
COVID-19 and myopia

OPINIONS

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The everyday lives of children and adolescents have changed drastically during the COVID-19 pandemic. Can increased use of digital devices affect the risk of developing myopia?

Since March 2020, the COVID-19 pandemic has been triggering alarm bells and restrictions throughout the world. Various measures have been implemented to limit the spread of the virus in the population, and the use of digital aids has rocketed. For children and adolescents, the closure of schools and the introduction of home learning have led to prolonged periods in front of a computer screen. Leisure activities, sports, games and other outdoor activities have been curtailed. Several ophthalmologists are concerned about how such changes will affect the onset and progression of myopia – near-sightedness or short-sightedness – in the population, especially among children and adolescents [\(1\)](#).

A myopia epidemic

The prevalence of myopia globally has seen a dramatic increase in the last 20–30 years, with around 2 620 million cases in 2020 [\(2\)](#). The highest prevalence is found in East Asia (over 50 %), but the rate is also high in Europe, particularly in Western Europe (around 35 %). According to current estimates, myopia will affect more than half of the population in industrialised countries by 2050, increasing to around 65 % in Asia and over 50 % in Europe [\(2\)](#). The prevalence of both mild and high myopia is set to increase. The latter carries an increased risk of developing severe sequelae such as retinal detachment, glaucoma, cataracts and macular degeneration [\(3\)](#).

«High myopia carries an increased risk of developing severe sequelae such as retinal detachment, glaucoma, cataracts and macular degeneration»

Epidemiological studies in Norway in 1996–97 showed a prevalence of myopia in the general population of around 35 % among 20–25-year-olds and around 30 % among 40–45-year-olds [\(4\)](#). Among university students, however, the rate was over 50 %. Both an increasing prevalence of myopia and measurable biometric changes in the eye were found in the students during the study period [\(5\)](#), as well as a link between myopia and near work [\(6\)](#).

Send the children outside

Epidemiological studies over the last 50 years have shown that myopia usually develops in childhood and adolescence [\(7\)](#). In addition to genetic factors, exposure to various environmental factors appears to increase the risk of developing myopia. Many studies show a correlation between myopia and near work [\(6, 7\)](#). In children, the incidence of myopia increases sharply after they start school. Time spent on outdoor activities is now highlighted as a crucial factor both for delaying onset and slowing the development of myopia in children [\(8\)](#).

After the pandemic

Lifestyle changes during the COVID-19 pandemic are likely to lead to a growing trend in the use of various digital platforms. Measures should be taken to limit the increasing incidence of myopia among children and adolescents during the pandemic [\(1\)](#).

In some Asian countries with a high prevalence of myopia, such as China, the authorities have already initiated preventive efforts. Chinese guidelines stipulate that digital teaching aids should only be used for 30 % of lesson time and a maximum of 20 minutes for homework, and that screen time for entertainment should be limited to one hour daily [\(1\)](#).

How can it be prevented?

If we are to address the rise in myopia, including what has been termed 'corona myopia', healthcare personnel, society and families with children need the proper tools. Based on recommendations by leading myopia researchers [\(1\)](#), [\(7–9\)](#), we suggest the following four measures:

Time outdoors is time well spent: raise awareness of how spending time outdoors can slow the onset and progression of myopia in children and adolescents.

Digital detox: develop good screen habits, take frequent breaks and limit screen use for entertainment.

«Many studies show a correlation between myopia and close-up work. In children, the incidence of myopia increases sharply after they start school»

Greater variation in home learning: improving the cooperation between the health and education authorities with a view to introducing a comprehensive plan for home learning is important. Other forms of learning rather than just reading and online work should be adopted, such as cooking, baking, housework, gardening, physical exercise and other activities.

Let the children out: when infection control measures are introduced, greater emphasis must be placed on allowing outdoor activities for children and adolescents. Two to three hours outdoors every day seems to have good health benefits for children and adolescents.

Conclusion

The widespread use of digital platforms during the COVID-19 pandemic appears to increase the risk of children and adolescents developing myopia. Reducing the time spent on near work and in front of a computer screen and increasing the time spent on outdoor activities are vital preventive measures.

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