

Soft and rigid gas permeable contact lenses

appenzeller  
kontaktlinsen®  
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# *pro*ASSIST

Professional support  
with progressive myopia



Smart contact lenses instead  
of thick spectacle lenses.

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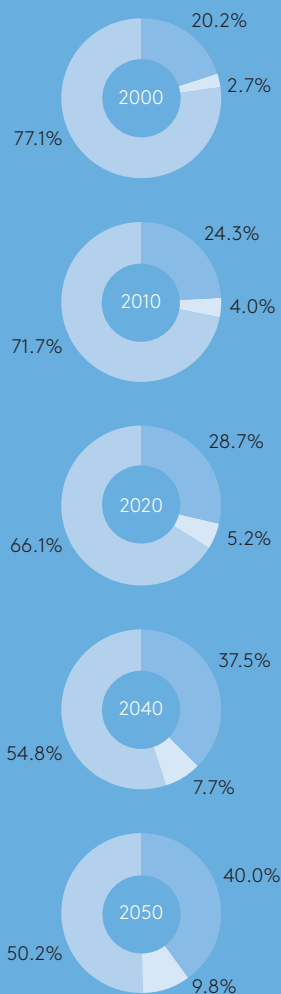


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### → Progressive Myopia: When the refractive error keeps increasing

The number of myopic people is increasing worldwide. In Asia, especially in Hong Kong and Taiwan – the prevalence is already about 80%. However, not only in Asia, but also in the USA and Europe, the proportion of the myopic population is increasing steadily.

### → Estimated global prevalence of myopia 2000 to 2050 (Holden BA, 2016)



Low to Moderate Myopia  
 High Myopia  
 Non-Myopes

### → Europe: 47.2% myopic at age 25–30

While the share of the myopic population in Europe was still about 20% to 30% in 2008, today 47.2% of the population aged 25 to 30 years are already myopic (Williams et al., 2015). This increase in myopia is a result of increased axial length growth of the eye in youth. In global terms, about 33% of the world population is already myopic today. According to the latest studies (Holden BA, 2016) this share could increase dramatically by the year 2050.

### → Risk of progressive myopia

On one hand, the progression of myopia is based on a continuously changing refractive value. On the other hand, the risk of various eye diseases increases, due to the continuous axial growth of the eye. In general, myopic patients have a higher risk of cataract, glaucoma, and retinal detachment compared to emmetropic or hyperopic patients

(see Table 1). Furthermore, the risk of such an eye disease increases with the level of myopia. According to Flitcroft D. I. (2012) the risk of myopic maculopathy increases 10 times for myopia higher than 3 D and 41 times for myopia higher than 6 D (see Table 1).

### → Myopia-Management: Slowing down the process and reducing the risk of secondary diseases

Myopia management is a science-based approach to preventing or slowing down the progression of myopia or the longitudinal growth of the eye and reducing the risk of secondary eye diseases. For years, there has been an increasing number of scientific evidence on how to prevent the progression of myopia. Table 2 gives you an overview of more than 30 scientific publications on the topic of myopia management that have been published by the end of 2017 (Myopia Profile Pty Ltd., 2017).

Table 1: Increasing risk of eye disease due to myopia or high myopia (Flitcroft, 2012).

	Cataract	Glaucoma	Retinal detachment	Myopic maculopathy
-1.0 dpt to -3.0 dpt	2x	4x	3x	2x
-3.0 dpt to -6.0 dpt	3x	4x	9x	10x
> -6.0 dpt	5x	14x	22x	41x

Table 2: Slowing of myopia progression in relation to the type of correction (Myopia Profile Pty Ltd., 2017).

Type of vision correction	Effect of slowing myopic progression
Standard spectacle lenses and standard contact lenses	0–5%
Progressive/bifocal spectacle lenses	12–55%
Myovision (special design spectacle lenses)	0–30%
Multifocal soft contact lenses	29–45%
Orthokeratology	32–100%
Atropine	30–77%

Considering the optical intervention strategies only, Ortho-K contact lenses show the highest success rate in slowing down myopia progression.

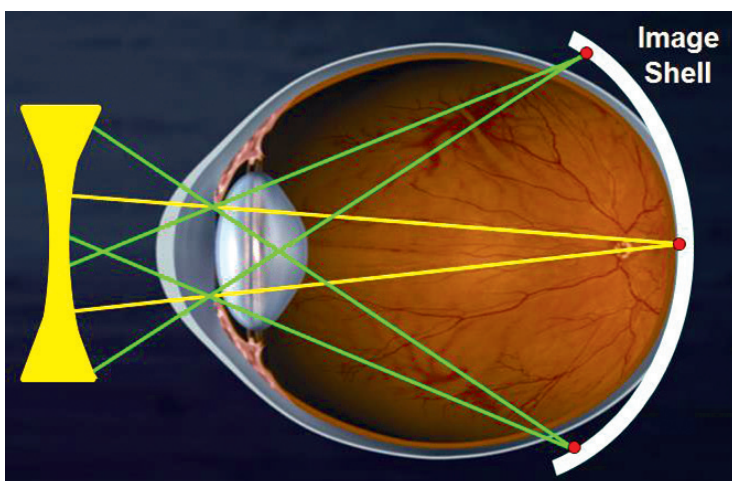
# pro ASSIST

## F.A.Q.

→ What causes the axial length growth of the eye and progression of myopia?

Refraction of the incident rays of light through a minus lens results in an optimal central focus in the fovea of the retina. However, at 30° peripherally on the retina, a hyperopic de-focus occurs. Animal experiments

have shown that this hyperopic de-focus triggers the impulse that induces the eye to grow into peripheral de-focus (Smith, Chea-su, Ramkumar, Ying, & Li-Fang, 2005). As a result of the axial length growth of the eye, this hyperopic de-focus is minimised, so that an ideal focus at 30° on the retina now prevails again. However, this leads to a deterioration of the visual acuity of the patients, as there is now an under-correction at the centre. If the power of the lens is now increased, a peripheral hyperopic de-focus is produced again, which causes a «vicious circle»: myopia increases continuously.



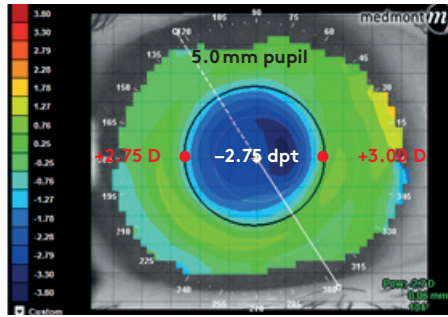
**Figure 2** Ray path and image on the retina through a spectacle lens to correct myopia (Source: Smith E., University Houston).

→ How high is the hyperopic de-focus at 30° on the retina?

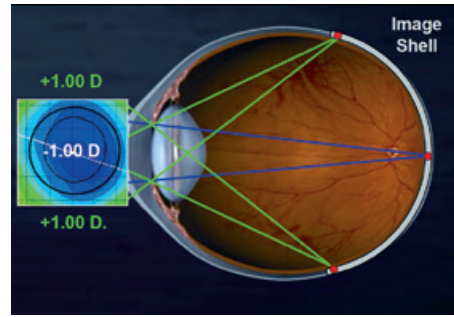
A study by Bakaraju et al. (2009) showed that the hyperopic de-focus at 30° on the retina is between +1.0 D and +1.5 D independently of the amount of myopia.



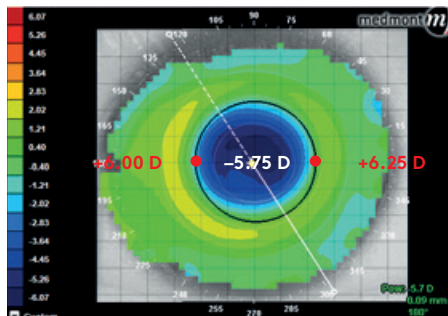
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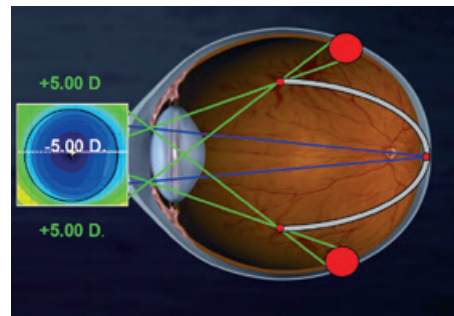
Tangential map of topography after Ortho-K with a refraction of -2.75 D.



Peripheral retinal imaging after Ortho-K with a refraction of -1.00 D.



Tangential map of topography after Ortho-K with a refraction of -5.75 D.



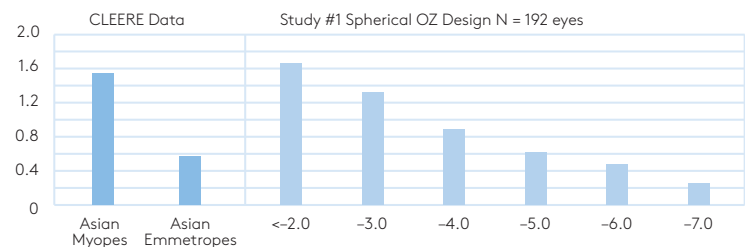
Peripheral retinal imaging after Ortho-K with a refraction of -5.00 D.

→ Why do orthokeratology contact lenses show the highest success rate in slowing down the progression of myopia?

The topometric orthokeratology effect doesn't just correct myopia by flattening the central cornea. The tensile forces in the reverse zone of Ortho-K lenses also cause a thickening of the epithelial cell layer underneath and therefore a steepening of the radii in this area. This steepening of the mid-peripheral corneal radii produces a positive increase in power. The amount of the plus effect peripheral to the pupil is equal to the amount of the corrected minus effect at the centre. The hyperopic de-focus at 30° on the retina is reduced by the amount of the peripherally generated plus effect by orthokeratology or converted into a myopic de-focus.

→ Do all myopic patients benefit equally from wearing orthokeratology contact lenses?

Unfortunately not! The figure below shows that only Ortho-K wearers already being higher myopic (>-4.0D) benefit from the slowing down of the axial length growth. This is related to the fact, that it is apparently not sufficient to convert a hyperopic de-focus into an emmetropic de-focus. In fact, the higher the myopic de-focus, the more the effect of slowing down the progression of myopia.



5 Year Axial Length Change from BL

# *pro*ASSIST

## Your main advantages at a glance

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→ The proASSIST design is available for individual soft and rigid gas permeable contact lenses for daily wear.

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→ No reduction in contrast for distance vision as with multifocal CD-designs with higher reading add.

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→ The proASSIST design achieves the same visual effect as an i-NIGHT Ortho-K contact lens.

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→ The proASSIST design is not a multifocal CD-design.

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→ Tests with the proASSIST in presbyopic patients have shown that no benefit in form of a reading add is induced. Therefore, accommodation is not affected in young patients.

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→ In relation to the optical intervention options in progressive myopia, studies show the best results by wearing Ortho-K lenses in the higher myopia range.

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→ A multifocal CD-design is designed to correct presbyopia. The positive effect on slowing down myopia progression is a side effect of multifocal CD-designs.

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→ The myopia management of proASSIST is based on the transfer of the topometric effect of an Ortho-K contact lens to the anterior surface of a Personnelle or i-MAP AS.

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# *pro*ASSIST

## The Design

The design is located on the front surface of the contact lens. Based on the same topometric effect as an Ortho-K contact lens in the higher myopic range, the same visual effect as that of an Ortho-K lens is created peripherally on the retina. Ortho-K contact lenses are not multifocal contact lenses, neither is the proASSIST design a centre distance multifocal contact lens.

### → Available Designs

The design of proASSIST is available on individual soft and rigid gas permeable contact lenses.

#### **Individual soft contact lenses**

- Personnelle proASSIST
- Personnelle proASSIST TD
- Personnelle proASSIST TP

#### **Rigid gas permeable contact lenses**

- i-MAP AS proASSIST
- i-MAP AS proASSIST VPT
- i-MAP AS proASSIST RT / BT
- i-MAP AS proASSIST PT / PT VT
- i-MAP AS proASSIST QSD / QSD RT / QSD BT

### → Fitting of the back surface

#### **i-MAP AS proASSIST**

The structure of the back surface is identical to our i-MAP AS and its proven design. The i-MAP AS proASSIST will therefore be fitted exactly the same. In order for the i-MAP AS proASSIST to perform at its best, it is important to fit this contact lens according to large diameter fitting technique, like an i-NIGHT Ortho-K lens. That's why we recommend to select the diameter following the calculation below:

DIA i-MAP AS proASSIST =  
HVID -1.0 mm to -1.2 mm

#### **Personnelle proASSIST**

The structure of the back surface is identical to our Personnelle and its proven design. The Personnelle proASSIST will therefore be fitted exactly the same.

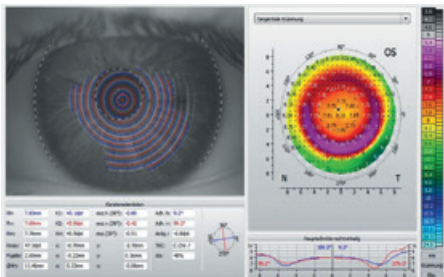
### → Modification of the front surface

#### **proASSIST (Personnelle / i-MAP AS)**

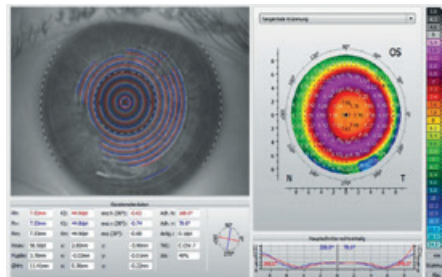
The modification of the front surface design depends on the myopia progression risk factor. Three different risk factors are available:

- moderate
- high
- very high

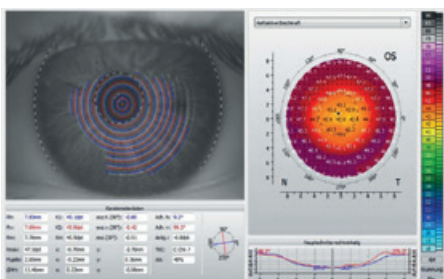
The risk factor should be individually determined for all patients.



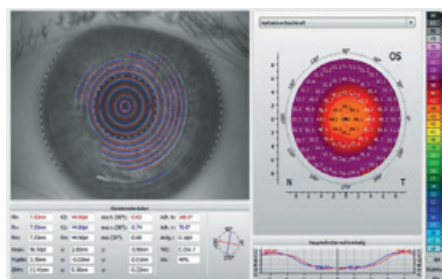
Topography after wearing an i-NIGHT Ortho-K-  
in a higher myopia range (tangential map).



Topography over an i-MAP AS proASSIST  
(tangential map).



Topography after wearing an i-NIGHT Ortho-K-  
in a higher myopia range (refractive map).



Topography over an i-MAP AS proASSIST  
(refractive map).

## → Determination of risk factor

There are two ways to determine  
the risk factor:

1. Register as contact lens specialist  
on the website [www.myopiaprofile.com](http://www.myopiaprofile.com)  
and use the online questionnaire. It only takes a few minutes  
to go through the questionnaire  
together with the patient to find  
out their personal risk factor for  
myopia. You simply indicate the  
risk factor when ordering proASSIST
2. Determine the risk factor together  
with the patient by filling out the  
enclosed questionnaire.

## → Significance of the risk factor for the design of proASSIST

With increasing risk factor the front  
surface design of proASSIST varies.  
The higher the risk factor, the higher  
the peripheral myopic de-focus at 30°  
on the retina. In addition, the peri-  
pheral plus effect shifts increasingly  
towards the pupil.

## References

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Soft and rigid gas permeable contact lenses

proASSIST

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# 10 Reasons Why to choose Appenzeller Kontaktlinsen

## → Fitting success

We do everything we can to understand your wishes and ideas. So that your fitting is a complete success – for you and your patients.

## → Technological advantage

We put a great deal of effort into Research & Development to ensure that our contact lenses always meet the latest technological possibilities.

## → Swiss made

We demand the highest standards of the manufacturing quality of our contact lenses, so that they match your equally high expectations of Swiss made.

## → Reproducibility

We help you keeping your patients satisfied by ensuring that you receive the same lens as before with your repeat order.

## → Open ears

Our Professional Services team advises you competently, personally and patiently. They will answer every question and make sure you get the right contact lens in any case.

## → Custom made

Each contact lens is individually made to order for you, so that it matches your specifications a 100%.

## → Right to exchange

We send out our contact lenses with or without the right to exchange, so you can make the best choice for your needs. The option "with right to exchange" gives you financial security: you can order a different lens later. If you do so within the exchange period, you pay only a small excess. The date on the delivery note is decisive for the deadline.

- Soft contact lenses:
  - *i*-SOFT 3-monthly lenses: 1 month
  - 6-monthly lenses: 2 months
  - 12-monthly lenses: 3 months
- Rigid gas-permeable lenses: 3 months

## → Price advantage

We offer you favourable terms of payment. You can get extra benefits if you pay in advance. We will happily let you know about the current conditions on request.

## → Guarantee scheme

We take responsibility for our work so you can rely on us and our contact lenses with guarantee. Guarantee period:

- *i*-SOFT 3-monthly lenses: 1 month
- 6-monthly lenses: 2 months
- 12-monthly lenses: 3 months

Broken lens: Return us the lens within the guarantee period and we will replace it. We will credit it on your next invoice accordingly. The date on the delivery note is decisive for the guarantee period.

## → Long-term vision

We strive for a lasting business relationship with you, so that you can also count on us in the long term.