Barts Health NHS Trust

Patient information

Myopia and Myopia Control

What is myopia?

Short-sightedness, or myopia, is a very common eye condition that causes distant objects to appear blurred, while close objects can be seen clearly.
It's thought to affect up to one in three people in the UK and is becoming more common. It can range from mild, where eye sight correction may not be required, to severe, where a person's vision is significantly affected. Childhood myopia tends to start between 6 and 8 years of age but myopia can also start around puberty and can gradually worsen until the eye is fully grown.

What causes short-sightedness?

Myopia usually occurs because the cornea or lens is too powerful or because the eyeball is longer than non-myopic eyes. This means that light does not focus on the light-sensitive tissue (retina) at the back of the eye properly. Instead, the light rays focus just in front of the retina resulting in distant objects appearing blurred.
It is not completely understood why myopia develops but most research shows a higher risk in children whose parents are myopic and in certain ethnicities. It has also been linked to environmental factors such as long periods of close work, poor accuracy of focusing and fewer hours spent outdoors.
It is not clear why being outdoors reduces the development of myopia but is likely to involve multiple factors. It could be in part linked with exposure to daylight, as scientists think that daylight increases a chemical called dopamine in the retina which can affect eye growth.

POSITIVE ABOUT DISABLED PEOPLE

Can electronic screens cause myopia?

Although children now spend more time using screens, there is no proven link with myopia. However, people who have spent more time in education and young children who read continuously have a higher risk of being short-sighted. It would therefore be advisable to limit screen time due to the higher risk of myopia with near tasks. Likewise, spending time on near tasks does not mean that myopia will definitely develop.

Can I stop myopia getting worse?

There is currently no treatment available to stop myopia progression and it tends to increase as children grow. Generally, the younger the child is when they start becoming short-sighted, the faster the myopia progresses and the more severe it is in adulthood. Myopia usually stops getting worse at around 20 years of age but can continue to progress throughout adulthood.

Can myopia progression be controlled?

There has been limited robust research into the control of myopia. However, there are several evidence-based approaches that have been shown to slow myopia progression. The long-term outcomes of myopia treatment are not yet known and there is also uncertainty as to what may happen if and when treatment is stopped. Some studies have reported a 'myopia rebound' effect to higher levels of myopia at the end of the study intervention.

Interventions to manage the progression of myopia:

Glasses
Regular sight tests are important to ensure that children are wearing the correct glasses. There is no evidence supporting an under-corrected glasses prescription to help slow progression.

Varifocal Contact lenses
Conventional multifocal soft contact lenses are used in older patients to give them clear distance and near vision, without the need for reading glasses. These contact lenses have been trialled in children with myopia and have been shown to produce a statistically significant reduction in progression of myopia. Most high street opticians will have a range of multifocal lenses available and some may have contact lenses designed specifically for myopia control (MiSight™ contact lenses). However, most multifocal contact lenses and ortho-k lenses currently available are not specifically designed for myopia control.

Orthokeratology
Orthokeratology (Ortho-k) involves wearing rigid gas permeable lenses overnight to temporarily flatten the central shape and alter the peripheral focus of the cornea.

Research has shown that it has more effect on slowing myopic eye growth than glasses and soft contact lenses, although the long term control of myopia is unknown. It is important to consider the potential side effects to their use including; discomfort, risks of infections (about 6%) which can be sight threatening and time commitments to the care and use of contact lenses.

Costs of contact lenses
Varifocal contact lenses and Orthokeratology are not available under the NHS. Please contact your high street opticians for information on the cost of contact lenses. Local optometrists who can provide advice on the fitting of contact lenses can be found on the British Contact Lens Association (BCLA) website: https://www.bcla.org.uk

Low dose Atropine
These are medicated drops, which are already used in East Asia for myopia control. Several studies have shown that different concentrations of Atropine eye drops significantly reduce myopia progression in this population, although it is not fully understood how the atropine drops work to reduce eye growth. Atropine 0.01% eye drops have been shown in trials to have minimal side effects (light sensitivity and problems with reading) but similar effect for myopia progression control compared to higher concentration Atropine eye drops. There is also a lower rebound myopia progression once the treatment was stopped on the lower concentration drops. These drops are not currently licensed in the UK or commercially available but trials are ongoing for their use in the UK.

Lifestyle changes
Children living in urban environments have a 2.6x higher risk of myopia compared with children living in rural environments. This may be explained by increased time spent on near activities, higher educational demands and less time spent outdoors. Children should be encouraged to take frequent breaks from near activities and to increase their outdoor activities in the daylight.

Conclusion

None of these options for the management of myopia are currently directly funded through the NHS or recommended by National Institute for Health and Care Excellence (NICE) and some are not currently available in the UK. However, some of the available options are within the competence of optometrists to deliver and can be offered in private optometric practice to children as a way of managing myopia by slowing its progression.
Each patient will respond to intervention differently and progression cannot be prevented or fully controlled. Research continues in their use in children with different ethnicities and the long term control of myopia progression. As evidence builds, technology advances and treatment options become more refined, the case for offering intervention to children to reduce the progression of myopia will be likely to grow.

Additional Information

https://www.nhs.uk/conditions/short-sightedness/treatment/
https://coopervision.com.my/contact-lenses/misight/control-myopia-progression
https://www.aop.org.uk/advice-and-support/clinical/scope-of-practice/juvenile-myopia-control
https://www.college-optometrists.org/the-college/policy/myopia-management.html

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Patient Advice and Liaison Service (PALS)

Please contact us if you need general information or advice about Trust services:
www.bartshealth.nhs.uk/pals

Large print and other languages

This information can be made available in alternative formats, such as easy read or large print, and may be available in alternative languages, upon request. For more information, speak to your clinical team.

এই তথ্যগুলো সহজে পড়া যায় অথবা বৃহ□ প্রিন্টারে মতবকিল্প ফরম্যাটে পাওয়া যাবে, এবং অনুরোধে অন্য ভাষায়ও পাওয়া যেতে পারে। আরো তথ্যরে জন্য আপনার ক্লনিকি্যাল টমিরে সাথে কথা বলুন।

Bu bilgi, kolay okunurluk veya büyük baskılar gibi alternatif biçimlerde sunulabilir, ve talep üzerine Alternatif Dillerde sunulabilir. Daha fazla bilgi için klinik ekibinizle irtibata geçin.

یہ معلومات متبادل فارمیٹس میں دستیاب ہیں جیسا کہ آسان پڑھنے کے پرنٹ بڑا یا آسان میں پڑھنے کے جیسا ہیں، اور درخواست پر متبادل زبانوں میں بھی دستیاب ہو سکتی ہیں۔ مزید معلومات کے لیے، اپنی کلینکل ٹیم سے بات کریں'۔

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