Myopia in Children FAQ

Q: What is myopia? How prevalent is it globally?

A: Myopia, or near-sightedness/short-sightedness, is a common vision condition. It occurs when the eye grows too fast and becomes too long relative to the focusing power of the cornea and lens of the eye or the cornea is too curved and thick. This causes light rays to focus in front of the retina instead of on it. Those suffering with myopia can see close objects clearly but distant objects are blurred. It Is often hereditary but increased near-work activities including screen time and spending less time outdoors are also seen as risk factors for myopia development and progression[1].

Myopia often begins between the ages of 6 and 14. Currently, it affects up to 5% of preschoolers, about 9% of school aged children, and nearly 30% of adolescents[2]. A person with one near-sighted parent has three times the risk of developing myopia – or six times the risk if both parents are near-sighted[3].

It is becoming a global epidemic with an estimated 5 billion people, or half of the global population, potentially having myopia by 2050 according to research published by the American Academy of Ophthalmology[4].

Geographically, the highest prevalence of myopia in children is in East Asia. Hong Kong has one of the highest rates of myopia in the world with myopia affecting more than 40% of school children at the age of eight[5]. Research suggests a link between Asian ethnicity and faster progression of myopia, with higher worldwide prevalence in this group of people[6].

Q: Is myopia curable?

A: No, myopia cannot be reversed or cured but it is certainly treatable. And if treated early with the proper management protocol progression can be halted from getting worse.

Q: Why is managing myopia so important?

A: Myopia tends to get progressively worse unless addressed. It is important to have a treatment protocol that will help to slow or stop the progression.

Having myopia can increase the risk of having vision-threatening conditions later, like cataracts, glaucoma and retinal detachment so it is important to identify this eye condition early and work together with the ophthalmologist to develop an effective treatment protocol.

In fact, higher levels of myopia are associated with higher eye disease risks in adulthood.

Q: Are there varying levels/degrees of myopia?

A: Myopia can be categorized based on the International Myopia Institute (IMI)[7] recommended definitions as:

- Low myopia when the spherical equivalent refraction (SER) is between ≤ -0.50D and >-6.00D in the relaxed accommodation condition.

- High myopia when the SER is ≤ 6.00D in the relaxed accommodation condition.

In some countries, such as China, moderate myopia level when the SER is between ≤ 3.00D and < 6.00D is also used[8].

The IMI defines pre-myopia as “a refractive state of an eye of ≤ +0.75 D and > -0.50 D in children where a combination of baseline refraction, age, and other quantifiable risk factors provide a sufficient likelihood of the future development of myopia to merit preventative interventions[7].

Higher levels of myopia are associated with higher eye disease risks in adulthood. For each dioptre lost an increase in the probability of eye disease is seen[9].

Q: What is the best approach for parents to address myopia?

A: First of all be informed, have children’s eyes checked starting at a young age. If found to have pre-myopia or myopia, HOYA’s team of professional advisors recommends that eye care professionals put the child at the center of the decision, and both identify and discuss the most appropriate, safe, effective and compliant treatment option on an individual basis, with consent from the parents and child[10].

For safety reasons prescribing a non-invasive optical intervention is the first choice for children under 8 years of age. As the eye and the visual system are still developing up to 8 years old, the visual performance, binocular vision and wearing behavior must be checked at regular follow-up visits[10].

However, single vision lenses simply correct refractive errors but do not slow down the progression of myopia so lenses like MiYOSMART are key to managing myopia.

Q: What is the difference between myopia management and myopia correction?

A: Myopia correction is a solution for simply correcting a refractive error/blurred far vision. Myopia management is essential not only to correct but more important to slow the increase/progression of myopia in children – management includes an early identification/diagnosis of myopia and a development of a treatment plan which could include wearing the MiYOSMART spectacle lens that slows the progression of myopia in children age 8-13[11]. Other treatment modalities to manage myopia include orthokeratology, contact lenses and atropine. Increased time outdoors and limiting screen time can also slow the myopia progression.

Myopia is not something that you can cure. The target is to slow its progression and correct the blurred far vision through the best determined myopia management solution. The best course of treatment should be decided by a child’s parents, a child and ophthalmologist.

At some point, the child’s myopia progression will be stabilized and then a discussion about graduating a child from myopia management should take place. Studies have found that stabilization occurs around 15 years of age and by the mid-20’s nearly all of the those studied had their myopia stabilized[8].

Q: Has the increased near-work activities including screen time on computers and digital devices during COVID 19 raised levels of myopia in children?

A: Increased digital screen time, near work and limited outdoor activities found to be associated with the onset of myopia and its progression could potentially be aggravated during and beyond the COVID-19 pandemic outbreak period. According to the American Academy of Paediatrics, these factors have doctors concerned about the potential for a big increase in myopia in children[12].

Very limited studies in China and Singapore in the summer of 2020 have observed some increase while other studies in the US have not shown this to be the case. The effects of the pandemic on myopia rates and individuals with myopia will continue to be studied for some time.

A study released in 2021 by the Faculty of Medicine at The Chinese University of Hong Kong showed a 2.5-fold increase in myopic children during COVID-19 with children spending less time outdoors and more time on screens. The findings were published in the British Journal of Ophthalmology in 2021.

In addition, the International Myopia Institute's Chair, Professor Caroline Klaver, wrote an article which appeared in the JAMA Ophthalmology declaring 2020 as the Year of Quarantine Myopia.

Q: Are there regions of the global where myopia is more well-known and addressed more strongly than others?

A: MiYOSMART was launched in July 2018 in Hong Kong and China and rolled out in Singapore, and Malaysia in late 2019.

This parallels the fact that the highest prevalence of myopia in children is in East Asia. Hong Kong has one of the highest rates of myopia in the world with myopia affecting more than 40% of school children at the age of eight. Research suggests a link between Asian ethnicity and faster progression of myopia, with higher worldwide prevalence in this group of people[6].

Europe and the Americas are also addressing the growing rise of myopia, but more education needs to be done about the need to check children's eyes at an early age with eye care professionals including ophthalmologists, with teachers/educators and with parents.

In the US, the prevalence of myopia has increased 66% over the past 30 years[13], now 42% of people aged 12-54 are myopic[14].

Q: What can parents do to help stave off myopia in children before it starts?

A: Encourage children to take frequent breaks from close-up work including reading and using computers and other electronic devices. It is recommended that children should not spend more than three hours a day – in addition to school time – on close work such as reading, homework or screen-time.

Spend daily time outside, up to 90 minutes if possible and limit recreational screen time[15].

By balancing screen time with outdoor time, when possible, it may help prevent myopia onset and slow down myopia progression.

Q: What are the symptoms of myopia in children?

A: Blurry far vision, unable to see the board in school, squinting eyes trying to see better, frequent eye rubbing and frequent headaches.

Q: Have the effects of MiYOSMART spectacle lens in children been clinically proven?

A: Yes, a two- year double-masked randomized clinical trial was conducted between 2014-2017 by the Centre for Myopia Research at The Honk Kong Polytechnic University with 160 myopic children aged 8-13 wearing DIMS and standard single vision spectacles. The results showed that daily use of DIMS lenses significantly slowed myopia progression on average 60% than wearing standard single vision lenses[11].

In March 2021, a clinical study based on three years follow up was published in the British Journal of Ophthalmology. The study conducted by the Centre for Myopia Research at The Hong Kong Polytechnic University.

The three-year follow up study, conducted on 120 children, included 65 from the original DIMS group using the MiYOSMART spectacle lens and 55 children (Control-to-DIMS group) who moved from using a standard single-vision lens for two years to the MiYOSMART spectacle lens in the third year of the study. Results in the original DIMS group of children showed that the slow down effect on myopia progression was sustained over the three-year period and the Control-to-DIMS group that moved to MiYOSMART spectacle lens showed an immediate and significant slow-down effect in the progression of myopia[16].

PRODUCT DISCLAIMER – MiYOSMART has not been approved for myopia management in all countries, including the U.S., and is not currently available for sale in all countries, including the U.S.

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