SCREEN TIME AND SIGHT

Protecting Young Eyes in a Digital World

Neha Tripathi

LET'S face it — screens are everywhere these days, and our kids are spending more time than ever glued to them. Whether they are attending online classes, playing video games, or watching their favourite shows, all that screen time can take a toll on their eyes. As we celebrate Children's Day, we take this opportunity to create awareness of the most critical aspect of our lives: Vision. It is important for children's development, influencing their academic performance, social interactions, and overall quality of life. However, with the increasing use of digital devices, changing lifestyles, and environmental factors, vision issues among children have surged in the 21st century.

The Digital Age: A Double-Edged Sword

As access to smartphones, tablets, and computers becomes more widespread, the question is not whether our children are at risk but rather how we can protect them in this new digital landscape. According to a study by the All India Institute of Medical Sciences (AIIMS), Indian children spend an average of 6-8 hours a day on screens, a number that has only increased during the COVID-19 pandemic. Screen time, which was once limited to television, now includes a variety of devices, each contributing to the strain on young eyes.

The effects of prolonged screen time are well-documented. Digital screens emit blue light, which can penetrate deep into the eye and has been linked to digital eye strain. Symptoms include dryness, irritation, blurred vision, and headaches. Over time, this can lead to more serious conditions like myopia (nearsightedness), which is becoming increasingly common among Indian children.

The Science Behind Digital Eye Strain

What is Digital Eye Strain?

Digital eye strain, or computer vision syndrome, is becoming a global health problem, and India is no exception. With kids spending more time on screens for school, fun, and chatting, eye issues are on the rise. Understanding why this happens is key to finding ways to keep young Indian eyes healthy.

According to Eye surgeon Dr Suchita at the Combined District Hospital in Ghaziabad, digital eye strain manifests through symptoms such as over-blinking, frequent squinting, headaches, difficulty in focusing, occasional watering, and redness of the eyes. "It's crucial to implement regular breaks, encourage outdoor activities, and adjust screen settings to alleviate discomfort and promote healthier viewing habits," she advises.

Adding to this, Dr Sanjay Teotia, Senior Consultant Eye Surgeon at Balrampur Hospital in Lucknow, highlights that children may also experience itching alongside redness, watering, and headaches. He also warns, "While there are no universally recommended guidelines for daily screen time tailored to various age groups to minimise negative effects on eyesight, it is clear that more than six hours of screen time regularly and continuously can be detrimental. Small kids and children are particularly vulnerable compared to adults. Parents should be mindful and monitor their child's screen time to protect their eye health."

During the COVID-19 pandemic, a survey conducted by AIIMS and the *Journal of Indian Association of Paediatric Ophthalmology and Strabismus (JIAPOS)* found that screen time for children increased by 2 to 4 hours per day. The same study reported that nearly 40% of children experienced symptoms of digital eye strain, including eye fatigue, dry eyes, and blurred vision.

Image by Freepik

A study by the AIIMS found that 13% to 18% of children in India suffer from some form of refractive error, such as myopia (nearsightedness), hyperopia (farsightedness), or astigmatism.

Myopia is particularly on the rise among children. A survey conducted by the *Indian Journal of Ophthalmology* (2021) reported that the prevalence of myopia has increased from 4% to 7% in the early 2000s to around 15% in recent years.

More than 50% of school children in urban India experienced digital eye strain in 2021, as found in a report by AIIMS. This includes symptoms like headaches, eye discomfort, and blurred vision.

Image by Freepik

How Our Eyes Get Tired?

Think about how reading a book feels compared to looking at a screen. Books have clear, steady text that's easy on the eyes. Digital screens, on the other hand, use tiny dots called pixels to create images and text, which are not as sharp. This makes your eye muscles work harder to keep things in focus, leading to eye strain. A study by the National Institute of Occupational Health (NIOH) found that long screen time can cause blurry vision, dry eyes, headaches, and even neck and shoulder pain, problems that are becoming more common among students. Dr Teotia suggests, "If these symptoms become prominent and occur frequently, it's crucial for parents to seek professional advice promptly. Early intervention can prevent more severe issues down the road."

The Blue Light Problem

Another big issue is the blue light on the screens. Blue light is a type of High-energy Visible (HEV) light that our eyes can't block well, allowing more of it to reach the retina. Too much blue light, especially at night, messes with melatonin, the hormone that helps us sleep. For kids, who need good sleep for growth and brain function, this can be a major problem. Lack of sleep can make school more stressful and affect performance, creating a cycle of health and learning issues.

Early Detection and Regular Eye Check-Ups

Vision issues often go unnoticed because children themselves do not realise they are seeing poorly. Experts recommend that regular eye exams, starting from the age of three, can help detect problems early, allowing for timely intervention. Regular eye examinations are crucial for the early detection and treatment of vision problems in children. Unfortunately, many parents remain unaware of the importance of routine eye check-ups. Dr Suchita adds, "Researches indicate that screen time should be limited to two hours daily for children aged 2 to 5, and no more than one hour for those aged 6 to 18. These guidelines aim to protect developing eyesight, reduce digital eye strain, and encourage healthier lifestyle habits in an increasingly digital world."

Untreated vision problems can affect a child's ability to learn and develop normally, as up to 80% of learning in school is visual. Experts even recommend that children have their first eye test at age 3 and then again before starting school, typically around age 5 or 6. After that, school-aged children should have an eye exam every two years if no vision correction is required. Children who need glasses or contact lenses should be examined annually or as their eye doctor recommends. Timely intervention for vision issues, such as prescribing corrective lenses, vision therapy, or even surgery in some cases, is helpful.

Parents should ensure that vision screenings are part of their child's regular health check-ups but also

Experiences of Parents Addressing Children's Eye Health Challenges

- Nipun Kesari, a corporate professional and father of 4-year-old Daksh, shared, "When my son was born, we read online parenting materials and discovered that excessive screen time is a common problem among children, leading to eye issues due to easy access to mobiles and tablets. We consulted paediatricians and eye specialists, who suggested using anti-glare spectacles for young children. Understanding its importance from my own high screen time at work — about 10-11 hours daily — we've provided our son with an anti-glare screen whenever he uses a phone or tablet. We've also limited his screen time to about an hour a day. This discipline has kept his eyes healthy."
- "Our 7-year-old daughter Anjali, always seemed disinterested in school, and we could not figure out why. It was her teacher who suggested an eye check-up. The ophthalmologist was very thorough and explained that she had significant vision issues. Once she got her glasses, she became much more engaged in her studies. We're so grateful for that teacher's advice and the expertise of the eye doctor," Rani, Mother from Patna.
- "My 4-year-old son Rahul kept crying and rubbing his eyes. I initially thought it is because of pollution or dust. But when one of our common friends saw Rahul rubbing his eyes, he suggested us to consult an eye specialist. After consulting with an ophthalmologist, we discovered he had uncorrected vision problems. The experts were so knowledgeable and helped us understand the importance of timely eye exams. Now, Rahul is not rubbing his eyes, and he is much happier," Priya, Mother from Pune.
- "10-year-old Meera loved playing badminton but always missed the shuttlecock. Her badminton coach played a crucial role in identifying her vision issues. The ophthalmologist confirmed she needed glasses and gave us tips to ensure her eyes stayed healthy. Seeing her excel in badminton and even win a medal was incredibly fulfilling as a parent," Suresh, father from Gurgaon.
- Neha, Arjun's mother from Delhi, shared: "We were concerned when Arjun started squinting and sitting too close to the TV. The optometrist was very patient with us, explaining everything about myopia and how glasses could help. Arjun is now enjoying his favourite shows without straining his eyes, and we feel much more at ease."
- Sanya's father, Rajesh from Bengaluru, mentioned: "Sanya's constant fatigue in school worried us. The eye doctor diagnosed astigmatism and it was like a revelation. The difference after she got her glasses was immediate. The experts were amazing in guiding us through the process, and their advice was invaluable."
- Vikram's mother, Kavita from Hyderabad, said: "When Vikram had trouble distinguishing colours, his art teacher suggested an eye test. We visited a specialist who diagnosed colour blindness. Although there is no cure, they provided us with resources and tools to help Vikram adapt. The support from experts has been incredible, and Vikram's confidence in his art has soared."
- Aisha's father, Amir from Jaipur, shared: "We were really concerned when Aisha kept bumping into things. The eye specialist diagnosed her with poor peripheral vision. The exercises and glasses prescribed have made a huge difference. The expert guidance we received was crucial, and now Aisha plays confidently and safely."

understand that basic screenings at paediatric appointments or school may not catch all issues. A comprehensive eye exam by an ophthalmologist is more thorough and can detect problems that screenings might miss.

It is important to encourage children to wear protective eyewear during sports and recreational activities. Ensuring good lighting while reading or doing close work can also help reduce eye strain. By being proactive about eye health, parents can help ensure that any vision problems are addressed promptly, supporting their child's overall well-being and success in school.

The Role of Nutrition in Eye Health

While we might not be able to cut out screens entirely, there's something we can do to help protect the vision from the inside out. By making sure children eat foods rich in certain vitamins and minerals, we can support their eye health and keep their vision sharp. After all, good nutrition is not just about strong bodies; it is also about healthy eyes.

Nutritionist Dr Neelanjana, National Executive Member of Indian Dietetic Association Singh alarms, "While the link between increased screen time and the nutritional needs affecting children's eye health may not be immediately obvious, substantial research indicates it's significant. Increased screen time impacts vision health and nutritional outcomes. Children often make poorer food choices, consuming fewer fruits and vegetables and more fatty foods, which contributes to obesity, chronic diseases, and a deficiency in essential micronutrients." She advises and expects that building a Balanced Diet for Eye Health is also every parent's concern and responsibility. A diet rich in vitamins A, C, E, omega-3 fatty acids, lutein, zeaxanthin, and zinc can significantly contribute to maintaining healthy eyes.

Dr Singh explains, "Specific nutrients, including Omega-3 fats and carotenoids, particularly lutein and zeaxanthin, are highly beneficial. These carotenoids help filter harmful blue light from screens and protect the retina, reducing eye strain. They also possess antioxidant properties. Other protective nutrients include Vitamin C, Zinc, and Vitamin E."

She makes it easy for us to take these nutrients in our diet. "When it comes to food sources rich in these nutrients, green leafy vegetables are notable for their lutein and zeaxanthin content, providing the necessary protection. For Vitamin C, consuming fresh seasonal vegetables and fruits is beneficial. Nuts are good sources of Vitamin E. All these elements are essential for children's health, safeguarding them from the harmful effects of blue light. Seasonal berries like strawberries and gooseberries (amla) can be easily incorporated into a child's diet and support retina health." Incorporating these nutrients into a child's diet does not have to be challenging. Simple substitutions and creative meal planning can make nutrient-rich foods appealing to young palates.

Vitamin A: The Vision Vitamin
- Essential for a clear cornea and low-light vision through rhodopsin.
- Kid-friendly sources: Carrots, sweet potatoes, spinach.

Vitamin C: The Antioxidant Ally
- Protects eyes from free radicals and supports blood vessel health.
- Kid-friendly sources: Oranges, berries, bell peppers, broccoli.

Vitamin E: Protecting Eye Cells
- Shields eye cells from oxidative stress.
- Kid-friendly sources: Almonds, sunflower seeds, peanut butter.

Omega-3 Fatty Acids: Supporting Eye Development
- Crucial for visual development and retinal health, reduces dry eyes.
- Kid-friendly sources: Salmon, tuna, chia seeds, walnuts.

Lutein & Zeaxanthin: Natural Sunblock
- Protect the eyes from harmful blue light.
- Kid-friendly sources: Eggs, corn, green peas.

Zinc: The Vision Supporter
- Helps transport vitamin A for melanin production, supporting overall eye health.
- Kid-friendly sources: Beans, lentils, fortified cereals.

Easy Tips to Protect Young Eyes

Given India's unique culture and education system, here are some practical tips to protect kids from digital eye strain:

- **Follow the 20-20-20 Rule:** every 20 minutes, take a 20-second break and look at something 20 feet away. This simple habit can help relax your eye muscles.
- **Digital Literacy Programmes:** schools and parents should teach kids how to use screens safely. Adjusting screen brightness and contrast can also make a big difference.
- **Use Screen Filters:** these can block or reduce blue light, making screen time safer for the eyes.

- **Encourage Outdoor Activities:** spending time outside can reduce the risk of developing myopia (nearsightedness) and provide a healthy break from screens.

Dr Teotia suggests, "To alleviate eye strain, children should be encouraged to blink more frequently and, every half-hour, take a break to look at a distant object for one to two minutes. Additionally, after an hour of screen time, they should stand up, take a short walk, or do some stretching exercises for five minutes. These simple practices can significantly reduce the strain on their eyes and promote better eye health. Also, exposure to natural light and outdoor activities play a crucial role in maintaining good eye health. Parents should motivate their children to engage in outdoor games, walk in the park, or go cycling. Setting aside a specific amount of time daily for these activities is essential. Importantly, parents should actively participate in these activities with their children, as playing outdoor games or going for a swim or a bike ride with their kids can serve as the best form of motivation."

Innovative Solutions: Tech to the Rescue

For the Generation Alpha out there, it is important to consider cool, cutting-edge tech designed to make screen time healthier for our eyes. These solutions include:

- **Blue Light Filters:** these can be installed on digital devices to reduce the amount of blue light emitted, thereby minimising its impact on the eyes. Blue light has been linked to eye strain and disruption of sleep patterns, making this a crucial feature.
- **Night Mode:** many devices now have built-in night modes that automatically adjust the screen's colour temperature to a warmer tone, reducing exposure to blue light. This can be particularly beneficial during evening hours to maintain healthier sleep cycles.
- **Computer Glasses:** another innovative solution is computer glasses designed specifically to filter out blue light and reduce eye strain. These glasses are becoming increasingly popular among children who spend long hours on screens, offering a simple and effective way to protect their vision.
- **Educational Apps for Breaks:** educational apps that encourage breaks are also gaining popularity. These apps remind children to take regular breaks from their screens, promoting healthier screen habits. Some apps even incorporate eye exercises, which can help strengthen the eye muscles and reduce the risk of strain.
- **Adjustable Brightness and Contrast Settings:** modern devices often include features that allow users to adjust brightness and contrast settings to levels that are more comfortable for their eyes. These settings can be fine-tuned to individual preferences to reduce eye fatigue.
- **Anti-Reflective Screen Protectors:** anti-reflective screen protectors can be applied to devices to reduce glare, making it easier on the eyes, particularly in brightly lit environments. This reduces the need for children to squint, thereby decreasing the risk of eye strain.
- **Ergonomic Accessories:** accessories like adjustable stands for tablets and laptops can help maintain proper screen height and distance, improving posture and reducing neck and eye strain.
- **Ambient Light Sensors:** some devices are equipped with ambient light sensors that automatically adjust screen brightness based on the surrounding lighting conditions, creating a more comfortable viewing experience.
- **Timer Reminders:** beyond break-promoting apps, some devices come with built-in timer functions that can remind users to take a break based on customizable intervals. This helps prevent prolonged periods of continuous screen use.
- **Parental Controls:** many devices now include parental control features that allow caregivers to monitor and limit screen time, ensuring that children do not overexpose themselves to screens. These controls often include timers, app restrictions, and screen activity reports.

By leveraging these technological advancements, parents and caregivers can proactively protect their children's vision and promote healthier digital habits.

Even our tiny tots feel the same. Adhrika, a grade 9 student, wants to say something to all her known and unknown friends.

Hey friends! I've been having some trouble with my eyes since I was 5, and I want to share some tips that have helped me feel better. Maybe they can help you, too!

- Let's try to use screens less — like TVs, tablets, and phones. Only use them when we really need to.
- Eat yummy food good for our eyes, like carrots, spinach, milk, and fruits.
- If we have to use screens, we can put a special cover on them to reduce the bright glare or wear glasses that help with screen light.
- Keep rooms cool and a little moist so our eyes don't get dry.
- Drink lots of water and juices to stay hydrated — it's good for our eyes!
- Make sure the lights in rooms are just right — not too bright and not too dim — especially when we're reading or doing homework.

Clear Vision of the Youth: A Shared Responsibility

As we celebrate Children's Day, it's important to remember that protecting the vision of our children is a shared responsibility. Parents, educators, health professionals, and the government all have a distinctive role to play in safeguarding the eyesight of the next generation. By taking proactive measures today, we can ensure that our children's eyes remain healthy and strong, allowing them to fully enjoy the wonders of the digital world without compromising their vision.

In the words of Mahatma Gandhi, The future depends on what we do in the present. Let us take this opportunity to create a future where our children can thrive in a digital world with a clear vision and bright prospects.

Ms Neha Tripathi is a science filmmaker.
Email: mail_neha@icloud.com