

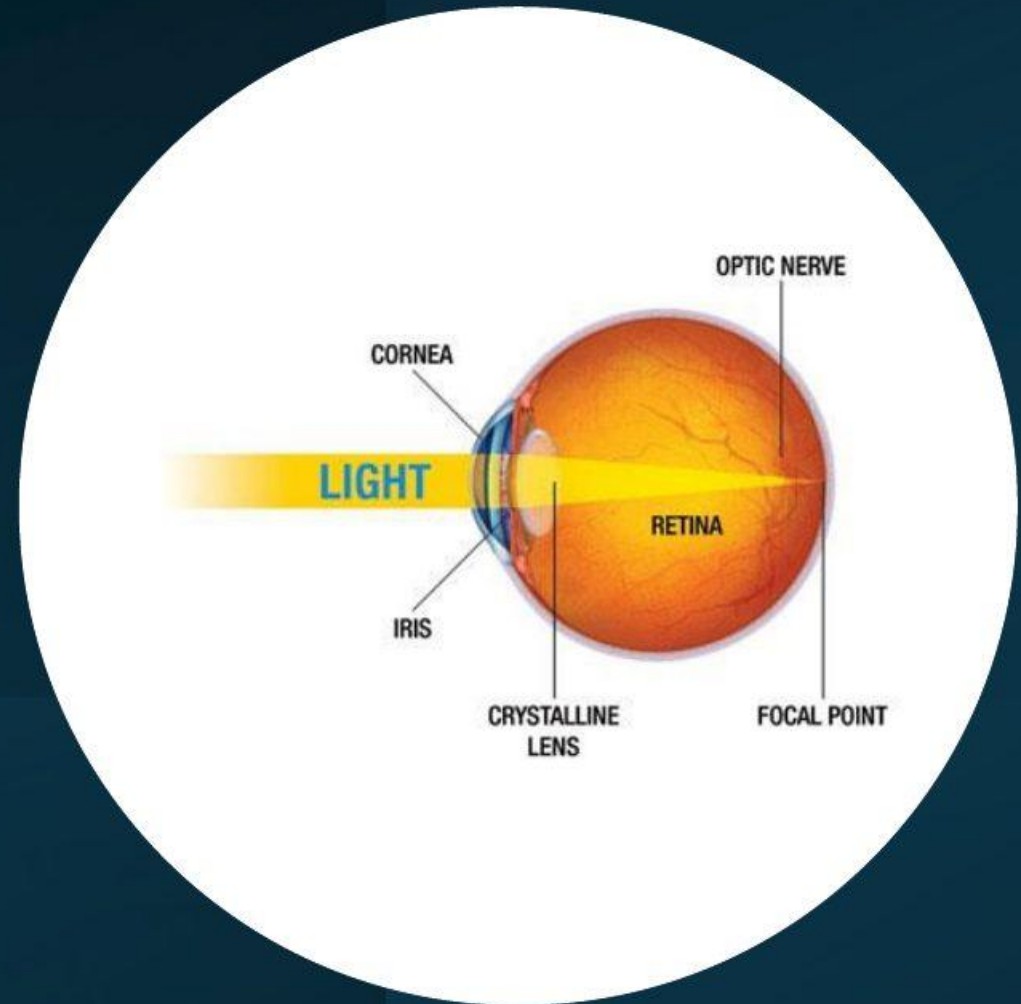
A pair of glasses is shown, with the lenses reflecting a suburban street scene. The reflection shows houses, trees, and a car. The text "MYOPIA (nearsightedness)" is overlaid in white, bold, sans-serif font, centered between the lenses. A thin white horizontal line is positioned below the text.

MYOPIA (nearsightedness)

Maria Wu

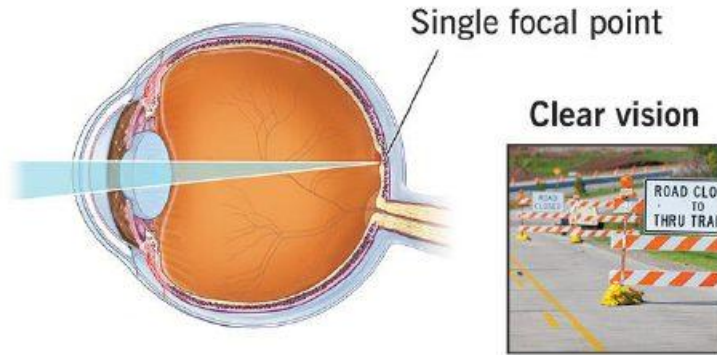
Vision: how do we see?

Light passes through cornea, crystalline lens, vitreous body, and finally projects onto the retina to form an image, which is transmitted to the brain (visual cortex) for processing via optic nerves. Vision is the most important of human senses and we receive 80%-85% of all information from vision! [2]

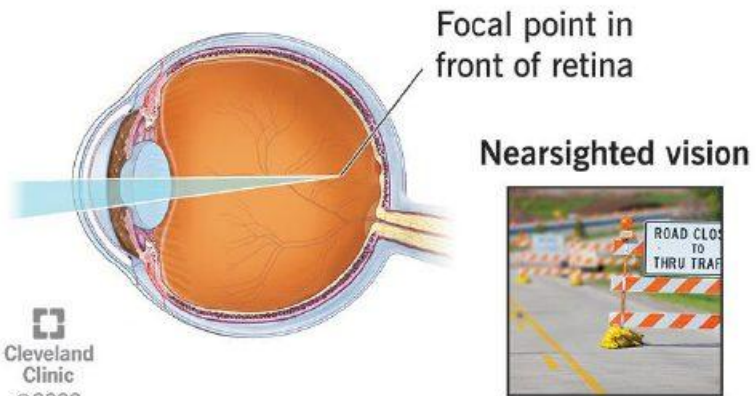


Myopia (nearsightedness)

Normal vision



Myopia (nearsightedness)



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What is myopia?

Myopia occurs when the eyeball (axial length) is too long, making the image to focus in front of the retina and causing distant objects to appear blurry.

Myopia is measured in DIOPTERS (D)

- Low/mild myopia: -0.25D to -3.00D
(distant objects appear slightly blurry; correction is needed mainly for driving or boards)
- Moderate myopia: -3.25 D to -6.00 D
(distance vision is significantly blurred without corrective lenses)
- High myopia: -6.00 D or stronger (severe myopia carrying higher structural risks to the eye) [5]



Myopia is becoming increasingly prevalent globally ...

In the US, myopia prevalence rose from 25% in the early 1970s to 42% nowadays. [7]

early 1970s

World Health Organization (WHO) projects that half of the world population will be myopic by 2050.

2050

2024

In East Asia, 80%-90% of young adults are nearsighted. [8]

Myopia Increases the Risk of Serious, Sight Threatening Complications



Eye Disease	-2.00 D	-4.00 D	-6.00 D	-8.00 D
Myopic Maculopathy²	2.2x higher	9.7x higher	40.6x higher	126.8x higher
Retinal Detachment³	3.1x higher	9.0x higher	21.5x higher	44.2x higher
PSC Cataract⁴	1.6x higher	3.2x higher	5.4x higher	12.3x higher
Glaucoma⁵	1.7x higher	2.5x higher	2.5x higher	N/A

Odds ratio of ocular disease as a function of myopia relative to emmetropia¹

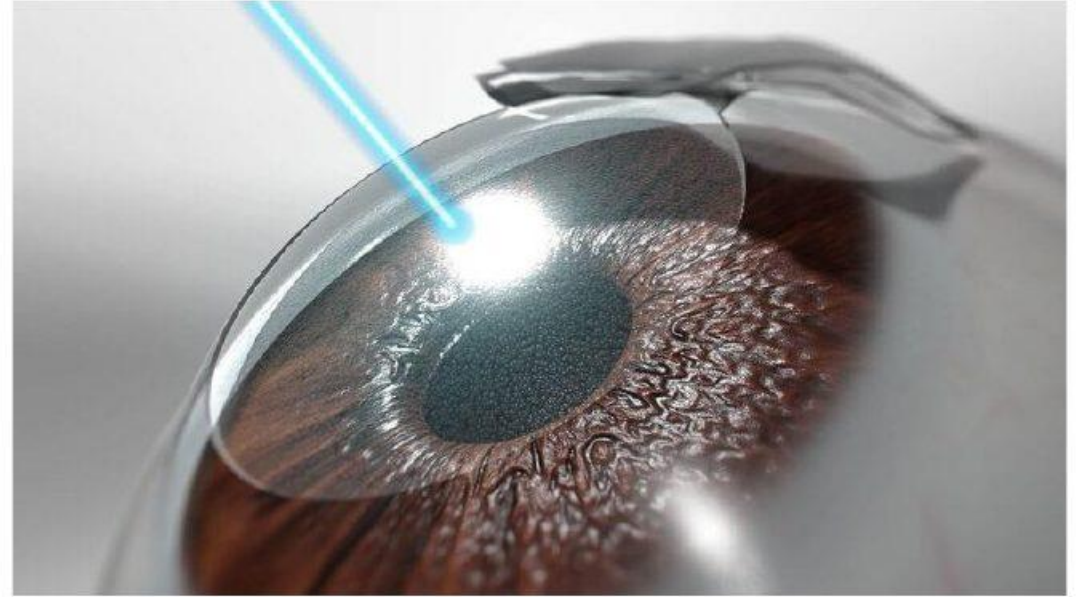
Myopia can't be cured but can only be corrected



Glasses [10]



Contact lenses [11]



Refractive surgeries for adults (e.g. LASIK) [12]

WARNING: debunking common myopia myths!

1. Myopia is a childhood problem. (FALSE)
2. Myopia will not cause blindness. (FALSE)
3. Myopia can be easily treated by a pair of glasses or contact lenses. (FALSE)
4. Wearing pinhole glasses can train eyesight and reverse myopia. (FALSE)
5. Taking supplements such as vitamin A will prevent myopia. (FALSE)
6. After refractive surgery (e.g., LASIK), I am no different from somebody who doesn't wear glasses. (FALSE)
7. My young child should not wear glasses because that will cause their myopia to worsen. (FALSE) [13]



Which doctor should I see for myopia?



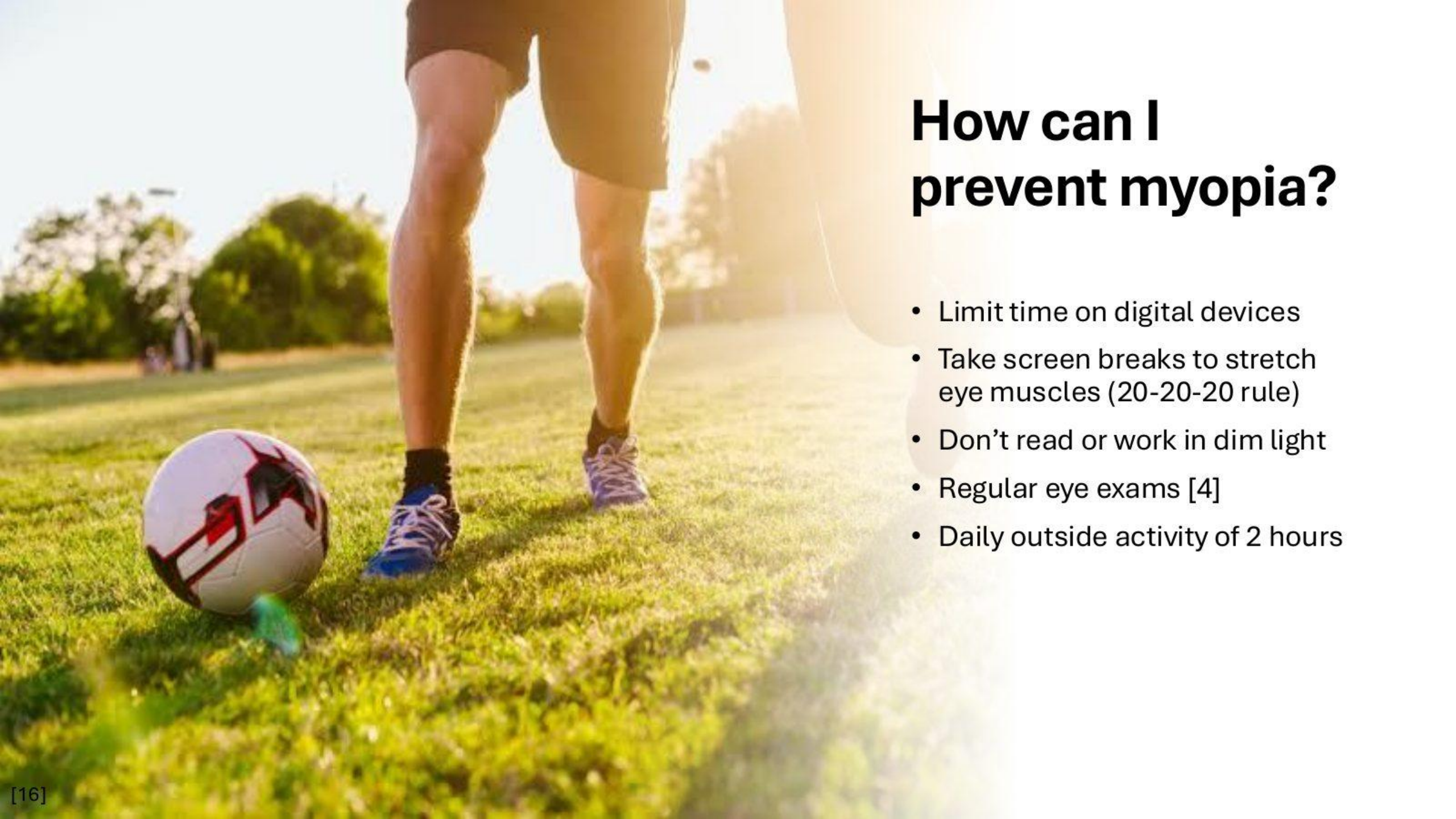
[14]

Optometrist (OD): routine eye exam, refraction, glasses, contacts, myopia management



[15]

Ophthalmologist (MD/DO): refractive surgeries, medical and surgical intervention of eye diseases caused by high myopia



How can I prevent myopia?

- Limit time on digital devices
- Take screen breaks to stretch eye muscles (20-20-20 rule)
- Don't read or work in dim light
- Regular eye exams [4]
- Daily outside activity of 2 hours

References

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