Moorfields Eye Hospital NHS Foundation Trust

Paediatric information

Myopia - Having short-sight

The medical term is…
Myopia

But it's often called…
Short-sight

Myopia is a common problem with the eye's focus that can affect your vision at all distances, but especially for seeing things that are far-away. It can easily be corrected with glasses or contact lenses.

How you see the world

If you have myopia things can look blurred, especially if they are far-away. You can see things better when they are very close to you. You might also get headaches and tired eyes.

How the world sees you

People with myopia might wear glasses or contact lenses.

What does the word myopia mean?

Myopia comes from two Greek words: myein, meaning 'closed', and 'ops', meaning eye – so together they mean 'closed eye' – probably to describe that short-sighted people can see things slightly more clearly by squeezing their eyelids together a bit.

Is short-sightedness becoming more common in children?

Yes – in the 1960s, 7% of 12-13 year olds in the UK were short-sighted. By 2016, this had increased to 16.4%. This means that short-sightedness is now twice as common as it was 50 years ago. The figures are even higher in East Asian children, where up to 90% of children are short-sighted. Myopia usually appears around the age of eight years but can appear at any age from early childhood. In most cases, myopia will stop getting worse in the late teenage or early adult years – at around the age of 17 to 25 years.

Why did I get it?

A number of factors probably combine to cause myopia but it is not completely understood. There seems to be two main causes: genetics and the fact that children spend less time outdoors these days. . There is a tendency for myopia to run in families – if one or both parents are short-sighted their children have a higher chance of becoming short-sighted as well. But there is nothing that can be done about genetic factors and children who are short-sighted can have parents who are not short-sighted.

There is also evidence that spending less time outdoors increases children's risk of developing short-sightedness and of it getting worse over time. There is a lot of uncertainty about this and what to advise people to do. We know that children of primary school age who spend less than 45 minutes a day outdoors have a higher risk of myopia than those spending two hours outdoors. It is probably a good idea to aim for an hour of outdoor activities a day, and two might be even better. At the moment, it is not clear exactly how being outdoors protects against short-sightedness. It could be linked with exposure to sunlight - scientists think that sunlight increases a chemical called dopamine in the retina (the seeing part at the back of the eye) which can affect eye growth.

Does using screens matter?

Although children now spend more time using screens, there is no proven link with short-sightedness. People who have spent more time in education and young children who read continuously have a higher risk of being short-sighted but, in large research studies, they discovered that time spent on "near tasks" didn't mean that short-sightedness would definitely develop.

What is the problem in short-sightedness?

Myopia is a focusing problem. Think about it like this - when you watch a film at the cinema, the film projector has to be focused to get a nice sharp picture on the screen. Your eye works in the same way. Light passes through your eye's natural lens like it passes through the projector's lens. Light then focuses on the retina at the back of your eye the way it focuses on the cinema screen. For good focus you have to have the right distance between a lens and a screen.

Imagine if the distance between the projector and the screen was too long: the picture on the screen would be blurred. In myopia, the length of your eyeball is too long for the strength of your eye's lens. Light is focused too far forward, in front of the retina, and so things look blurred.

How does myopia change as you grow?

In the first few years after birth, our eyeballs grow a few millimetres. The eyes then usually grow very slowly for a few years and stop growing by around 12- 13 years. In some children, the eyeball grows too long for the strength of the lens, and may continue growing after the age it normally stops. Myopia is measured in dioptres. We expect up to 0.5 dioptres change in short-sight per year in the average child and teenager but we often see more in a short time, especially when children get suddenly taller (a growth spurt).

How can the doctor tell?

Myopia is usually diagnosed with a simple glasses test using a special torch (retinoscope) and lenses to measure how your eye focuses.

Getting it sorted

Myopia can usually be corrected with glasses or contact lenses. These are concave (curved inwards) lenses, which move the focus of the light backwards onto the retina allowing you to see clearly.

Laser surgery to correct myopia is also available but is usually only used on adults, once the eye has stopped growing. It works by changing the shape of your cornea so that light is focused correctly.

Which treatments might slow down the development of myopia, and how effective and safe are they?

These are some of the treatments that have been investigated:

1) Weak atropine eye drops (0.01%) given once daily at bedtime may reduce the development of short-sightedness, as shown by studies in Singapore. At this low concentration, the drops were very safe. However, a study is being done as we don't know yet whether this works for children in the UK and Europe. . A strong version of this drop (Atropine 1%) has been used for many years for a variety of eye problems but makes sight a bit blurry. The 0.01% version does not make sight blurry.
2) Hard, tightly fitting, contact lenses worn overnight (orthokeratology lenses): One study reported a small reduction in myopia getting worse, but there are serious risks such as infections of the cornea (the clear window at the front of the eye) which may cause scarring and permanent loss of sight, and the evidence for it working is very limited.
3) Bifocal or multifocal soft contact lenses (which let you see clearly both far and near without your own lens needing to focus) may lower the yearly worsening of myopia a little, but there is also a risk of serious corneal infection.

The evidence for these treatments is not yet strong enough to recommend them; and at the moment our only recommendation is that parents encourage their children to live healthily, not spend too much time continuously looking at small screens or books and spend plenty of time outdoors when they are young.

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Moorfields Direct telephone helpline

Phone: 020 7566 2345
Monday-Friday, 8.30am-9pm
Saturday, 9am-5pm
Information and advice on eye conditions and treatments from experienced ophthalmic-trained nurses.

Patient advice and liaison service (PALS)

Phone: 020 7566 2324/ 020 7566 2325
Email: moorfields.pals@nhs.net
Moorfields' PALS team provides confidential advice and support to help you with any concerns you may have about the care we provide, guiding you through the different services available at Moorfields. The PALS team can also advise you on how to make a complaint.

Your right to treatment within 18 weeks

Under the NHS constitution, all patients have the right to begin consultant-led treatment within 18 weeks of being referred by their GP. Moorfields is committed to fulfilling this right, but if you feel that we have failed to do so, please contact our patient advice and liaison service (PALS) who will be able to advise you further (see above). For more information about your rights under the NHS constitution, visit www.nhs.uk/choiceinthenhs