Patient Information

What should I know about cataract surgery and intraocular lenses?
Zoom on cataract

Looking for some transparent information about cataract surgery? Medicontur helps to give you clear vision of the facts.
The human crystalline lens, a biconvex structure of human eye, is located behind the iris and the pupil. It is completely transparent with a shape similar to an optical lens with refractive properties.

Together with the cornea, the human lens ensures a clear picture on the retina at the back of the eye.
What is **cataract**?

The cataract is the formation of a cloudy or opaque area in the lens, which is normally crystal clear. The term of cataract is derived from the Greek word cataractos, which describes rapidly running water. Sight appears as through frosted glass. The progressive formation of cloudy areas make it more and more difficult for the light to pass through the lens.

As a consequence, ray lights disperse. And an unclear image is formed on the retina. At the beginning, most people do not realize they have a cataract, because the initial stage has little or no effect on the vision. After years, when the cloudy or opaque area thickens, the symptoms of cataract become more obvious with a deteriorated vision.

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**YOUR QUESTION – OUR ANSWER**

“**Congenital or not congenital? I’m only 55 years old and I have a cataract. My doctor told me that it may come from my mother. But she never had any cataract at that age**”

Cataract develops as a process of normal aging but it can be congenital as well. In such a case, the lens cloudiness is already present at birth or during infancy and mostly it requires prompt surgical correction. But in a minor case of cataract you can live with it for years before you suffer from blurred or distorted vision. Congenital cataracts are often caused by an infection during pregnancy. But early cataracts can also be the result of a recent or old eye injury, systemic or metabolic diseases etc…

“I was told that cataract is not contagious. But I had one cataract on the left eye, and two years after, it spread to the right one. So what?”

You were told the truth: cataract is not contagious at all and it cannot spread from one eye to the other. But as it is most of the time age related, the level of probability for an elderly patient – who has been already treated for one eye cataract - to be treated for the second eye is very high.
If you notice

- a blurry or cloudy vision,
- a fading of color vision,
- unusual problems with light sources, such as blinding car lights at night, halos or glare around lights,
- a limited night vision,
- a double or multiple vision, just as if objects you are looking at were multiplying,
- frequent change of glasses or contact lenses diopters,

Then, it is time to consult your doctor to get detailed information on the solutions.
Is it possible for me to see clearly again?

DID YOU KNOW THIS?

The natural human lens is composed of three parts:
1. the capsule, which covers it on the exterior
2. the epithelium, below that
3. the nucleus, in the middle.

Cataracts are mainly age-related, many factors can facilitate their formation. These are:
1. smoking
2. metabolic diseases such as diabetes
3. intense solar radiation

Your doctor is the right person to discuss about your symptoms. After a detailed examination of the internal structure of your eye and a vision acuity test, the doctor will be able to give you a proper diagnosis. If these first medical examinations lead your doctor to conclude that you suffer from a cataract, some more tests will be required to determine the best medical or surgical treatment - according to your specific situation.
Let’s face the truth...

No medication, no drops, no glasses nor exercise can stop or reverse a cataract once it is developed.

An operation is the only course of treatment that will help to restore good vision. Cataract surgery involves removing the clouded lens and replacing it with an artificial lens. The surgeon makes a tiny incision in the cornea. Using ultrasound machine, the deteriorated lens is liquefied to allow its extraction from the eye. Through this incision, the surgeon inserts the intraocular lens (also named IOL) adapted to your specific case.

Cataract surgery is one of the safest and most effective micro-surgery.

- Safe and predictable procedures with the help of innovative devices available worldwide.
- Highly skilled ophthalmologists performing more and more cataract surgeries through mini or micro incision.
- No general anesthesia or suture required (in most cases).
- No social isolation or complicated post-operation treatment.
1. The cloudy natural lens is removed using ultrasound and an irrigation-aspiration system through an incision of 1.8 to 3 mm.

2. A flexible artificial lens is implanted in the place of the natural lens using an injector with a diameter of 1.8 to 2.2 mm.

3. The artificial lens unfolds safely in the capsule. A special lens design ensures stable centration and optimal light refraction.

YOUR QUESTION – OUR ANSWER

“My doctor told me he would like to perform a “MICS”. What does it mean?”

Clinical studies have shown that smaller surgical incisions lead to better results. Today the most innovative technology allows standard cataract surgery through incisions as small as 2.2mm (Mini-Incision) and 1.8mm (MICS = Micro Incision Cataract Surgery)

DID YOU KNOW THIS?

Intraocular lenses can be differentiated according to their material. IOLs of the latest generation are made from soft acrylic materials – hydrophilic or hydrophobic. These IOLs are easily foldable and safely implantable through a small incision.
Most patients being treated as "outpatients" will spend only 1 to 2 hours at the hospital after the surgery. The recovery and coming back to your social life is very quick, not more than 1 week. In very rare and special cases some patients are treated in hospital for 1 or 2 days. Cataract surgery is one of the safest and most effective micro-surgery.

The complications of surgery such as inflammation, decreased vision, and pain are very rare. If you have any problems, discomfort, pain, doubts or question please do not hesitate and see your doctor immediately.

DID YOU KNOW THIS?

There are 3 main types of cataract. These are:

1. the “nuclear” cataract: so named because it starts in the center of the natural lens. It is the most common and usually develops in elderly people.

2. the “cortical” cataract: so named because it begins in the lens cortex, usually with a “comma” shape, on the outer edge of the lens. It gradually extends to the center of it. People suffering from diabetes tend more to this type of cataract.

3. the “subcapsular” cataract: usually formed at the back of the lens, in the cortex, under the capsule. This type of cataract is more common amongst severely myopic people and patients under certain medication.

Some key figures about cataract surgery:

- 1.8 mm: the reference size of the so-named “Micro-Incision Cataract Surgery” – The state-of-the-art surgical procedure for cataract to minimize any risk due to the width of the incision.
- 15 minutes: the average duration of the surgical procedure.
- 6 mm: the usual diameter of the optical part of the IOL.
- Up to 10 million: the number of cataract surgeries each year worldwide.
- 95%: the percentage of patients experiencing a real improvement in their vision following surgery.
Zoom on astigmatism

A personal case
What is astigmatism?

Corneal astigmatism is due to a structural problem in the corneal shape. The human cornea is usually shaped in a sphere – like a spherical baseball. With astigmatism, the cornea of the eye is not regularly and properly curved resulting in an oval shape (like the oval American football).

In an astigmatic eye, light rays that travel in two perpendicular paths have different focus planes on the retina, resulting in blurred vision, very often deteriorating distant vision.
Each astigmatic eye is unique. One patient’s refractive error will differ from another patient’s, because of the specific curves on the cornea. This is why your doctor will perform several very precise pre-operative tests to determine which specific Toric IOL should be chosen in your individual case.

YOUR QUESTION – OUR ANSWER

“I was told that during the cataract surgery, my astigmatism can be treated. Is that true?”

Some manufacturers advise surgeons and their patients to implant a specific IOL named “TORIC” IOL. The features and assets of this type of lens are significant. A key feature is the ability to correct the regular astigmatism.
Toric or not toric… this is the question!

If your doctor finds that in addition to cataract you also suffer from astigmatism you should consider to invest in a toric IOL instead of a classical IOL. How to take this decision? Follow this questionnaire and you will find out…

Count now the total of points.

- **Under 4 points**: The Toric IOL is not a priority for you, despite the additional comfort it may offer.
- **4 points and over**: The Toric IOL will definitely add quality to your life. In the long run you may even consider the Toric IOL to be a cost-saving investment.

1. **Did your physician tell you that you astigmatism is under or over 1.5 diopters?**
   - If < 1.5 diopters, count 0
   - If =1.5 diopters, count 1
   - If > 1.5 diopters, count 2

2. Apart from blurred vision, do you often suffer from one of the following symptoms: headaches, photopia, eye strain or excessive squinting?
   - If “none of these” count 0
   - If “one of these” count 1
   - If “more than one of these” count 2

You are wearing glasses to correct your astigmatism…

3. **You agree that these cylindrical glasses are quite expensive…**
   - If “no” count 0
   - If “yes” count 1

4. **You dream to get rid of your glasses…**
   - If “no” count 0
   - If “yes” count 1

5. **You had to change your glasses at least once every two years because of loss, breaking, changing diopters, etc.)…**
   - If “no” count 0
   - If “yes” count 1

You are wearing cylindrical (toric) contact lenses…

6. **The high level of precision required to properly position the contact lens is hard to achieve on a daily basis…**
   - If “no” count 0
   - If “yes” count 1

7. **You agree that these cylindrical contact lenses are quite expensive…**
   - If “no” count 0
   - If “yes” count 1
Zoom on presbyopia

Regain your near vision
What is presbyopia?

Presbyopia is an eye condition, in which the crystalline lens has lost its flexibility and thus its accommodating ability. It becomes increasingly difficult for the eye to focus on close objects.
Accommodation is the ability of the highly flexible crystalline lens to change its focusing power by modifying its curvature/shape. The lens can focus quickly on different objects at various distances, projecting a clear image of any object of interest onto the retina. This change in curvature/shape is controlled by the ciliary muscles through the zonules.

Physiological Description of Accommodation Process.

<table>
<thead>
<tr>
<th>On short distance</th>
<th>On long distance</th>
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<tr>
<td>High refractive power</td>
<td>Low refractive power</td>
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Ciliary muscle fibers contracted
Suspensory ligament relaxed
Lens thick and focused for close vision

Ciliary muscle relaxed
Suspensory ligament taut
Lens thin and focused for distant vision

YOUR QUESTION – OUR ANSWER

“If I opt for a premium-multifocal lens during the cataract surgery, shall I say good-bye to my glasses forever?”

It is true that the new generation of premium-multifocal IOLs is very effective. These IOLs are designed to meet exactly the specific needs of the individual eye. Nowadays around 80-90% of the patients wearing premium-multifocal IOLs do not need their glasses anymore in their everyday life…

However, the choice of a premium-multifocal IOL has to be discussed in great detail with your doctor, as it might not be suitable for your individual pathology.
Medical lenses can do a lot for you!
By age the natural crystalline lens becomes more and more yellow. As a result the lens is absorbing some of the blue light. Blue light is the most energetic part of the visible light spectrum (400 - 500 nanometers) and is said to have harmful effects on the macula in the eye.

On the other hand, blue light is more important for scotopic (night time) than photopic (day time) vision. Scotopic sensitivity declines twice as fast with aging than photopic sensitivity. Therefore night vision is a major problem for older adults.

After the natural crystalline lens has been replaced by a conventional IOL (with a UV-light blocker only), the macula is no longer protected against blue light.

In order to give some protection to the macula, and at the same time not to impair night vision, the filtering of the blue light has to be balanced carefully. The Natural Yellow Filter presented by Medicontur protects the macula by blocking most of the blue light under 460 nanometers. At the same time it maintains scotopic vision by letting blue light pass over 460 nanometers.

A "Yellow touch" for enhanced protection & unlimited perception
Medicontur Natural Yellow Filter:

- A balanced protection of the macula against UV-A and blue light by an absorption curve close to that of a middle-aged human crystalline lens.
- Optimized preservation of the natural color perception and contrast sensitivity.

“Natural Yellow Filter” for filtering as much as necessary, preserving as much as possible.
In existence for more than 20 years, with millions of intraocular implants produced and sold all over the world, Medicontur has made a name for itself in the ophthalmology as an expert in intraocular lenses.

Medicontur offers elaborate lenses made from specific high quality materials. Our unique, patented designs offer the highest level of safety, comfort and long-term reliability.
Medicontur IOLs and the expertise of your ophthalmologist will give you a clear vision and add quality to your life.
With the unique, patented Bi-Flex design Medicontur offers you the latest generation of IOLs. The Bi-Flex design is available in both soft acrylic materials: hydrophilic and hydrophobic. The Bi-Flex IOLs are easily foldable and safely implantable through corneal micro and mini incisions (1.8 - 2.2 mm).
Quality of material and design:

- No glistenings
- Low chromatic aberration
- Cutting-edge manufacturing process
- Free of spherical aberration
- Preservation of depth of field
- Natural Yellow Filter option
Looking for excellence? Ask for the **ABBE** number...

Before undergoing a cataract surgery, ask for the ABBE number of the IOL...

- The ABBE number expresses the level of dispersion caused by the IOL material. The higher the dispersion the higher the chromatic aberration.
- What is chromatic aberration? Chromatic aberration is the failure of a lens to focus all colors in one focal point. This occurs because each material has a different refractive index for each wavelength. The higher the refractive index of a material the higher the dispersion and the chromatic aberration.
- The lower the dispersion and the higher the optical performance of an IOL.
- Medicontur IOLs have the highest ABBE number among all IOLs on the market: hydrophilic 58, hydrophobic 57
Add quality to your vision!

Medicontur Medical Engineering Ltd.