



LASER LENS REPLACEMENT



Laser Lens Replacement

The purpose of this guide is help you understand the option of Laser Lens Replacement for permanent correction of vision. Although there are a number of options for vision correction now available, where suitable this option is permanent and reliably provides independence from glasses and contact lenses*.



*As with all surgical procedures, there is variability of healing and response and there is therefore no guarantee of perfect outcome.



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What is Laser Lens Replacement?

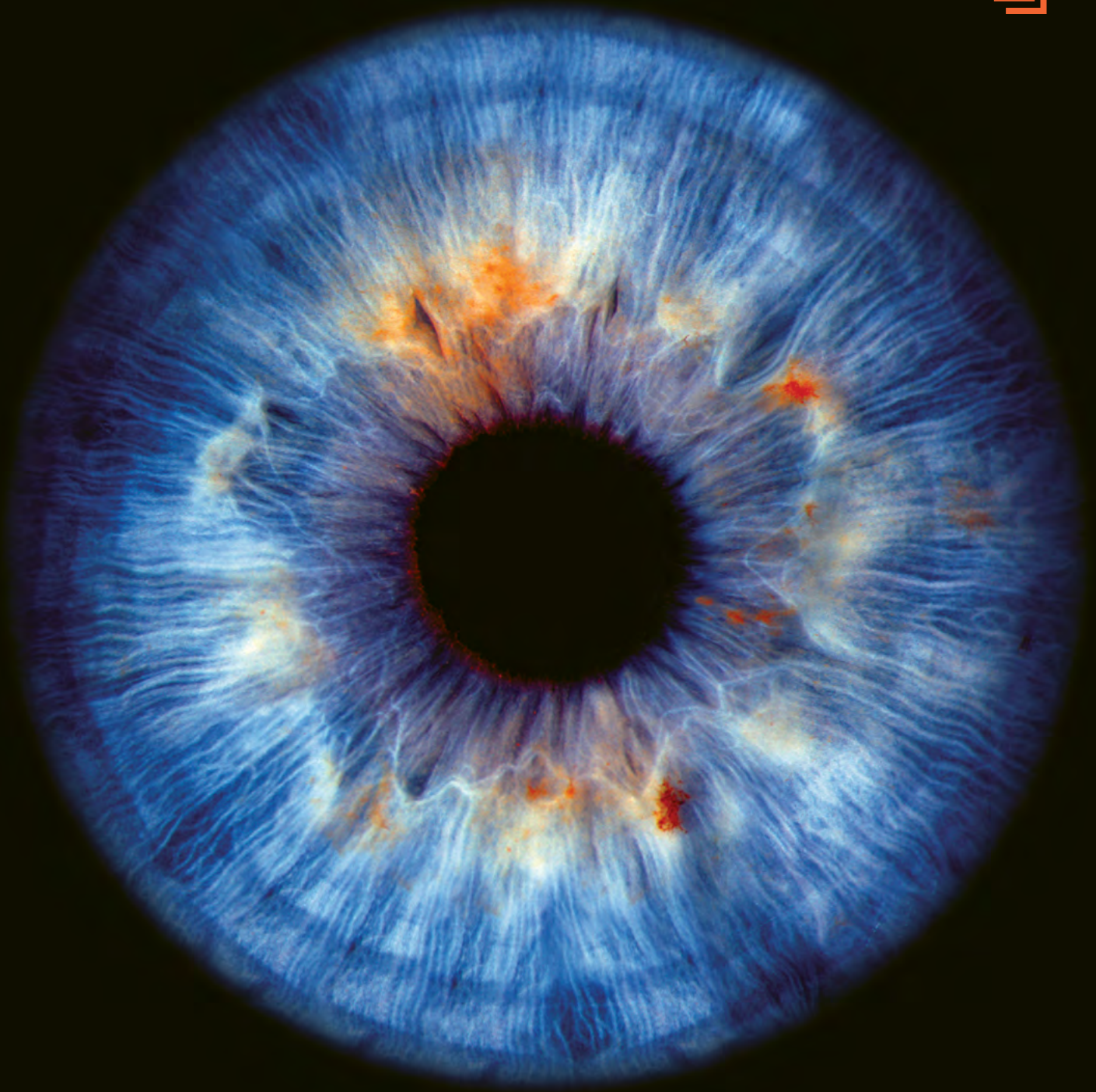
This vision correction option – Laser Lens Replacement involves replacement of the natural lens inside the eye with a high performance lens implant. Trifocal lenses and “Extended Depth of Focus” (EDOF) lenses reliably provide independence from distance, intermediate and near vision glasses.

Natural Lens Replacement (NLR), Refractive Lens Exchange (RLE), Presbyopia Lens Exchange (PRELEX) and Laser Lens Replacement (LLR) are all names used to describe this procedure. The only difference is a laser is used (rather than a manual technique) to assist the process in Laser Lens Exchange and is performed in this manner in 100% of cases at Centre for Sight.

Behind the pupil in the eye is a lens that is used for fine focusing. With advancing age, the lens becomes harder and stops moving, which results in the need for reading glasses. With time the same lens becomes cloudy and eventually affects the ability to see, this is then called a cataract. Laser Lens Replacement is similar to cataract surgery in that the dysfunctional lens is removed and replaced with a sophisticated intraocular lens implant measured specifically to suit each eye.



┌ the dysfunctional lens is removed and
replaced with a sophisticated intraocular
lens implant measured specifically
to suit each eye ┐





Why Laser Lens Replacement?

The natural crystalline lens in the eye becomes harder with advancing age and in turn fails to change shape adequately to alter focus for near vision. A change in shape is necessary when looking at near objects e.g. reading a book or iPad. The natural lens functions inadequately and the condition is termed by some as “Dysfunctional Lens Syndrome” (DLS). The crystalline lens becomes progressively harder and in turn near focus deteriorates further with advancing age. Reading glasses which become progressively stronger are needed to be able to see. This condition is also called Presbyopia.

Have a Question?
Email Us!





**Replacement of the
poorly functioning
natural lens with a high
performance lens implant
can result in complete
spectacle independence!**



Who is suitable for Laser Lens Replacement?

Generally those who are over the age of 50 with any level of hyperopia (farsighted) and 55 with any level of myopia (shortsighted) and astigmatism.

Those who have cataracts may also be suitable for high performance trifocal lenses.

To be suitable for trifocal lenses, eye health has to be good with no identified problems that can affect lens performance. Those with macular degeneration or visual field loss from glaucoma for instance, may not be suitable for trifocals.

Safety is paramount

At Centre for Sight, we are very selective about those who are eligible. Safety is our number one priority and we make our decisions based on scientific evidence, delaying (and first treating where appropriate) or declining those who might be at increased risk.



 **Excellent Surgeons, staff and technology. An amazing experience** 





At Centre for Sight, we are very selective about those who are eligible



What alternative procedures are there to Laser Lens Replacement?

Laser Vision Correction

Procedures which include LASIK (Laser in situ Keratomileusis) or Photorefractive Keratectomy (PRK), work by changing the shape of the cornea and therefore do not involve a lens implant.

Phakic Intraocular Lenses (Implantable Collamer Contact Lens)

These lens implants are inserted into the eye without removal of the natural lens.

Both the above options are better for those under the age of 50, who still have clear lenses and good quality of vision with glasses or contact lenses. Both laser vision correction and Phakic intraocular lenses are able to reliably correct one point of focus, usually distance, which means those in their mid-forties might still need to wear reading glasses afterwards. There are options for extending depth of focus and providing the ability to read, including “Monovision” and in the case of laser eye surgery “Supracor Lasik”.

Monovision

Monovision is a technique whereby the non-dominant eye is planned for near vision and the dominant eye for distance. This means both eyes do not see equally at distance and near, however with both eyes open a good depth of focus is achievable. This is not suitable for everyone and a contact lens trial using this scenario is advised prior to undergoing the procedure. Some may already be using this method with their contact lenses.

Supracor Lasik

This is a Lasik procedure where the cornea is made to be multifocal. As there is a period of adjustment and adaptation, only the non-dominant eye is treated. More information on Supracor Lasik can be found <https://www.centreforsight.com/treatments/laser-eye-surgery/supracor-lasik>





What types of lenses are used in Laser Lens Replacement?

Trifocal Multifocal Lens

This is the most commonly used lens at Centre for Sight with more than 90% of patients opting for this type of implant. The advantage of this lens is it reliably provides correction of distance, intermediate and near vision, in other words, a full depth of focus eliminating or reducing the need for glasses. Suitability for the lens implant is determined at consultation when numerous tests including the optical properties of the cornea and tear film are evaluated. To work well, these high performance lenses require a cornea with good optical properties as well a surface free of dryness and streaky tear film. Expectations of how the lens performs will be provided during consultation. Patients must understand the concept of adaptation which involves the brain becoming accustomed to the new optical system and picking up new information. The lens has microscopic rings which provide near and intermediate vision and as a consequence patients may well experience transient halos that over time disappear with adaptation.

Trifocal – PiggyBack Lens

For those who have already had cataract surgery and were not lucky enough to have a trifocal lens, there is an option of adding in a trifocal lens implant on top of the existing lens. This is also available at primary Laser Lens Replacement or cataract surgery. For instance if someone has diabetes or early macular degeneration, they may in time have a problem with the presence of a trifocal implant and may require removal. As an add-on lens placed on top of a monofocal, the Trifocal PiggyBack lens can easily be removed from the eye.

Monofocal Lens

The single focus lens is used in the NHS and vision is typically geared for distance only, meaning recipients will in all probability require glasses for intermediate and near vision.





Trifocal lenses provide independence from distance, intermediate and near vision glasses



Toric Lens

This is a lens that has astigmatism built in to the implant and used in those with astigmatism on their cornea of above 1.25D. For those with less astigmatism, limbal relaxing incisions are performed at Centre for Sight using the same laser employed in Laser cataract surgery. Toric lenses have to be specially ordered and sometimes need to be specifically manufactured which can increase the lead time for surgery. Toric lenses are available in combination with both Monofocal and Trifocal lenses.



MARCELA ESPINOSA-LAGANA
Consultant Ophthalmic
Surgeon



**Laser Lens
Replacement
is a reliable
option for
permanent
vision
correction**







The process for undergoing Laser Lens Replacement

The Consultation

At Centre for Sight a thorough preoperative consultation will be conducted by the Surgeon who will carry out your procedure. The Surgeon is supported by a team of highly trained technicians who perform a minimum set of investigations and measurements.

Based on initial findings, additional investigations may be required to further evaluate the eyes as necessary. During the process, the technicians and optometrists are in constant contact with and directed by the Ophthalmic Consultant. Once all necessary investigations have been accomplished you will be seen and counselled by the Consultant.

Tests performed at Consultation

The consultation at Centre for Sight routinely involves evaluation of vision and refraction (eye testing), contrast sensitivity, corneal mapping, a check of the overall eye aberrations and the contribution made by the cornea and the lens within the eye.

A dry eye test (Schirmer's test) is also performed as well as a pressure check (Tonometry) and corneal thickness evaluation (Pachymetry).

A lens calculation (Biometry) is also conducted to ascertain the lens power required.



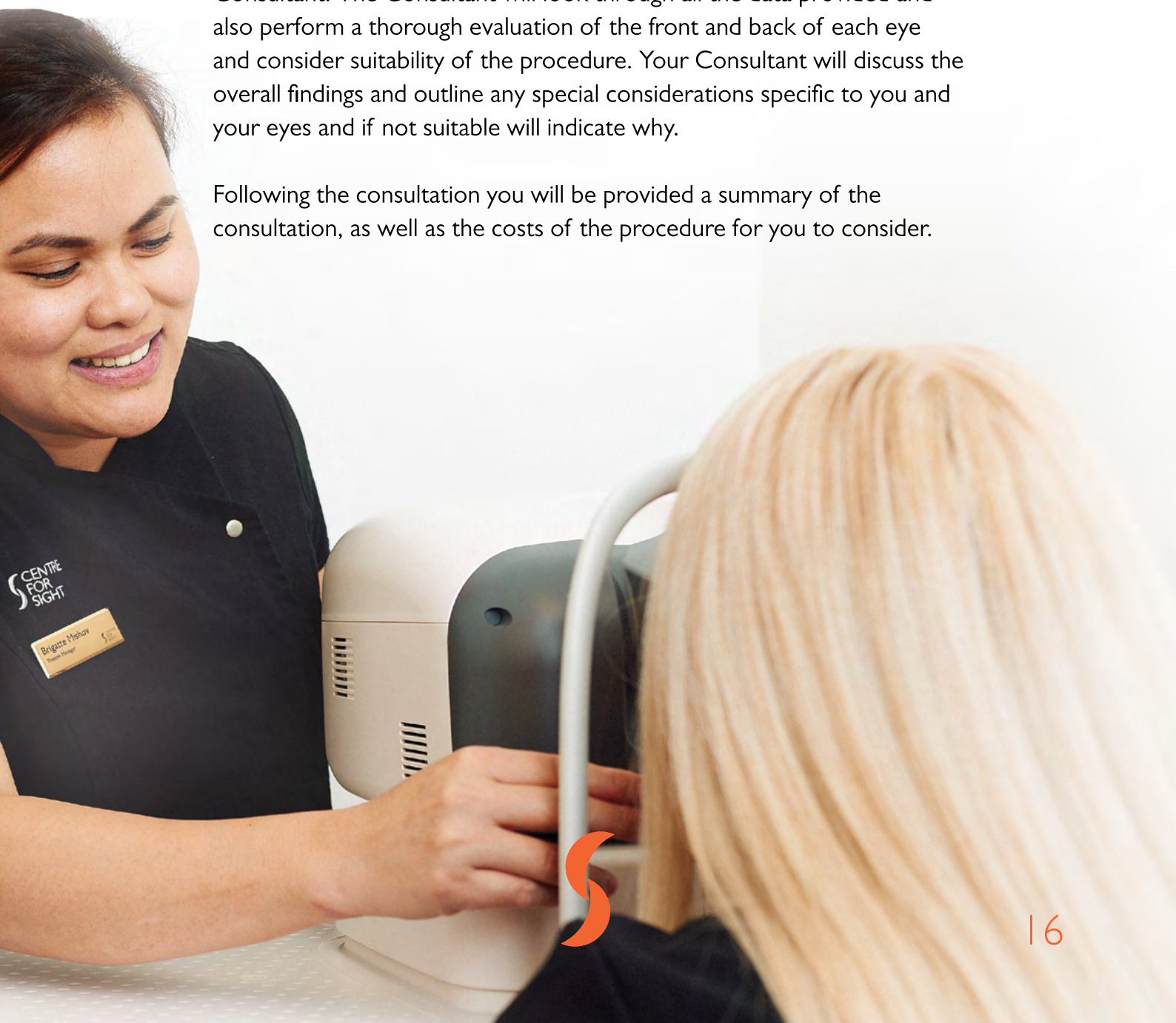
At Centre for Sight a thorough preoperative consultation will be conducted by the Surgeon who will carry out your procedure



A scan of the retina and optic nerve (Ocular coherence tomography) checks the health of the back of the eye to rule out any conditions that may adversely affect the outcome of Laser Lens Replacement. The eyes are dilated and a wide-field retinal scan is performed followed by an evaluation by the Consultant. During the process, you will have a chance to watch schematic videos about the procedure, the lenses used and what to expect.

Additionally, you will be provided with a copy of the consent form to read, as this may generate questions which can be answered by the Consultant. The Consultant will look through all the data provided and also perform a thorough evaluation of the front and back of each eye and consider suitability of the procedure. Your Consultant will discuss the overall findings and outline any special considerations specific to you and your eyes and if not suitable will indicate why.

Following the consultation you will be provided a summary of the consultation, as well as the costs of the procedure for you to consider.





The Laser Lens Replacement Procedure

The procedure is typically performed using anaesthetic eye drops. At Centre for Sight most patients opt to have intravenous sedation which involves insertion of a venous cannula and periodic injection of sedatives to reduce anxiety. Your pupils will be dilated with a series of eye drops and possibly with a medicine pellet under your lower lid. You will also receive strong antibiotic eye drops to kill bacteria and prevent infection.

You will be brought in to the operating theatre and asked to lie down on the bed attached to the laser. Using a microscope the Surgeon will attach a suction ring to the eye, which itself will be attached to the laser. You might have a sensation of pressure. The laser portion of the process takes between 1 – 2 minutes and involves making an opening in the lens capsule, fragmenting the lens and in some cases making a corneal incision for the correction of astigmatism.

Once accomplished, the laser bed is rotated under another microscope and surgery continues. A sticky plastic drape is placed on the eyelid after the surrounding skin has been disinfected with an iodine preparation. An eyelid clip is used to keep the eyelids open and the Surgeon will perform the remainder of the operation through an opening of less than 2.0mm!

The fragmented lens is removed with another sophisticated machine, followed by lens implantation. Once the lens is centred and a protective gel device removed, antibiotics are instilled to prevent infection followed by the eye being patched and a protective shield placed. The other eye is planned to be treated within a few days to a week.

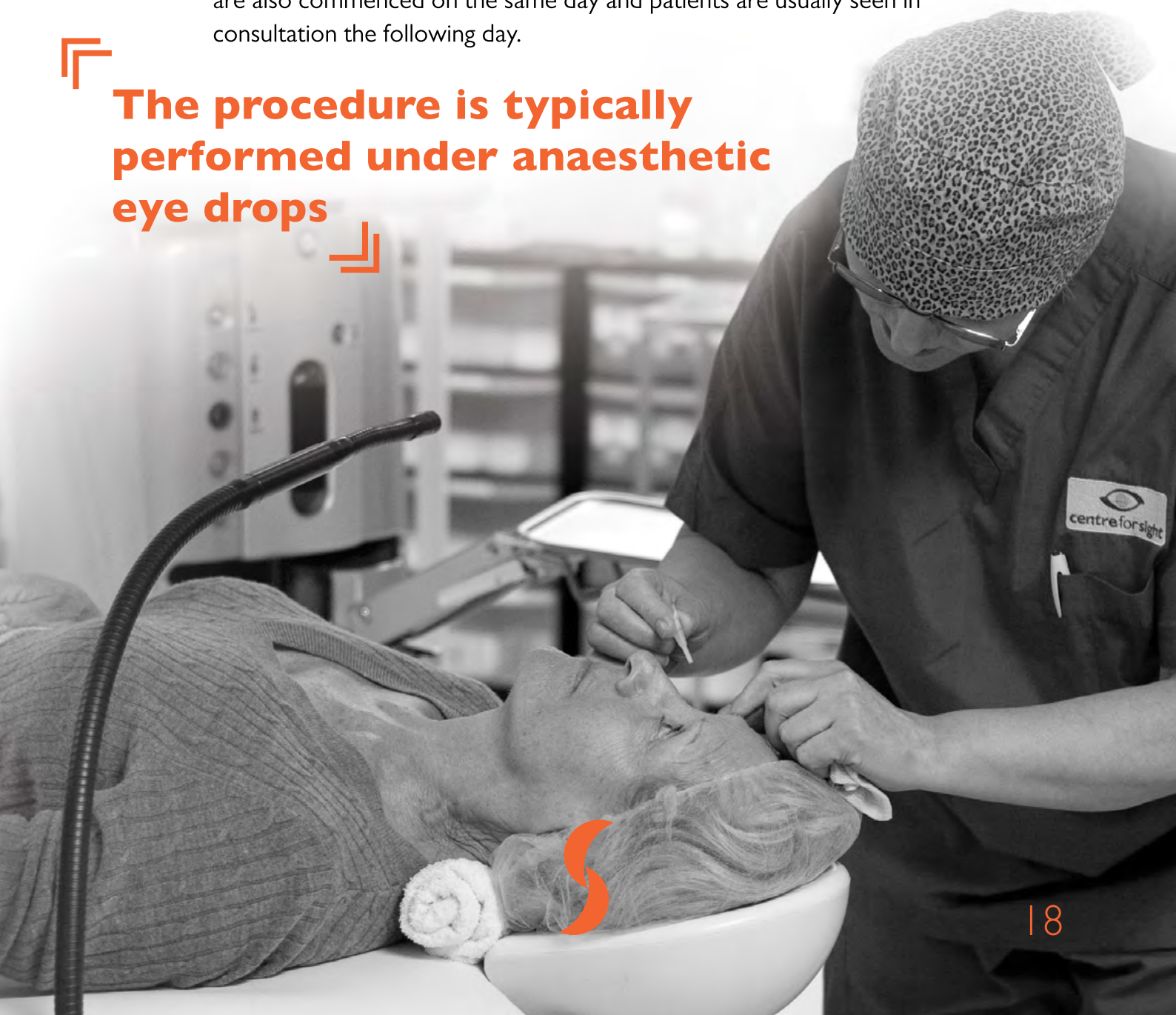
Have a Question?
Email Us!



Treatment to both eyes on the same day

Surgery on both eyes is sometimes performed on the same day where clinically appropriate. Patients suitable are usually non-complex “middle of the road” cases. At Centre for Sight to ensure maximal safety, each eye is treated independently with different batch numbers of devices and medicines for each eye, as well as instruments that have had different sterilization cycles. If both eyes are treated on the same day, for practical reasons the eyes are not patched and instead goggles on an elastic band are placed to protect the eyes. Patients are advised to go home and keep their eyes closed and allow them to settle for at least 4 hours. Eye drops are also commenced on the same day and patients are usually seen in consultation the following day.

The procedure is typically performed under anaesthetic eye drops





The good news is visual recovery is typically very quick



After Surgery

You will have some time to recover following surgery and when ready you will be served a light snack. You will be given a small toiletry bag containing your medications and instructions on their use. You will then be able to go home and we suggest you get plenty of rest that day.

The following day, you should take off your shield and patch. Preserve the shield in case you are instructed to use this at bedtime. Commence your drops as instructed remembering to close your eyes for 5 minutes by the clock before adding the next drop. You may have an appointment to be seen that day or a day or two later. If you are not seen the next day, one of our Patient Coordinators will get in touch to ensure you are making good progress.

Visual Recovery

The good news is visual recovery is typically very quick with many patients obtaining excellent vision the day following surgery. Sometimes vision is blurred for one or two days for a variety of reasons and this might be the case if the cataract was particularly hard.

A high performance lens like a trifocal lens implant provides the ability to read without glasses. A monofocal lens corrected for distance vision often results in poor near vision easily remedied by a temporary pair of off-the-shelf reading glasses.





What to expect after surgery

Adaptation

When one eye is treated at a time, patients may report the following day that their vision in the treated eye is not quite as good as expected. This is more common in those who were previously farsighted who find that distance vision is blurred. This happens because the eye muscles are trying to focus in the untreated eye, resulting in the implant being pushed forward slightly inducing short sightedness in the treated eye. With trifocal lenses, we emphasise preoperatively that it is only when both eyes are treated that patients get the benefit from the lenses with no comparative reference to an untreated eye. The eyes see similarly and vision improves rapidly each day. Previously shortsighted patients often report reading is not as good as it used to be, but with adaptation this improves.

Visual side effects

Halos around headlights that can interfere with the ability to drive comfortably affects 10% of patients. This improves in all patients with time. With adaptation, the brain is able to suppress unwanted information and patients report noticing a reduction in the size of halos over the next 6 to 12 weeks, eventually disappearing or being just a nuisance. A few patients take longer to adapt (12 to 18 months). In the worst case scenario the implant can be replaced with a monofocal lens, which will have the consequence of reducing the depth of focus and result in the need for glasses for reading.

Dry eye

We check for dry eye before surgery and this is treated if found to be significant. Those with marked tear surface abnormalities are not suitable for multifocal lenses. The abnormal surface can affect the performance of the lenses and cause fluctuation in vision. This condition can be treated in advance and once better, patients can be considered for multifocal lenses. Dry eye after surgery can occur as a result of a) no longer wearing glasses or contact lenses and being exposed to the elements, or more commonly b) toxicity from the eye drops which are at a high concentration in order to penetrate and enter the eye. Preservatives in drops are also a contributory factor. Dry eye symptoms and effects do improve a few weeks after the course of eye drops has been completed.



With adaptation, vision gets better and better



Reading and intermediate vision

Trifocal lenses distribute light energy to three points of focus. The majority (60% or more) is for distance and the remainder for intermediate and near. Some trifocals have more energy for near concentrated in the centre of the lens, as pupils typically constrict when one reads. However in dim light, the pupils can dilate and thus affect reading performance, so reading menus in a dimly lit restaurant might be difficult. Using a light to illuminate the object should help. The ability to see at intermediate (computer monitors) can in some patients take time (6 to 12 weeks) and again this improves with adaptation. The brain adapts and uses the information that is being transmitted from the retina.





What are the risks of Laser Lens Replacement?

As in all forms of surgery problems can occur during the operation or during the period of healing afterwards. More common problems are easily remedied by medication or even further surgery. Serious problems are rare but can lead to loss of vision, which can be permanent (a reduction in vision when compared to before surgery that cannot be corrected with glasses or contact lenses).

We are pleased to report that at Centre for Sight, complication rates are significantly below the national average. Our quality standards are over and above the minimal requirement set by the Royal College of Ophthalmologists and are collected and reported each month, which include unexpected complications during surgery, returns to the operating theatre and infections.

Loss of vision, whereby vision even with glasses or contact lenses is below the standard required for driving, can occur after any eye procedure and following Laser Lens Replacement is between 1 in 500 and 1 in 1000 nationally. The cause of this type of problem could be infection or inflammation, retinal detachment or bleeding at the time of or after surgery and also posterior capsule rupture, which is where the membrane of the lens could break during surgery. The UK rate of rupture is 1.5 to 2.0%. At Centre for Sight our rate over the last 3 years has been less than 1 in 800 (0.125%). A posterior capsule rupture may affect the ability to implant a trifocal lens.

“ Apparently I now have the vision of a fighter pilot, it feels so great to have good eyesight. I have just come back from holiday and it was so nice not to have to take any specs or lenses or solutions with me - just my designer sunglasses! ”



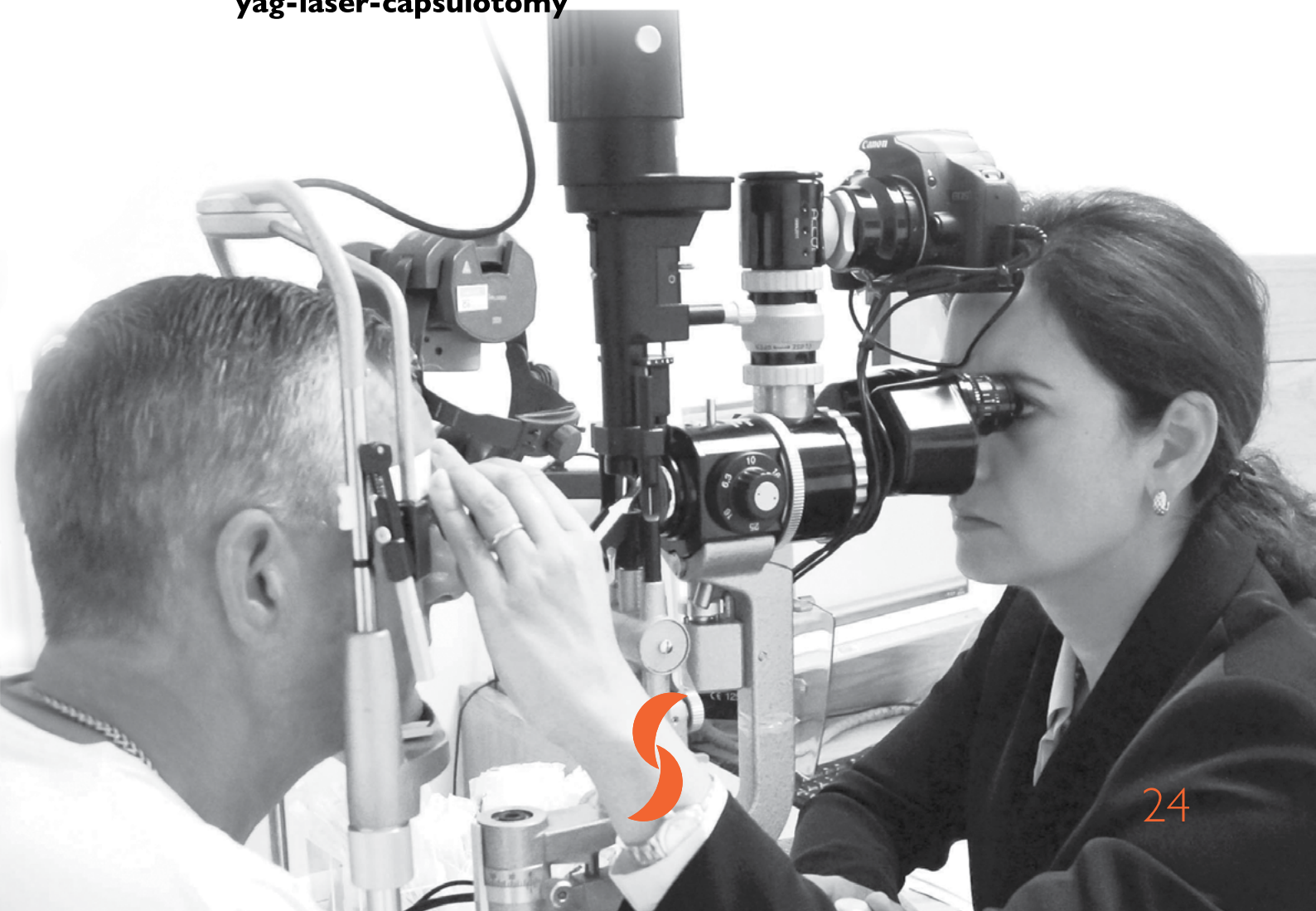
*Alison Durant, Training Consultant,
Haywards Heath*

Additional Surgery

Second operations are sometimes needed and these include recentering or repositioning a lens (for instance with a toric lens used to correct astigmatism) and top-up laser surgery (less than 1% at Centre for Sight) to correct the refraction of the eye (shortsighted, farsighted or astigmatism). Those who are shortsighted are at higher risk of retinal detachment for the first few years following cataract and Laser Lens Replacement surgery. Fortunately detached retinas are repairable by expert retinal Surgeons.

YAG Capsulotomy

The most common procedure required following Laser Lens Replacement and Cataract surgery is a YAG laser posterior capsulotomy, where the membrane holding the lens implant becomes cloudy and impairs vision. This occurs in 5% of patients and is easily treatable at a clinic appointment. For more on YAG capsulotomy, please visit **<https://www.centreforsight.com/treatments/laser-cataract-surgery/yag-laser-capsulotomy>**





“ My whole life has been improved! It is brilliant not having to search for my glasses when doing computer work, in particular; although it will take sometime to get used to not having to pop them on and off. Right throughout I have been met with professionalism, kindness and empathy from the staff and have been very impressed with the thoroughness of the tests ”



*Karina Summerfield, Retired Nurse
from Heathfield*



Tracy Laws, Assistant from Surrey

“ I could not see anything at all without lenses, so to be able to wake up and look at my alarm clock and actually see the time without reaching for my glasses has made such a big difference. It's the best thing I've ever spent my money on. It's the best thing I've ever done and I would not go with anyone else. Centre for sight treat you brilliantly. ”



“ Excellent, efficient, friendly, professional service! I had Laser Cataract Extraction with FINEVision (trifocals) in both eyes. The operation was painless. My far, intermediate and near vision in both eyes is perfect now. I sincerely recommend Centre for Sight. ”



*Dr R. Dasgupta
Retired General Practitioner*





FAQ

Can I have lens replacement if I've had laser eye surgery previously?

Yes, but it may restrict the range of lenses available to you. We will need more information to find the most suitable option for you before booking your consultation.

Will having Laser Lens Replacement and multifocal/trifocal lenses affect my eye health in the future?

The procedure does not stop one from developing eye problems or increase the risk of eye problems. Glaucoma and age-related macular degeneration can still occur and for this reason it is important to be regularly monitored by an eye care practitioner such as a local Optometrist. It is best to continue a relationship with your current Optometrist and maintain continuity of care and also contact us at Centre for Sight if there are ever any concerns.

How soon can I expect to have good vision?

This is highly variable. Some patients obtain good vision within 24 hours and others may take a little longer. Much depends on each individual's response to healing. If you have had High Performance Lenses, Trifocal or Extended Depth of Focus (EDOF) lenses implanted, there may well be a period of adaptation before you have good near vision.

Have a Question?
Email Us!



How long should I remain off work?

Usually one or two days. You may return to work as soon as you are comfortable. Make sure you are able to take your eye drops regularly as instructed.

How soon after my procedure may I drive?

When your vision is clear and you are comfortable. You must be able to read a number plate at 25 meters. Your doctor will advise you if you meet the visual standards for driving.

When can I return to playing sports and other activities?

You may return to all sporting activity after TWO weeks. For contact sports, you are advised to use protective eye glasses. Polycarbonate sports glasses are recommended. For swimming, usually after 4 weeks.

There are no restrictions and you may return to general activities like housework, shopping and gardening the following day. You must keep away from smoky and dusty environments and do not forget to wash your hands before using your eye drops.

Notes:

Refer to the Royal College of Ophthalmologists (RCOphth) guide to Refractive Lens Exchange <https://www.rcophth.ac.uk/wp-content/uploads/2015/02/Refractive-Lens-Exchange-Patient-Leaflet-April2017.pdf>



Laser Lens Replacement is an option for vision correction

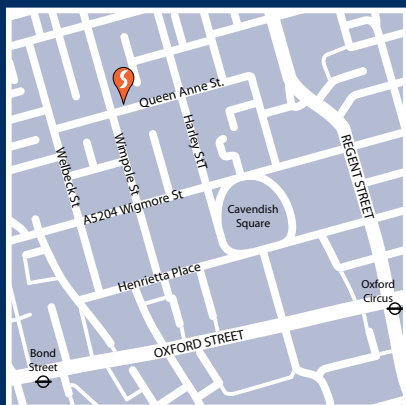




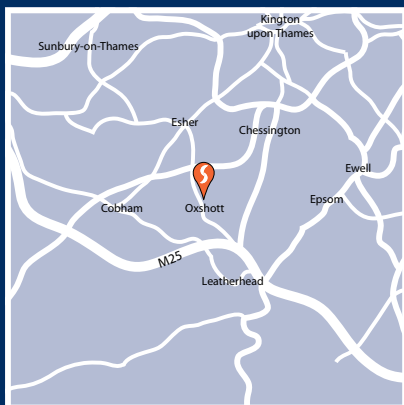
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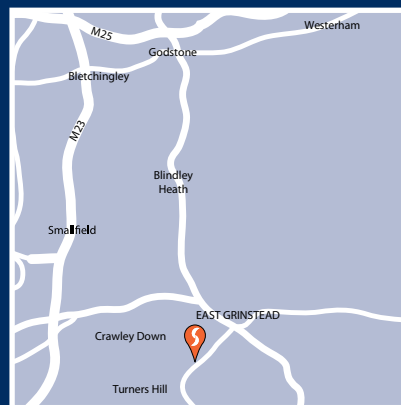




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