



Myopia

Background

Myopia (or nearsightedness) is now the most common type of refractive error and one of the leading causes of legal blindness in the world¹. The global prevalence of myopia is expected to increase from 27% in 2010 to 52% of the world's population by 2050². It is estimated that 30 percent of the Canadian population is myopic.³ In addition to its increased prevalence in Canada, myopia is occurring at earlier ages and progressing at rates faster than seen in previous generations.

Research from the University of Waterloo's School of Optometry and Vision Science and the CNIB Foundation found myopia in children increases dramatically from Grade 1 to Grade 8, with almost a third of the cases going undiagnosed and uncorrected. This research also showed that the onset of myopia is now 6-7 years of age, where historically it began at 12-13 years of age.⁴

Myopia is believed to result from a combination of genetic and environmental factors. There have been more than 150 genetic variants identified that confer an increased risk of myopia, however the exact mechanisms have yet to be determined. There is also a link between time spent outdoors and the development of myopia in children, with increased time outdoors being beneficial. There is ongoing research to determine the mechanism at work, but population health studies indicate extended up close work and time spent indoors are factors contributing to an increased risk of myopia.

Generally, myopia can be corrected by spectacles, contact lenses or refractive surgery, but these therapies fail to prevent the development of vision-threatening ocular conditions associated with moderate and high myopia. Myopia greater than -7 diopters (D) places an individual at risk for retinal detachment and myopic macular degeneration, as well as other eye health complications, including glaucoma.

Policy Issue

The increasing incidence of myopia globally, and the shift to a younger age of onset for myopia is a significant public health issue. Beyond requiring lenses to clear the vision, myopia can cause

¹ <http://www.who.int/blindness/causes/MyopiaReportforWeb.pdf>

² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5516464/>

³ <https://opto.ca/health-library/myopia-nearsightedness>

⁴ <https://www.nature.com/articles/s41433-018-0015-5.epdf>



numerous long-term problems, from glaucoma and early cataracts, to retinal tears, retinal detachments and myopic degeneration, which impacts vision similarly to age-related macular degeneration.

In addition to socioeconomic costs associated with undetected and uncorrected myopia, it can have a significant impact on quality of life.

As primary care practitioners, optometrists are well-positioned to detect the early signs of vision problems, eye health issues, and systemic diseases. Optometrists can be a source of information on prevention strategies and ways to slow progression when myopia is advancing at a rapid rate.

Canadians need information and education about the prevention, control and treatment of myopia and its complications. The Canadian Association of Optometrists will continue to emphasize the seriousness of the issue among doctors of optometry, patients, and other stakeholders.

Policy Position

The Canadian Association of Optometrists recognizes that myopia is a global public health issue, and that optometrists play a key role in providing comprehensive eye examinations to detect and treat the condition and its complications.

The Canadian Association of Optometrists recommends that everyone receive routine eye examinations and endorses the [evidence-based guidelines for the frequency of comprehensive eye exams](#), considering age-related risk. If high myopia is diagnosed, the recommendation is to have more frequent eye examinations (for example, every six months).

The Canadian Association of Optometrists supports ongoing research in the prevention, treatment and remediation of myopia and its complications.

In an effort to control the onset and development of myopia in children the Canadian Association of Optometrists recommends that parents encourage at least 90 minutes of outdoor time each day.

Doctors of optometry should be familiar with the latest research in the area of myopia, and should educate their patients about myopia prevention and control options.

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References

Lee JJ, Fang PC, Yang IH, et al. [Prevention of myopia progression with 0.05% atropine solution.](#) *J Ocul Pharmacol Ther.* 2006;22:41-46

Mameesh, M. et al. [Facing the epidemic of myopia: Exploring the possibilities.](#) *Oman J Ophthalmol.* 2017 May-Aug; 10(2): 61-62

Pascolini D, Mariotti SP [Global estimates of visual impairment:](#) 2010. *Br J Ophthalmol.* 2012 May; 96(5):614-8.

Yang M, Luensmann D, Fonn D, et al. [Myopia prevalence in Canadian school children: a pilot study.](#) *Eye (Lond).* 2018 Jun;32(6):1042-1047.