How to take Care of your children's eyes in times of online classes

This article has been written by Dr. Pratyush Ranjan.

Cognito Abacus expressed gratitude to him

for enlightening the parents with his initiative.

How to take Care of your children's eyes in times of online classes

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Education is changing, learning is moving from the classrooms to the online world. This means that children and young adults are having to put in many more hours in front of the screens than they ought to and unfortunately have no other option. There is no doubt that technology use by children is here to stay!!

Fortunately, clear steps such as those discussed below exist to mitigate and eliminate, in some cases, the negative impact on children's vision and overall health.

Computer Vision Syndrome (CVS) or **Digital Eye Strain** can affect everyone who uses not just computers but also TVs, smartphones, tablets, gaming systems, and more. The problem for virtual children is that they may spend more time using computers during online classes apart from other leisure activities on screen.

Words and images on computer screens are created by combinations of tiny points of light called pixels, which are brightest at the centre and lessen in intensity toward the edges, making it difficult for the human eye to maintain focus. Symptoms may be caused by poor lighting, glare and reflection on the screen, improper viewing distances, poor posture, uncorrected vision problems, or a combination of these factors

Problems encountered due to unregulated Screen time

1. Blurry vision/Accommodation spasm: Gazing at the same distance for an extended time can cause the focusing system of eyes to temporarily spasm. This condition causes a child's vision to blur associated with eye ache and headache

2. Myopia: Looking continuously at the computer screen and other screens may increase the chances of developing near-sightedness or myopia, which is a type of refractive error where you see blurred images at distance as your eyes do not bend light correctly. Myopia is now the most common type of refractive error and one of the leading causes of functional blindness in the world. Uncorrected myopia as low as −1.50 D will result in moderate vision impairment, and uncorrected myopia of −4.00 D is sufficient to be classified as blindness. The prevalence of myopia and high myopia are increasing globally at an alarming rate, with significant increases in the risks for vision impairment from

pathologic conditions associated with high myopia, including Retinal damage, Cataract and Glaucoma.

3. <u>Eye fatigue</u>: Muscles around the eye, like any others, can get tired from continued use. Concentrating on a screen for long periods can cause headaches, eye pain, brow ache, dryness, and even lead to excessive rubbing and issues with concentration. (Convergence insufficiency)

4. <u>Dry eyes</u>: Long stretches of screen time also lead to the eyes getting dry and irritated. Studies show that people blink significantly less often when concentrating on a digital screen, which can leave eyes dry and irritated. "The problem can be worse for children who look up at a screen that is positioned for adult use resulting in wide-open eyes—speeding up the evaporation of the eye's tear film,"

5. <u>Musculoskeletal symptoms</u> such as neck stiffness, pain, headache, backache and shoulder pain

How to Create an Eye-Friendly Virtual Classroom

1. Keep the room's lighting dimmer than the computer screen to reduce glare and make it easier for your eyes to see the screen. The lighting intensity should be half of normal room illumination when computers are used.

2. Turn down the brightness and turn up the contrast of the screen settings. Generally, the brightness level on a monitor or screen should be kept around the middle at a moderate brightness setting

3. If having a choice, it is better to let your child use a laptop or tablet at medium range of 50 cms rather than a smartphone at 33 cms.

4. Adjust the screen so that there is no tilt, and position it so the top is just below eye level. Sit in an ergonomic position at the computer. This means feet are flat

on the floor, lower back is supported, shoulders are relaxed, and arms are at a right angle so forearms rest on the keyboard in a straight, level line.

Positioning the device screens based on the 1/2/10 rule, which means – mobile phones ideally at one foot, desktop devices and laptops at two feet, and roughly 10 feet for TV screens (depending on how big the screen is)

5. Make sure the computer screen is set at a high resolution.

6. Download an app that adjusts the colour settings if your child ever does any schoolwork or web browsing during the evening. The blue light wavelengths emitted by digital screens stimulate melatonin production, which can keep you up if you use the computer too close to bedtime.

   For laptops and desktop computers, **f.lux** app will automatically adjust the colour settings to reduce the blue wavelengths. It also has a mobile app for Apple devices, while Android has similar apps such as **Twilight** and **Lux Lite.**

The Rules of Digital Eye Safety

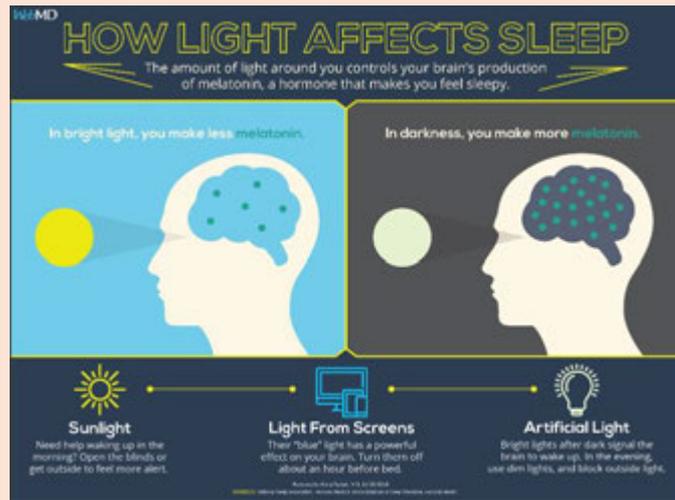The next step is to help your child form good eye safety habits.

1. Create an eye-friendly schedule. Break up the time spent on the computer during the online classes' day by fitting in activities such as reading, exercising, or eating lunch.

2. Set time limits for recreational use of digital devices. This can help minimize digital distractions during the day and prevent digital eye strain during the evenings and weekends.

3. Follow the 20-20-20 rule. Every 20 minutes look away from the screen for 20 seconds at something 20 feet away. If you have trouble remembering to take a break, try an app such as **ProtectYourVision** or **Workrave** that will remind you with automatic alerts.

4. Remember to blink: Encourage your child to blink extra, especially when they take breaks to avoid dryness. Your eye doctor may recommend a moisturising eye drop or even the use of a room humidifier if your child continues to be bothered by dry eyes.

5. Zoom in when the text is too small. On the web, you can do this by adjusting the settings of your web browser or by using the browser's shortcut keys.

6. Clean the computer screen at least once a week. This will keep it clear by eliminating dust.

7. Avoid digital devices before bed. Install an app to fix this problem on computers or mobile devices; otherwise, put the devices away within an hour or two of going to sleep.

8. Spectacles: If your child has any refractive errors, get them fitted with spectacles. For those who are used to contact lenses, it is advisable to switch to using glasses while working on the screen for longer periods of time. Glasses must have anti-glare coating (ARC) and blue block coating.

9. Use of computer glasses even if there is no refractive error.

10. Good sleep – Ensure Sleep hygiene for maximum benefit. Children need a minimum of 8 full hours of restful sleep.

Studies recommend that children should not be sleeping with devices in their bedrooms, and this includes television, computers, and smartphones. In addition, it is also recommended that exposure to screens is completely avoided for at least an hour prior to going to bed.
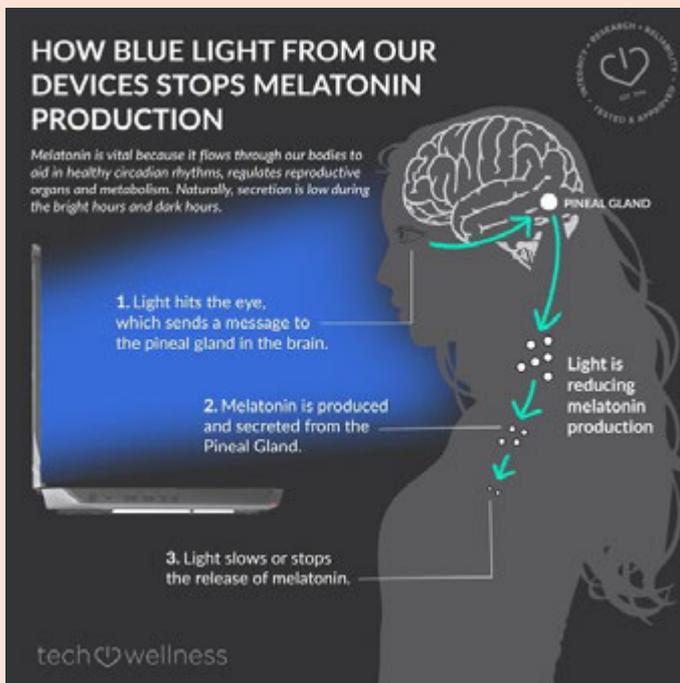
11. Healthy diet Consuming a diet rich in Vitamin A and C is very good for good optical health. Fruits and vegetables rich in antioxidants like papaya, carrot, broccoli, spinach, and eggs should be included.

Keeping these points in view, the next aspect to this query is how much screen time is acceptable for children and how much screen time is too much? American Academy of Ophthalmologists & World Health Organization recommends following

While these guidelines are not sacrosanct and only indicative, it seems that many times these are exceeded with education in schools shifting online. However, there is no need to worry too much and with the basic precautions and tips that we discussed most adverse effects of screen time will be averted.

Screen Time Guidelines by Age

As recommended by the American Academy of Pediatrics (AAP) and World Health Organization (WHO)

Under 18 months old

No screen time outside of video chatting with Grandma, etc.

Toddlers (18 months-24 months)

Little to no screen time recommended

- This is a critical developmental period for them, so encourage as much physical and creative interaction with people as possible.
- If they do get screen time, co-watch high-quality educational content with them to help them understand what they are seeing, and limit total exposure to < 1 hour. (Content offered by Sesame Workshop and PBS Kids is great)

Preschoolers (3-5)

Up to 1 hour per day is fine

- Try to plan TV-time in advance – resist the temptation to use them as a calming or distracting device.
- Children at this age can have mindful interaction with characters, so help them understand what they are seeing and apply it to the world around them!
- Many types of screen media content have print or other versions – try finding books or toys that can enable your child to interact with favorite characters off-screen. It makes for another way to engage your kids in creative play!

Elementary School Aged (6-10)

Up to 1 to 1.5 hours per day

- Place consistent limits on time spent using media, and the types of media being consumed.
- Since they are now entering school, make sure screens don't become a habit before homework gets completed.
- While developing tech skills is important, try to aim for a balance of creative and laid-back time.
- As they grow, parents can gradually give kids more control and choice in how they manage their time.
- Make sure media does not take the place of adequate sleep, physical activity and other behaviors essential to health.

Middle School Aged (11-13)

Up to 2 hours per day

- At this age, children can understand the concept of balance. It is up to parents to help them see how screen time fits into their schedule.
- If you find your child getting really into a certain video game for a week or two, gently try to help them understand the benefits of moderation.
- Help your children understand that recognizing when we are spending too much time doing any one thing is a valuable life skill.

Annual Comprehensive Eye Examination from 4 year onwards is recommended to detect any eye related problems especially myopia at early stage & age.