as possible and not used in lap position

Proper Lighting



Proper Lighting

- **Light from screens and other devices.** Children on computers, tablets or hand-held devices should be able to clearly distinguish the displayed information. It's important to properly calibrate these screens to provide adequate contrast and resolution for legibility. Text and images should be crisp and easy to read. Additionally, device screens can be too bright or too dim. Adjust the screen brightness to the lowest setting that is tolerable and increase the brightness as needed (~40- 65%.)
- **Workstation task lighting.** Use task lighting over working computer area and paper documents. Small lamp directed toward the work being completed.
- **Overhead and ambient lighting.** If possible the absolute best room lighting is from windows providing natural light, but in the real world this is most likely not possible. For those relying solely on overhead lighting to illuminate the building, it's important to pay attention to both the color temperature and the intensity of the lighting. Color temperature refers to the amount of yellow (warm) or blue (cool) produced by the lighting. Warm lighting typically creates a cozier, more relaxed feel. Cool lighting is more commonly used in retail, industrial, offices and other workplaces as it tends to enhance alertness. Lighting that is excessively blue, or cool, should be avoided as it can create an environment that feels harsh and potentially unpleasant.
- **Blue Light.** Please refer to Dr. Katie Davis's Section in this library on "Concerns Regarding Blue Light



<https://ergonomictrends.com/lighting-ergonomics-ultimate-guide>

Avoiding Glare

- One of the most common lighting problem for computer users is glare from bright lights or objects in the field of view
- Replace a single high intensity light fixture with several lower intensity light sources
- If you work spaces uses conventional florescent light fixtures, equip them with diffusers to soften the light
- Consider the possibility of removing one light bulb in overhead light fixtures that cause glare or headaches
- If possible, move your monitor so it is not directly below an overhead light fixture
- Adjust your computer monitor to a light colored background (light green is recommended)
- Position monitors perpendicular to window and between banks of light



<https://www.common sense.org/education/articles/parents-tips-and-tricks-for-distance-learning>

With these suggested environmental considerations, you and your children should be set up for the most optimal cognitive environment for healthy, comfortable and effective screen time for learning and working.

References and Additional Resources

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- <http://materialhandlingsafety.org/how-proper-lighting-increases-productivity-and-employee-wellbeing/>
- Visual Ergonomics: Solutions for Lighting & Eye Health , <https://hr.ubc.ca/sites/default/files/wp-content/blogs.dir/39/files/Visual-ergonomics-resources.pdf>

