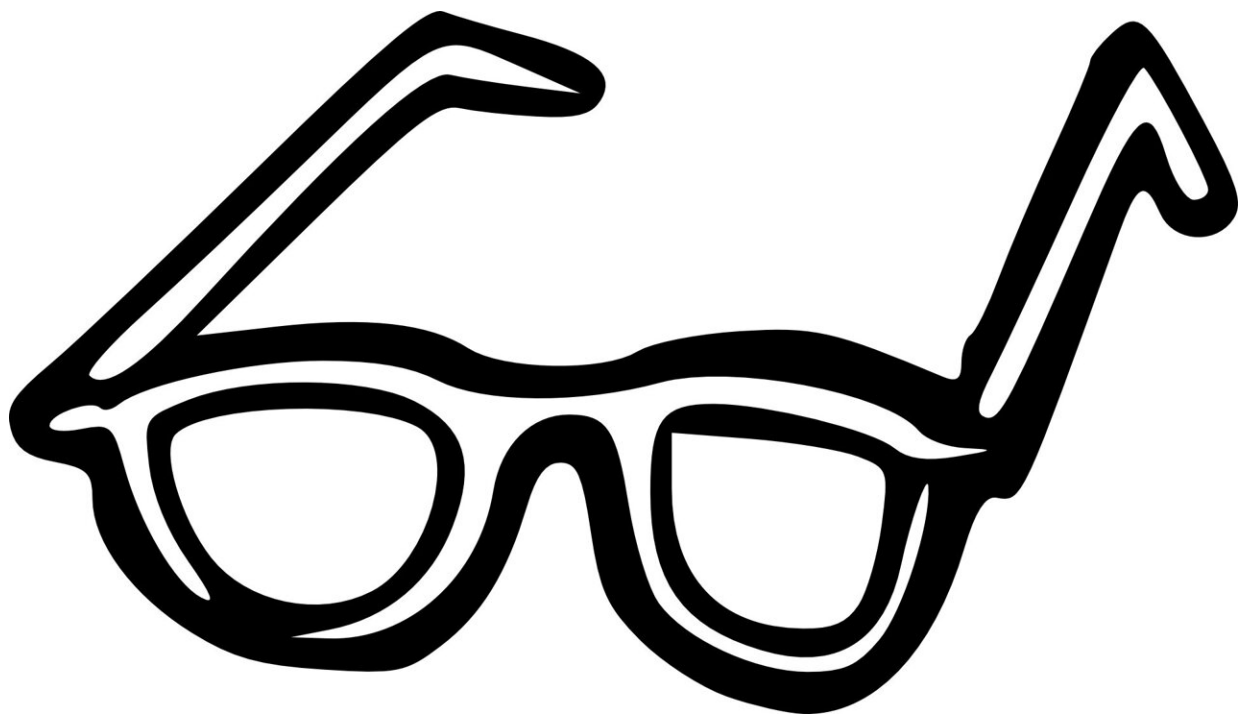


Rise in childhood short-sightedness may be linked to pandemic, suggests Hong Kong study

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A rise in cases of short-sightedness (myopia) among children in Hong Kong may be linked to a significant decrease in the time they have been able to spend outdoors and a sharp rise in screen time during the coronavirus pandemic, suggests research published online in the *British*

Journal of Ophthalmology.

By September 2020, more than 180 countries had closed schools and colleges, affecting one billion learners, or 80% of the world's students, in a bid to control the march of coronavirus, say the researchers.

Children have been particularly badly affected, with outdoor activities restricted or banned and socialising severely limited. Hong Kong is also one of the world's most densely populated cities, with most residents living in high-rises and small apartments with little outdoor space.

An increase in close working and [screen time](#) and a decrease in time spent outdoors have been implicated in short-sightedness, a condition in which the shape of the eye changes, causing [light rays](#) to bend (refract) incorrectly, focusing images in front of, instead of on the surface of, the retina.

Short-sightedness in [children](#) matters because it puts them at risk of developing complications that increase the risk of irreversible impaired eyesight/blindness later in life, say the researchers.

To find out if enforced behavioural and [lifestyle changes](#) during the pandemic might have affected children's vision, the researchers studied the eyes of 1793 children, all of whom were part of the Hong Kong Children Eye Study (HKCES). This is an ongoing population-based study of eye conditions among 6-8 year olds.

Some 709 of the children were recruited to the study at the start of the pandemic (December 2019 to January 2020) and were monitored for around 8 months; 1084 children had entered the study before the start of the pandemic and had been monitored for around 3 years.

The children's visual acuity—the ability to see clearly—was measured

and they filled in questionnaires on their lifestyle, including how much time they spent outdoors and on close work, at study entry and during subsequent clinic visits.

Around 1 in 5 (19.5%) of the children in the COVID-19 group developed short-sightedness between January and August 2020, compared with around 1 in 3 (37%) of those in the pre-COVID-19 group over a period of three years.

And after factoring in age, gender, length of monitoring period, parental short-sightedness, and how much time was spent outdoors and on close work, the numbers of new cases of short-sightedness were higher among children in the COVID-19 group.

The estimated 1-year incidence of short-sightedness was 28%, 27%, and 26%, respectively, for 6, 7 and 8 year olds in the COVID-19 group, compared with 17%, 16%, and 15%, respectively, for 6, 7, and 8 year olds in the pre-COVID-19 group.

These changes coincided with a reduction in the time the children spent outdoors, from around an hour and 15 minutes to around 24 minutes/day and an increase in screen time from around 2.5 hours/day to around 7 hours/day.

The researchers also compared the current COVID-19 group with the findings of their previous study, which looked at the development of short-sightedness in children of the same ages in Hong Kong.

In the previous study, 13% of the children developed the condition over a period of 1 year. This compares with 19.5% of the COVID-19 group in the current study over a shorter period of 8 months, lending further weight to a link between the pandemic and a heightened risk of short-sightedness, suggest the researchers.

This is an observational study, and as such, can't establish cause, added to which the research included questionnaire data, which rely on recall.

And the findings might not reflect the impact of COVID-19 in other parts of the world, where social distancing, quarantine, and school closure policies may be different, caution the researchers.

Nevertheless, they write: "Despite all these insurmountable study limitations, our initial results still show an alarming myopia progression that warrants appropriate remedial action."

And they conclude: "[They] serve to warn eye care professionals, and also policy makers, educators and parents, that collective efforts are needed to prevent childhood myopia, a potential public health crisis as a result of COVID-19."

More information: Myopia incidence and lifestyle changes among school children during the COVID-19 pandemic: a population-based prospective study, *British Journal of Ophthalmology* (2021). DOI: 10.1136/ bjophthalmol-2021-319307

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