

Screen Time Surge During Lockdowns Fuels Myopia Epidemic

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STORY AT-A-GLANCE

- › Studies have shown a significant correlation between increased digital device usage during COVID-19 lockdowns and the progression of myopia in children, with younger age groups being most affected
- › Children aged 8 and 17 experienced a doubling in myopia prevalence during lockdowns, largely due to increased screen time and a lack of outdoor activities, which are known to protect against myopia
- › A comprehensive meta-analysis confirmed the association between screen time and myopia, identifying computers as having the most significant impact on myopia progression among children
- › Research indicates that early screen exposure in preschoolers is linked to a higher risk of developing myopia, especially in those with myopic parents, highlighting the importance of managing screen time from a young age
- › To mitigate the risk of myopia, it is recommended to reduce screen time and increase outdoor activities. Additional strategies to protect your child's eye health are included below

The COVID-19 pandemic has significantly altered daily routines, particularly for children who have become dependent on digital devices for education and entertainment. This shift has raised concerns about the potential impact of prolonged screen time on the

prevalence of myopia, an eye condition where distant objects appear blurry while close objects are seen clearly.

Studies highlight this alarming trend, showing that increased digital screen time during lockdowns has led to a surge in myopia among children. For instance, a paper published in the *American Journal of Ophthalmology*¹ revealed that by 2050, nearly half of the global population will be affected by myopia because of these pandemic-related changes in the use of digital devices.

Beyond vision impairment, myopia leads to other health and lifestyle issues. Children with myopia struggle academically and socially, affecting their overall development and quality of life. As digital learning continues to play a central role in education, protecting children's eyesight is now even more important to prevent long-term complications and ensure their well-being in an increasingly digital world.

Understanding Myopia – Causes, Symptoms and Challenges in Management

Myopia, commonly known as nearsightedness, is characterized by the elongation of the eyeball, making it difficult to focus on objects that are far away. This elongation causes light entering the eye to focus in front of the retina rather than directly on it, resulting in blurred vision for distant objects.

Symptoms of myopia include frequent headaches, eye strain and the need to squint to see clearly. If left untreated, myopia worsens over time, leading to high myopia and increasing the risk of more serious eye conditions such as retinal detachment and glaucoma. This is because near work, like screen use, forces the eyes to focus on close objects, contributing to the elongation of the eyeball and driving myopic progression.

Diagnosing myopia involves standard eye exams, typically using cycloplegic refraction to measure refractive errors accurately by temporarily paralyzing the ciliary muscle using specific eye drops. However, this method is uncomfortable for children and not always feasible in routine screenings.

On the other hand, reliance on self-reported symptoms or non-cycloplegic refraction leads to an underestimation of the condition's severity. Inconsistent testing methods, subjective assessments and the lack of standardized protocols contribute to the misdiagnosis or delayed detection of myopia.

Conventional treatments for this condition typically involve corrective lenses or refractive surgery, which only address the symptoms but not the root causes, and sometimes even lead to complications. For instance, refractive surgery carries risks such as dry eyes and vision disturbances. Understanding these drawbacks is essential for considering alternative approaches to managing myopia.

Studies Reveal Shocking Increase in Myopia Among Children During Lockdowns

A November 2024 study published in *The British Journal of Ophthalmology*² correlated the significant rise in nearsightedness among children with increased screen time during the COVID-19 lockdowns. The researchers evaluated 2,064 children between 2 and 17 years old from the Chicago area who underwent eye exams from early January 2019 to March 2021.

Their findings show that myopia progression more than doubled during the lockdown period compared to the year before. Children aged 8 and 17 experienced the most substantial increases, with a 25% rise in myopia cases. Moreover, children who were already nearsighted before the lockdowns reported the most significant worsening of their vision. The authors concluded:

*"There was a substantial increase in myopia progression for children in the Chicagoland area after the period of COVID-19 changes. The behavioral changes of home confinement and online learning during the pandemic may explain these findings."*³

These findings are consistent with a meta-analysis published in *BMC Public Health* in June 2024,⁴ which reviewed data from 19 studies involving 102,360 children and

adolescents across East Asia, South Asia, Europe and North America.

This meta-analysis found that screen time from computers had the most significant impact on myopia, with a much higher risk compared to television use. Interestingly, smartphone usage did not show a strong association with myopia, suggesting variations in how different screens affect vision.⁵

The researchers also observed that for each additional hour of daily screen time, the likelihood of developing myopia increased by 7%, emphasizing how even small increments in screen use contribute to nearsightedness over time. This effect was more pronounced in East and South Asia than in Europe and America, suggesting that regional environmental or genetic factors play a role.

The authors also noted the essential role of outdoor activities in preventing myopia. During the lockdowns, reduced exposure to natural light contributed to the progression of myopia in children, as outdoor activities are known to help prevent and mitigate nearsightedness by promoting dopamine release, which plays a role in regulating eye growth.⁶

Importantly, the study found that after 2008, the link between screen time and myopia became even stronger, coinciding with the proliferation of digital devices, which has led to children spending more time on screens than ever before. These findings emphasize the importance of monitoring and managing screen time in children and teens to prevent the progression of myopia.⁷

Digital Screen Use During the Pandemic Accelerated Myopia Progression in Teens

Offering further evidence into how daily digital screen use, driven by remote learning and lockdowns, contributed to the worsening of nearsightedness, a May 2021 study published in *Frontiers in Pediatrics*⁸ examined 3,831 Chinese adolescents in pre-primary to upper-secondary education levels during the COVID-19 pandemic.

The study⁹ found that every additional hour spent on digital devices increased the risk of myopia progression by 26%. The type of digital device used played a major role, with computers linked to an 81.3% higher risk. Notably, unlike findings in the BMC Public Health study, this research linked smartphone use to an even greater risk – showing a 102% increase in myopia progression compared to TV use.

The researchers noted that smaller screens, which are held closer to the eyes, put more strain on vision than larger, more distant screens like TVs. Echoing findings from the other featured studies, this paper also emphasized how the pandemic significantly altered daily routines.

With schools closed and remote learning becoming the norm, adolescents spent extended periods engaging in near-vision tasks. The increased reliance on digital screens during the COVID-19 pandemic, coupled with decreased outdoor activities, heightened the risk factors associated with myopia progression.¹⁰

Early Screen Exposure in Preschoolers Is Associated with Higher Myopia Risk

Adding onto the evidence of the harmful impact of digital screens on children's eye health, another study published in the International Journal of Environmental Research and Public Health explored the connection between screen time in early childhood and the development of myopia in preschool-aged children.¹¹

Using data from the Longhua Child Cohort Study, which included 29,595 children aged 2 to 7 years, the researchers analyzed 26,433 children who either had normal vision or myopia. The findings showed a significant association between early screen exposure and the onset of myopia in preschoolers.

Notably, the risk of developing myopia was higher in children who spent more time in front of screens daily and those who were exposed to screens over multiple years. A child's first year of life is a particularly sensitive period for the impact of screen

exposure on eye development because this is when the eyes are rapidly developing and adjusting to visual input.

Excessive screen time during this period disrupts the natural growth patterns of the eye, leading to elongation that causes myopia. Children with myopic parents are also more susceptible to developing myopia when exposed to screens early in life. However, even in families with no history of myopia, early screen exposure during infancy (0 to 1 year old) increases the risk, emphasizing the importance of limiting screen time from an early age to prevent onset.¹²

Adopt These Strategies to Protect Your Child's Visual Health

Protecting your child's vision starts with adopting lifestyle strategies that promote eye health and reduce the risk of nearsightedness. Here are steps to help maintain your child's visual clarity and overall eye wellness:

- 1. Make outdoor time non-negotiable** — Schedule at least one hour of outdoor activity for your child every day to reduce their reliance on screen-based activities. For older kids, encourage outdoor activities during lunch breaks or free time. Research shows that just one additional hour outdoors each week decreases myopia risk by 14%.¹³
- 2. Set boundaries for screen time** — Limit daily screen use to no more than two hours for kids aged 5 to 17, and avoid screen exposure entirely for babies under 1. If screen time is unavoidable, make sure your child sits at a proper distance from the screen and takes regular breaks to rest their eyes.

A simple trick is the 20-20-20 rule. After 20 minutes of screen time, have them look at something 20 feet away for at least 20 seconds. This reduces eye strain and protects their vision.

- 3. Create screen-free zones** — Designate specific areas and times in your home where screens are not allowed, such as during meals or in bedrooms. This not only reduces overall exposure to screens but also fosters healthier habits, encouraging

your child to engage in activities such as playing outdoors, reading or spending time with family.

- 4. Reduce exposure to blue light from screens and artificial lighting** – Blue light disrupts melatonin production, affecting sleep and increasing oxidative stress in the lens, which raises the risk of long-term vision issues such as cataracts. Use blue-light filters on devices and encourage the use of blue-blocking glasses, especially in the evening, to protect your child's eyes from the harmful effects of prolonged screen exposure.
- 5. Focus on eye-friendly nutrition** – A nutrient-rich diet is key to supporting your child's vision. Make sure their meals include foods packed with eye-boosting nutrients like vitamin C, astaxanthin, lutein and zeaxanthin. These powerful antioxidants combat oxidative stress, protect the retina and support overall visual function.

Leafy green vegetables, carrots, sweet potatoes and fruits are excellent sources of these nutrients. If necessary, consider supplements to fill any nutritional gaps and keep your child's eyes strong and healthy.

- 6. Beware of harmful ingredients lurking in your child's food** – Protect your child's vision by avoiding harmful ingredients that damage their eyes, particularly polyunsaturated fats (PUFAs) like **linoleic acid** (LA). These fats, found in vegetable oils such as canola, soybean and corn oil, are highly prone to oxidation, leading to inflammation and eye cell damage.

Processed foods, fast food and most restaurant meals are common sources of these harmful oils. Prioritize fresh, home-cooked meals made with healthy fats like coconut oil or grass fed butter to support your child's eye health and overall well-being.

- 7. Eliminate aspartame from their diet** – Vision problems are one of the many acute symptoms of aspartame poisoning. This substance is commonly found in "sugar-

free" or "diet" products, such as diet sodas, low-calorie yogurts, sugar-free gum and other processed snacks and drinks.

To keep your child safe, carefully check ingredient labels for aspartame or its related brand names, like NutraSweet or Equal. Opting for natural sweeteners like honey or maple syrup instead supports your child's health without the risks associated with aspartame.

8. Monitor for early signs of vision problems – Stay vigilant for common signs of eye strain in your child, such as squinting, frequent eye rubbing or sitting too close to screens. If you notice any of these behaviors or if your child's prescription changes rapidly, consult an eye specialist for an evaluation.

If their eyes feel dry, tired or tense during screen use, increase break frequency and outdoor time. Early detection of vision problems allows for timely intervention, including adjustments to lifestyle habits to slow the progression of myopia and support healthier eye development.

Sources and References

- ¹ [American Journal of Ophthalmology, 2020 Jul 30;223:333–337](#)
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- ^{8, 9, 10} [Frontiers in Pediatrics, May 25, 2021, Volume 9, Article 662984](#)
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- ¹³ [Eye \(2018\) 32:1042–1047](#)