



LENTIS®

## SEE CLEAR, LIVE WELL

Intraocular lenses for a natural vision Cataract  
patient information brochure



## Medical Terms Explained

You will find a clear and illustrative explanation of various medical terms in the glossary at the end of this brochure (page 26). Should you have any further questions please consult your eye specialist.

## See clear, live well

Nowadays nobody has to be visually handicapped because of suffering from a cataract. However, there is only one reasonable method to restore blurred vision – With cataract surgery.

Vision through a less transparent lens is blurry like looking through a hazy glass or through a waterfall. In fact, the literal meaning of the term “cataract” is waterfall.

In former times it was believed that the grey colour in the pupil was coagulated liquid which looks like – a waterfall.

## Cataract – what is it exactly?

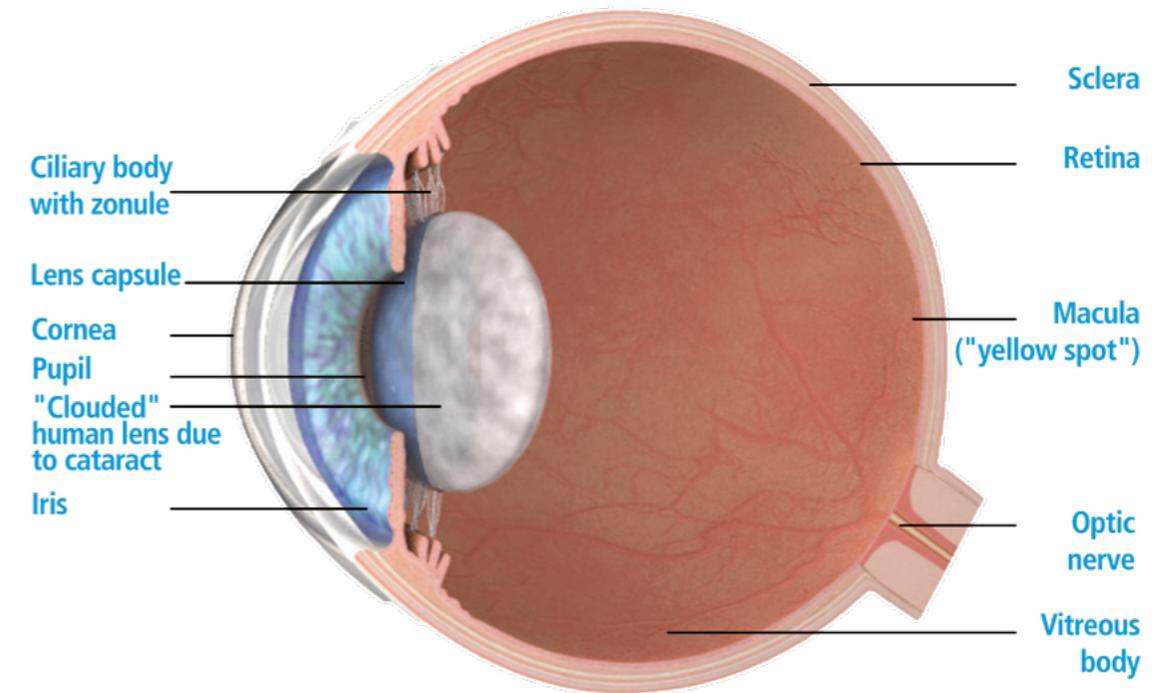
Inside everybody's eye there is a small lens that focuses the image in the eye. When you are young, this lens is crystal clear, but as we get older, the lens tends to **become cloudy**, which makes the image inside the eye to look cloudier too. Often cataract eyes are more sensitive towards light than usual. **Your visual acuity is blurred**, images lose their intensity and colour.

The fog across your eyes makes daily life more difficult: activities like reading a newspaper, driving or watching TV become more stressful. If untreated, cataracts are potentially blinding.

Cataracts develop from **a variety of reasons** – the most frequent one certainly is the **natural aging process of the ocular lens**: lens metabolism slows down, the concentration of water in the lens drops; the lens becomes harder and less elastic. Over the years, exposure to sunlight also results in the deposit of yellow-brown substances and **clouding of the lens**. In this case, one talks about cataract due to advanced age appearing most of the time after the age of 60. Genetic factors may also predispose someone to cataracts at an earlier age. Because of its frequency this slowly progressive sign of old age is considered more or less as a widespread disease.

Cataracts may also be **the result of** eye injuries, chronic inflammations of the eye or congenital opacity of the lens, but in over 90% clouding is caused by the aging process.

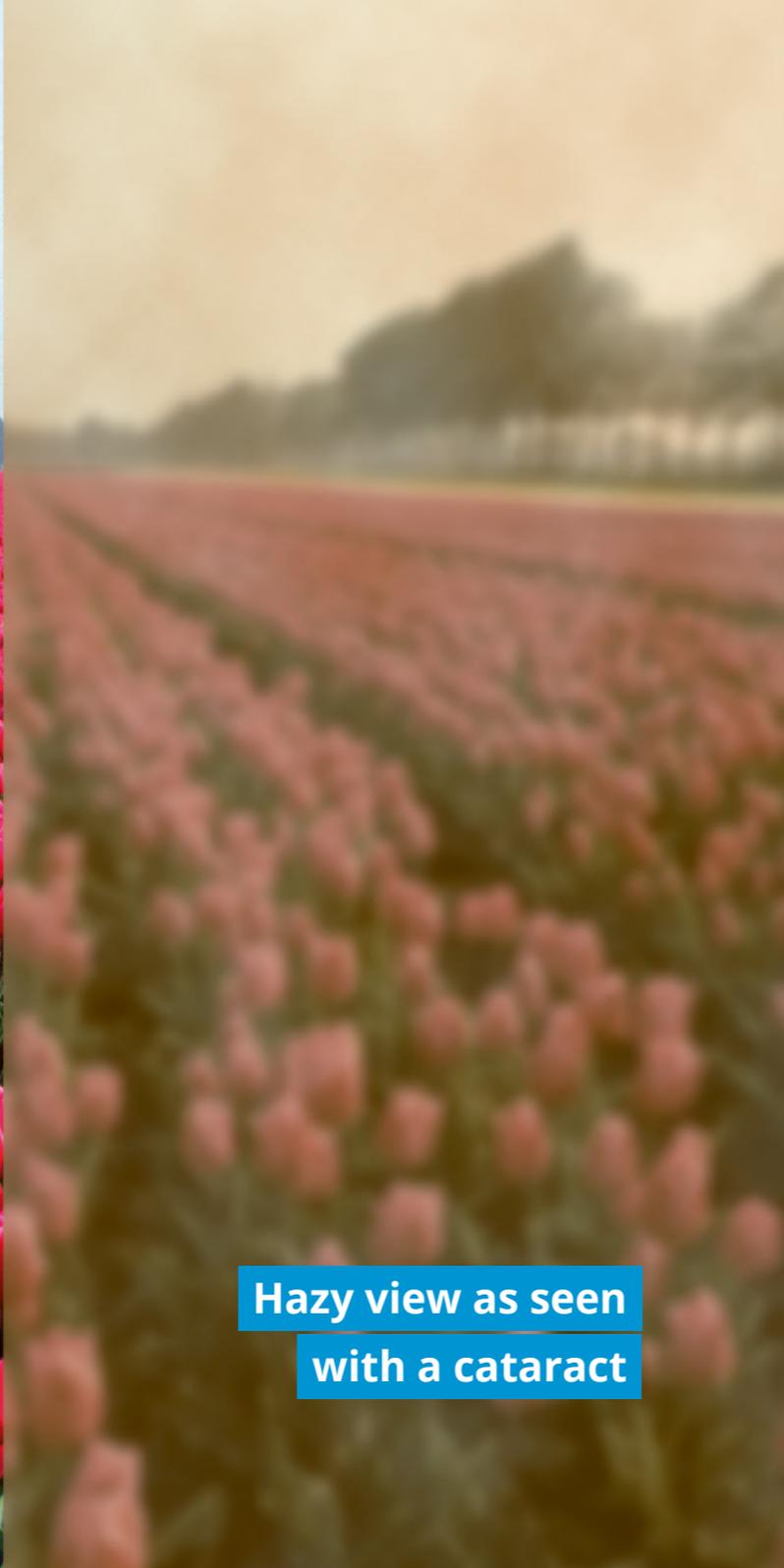
## The human eye



The human eye is a fascinating, ball-shaped body featuring a diameter of around 24 mm. The lens directly situated behind the pupil is responsible for image acuity like a camera lens. It picks up images, then focuses the light, colours and shapes on the retina and transmits them through the visual nerve to the brain.



Normal  
vision



Hazy view as seen  
with a cataract

## How to diagnose a cataract?

For an ophthalmologist it is relatively easy to diagnose cataracts. **By looking into your eyes with a special viewing instrument called slit lamp** lens opacities can be detected easily. To ease the eye examination, it might be helpful to dilate the patient's pupil by a mydriatic agent. More advanced cataracts are already visible to the naked eye.

## How to treat cataracts?

It is not possible to heal cataracts with drugs or alternative treatment methods. Removing the natural opacified lens and implanting an artificial lens as done during **a cataract surgery represents the only successful treatment method** and helps to improve life quality of patients suffering from an eye cataract considerably.

Millions of people undergo this vision-improving procedure every year world wide. Cataract surgeries count among the most frequent operations. Surgically removing the cloudy lens is **a common, conservative and careful routine intervention with almost no complications**. It is performed usually using a local anaesthetic and the patient gets an ambulatory treatment.

For the patient a cataract surgery is a simple and short procedure and normally an inpatient stay is unnecessary.



In the past when special cataract eye-glasses and contact lenses were used for optical correction, it was common practice to surgically remove the clouded lens together with the lens capsular bag.



Today the progress made in cataract surgery and modern LENTIS® intraocular lenses make the cataract surgery a very safe method leading to a fast improvement of your vision.

## When should cataracts be surgically treated?

In former times, people were rather careful about cataract surgeries. The cataract was only removed, if it was “ripe” or „mature“. Today the surgical intervention is made when the cataract has progressed as far as to seriously impair the patient’s vision in daily life. This is why the date of operation is **chosen individually after prior consultation with your eye doctor**.



## Cataract surgery

If both eyes are affected by lens clouding, usually the worse eye will be treated first. Only after the first eye has fully recovered and vision has been restored successfully, the eye doctor can go about the second eye.

Please be aware of the fact that the information given here is valid for normal cases. At all events follow and adhere to the instructions of your eye specialist who knows you and your eyes best.



## How to prepare the surgical intervention?

Prior to performing the cataract operation it is necessary to carry out some special, **completely painless examinations**. The corneal curvature and the length of the eye ball will be measured – by an ultrasonic or by laser measuring method - to determine the proper intraocular lens that will be placed in your eye during surgery. **Questions about anamnesis** and any medication taken by the patient – especially those taken for haemodilution – as well as a check-up at a general practitioner serve to ensure best possible safety.

In cataract surgery under local anaesthesia, you may have a light breakfast in the morning of the operation day. Diabetics are asked to consult their general practitioner about how to continue usual medications. Often, the patient will be given medications to help him to relax and **eye drops** to dilate the pupil before surgery.

Then you are taken to the preparation room. If the situation requires so, the cardiovascular system will be constantly monitored during the intervention by means of measuring the electrical activity of the heart (ECG), taking the blood pressure and pulse and/or administering drugs for circulation stabilization by an intravenous drip.

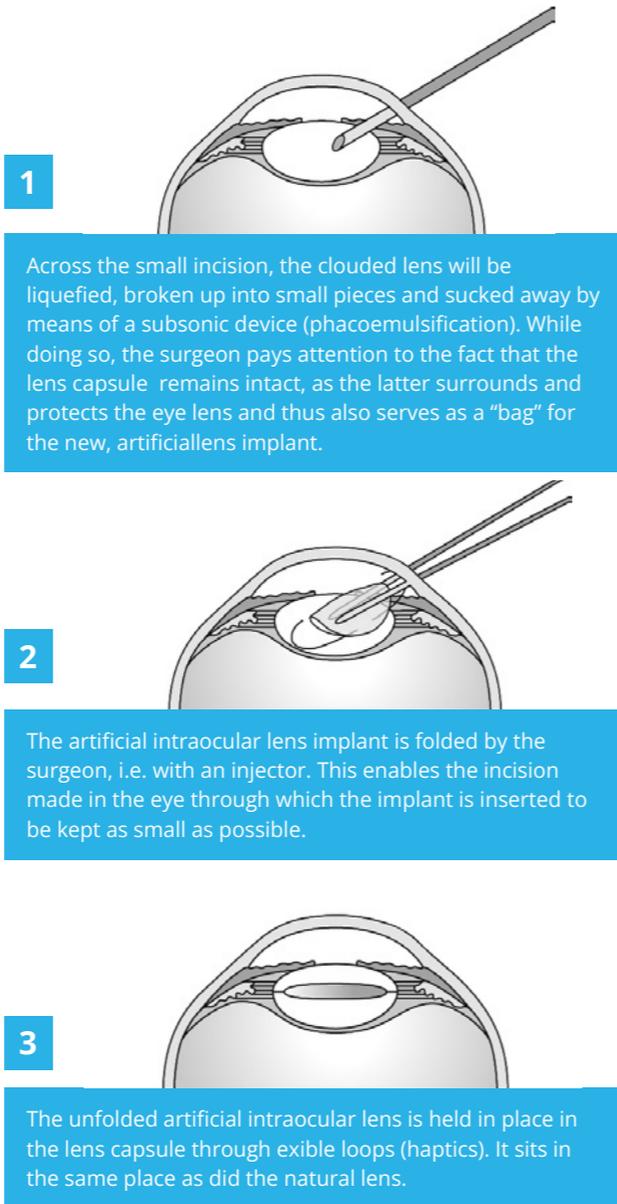
By applying **a local anaesthetic** (drops or injection) your eye and the skin around it will become mostly insensitive. The mobility of the eye and lids as well as image transmission of the optic nerve will be restricted. Just before the surgical intervention takes place, the skin around your eye will be thoroughly cleansed with a disinfectant and sterile coverings will be placed around your head.

# What happens during a cataract operation?

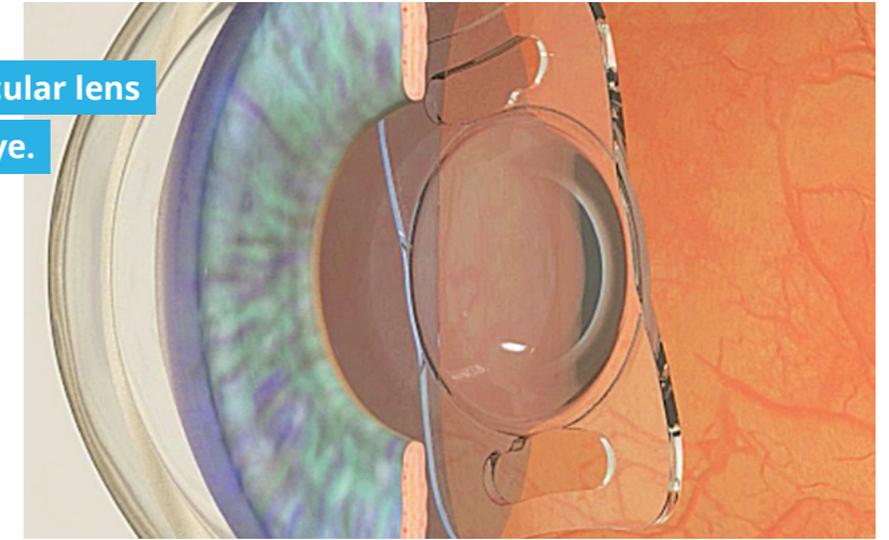
During surgery, the upper and lower eyelid will be spread using a lid speculum. To ensure that the eye will not desiccate, **eye drops (moistening liquid)** will be instilled onto the eye's surface at regular intervals. You can feel the liquid running down.

The surgical intervention itself will be performed under a special microscope for surgery. After local anaesthesia, the surgeon makes **a very small incision**.

This surgical method is so gentle that usually no stitches are required: the small incision is selfsealing – without scar formation.



Animation of the intraocular lens position in the human eye.



# What happens after surgery?

After the operation, the surgeon places **a shield (ointment bandage)** over your eye which will be removed the next day followed by a thorough post-operative examination of the treated eye. Following a certain monitoring phase, day case patients may go home the same day. Patients, of course, must not drive home themselves, but plan to have someone else fetch them!

Even if you leave the hospital within a couple of hours after surgery, your treatment is not completely terminated yet – **your assistance is needed!** Make sure you are able to correctly administer your eye medication/drops yourselves or someone else (family, friends, emergency service) may help you to do so.



## DO's and DON'Ts – post operative care

Even if modern cataract surgery is an extremely safe operation method and the treatment was without complications, some **precautions** are to be taken. Should the situation arise, your eye specialist will give you further instructions and recommendations.

- **Rest quietly for the remainder of your surgery day.**
- Please administer eye drops/medicaments given by the eye doctor punctually and keep the appointments for post-operative check ups.
- Never press or rub your treated eye. Although the incision is small and usually self-sealing, resistance of your eye is still impaired during the first weeks after the surgical intervention. For this reason it may be helpful to cover your eye during the first nights with a shield or a light bandage.
- Your fitness for work and the permission to drive largely depends on the visual acuity after the cataract operation. Do not participate actively in road traffic unless permitted by your eye specialist!
- When taking a shower during the first days following surgery, never wet your face. When washing your hair, make sure to tilt back your head. During the first weeks try to avoid that your eyes get into contact with soap.
- Avoid physical exercises and sports like swimming, diving and cycling or having a sauna until your eye specialist allows you to resume such activities without problems.
- Since the artificial lens implant allows more light to enter the eye than the “clouded” natural lens, most patients who have undergone a cataract surgery feel more comfortable wearing sun glasses. Sun glasses also serve as protection under unfavourable weather conditions.
- Watching TV or reading a book or newspaper is usually permitted – even shortly after the surgical intervention.



## What changes after surgery?

Already a few days after the cataract operation took place you will usually note a **considerable improvement in vision**. At first, however, sight can be impaired due to the eye being irritated shortly after surgery. Until having restored full visual acuity, you will have to be patient.

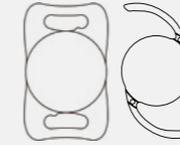
**Artificial lenses are not felt** by the patient. Intraocular lenses are made of modern biocompatible materials such as acryl or silicone and are intended to remain implanted in the eye for your lifetime, i.e. they will not be exchanged. To date no allergic reactions against the materials used or any incompatibilities have been reported.

Intraocular lenses –  
an overview online:

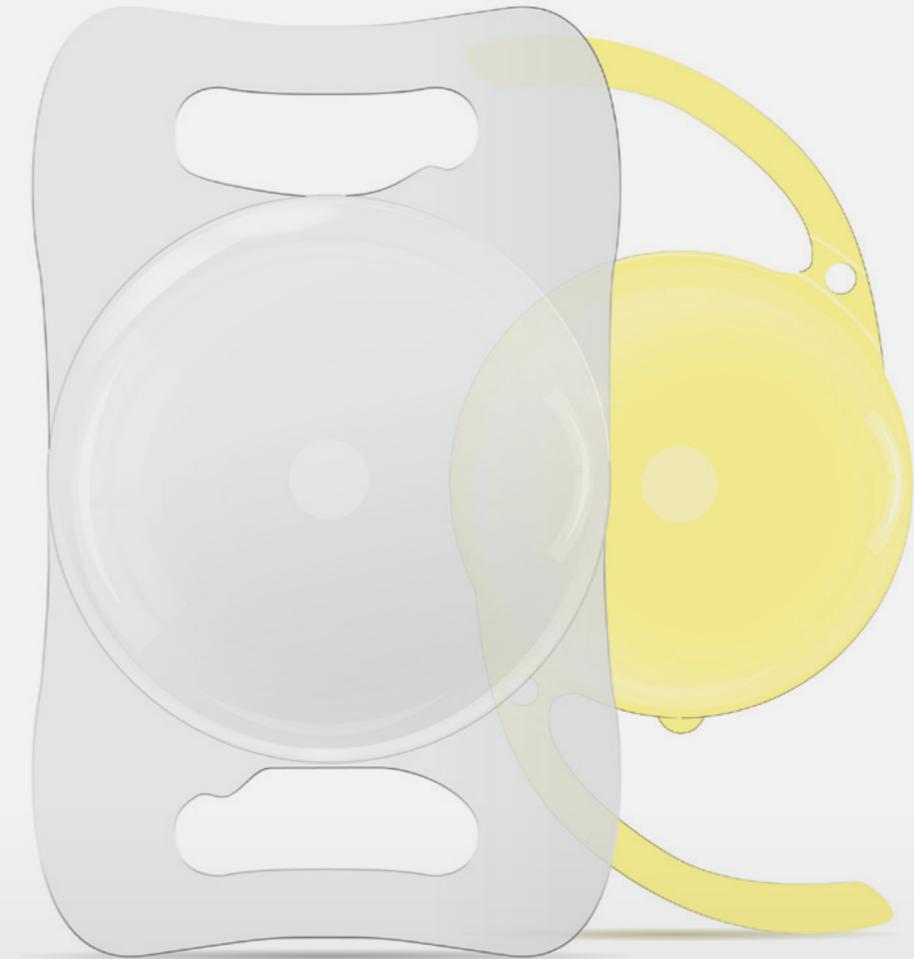


## Which lens types do exist?

Nowadays, monofocal intraocular lenses equipped with UV filter or even with a violet light filter will be implanted during standard cataract surgery. This means that you will receive a lens of very high quality even with the standard operation. The best solution in this case is a LENTIS® Comfort intraocular lens, which is adjusted optimally to the intermediate range. This is especially of importance to cataract patients who want greater spectacle independence in everyday situations, such as using the computer, handling their smartphone, shopping, golfing or driving. However, a premium lens will offer a solution tailored to your individual needs. Depending on your personal medical situation as well as on your desires and expectations these tailor-made lenses can be equipped with additional options which are as individual as your eyes are. For selecting the perfect lens for you, your particular medical situation is just as important as your wishes and expectations. You should discuss with your eye doctor which type of intraocular lens to choose to get the most benefits from.



LENTIS® intraocular lenses  
compared to 1-Cent coin –  
original size



## Glasses despite surgery?

To what extent you will need glasses after cataract surgery depends on the choice of your intraocular lens. There are basically three ways to treat cataracts by means of an artificial lens:

- **Standard intraocular lens** without additional function (so-called monofocal lens): High spectacles independence for one distance only, i.e. distance vision (from 200 cm), condition: cataract
- **Comfort intraocular lens** with depth of focus function (so-called intermediary lens): High spectacles independence in the distance and in the so-called intermediate region (50 cm to 200 cm), condition: cataract
- **Premium Intraocular lens** with individual add-on functions (so-called multifocal and/or toric lenses): High spectacle independence for distance, intermediate and near vision (30 cm to 50 cm), condition: cataract, presbyopia, astigmatism

Only after a thorough medical examination and an individual consultation of your visual needs, you should decide - together with your eye doctor - for a particular lens.





## What are the risks?

Modern cataract surgery is an extremely safe operation; however, no surgical procedure is guaranteed to be without complications. During cataract operation and the following healing phase, complications may occasionally occur especially if there are any additional diseases. These will be exceptional cases which mostly can be remedied successfully.

Prior to the procedure the surgeon will explain the operation and answer every question. Then you will be asked to sign the informed consent. That is a legal procedure to protect the patient and the surgeon. In case of pain in the eye and sudden worsening of vision of the eye treated – even weeks or months following the surgery – do not wait for the next appointment, but consult your eye specialist immediately.

## What is an “aftercataract”?

If your vision becomes “cloudy” a few weeks or months after your surgery – similar to the symptoms of the eye cataract itself – you may be experiencing an after-cataract which is basically harmless. The after-cataract is when the posterior lens capsule becomes cloudy due to capsule thickening or deposits. With a short and painless treatment using a laser (laser capsulotomy) your vision can be usually restored. Following this laser treatment, you may go home again without any dressing on your eye. Hence, the vision is restored immediately after the procedure.

# Glossary

## Medical Terms Explained

### **Accommodation**

The automatic adjustment in the focal length of the natural lens of the eye to permit retinal focus of images of objects at varying distances.

### **Astigmatism**

A refractive error caused by an irregular shape of the cornea (much like a football). Astigmatism is measured in terms of diopters, cylinder meridian or axis. Uncorrected astigmatism may produce ghosting or double images.

### **Capsular bag**

Here the lens is included maintained by the zonules of Zinn.

### **Cataract**

An opacity of the crystalline lens, which prevents the passage of the rays of light and impairs or destroys the sight.

### **Ciliary muscle**

The smooth muscle of the ciliary body of the eye, consisting of circular fibers, and whose action changes the shape of lens in the process of accommodation.

### **Cornea**

The outer part of the eye that provides 70% of the eye's refractive power. The cornea is approximately 500 microns thick (0.5 millimeter) and consists of 5 layers: epithelium, Bowman's layer, stroma, Descemet's membrane and endothelium.

### **Diopters**

A measurement of refractive error. Hyperopia is measured in terms of positive diopters. Myopia is measured in terms of negative diopters. The most common refractive errors ranged between +6 to -6 diopters.

### **Glaucoma**

Any of a group of eye diseases characterized by abnormally high intraocular fluid pressure, damaged optic disk, hardening of the eyeball, and partial to complete loss of vision.

### **Globe**

The eyeball.

### **Hyperopia**

The ophthalmic term for farsightedness. In the hyperopic eye, images are focused behind the retina. The hyperopic eye is often described as being too flat or too short.

### **Implantation**

A surgical procedure that places foreign bodies (artificial implants) in the human body.

### **Injector**

Medical instrument used to inject e.g. intraocular lenses into the eye.

### **Intraocular lens (= IOL)**

An artificial lens that is implanted into the eye of someone to replace a damaged natural lens or someone who has had a cataract removed. See also below: Premium intraocular lens

### **Iris**

The iris is a contractile membrane perforated by the pupil and forming the colored portion of the eye.

### **LASIK**

The acronym for laser assisted in situ keratomileusis. The name refers to the use of a laser to reshape the cornea without invading the adjacent cell layers.

**Myopia**

The medical term for nearsightedness. Eye is too steep, too long, image is focused in front of the retina.

**Optic nerve**

The millions of optical nerve fibers connecting to the eye and terminating in the brain where images are created and processed.

**Ophthalmology**

Branch of medicine dealing with the eyes.

**Phacoemulsification**

Removal of a cataract by emulsifying the lens ultrasonically.

**Posterior capsular opacification (also called aftercataract)**

As a physiological change expected after cataract surgery, the posterior capsular cells undergo hyperplasia, showing up as a thickening, opacification and clouding of the posterior lens capsule (which is left

behind when the cataract was removed, for placement of the IOL).

**Premium intraocular lens**

In addition to a functional standard lens (a so-called monofocal lens), your eye doctor will also offer so-called premium lenses featuring individual additional functions. Depending on the individual medical situation and personal desires and expectations these premium lenses correct other visual defects such as long-sightedness and short-sightedness as well as astigmatism. Premium lenses stand for additional benefits – Your advantage: improved vision, particular visual comfort, a higher level of independence or - in the best case – complete freedom from your glasses and/or contact lenses. In short: a better quality of life.

**Presbyopia**

The natural deterioration of near vision caused by loss of flexibility in the eye's lens as one ages.

**Refractive surgery**

Any surgical procedure that attempts to decrease the patient's refractive error. Typically the surgeon alters the shape of the cornea in order to change the angle at which an image is projected onto the retina.

**Retina**

Light processing membrane; converts light into electrical impulses that are transmitted to the optic nerve.

**Slit lamp**

Table-top microscope for examining the eye.



Your clinic's contact details:

More information on intraocular lenses:

[www.teleon-patientinfo.com](http://www.teleon-patientinfo.com)

**Manufacturer:**



Teleon Surgical B.V.

Van Rensselaerweg 4 b, NL - 6956 AV Spankeren

[www.teleon-surgical.com](http://www.teleon-surgical.com), [marketing@teleon-surgical.com](mailto:marketing@teleon-surgical.com)