

THE COVID-19 PANDEMIC AND MYOPIA IN CHILDREN

Since the beginning of the Covid-19 pandemic, almost everyone including children have been facing a steep increase in screen time in order to continue with work and learning. Does this cause any serious harm to the eyes?

As Asians, even before the Covid-19 pandemic, we have been in the epicentre of myopia or shortsightedness, due to our genetic factor. A systematic review and meta-analysis done by the Holden's Institute, predicts that by 2050 there will be 4758 million people with myopia (49.8% of the world population)¹, and this is before the increase of near work in children, due to "lockdown" and online learning, as a method to curb the Covid-19 spread.

Some optometrists even came up with the term "covidopia", which is myopia that is induced or worsened by the Covid-19 pandemic. In the eye clinics and optometrist practices, there has been an increase in the number of children complaining of refractive errors. Among adults, digital strain symptoms such as eye tiredness, dry eyes, tired neck and back ache have been increasing during this pandemic.

What are the contributing factors to the rise in cases of myopia in children during this pandemic ?

If I have to pinpoint 3 factors, it would be online learning, increased digital device use both for education and entertainment and reduced outdoor time.²

Many studies over the years have shown an association between near work and myopia³, years of schooling and myopia⁴ and near work behavior and myopia⁵ though some studies failed to show a significant association.⁶ Insufficient outdoor time is also considered a major lifestyle factor that contributes to myopia in children. With the inevitable increase in near work and reduced outdoor time as a result of this pandemic has thus caused heightened concerns about myopia in children.

Children are increasingly getting used to online learning and thus are becoming more attached to their gadgets and would choose gadgets during their recreation time as well, as opposed to playing outdoor. Outdoor activities and exposure to natural light are known protective factors against myopia onset and to some extent, myopia progression⁷. With the recurrent Movement Control Order in our country, getting outside to play is becoming increasingly difficult.

As an ophthalmologist, my bigger concern is the lengthening of interval of eye examination in children, who are already myopic. The recommended interval for eye examinations for children may be 4 months to one year, but low adherence and postponements of appointments during this pandemic may result in longer intervals between reviews.

Myopic children or pre-myopic children not undergoing active myopia monitoring and management are not likely to have axial length measurements. With this gap in follow-ups, it may be challenging to detect a change in myopia incidence or progression in the population. However, more data need be collected before any conclusion is made on the actual impact of this pandemic on the incidence and progression of myopia in children in this country, and worldwide.

Are there any tips for parents and teachers, to ensure good visual hygiene to reduce the risk of myopia during usage of gadgets in children?

The illumination from the gadget should be set to be neither too dim nor too bright. The illumination of the room is also important, as studies have shown that studying in a lowly lit room can promote myopia progression .

A safe distance of approximately 30cm from the device is recommended. If possible, avoid using smart phone and instead use gadgets with bigger screens such as laptops or desktops for online learning and recreation in younger children. As

smaller gadgets require higher accommodation for the eyes and cause straining.

A good visual hygiene practice to follow is the 20-20-20 rules, in which for every 20 minutes, one takes a 20 seconds break to look at something at 20 meters away, to relax the eyes.

If children complain of any symptoms such as headache or blurring of vision or seen to have an abnormal head posture such as head tilt or face turn, kindly bring them to an optometrist or an ophthalmologist for a complete eye examination.

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