



homy

PASSION FOR PRECISION

LENSES – MADE IN GERMANY

**MYOPIA MANAGEMENT
FOR CHILDREN**

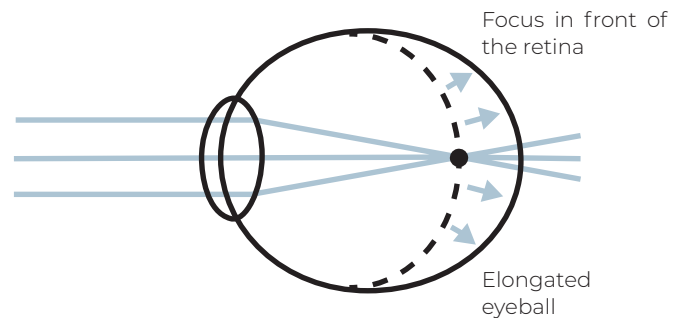


hOMY MYOPIA MANAGEMENT FOR CHILDREN

The Development of Myopia in Childhood

In the first months of life, children's eyes usually exhibit hyperopia. This tends to balance out during the course of growth and the continuous changes in the eyeball during childhood.

The majority of eye growth occurs in the early years of life, after which this process slows down. Between the ages of six and nine, the average annual growth of an eye is about 0,16 mm. Between the ages of nine and twelve, it reduces to 0,08 mm. Between the ages of eleven and fourteen, the average growth is only 0,02 mm.¹



It is therefore assumed that the average axial length growth during the entire period is 0,1 mm per year. Myopia develops when the axial growth of an eye is not in harmony with the changes in the cornea and the lens of the eye.

¹Mutti DO, Hayes JR, Mitchell GL, Jones LA, Moeschberger ML, Cotter SA, Kleinstejn RN, Manny RE, Twelker JD, Zadnik K; CLEERE Study Group. Refractive error, axial length, and relative peripheral refractive error before and after the onset of myopia. Invest Ophthalmol Vis Sci. 2007.



MYOPIA INFLUENCING FACTORS

Causes of Progressive Myopia

The development of progressive myopia is a complex process that can be attributed to various causes – genetic and environmental. For instance, a lack of time spent outdoors and excessive close-up activities can promote the development of myopia. Intense reading and the excessive use of mobile devices are suspected of promo-

ting progressive myopia because the eye neglects looking into the distance and is stimulated to grow by the increased focus on near objects. Genetic predisposition also often plays a crucial role: If one or even both parents already have significant myopia, the statistical probability increases that the child will also develop a high myopia.



The development of progressive myopia can be promoted by the continuous use of mobile devices.



Genetic predisposition also plays a role: If one or both parents are highly myopic, the statistical probability increases that the child will also develop a high myopia.





MYOPIA PREVALENCE

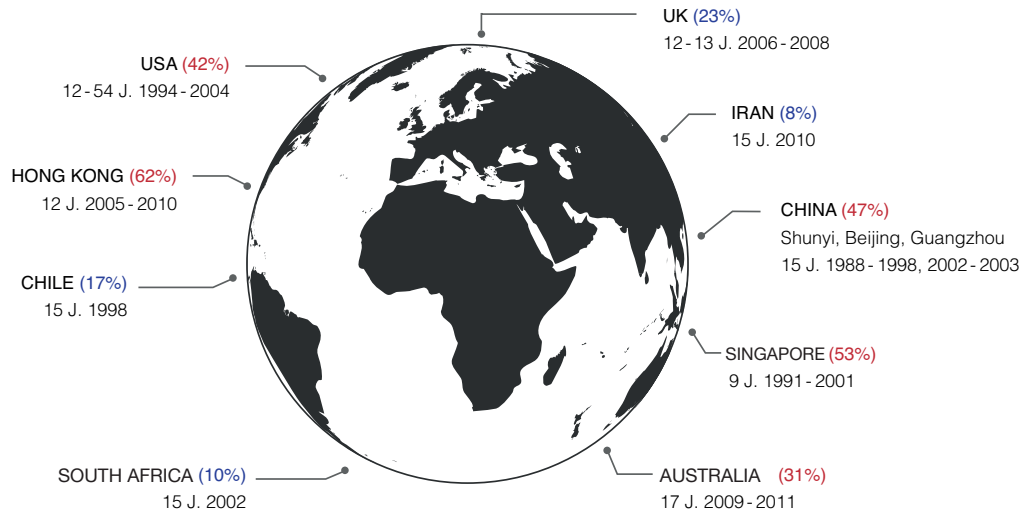
The Prevalence of Myopia

A recent study estimates that 30% of the world's population is already myopic today. This figure is expected to rise to around 50% by 2050. This corresponds to an impressive five billion people.

Myopia will increase exorbitantly in East and Southeast Asia. The number of myopic people is already particularly high in countries such as South Korea, Taiwan, Singapore, China and Japan. The number of people with myopia is also increasing in the USA. Cur-

rent reports show an increase to 42%, which corresponds to a doubling within three decades.²

It is worth noting that, according to studies, not only the number of myopic people will increase, but myopia as such will also increase and high myopia will become more common.²



Almost **5 billion people** will be myopic by 2050.²

Almost **1 billion people** will be highly myopic by 2050.²

²International Myopia Institute, <https://myopiainstitute.org/myopia/>

MYOPIA MANAGEMENT FOR CHILDREN

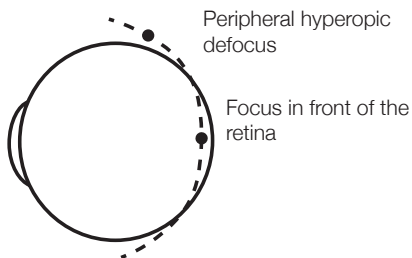
nomy

nomy represents an innovative solution for the treatment of progressive children myopia. This method counteracts the increase of myopia by attempting to inhibit the length growth of the eye.

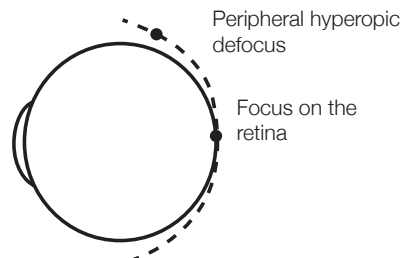
nomy is based on the theory of peripheral hyperopic defocus. In myopic eyes the focal point lies in front of the retina, leading to blurred vision. To correct myopia, monofocal lenses with negative refractive power are typically prescribed which focus the images on the retinal plane. However, this correction occurs only in the region of the fovea, while the peripheral retinal focus remains lagging. It is suspected that this defocus in the peripheral retina may contribute to the growth of the eye.

In contrast, **nomy** is specifically designed to fully correct the refractive error in the fovea, while inducing a myopic/positive defocus in the peripheral retina thereby slowing the linear growth of the eye. Through this defocus on the peripheral retina, the eye no longer receives the stimulus to grow. This defocus is achieved by a carefully designed distribution of positive refractive power at the periphery of the lens. No myopia treatment stops the growth of the eye completely. Rather, **nomy** helps to slow the progression of eye growth.

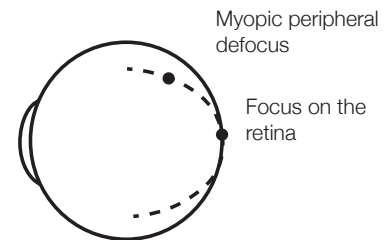
Uncorrected Myopia



Conventional Single Vision Lens



nomy Lenses



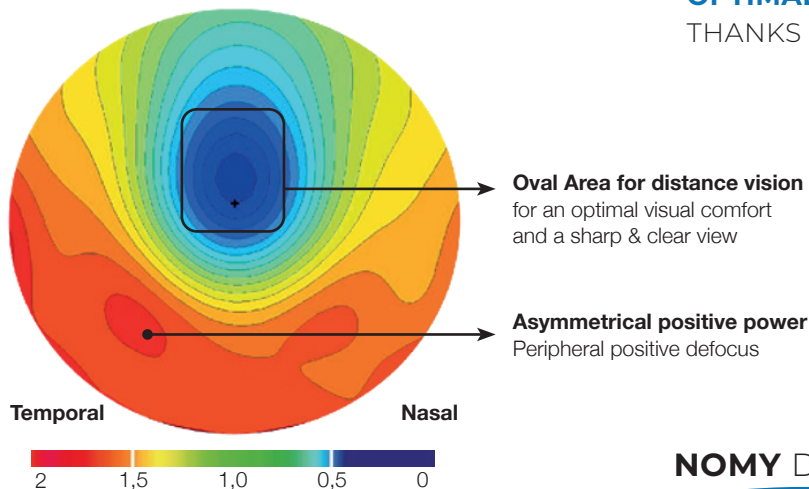
Asymmetric Defocus

nomy targets the often asymmetric shape of the retina in myopic eyes: The higher positive refractive power in the lateral, temporal area of the lenses causes increased defocus in the nasal area of the retina. This adjustment aims to reduce the progression of myopia by addressing the nasal area of the retina, as this region is the one that drives eye growth

under hyperopic defocus. The asymmetrically positive defocus on the back of the lenses takes into account the natural asymmetry of the retina and thus counteracts excessively rapid or strong eye elongation. Asymmetric blur does not improve the visual experience.

NOMY DESIGN

The nomy design offers a balanced visual experience that is optimised for far distance vision and near vision tasks. This is achieved through two main areas in the lens: An oval, central area with a positive progressive power distribution in the nasal, temporal and lower regions of the lens.



Optical Center

The oval shape of the optical center has a width of 7 mm and an even larger vertical dimension that extends to the upper part of the lens.

Power Distribution around the Optical Center

The optical center is surrounded by a progressive power distribution, which enables an asymmetric hyperopic defocus. Along the horizontal meridian of the lens there are asymmetrical additions on the nasal and temporal side.



OPTIMAL VISUAL COMFORT

THANKS OPTIMAL POWER PROGRESSION

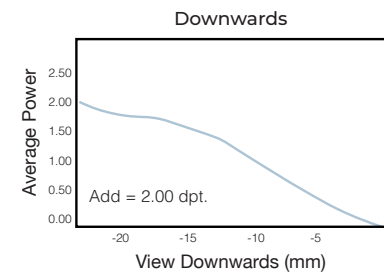
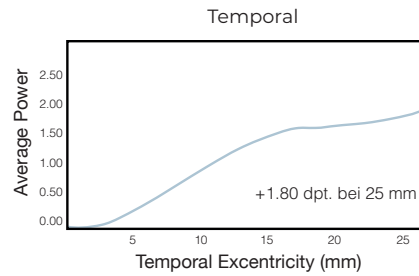
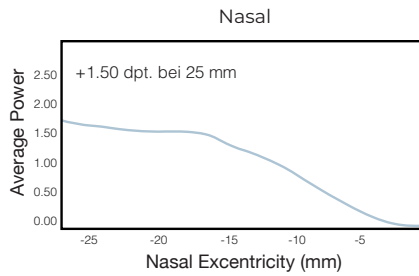
BALANCED VIEWING EXPERIENCE

FOR FAR AND NEAR VISION

NOMY DETAILS

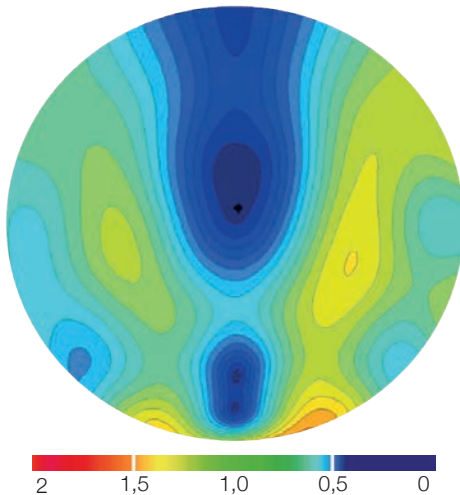
Power Distribution

The nasal area of the lens has an addition power of 1.50 dpt. 25 mm from the lens center, which leads to a moderate defocus in the temporal retina. The temporal side of the lens has an addition power of 1.80 dpt, which leads to a higher defocus in the nasal area of the retina. The lower part of the lens has an addition power of 2.00 dpt.



The defocus of the temporal area of the lens gets focused on the nasal retina, the defocus of the nasal area gets focused on the temporal retina.

VISION AND APPEARANCE IN HARMONY



nomy not only offers clear vision, but also an attractive appearance! Thanks to the balanced design and the peripheral positive power progression, the lens is thinner at the edges than conventional single vision lenses, resulting in an unbeatable cosmetic appearance.



AVAILABILITY

OVERVIEW

Brief Description

nomy represents an innovative solution for the treatment of progressive children myopia. This method counteracts the increase in myopia by attempting to inhibit the length growth of the eye.

Fitting

The fitting takes place according to the main viewing line. To do this, ask your client to slightly shift the head to the back of the neck until the frame is perpendicular to the floor and mark the pupil centre.

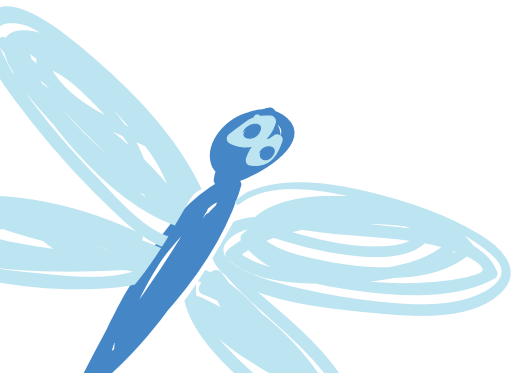
Order information

We recommend ordering with tracer data.

Availability

| | |
|---------------------------|-------------------|
| Index 1.50 | ✓ |
| Index 1.53 | ✓ |
| Index 1.59 | ✓ |
| Index 1.60 | ✓ |
| Index 1.67 | ✓ |
| Index 1.74 | ✓ |
| 1/8 Dioptre | ✓ |
| Fitting | Main Viewing Line |
| Colours | + |
| Thickness Reduction | inclusive |
| Shape Matching* | inclusive |
| Special Curve | inclusive |
| Individual Parameters | inclusive |
| Conversion As-Worn Powers | inclusive |

*always included when ordering online.



FAQ

MYOPIA MANAGEMENT

homy





By 2050 studies suggest that half of the world's population will be myopic. The number of myopia cases, as well as the severity of myopia, is particularly increasing in Asia. However, due to our digital lifestyle, high degrees of myopia may also become more prevalent in Europe, which can lead to eye diseases many years later. This may have irreversible consequences for those affected, potentially leading to blindness. Furthermore from a global perspective significant challenges arise for healthcare systems.

Myopia management with nomy lenses aims not only to correct myopia and provide clear vision but also to influence the growth of the eye length. It is particularly the excessive length of a myopic eye that poses a health risk for those affected by severe myopia in the long term.

By causing defocus on the peripheral retina, nomy lenses prevent

the corrected eye from receiving additional stimulus to grow. Instead, the design offers the chance to slow down and curb the growth of the eye length. In a best-case scenario this prevents the progression of myopia, which, if corrected with single-vision lenses, could lead to high, pathological myopia.

nomy lenses contribute to conscientious and responsible myopia management, which involves more than just a high-quality product. Below we discuss some important points regarding this.

Who is eligible for myopia management?

Whether or not a measure to slow down myopia needs to be taken depends on an assessment of the individual risk of myopia development. The inheritance of myopia is an important indicator of potential progressive myopia: If one parent has high myopia, the risk of the child developing severe myopia is increased. This risk statistically increases further, if both parents are myopic. The age of the child at which myopia is measurable also provides an indication of how the myopia might develop. Generally, the younger the child,

the more time the eye has to grow. Additionally the change in myopia within a year is an important factor. If myopia increases by half a dioptre or more in one year and/or if the eye has grown significantly more than normal during this period, myopia management should be considered as beneficial.



FAQ

MYOPIE MANAGEMENT

When is the best time to start?

When is the best time to start? Measures should begin as soon as progressive myopia is detected or as soon as it can be predicted. In special cases this can even be before the first prescription of glasses. According to a study with 3,195 participants worldwide,

experts believe that a refractive error of -0.50 dioptres or more and a minimum age of 6 years are the key indicators to start myopia management.

How effective is the expected outcome?

The results of myopia treatment vary from child to child and depend on numerous individual factors, not least the age and living conditions of the myopic child. The goal of any treatment strategy is to achieve axial length growth that corresponds to that of an emmetropic eye. Charts are useful tools that allow the tracking of axial growth progression in children using percentile curves. It seems certain that the chances of success are better and the measures are more effective when myopia management is started as early as possible. Currently no treatment option can completely cure or

prevent the progression of myopia and the same measures are not equally effective for every child. In some cases different methods (lenses, contact lenses, atropine) can at least be temporarily combined to increase the chances of success in myopia management.

How should myopia management for children be approached?

The World Council of Optometry recommends three fundamental steps as the standard for dealing with progressive myopia:

- **Prevention:** Adjustments in lifestyle, diet or other factors can delay the progression of myopia.
- **Measurement:** Regular check-ups and measurements of visual acuity and, if possible, the length of the eye.
- **Management:** Treat the myopia while simultaneously taking measures to slow down its progression.

percentile curves is detected, the child should have a refraction test under cycloplegia by an ophthalmologist and, if necessary, initially receive single-vision glasses. If not done beforehand, it is now advisable to measure and document the axial eye length. After six months the relevant values and parameters of the child should be checked and documented again. At the latest after a year, if myopia progresses, myopia management with nomy lenses should begin.

If myopia or a deviation in the growth of the eye length from the

³Wolfssohn JS, Whayeb Y, Logan NS, Weng R, Weng R. IMI—Global trends in myopia management attitudes and strategies in clinical practice—2022 update. Invest Ophthalmol Vis Sci. 2023;64(6):6.



How should refraction testing be conducted for myopic children?

The goal of refraction among myopic children should be to achieve the best possible visual acuity with the appropriate correction. Under-correction is not recommended. It is important that certain parameters are documented for determining needs and during follow-up checks, and that the near-focusing response of the eye does not play a role: Therefore, accommodation must be deactiva-

ted during the examinations, which is done using drops (atropine). This cycloplegia is reserved for ophthalmologists! Only in this way for example an incorrect measurement of too high myopia can be avoided and the back of the eye can be examined for abnormalities.

What accompanying measures can be taken by the affected individuals and their parents to increase the chances of success in myopia management?

In addition to regular eye check-ups with a specialist there are easy-to-implement measures that can generally counteract progressive myopia and support the normal, healthy development of the eyes.

Spending at least 90 minutes – ideally two hours – outdoors in daylight each day helps even before the onset of myopia. Adequate outdoor activity has many benefits. In relation to myopia the alternating focus of the eyes on different distances and daylight positively affect the retina. Vitamin D intake plays an important role in this process. The light intensity outside in sunlight is many times higher even in the shade compared to typical indoor lighting. Current studies show that a lack of daylight can play a significant role in the development of myopia.

Avoiding prolonged near vision reduces stress on the eyes. Especially the constant focus on digital devices strains the eyes; regular

breaks and looking into the distance provide relaxation. Each time one looks at a smartphone or tablet, the eyes adjust to a nearby point, which can lead to eye growth and thus progressive myopia in the long term. Reducing such near vision reduces this additional stimulus for eye length growth.

Education is important and a lot of near work is necessary for school. Therefore a sufficient reading and working distance is also important for the eyes during analogue visual tasks. This can already be increased by maintaining an upright posture while sitting. Additionally the simple 20-20-20 rule helps: every 20 minutes, focus on an object about six metres (20 feet) away for 20 seconds!

FAQ

MYOPIA MANAGEMENT

When and how often should follow-up appointments be conducted and what is checked during these appointments?

The standard for the treatment of myopia according to the World Council of Optometry recommends follow-up appointments after one month, six months, and then (recurrently) annually. The following measures are recommended during each of these check-ups:

Analyse patient history / Assess satisfaction with the glasses /
Accommodation measurement (objective) /
Verification of optimal vision correction /
General examination of the eye and fundus /
Axial length measurement of the eye

Accommodation measurement and fundoscopy are not always feasible for optometrists. In such cases alternative examinations can be conducted to monitor the progression of myopia, such as Mohindra retinoscopy, which is performed in the dark or corneal curvature measurement. For the aforementioned reasons collaboration with an ophthalmologist is recommended for effective myopia management.

When should a treatment be discontinued?

According to the recommendations of the World Council of Optometry the treatment of progressive myopia should be continued until the end of childhood and even into early adulthood to prevent progression or rebound effects and a later onset. Myopia usually

develops between the ages of 5 and 16. The eye typically stops growing around the age of 20.





What should be considered and communicated when dispensing nomy lenses?

It is advisable and appropriate to inform patients in advance about the special properties of the lenses and to explain that the central area of the lens provides clear vision while the side areas offer slightly blurred vision. When putting on the glasses the centring cross must be aligned with the pupil in the main viewing line. Additional useful advice for children and parents contributes to the success of myopia management:

- Active participation in sports with the glasses should be avoided, especially during the adjustment period. A separate pair of sports glasses is generally recommended for this purpose.
- The glasses should be worn constantly and only removed for sleeping and, as mentioned, for sports.
- The anatomical fit of the frame and the correct optical adjustment should be regularly checked to prevent or correct a poor fit and reduced visual comfort.
- Raise awareness of healthy lifestyle habits that positively affect vision (e.g., spending at least 90 minutes outdoors daily, following the 20-20-20 rule, etc.).
- Collaboration with an ophthalmologist is advisable and is recommended even before fitting the glasses due to the need for refraction determination under cycloplegia.







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Who is eligible for myopia management? When is the best time to start? How should one proceed? So many questions – we have the answers for you:

You can find our nomy FAQ starting on page 10 of this brochure.



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