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## POSITION PAPER

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# THE ORTHOKERATOLOGY PROCEDURE

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### **Introduction**

Orthokeratology is fitting custom designed, high oxygen-permeable contact lenses to reshape the cornea in a controlled manner to correct ametropia.

Depending on the extent of the ametropia, and the time that Orthokeratology lenses are worn, good visual acuity can be achieved during all waking hours without the need for spectacles or contact lenses.

Orthokeratology lenses are worn at night whilst sleeping, and are taken out in the morning.

### **Selection criteria for candidates:**

**There is no contra-indication to fit contact lenses for overnight wear.**

Best results are achievable in mild to moderate Myopia i.e.

Subj. Refraction between Sph. -0.75D and Sph. -4.50D

Cyl. -1.50 WTR or Cyl. -1.00 ATR

With modern toric Ortho-k designs Cyl up to -2.50 WTR and -1.50 ATR are achieved.

Ideal candidates are those with a Cyl. value of preferably half the Spherical value of the Subj. refraction.

The refraction Cyl. should be in line with the corneal Cyl. in terms of Dioptre and axis. to prevent residual astigmatism.

As with every overnight modality, when selecting patients, it is necessary to always pay attention to the patient as a person. You must convince yourself that this patient has sufficient sense of responsibility to closely follow the given instructions.

It is strongly recommended to use an informed consent, signed by patient and contact lens practitioner.

### **Fitting**

The bases for an Orthokeratology fit are the topographical data of the cornea and the subjective refraction.

### **Adaptation time**

Once the Orthokeratology lenses have been issued, they need to be worn at night. Visual acuity will be insufficient during the first days, depending on the grade of ametropia. A stable visual acuity is achieved for the full day within five to ten days provided that the lenses are worn every night.

During the adaptation time soft daily disposable lenses can be worn to correct the remaining myopia. This is absolutely necessary should the wearer wish to drive.

### **Application/functionality**

Orthokeratology is a reversible procedure in contrast with refractive surgery. This means that the cornea will return to its initial shape when wearing of the Orthokeratology lenses has been ceased.

Orthokeratology generally works as follows after the required adaptation period: wearing the lens at night for six to eight consecutive hours will ensure that there is a stable visual acuity during all waking hours of the next day.

Because visual acuity might reduce slightly at the end of the day, it is recommended to always have the Orthokeratology lenses available. Insertion will immediately provide perfect vision.

### **Routine evaluation**

In Orthokeratology a good follow-up schedule would be:

- The morning after the first night
- After the third night
- After the seventh night
- After two weeks
- Other check-ups if needed, until the visual acuity is stable all day

The check-up frequency must be determined based on the physical conditions of the eye. Routine eye evaluation every three months is recommended, especially with children.

A check-up is immediately required when there is any symptom (see the contraindications).

The topographical data of the cornea is always kept in the patient records to evaluate and document the status of the corneal shape.

The physical condition of the anterior eye segment is always evaluated. Refractive status is checked by subjective refraction and Visual Acuity. All data are recorded in the patient's file.

### **Handling and contact lens care**

Thorough Instructions must be provided for treatment and care.

Hygiene is key in Orthokeratology.

Since Orthokeratology lenses are worn at night, they are made of a high oxygen-permeable material. Only optimal disinfection and cleaning will guarantee that the lens will provide optimal Orthokeratology results.

For cleaning of Ortho-k contact lenses a chemical procedure is preferred over digital cleaning (rubbing). This is due to the complicated and delicate back surface of the lenses.

The right Orthokeratology lens is often made in a different color from the left one to ensure that the left and right lenses are not exchanged.

A drop of moisturizing solution could be instilled in the eye after the Orthokeratology lenses have been inserted to provide extra initial comfort. (Preferable preservative free)

It is mandatory to first instill a few drops of moisturizing solution in the eyes before taking them out in the morning. The lenses can be taken out after 10 minutes (preferably preservative free).

### **Replacement intervals**

Orthokeratology is an overnight procedure; the lenses are therefore made out of high oxygen-permeable material. These materials do have a shorter life cycle.

For problem-free wearing of Orthokeratology lenses and optimal results, it is important that Orthokeratology lenses are replaced once a year at least.

### **Orthokeratology should be stopped immediately in**

- Any change in ocular condition in general
- Ocular discharge/blurry vision
- Decreased wearing comfort of the lenses
- Irritated eyes or pain

### **Informed consent**

The use of an informed consent is mandatory.

A protocol signed by patient and practitioner, is the ultimate confirmation that all information and guidelines for safe Orthokeratology are provided.

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