THE QUEENSLANDER'S GUIDE TO VISION CORRECTION

VISION
LASER VISION SPECIALISTS

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Introduction

It’s about trust.

Your eyesight is one of the most precious gifts you possess. So who can you trust to look after it? That’s the fundamental question for anyone considering laser eye surgery.

These days, there’s an almost overwhelming range of options available, with many providers claiming to offer high-quality treatment. So how do you decide who to trust?

The answer lies with the one person ultimately responsible for the care of your eyes during laser eye surgery: the surgeon. Only the best possible surgeons can ensure the lowest potential risks. We founded VSON on an uncompromising belief in the ultimate standards of care. It’s a philosophy we all share and in which we all take great pride.

Part of that philosophy is about being open and honest with our patients. That’s why we take time to explain every stage of your treatment clearly. It’s why we charge a single, up-front fee to cover your entire treatment. And it’s the reason we publish so many videos and blog posts, so you can be sure you can get an answer to most of your questions.

For this guide, we thought we’d go a step further and give you a thorough overview of most of what you need to know about vision correction.

Over the following pages, you’ll learn all about how your vision changes as you age (and what you can do about it). First, we’ll list the limitations of glasses & contact lenses (in case you didn’t already know).

Next, we’ll discuss the latest vision correction options for people aged 20-39. We’ll then share what you can do when you start to lose your close up vision around 40 and above. We’ll continue with top tips when considering vision correction. And we’ll round up the discussion by sharing the ten common myths and misperceptions about vision correction (and the real story). Lastly, we’ll answer frequently asked questions about vision correction.

How the eye works

The human eye is an incredible instrument that relies on light and lenses to form images. There are many similarities between the human eye and a camera, including:

- *A variable-sized aperture or hole called the pupil. This regulates the amount of light that passes through.*
- *A lens system, which includes a transparent covering (the cornea). And, a spherical lens inside the eye behind the iris (the coloured part of the eye).*
- *A reusable 'film' called the retina which records the image and sends the information to the brain.*
- *An optical zoom controlled by a muscular system. This changes the size of the pupil, the shape of the lens and the movements of the eye.*

When you look at an object, light passes through the cornea and the pupil at the front of the eye. The lens - which is inside the eye, between the pupil and the retina - bends this light, focusing it onto the retina. The retina is full of sensory cells called 'rods' and 'cones', which change the particles of light into electrical signals. Our nerves send these signals to the brain, and the brain interprets this as an image.
When you look at something, four things must happen:

- *The image must 'reduce' to fit on to the retina.*
- *The scattered light must focus at the surface of the retina;*
- *The image must curve to match the curve of the retina;*
- *The brain must interpret the image as vision.*

For this to work, muscles attached to the lens must contract and relax to change the shape of the lens system. This helps to keep the object focused on the retina, even when your eyes move. Your nervous system controls this complex set of muscle movements.

Vision problems change as we age

Most vision problems occur when the eye cannot focus images onto the retina.

The most common problems are to do with the shape of the cornea, the length of the eye, and/or the elasticity of the lens.

We call these common issues:

- *Short-sightedness (myopia)*
- *Long-sightedness (hyperopia)*
- *Presbyopia (ageing eyes)*
- *Astigmatism*

In the vast majority of cases, we can correct these issues with laser eye surgery.

Common vision problems: Ages 20-39

Myopia - Short-sightedness

When you're short-sighted, you can see close objects; but, objects in the distance appear blurry.

The condition occurs when your eyeball is longer, or your cornea is more curved than average. This means that when the light rays come together (focus), they do so in front of, rather than on the retina. This means that the image becomes blurred. Laser eye surgery can correct myopia by changing the shape of the cornea. This matches the focusing power to the length of the eye.

Hyperopia - Long-sightedness

When you're long-sighted, you can see objects in the distance; yet, close objects appear blurry.

The condition occurs when your eyeball is shorter, or your cornea is flatter than average. This means that light focuses behind the retina causing close vision to be blurry. Younger hyperopic people sometimes have stronger focusing power. This means they can bring things into focus to compensate for the blurring.

As the eye ages (presbyopia), its ability to self-focus gets weaker. Both distance and near vision become blurred. This means that people with hyperopia often need reading glasses before their 40s. They then need both reading and distance glasses (or bifocals) from their 40s or 50s onwards.

Laser eye surgery can correct hyperopia by changing the shape of the cornea. This matches the focusing power to the length of the eye. Laser eye surgery can also correct presbyopia.

Astigmatism - Blurry vision

Astigmatism is a type of refractive error. It is caused by irregularities in the shape of a person's cornea.

A normal eye is round like a football. Astigmatism occurs when your eye is more oval-shaped, like a rugby ball. The abnormal curve of the cornea means that when light enters the eye, it is not focused on the retina. This results in an unclear or blurry image. Approximately half of all people with myopia or hyperopia also have astigmatism. Laser eye surgery can correct astigmatism, along with long-sightedness or short-sightedness, if necessary.

Common vision problems: Ages 40 & over

Presbyopia - The need for reading glasses

Presbyopia is a condition that develops as we age. It affects everyone during their lifetime.

It often starts being noticeable around the age of 45 and affects most people by the time they reach the age of 50. As we age, the eye's natural lens stiffens and loses its ability to focus. This means you lose the ability to see things close up and become dependent on reading glasses. In some patients, the stiffening of the lens (presbyopia) affects the distance vision. Patients with this condition find that they also need to wear glasses to correct their distance vision. People use reading glasses, multifocal glasses or monovision contact lenses to correct presbyopia. Yet, people looking for a more convenient solution can have laser eye surgery to correct their vision.

At VSON, we use LASIK blended vision to correct the symptoms of presbyopia. This allows patients to reduce or even eliminate their dependence on visual aids for a range of distances.

Cataract - When your vision becomes yellowish & cloudy resulting in an inability to see clearly at any distance

A cataract is the clouding of the lens of the eye which stops the light from reaching the retina.

This can affect your vision, making it cloudy, blurry or misty. The most common cause of cataracts is age. Certain medications and conditions like diabetes can also contribute.

Cataracts usually get worse over time. The only way to restore the vision is to remove them through cataract surgery. At VSON we offer the most advanced type of cataract surgery. This procedure can also correct your prescription. It enables you to see a range of distances without the need for glasses.

Limitations of glasses & contact lenses

There's no denying that glasses and contact lenses are incredible inventions. But, they are not without their limitations.

People with good natural vision can wake up in the morning, take a shower without any blurriness and set out for the day to enjoy any activity they choose.

Glasses and contact lens wearers must spend time out of their day considering their eyes. They must change contact lens solutions, rearrange dislodged contacts and plan which extra pairs of lenses to pack.

The average cost of wearing daily contact lenses over a lifetime can add up. Most people can split the cost of vision correction surgery and pay about the same as they do for contact lens wear over a term of only 5 years.

While monthly contact lenses are cheaper, they carry more risk. Advances in extended wear contact lenses make them safer to wear overnight, but you're still introducing bacteria to your eyes for an extended period of time.

It is estimated that 15 percent of contact lens wearers develop contact lens intolerance and stop wearing their contacts every year.

If you're contact lens intolerant, then you might feel your only option is glasses. The first wearable glasses known to history appeared in Italy during the 13th century. They're one of the oldest technologies we still use today. And, they come with many drawbacks, many of which can lead to additional cost:

- *Glasses break*
- *Glasses get scratched*
- *Glasses go out of fashion*
- *Glasses don't always match your outfit*
- *Glasses get lost*
- *Glasses steam up*
- *Glasses don't work in the rain*
- *Glasses stop you from physical activities*
- *Glasses stop you from doing certain jobs*
- *Glasses need replacement when your prescription changes*

6 key reasons to ditch glasses & contacts

Obstructed peripheral vision

Our eyes are spherical for a reason – they enable us to see from many different angles. Yet, if your vision is limited by two rectangular frames, your peripheral vision will be restricted. Also, your best vision is through the centre of the lens so the periphery will not be as sharp.

Altered appearance

Some people feel that their glasses change the way they look or the way others perceive them. For some this is a good thing, for others, glasses can be too domineering on the face, distort the way your eyes look and affect your confidence.

Eye irritation

It's a common misperception that eye irritation and dryness from contact lenses are normal. But in fact, this is unhealthy and puts you at risk of more severe eye conditions.[1] Many people are unable to tolerate contact lenses. Particularly those with sinus-related conditions like hayfever.[2]

1 Higuera, V. (2019, July 24). Untreated Chronic Dry Eye Complications and Risks. Healthline. https://www.healthline.com/health/dry-eye/untreated-complications-risks#difficulty-reading-or-driving

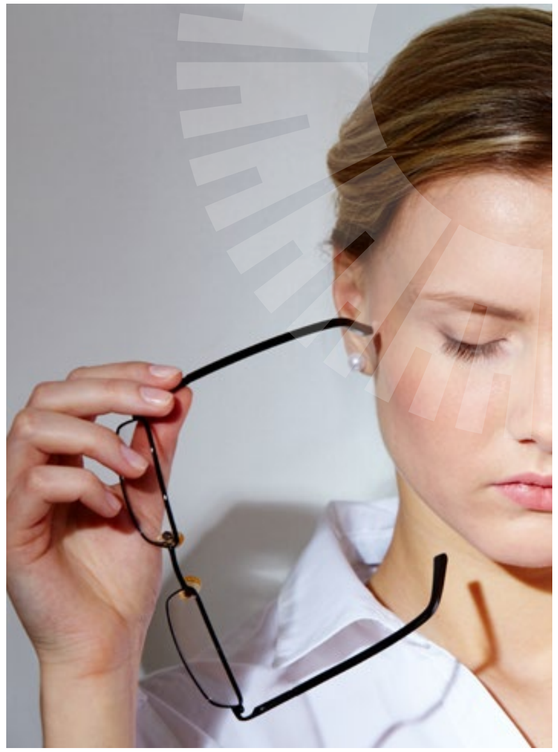
2 Adverse events in allergy sufferers wearing contact lenses. (2015, June 1). PubMed Central (PMC). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4495118/

Forgotten, lost or broken glasses

If you've managed to get through life so far without forgetting, misplacing or dropping your glasses or contact lenses, then I commend you. For many of us mere mortals, this is a daily occurrence that doesn't get any less infuriating.

The old on, off, on, off routine

If you're new to reading glasses it won't be long before you tire of putting them on and taking them off every time you change your focus from near to far objects. Not only is this a real inconvenience, but it can really slow you down and waste precious time.



Activity withdrawal

Some people find that wearing glasses and contact lenses deters them from participating in many activities they may otherwise enjoy.
For example:

- ***Exercise:*** *Glasses, like a splint or any other medical device, don't help you in the gym. More often than not, they're a huge hindrance. They steam up, bounce around, fall off, and are generally a nuisance. Not to mention they prevent you from having a swim in the pool and taking part in almost any exercise class.*
- ***Cooking:*** *Whether you're hosting a dinner party or cooking for one, preparing a simple meal isn't straightforward or enjoyable when glasses constantly steam-up.*
- ***Getting a good photo:*** *Getting a photo of yourself that you really like can be quite challenging already without having to consider the positioning of your glasses and the right angle to avoid glare.*
- ***Sports:*** *Skiing, surfing, rock climbing, sailing, mountain biking, and bungee jumping are just some of the sports off the cards if you rely on glasses. Contact lenses may be an option if you can tolerate them, but no one wants to be distracted by an itchy eye or lost lens while they're off-piste.*
- ***Driving:*** *If you don't have your glasses, then driving is illegal and invalidates your insurance policy. If you do have your glasses, your safety and the safety of those around you is dependent on the time of day and the right lighting conditions.*

  No matter what the time or weather, glasses cause a complete loss of peripheral vision. What most people can do with a flick of the eye, glasses-wearers have to do by turning their entire head away from the road in front of them.

What is 'visual acuity' & what does '20/20 vision' mean?

'Visual acuity' is the standard measure of a person's ability to see clearly.

When an optometrist measures your visual acuity, they are testing your central vision. They're assessing your ability to distinguish the details and shapes of objects from a certain distance away.

An optometrist places an eye chart at a standard distance (twenty feet or six metres, depending on the customary unit of measurement). They then ask the patient to read letters on lines across the eye chart.

Towards the bottom of the chart is a line known as the '20/20 line' – this is the smallest line that a person with 'normal' visual acuity can read from twenty feet away. Therefore, having 20/20 vision means that you have normal visual acuity.

Three lines above the normal (20/20) line is the 20/40 line. The letters on the 20/40 line are twice as large as those on the 20/20 line, so a person with normal visual acuity could read from twice as far away (forty feet). If the smallest letters that a person can read from twenty feet away are those on the 20/40 line, that person would be said to have 20/40 vision. This means that the person needs to approach the chart to a distance of twenty feet to read letters that a person with normal acuity could read at forty feet.

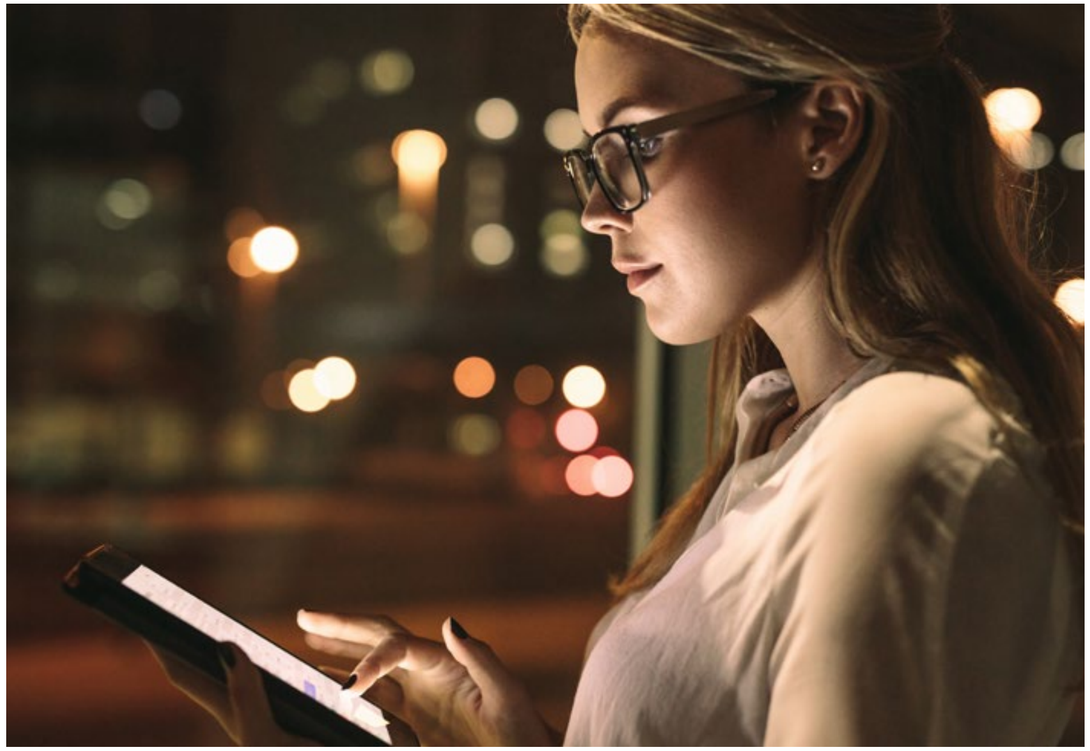
It is also possible to have better than 20/20 vision. For example, some patients can read the 20/16 line (the line below the 20/20 line) during their visual acuity test. These people would have a visual acuity of 20/16. This means that they can read a line from twenty feet away that a person with normal visual acuity would need to approach to a distance of sixteen feet to read.

'Visual acuity' & 20/20 vision

The biggest letter, at the top of most eye charts, is the 20/200 line. Many people believe that they have "bad vision" because they can't read the E at the top of the chart without glasses. However, visual acuity tests measure a person's uncorrected vision (their vision without glasses or contact lenses) and their best-corrected vision (the best vision that they can achieve with glasses or contact lenses).

Many people with moderate myopia (short-sightedness) cannot read the 'E' without glasses but have no problem reading the 20/20 line or even the 20/16 line with glasses.

Most visual acuity ratios refer to best-corrected visual acuity. For example, the legal driving standard in Australia is 20/40. This means that a person's visual acuity is considered good enough to drive if they can read the 20/40 line from twenty feet away, with glasses on if necessary.



In laser eye surgery, our goal is to get your visual acuity to a very high level without glasses. This level would typically be between 20/16 and 20/25.

In some cases there may be a small but imperceptible difference between the best possible vision that you had in glasses and your vision without glasses after laser vision correction.

Vision Correction Ages 20-39

Laser eye surgery - see what you've been missing

After a 30-year track record, laser eye surgery is one of the most successful elective treatments in the world.[3] Over 25 million people have had laser eye surgery and achieved independence from glasses and contact lenses since 1990.[4]

How does it work?

Any operation that corrects the focusing of the eye is called refractive surgery. Laser eye surgery is simply a form of refractive surgery that uses a laser to reshape your cornea. The cornea is the transparent, curved window at the front of the eye. Adjusting the curvature of your cornea allows light to focus onto the retina at the back of the eye, creating a clear image.

The most popular form of laser eye surgery is LASIK (laser in-situ keratomileusis)[5]. During LASIK, the surgeon uses either a femtosecond laser or, rarely, a mechanical device called a microkeratome to create a very thin corneal flap, about a tenth of a millimetre thick. The surgeon then lifts this corneal flap and uses a second (excimer) laser to sculpt the bed of the cornea. This procedure can be used to flatten the cornea (to correct short-sightedness), make it steeper (to correct long-sightedness), and make it more symmetrical (to correct astigmatism). When the surgeon puts the corneal flap back, the cornea takes on this new shape.

Lenticule extraction is an up-to-date femtosecond procedure where the laser creates a small layer of tissue inside the cornea. This tissue is called a lenticule. After applying the laser, the surgeon can then look through the microscope and remove the lenticule through the small access incisions.

3 LASIK called safest, most successful elective procedure in the world. (2017). Healio. https://www.healio.com/news/ophthalmology/20171110/lasik-called-safest-most-successful-elective-procedure-in-the-world#:%7E:text=%E2%80%9CIs%20LASIK%20the%20best%20refractive,over%20the%20last%20two%20decades

4 MarketScope, 2015 Refractive Surgery Market Report: A Global Analysis "Table 14: Global Candidate Pool" estimates 50.4 million eyes treated worldwide (in 2015)

5 Mayoclinic.org. 2021. LASIK eye surgery - Mayo Clinic. [online] Available at: <https://www.mayoclinic.org/tests-procedures/lasik-eye-surgery/about/pac-20384774> [Accessed 28 July 2021].

Lenticule extraction is also known as keyhole surgery. Lenticule extraction is an established laser vision correction technique. Since its introduction 10 years ago,1 more than 3.5 million procedures have been performed, and more than 600 articles on this lenticule extraction technique have been published in the peer-reviewed literature.

At present, there are three brands of lasers surgeons use to perform lenticule extraction (and there will liikely be more). The three brands are ZEISS SMILE and SCHWIND SmartSight and most recently, CLEAR by Ziemer.

Lenticule extraction differs from LASIK in that the surgeon does not need to create a flap in the cornea. Instead, the surgeon uses a femtosecond laser to create a tiny tunnel, through which they draw out a minuscule amount of corneal tissue (less than 1/100th of the width of a human hair). The main disadvantage of lenticule extraction compared to more established forms of laser eye surgery is the limited range of prescriptions that can be treated (currently, only shortsightedness and astigmatism).

With LASIK and lenticular extraction (i.e. SMILE or SmartSight) laser eye surgery, the healing process is surprisingly short. In almost all patients, the flap (in LASIK) or the tunnel (in lenticular extraction) heals within a matter of hours after surgery.

Anaesthetic drops are used to numb the eyes during surgery, so the procedure itself is generally painless. It is normal to experience a small amount of discomfort in the evening after surgery as the anaesthetic wears off, but this is rarely troublesome, and we provide painkillers if necessary.

Most patients notice a significant vision improvement immediately after surgery, and vision continues to improve over the next 24 - 48 hours. The rapid visual recovery time means that most patients can return to work within 24 hours of surgery. However, it will take about three months before patients experience their final visual outcome.

For the small minority of patients who are unsuitable for either LASIK or lenticular extraction (i.e. SmartSight) laser eye surgery, there are alternative 'surface laser' procedures known as PRK (photorefractive keratectomy).

This procedure involves removing the cornea's surface layer (the epithelium) and then treating the underlying area with a laser. At VSON, most PRK procedures are performed as transepithelial PRK during which the entire procedure is performed using a laser as a "no-touch" technique. This treatment is relatively easier for most patients to get through.

The main difference between LASIK or lenticular extraction and these surface procedures is the healing time for the patient. After a surface procedure, it takes approximately 4 - 7 days for the eyes to heal and vision to stabilise.

At VSON, we have invested in the latest laser eye surgery technology to offer blade-free all-laser LASIK and touch-free PRK. We explain the advantages of these procedures in the next section.

Vision Correction Overview

Laser eye surgery uses highly precise, and extremely safe lasers to microscopically change the contour of the cornea, to correct the focusing issues that force many people to be dependent on glasses or contact lenses for clear vision.

We use laser eye surgery to treat long-sightedness (hyperopia), short-sightedness (myopia), and astigmatism. Today, over 99% of patients have a form of laser eye surgery called LASIK or lenticular extraction (i.e. ZEISS SMILE® or SCHWIND SmartSight), which offers the least discomfort, and the fastest recovery time, of any laser eye surgery. Most patients can be back at work within 24 hours. Treating both eyes takes around 15 minutes. First, the surgeon uses a laser pre-programmed to your individual treatment programme to create a very thin, circular flap of tissue in the outer cornea. Then he or she folds this flap back to expose the underlying cornea, and uses a separate laser to remove a predetermined amount of corneal tissue. This is what reshapes the cornea, to a tiny and incredibly precise degree, to refocus the light entering the eye.

Then your surgeon replaces the flap, which is almost instantly held in place by the natural processes of the eye. In most cases, the flap will have effectively healed into position within just a few hours.

If you happen to be one of few patients unsuitable for LASIK, we can discuss other forms of laser eye surgery that may be better for you, and will achieve essentially the same results. These procedures are known as PRK (photorefractive keratectomy) and TransPRK (a gentler, no-touch version of PRK). Both involve removing the cornea's surface layer (the epithelium) and then treating the exposed area underneath with a laser. To the patient, the main difference between LASIK and these surface procedures is the healing time. After a surface procedure, it takes approximately 5 - 7 days for the eyes to heal and to stabilise vision.

Laser eye surgeries like LASIK are an excellent way for people with short-sightedness, long-sightedness, and astigmatism to obtain clearer vision without corrective eyewear. Although they are popular, LASIK and PRK procedures are not suitable for everyone.

If you want clear vision without glasses and contacts but do not qualify for LASIK, implantable contact lenses (ICLs) also known as Implantable Contact Lenses may be a good option to correct your refractive errors. Instead of sitting on the surface of your eyes like removable contacts, ICLs work from inside your eyes.

Blade-free LASIK

An all-laser alternative to conventional LASIK

What is blade-free LASIK?

Blade-free LASIK is an advancement of traditional LASIK laser eye surgery.

Most of the LASIK performed in Brisbane today is traditional LASIK. Yet, some people are put off by the thought of a mechanical blade – no matter how precisely controlled – creating a flap in the cornea.

To overcome these drawbacks, laser scientists found a way to use a femtosecond laser to make the flap. It is minimally invasive, precise and gentle – and we use it here at VSON.

Are you suitable?

You may be a suitable candidate for blade-free LASIK vision correction if you meet the following criteria:

- *You're at least 21 years old.*
- *Your vision prescription has not changed significantly in the past six months to a year, depending on your age.*
- *You are generally healthy.*
- *You don't have an active eye infection or inflammation that could jeopardise the safety of the procedure.*
- *Your corneas are thick enough for us to create a corneal flap (we can only know that when we examine you)*

One of the most frequently performed, elective surgeries in the world

How does blade-free LASIK work?

Blade-free LASIK improves the focusing power of the eye to correct refractive errors. During the procedure, the surgeon guides a laser to reshape the cornea - the transparent covering of the eye. This improves the way light travels through the eye and focuses on the retina. The result is clearer, crisper vision, without corrective eyewear.

The benefits of blade-free Femtosecond LASIK

The key benefits of blade-free LASIK include:

- *Maximum safety through intelligent eye-tracking (very safe flap creation compared to mechanical blade technique.*
- *High-precision LASIK flap thickness & diameter.*
- *Shorter healing process.*
- *Decreased risk of corneal abrasions during the procedure.*
- *Decreased risk of astigmatism after the surgery.*
- *Fantastic clinical results.*

The results – face the world without barriers

After blade-free LASIK you should...

- *Have the freedom from glasses and contact lenses that you've always wanted.*
- *Be able to enjoy the confidence and convenience that your friends without glasses and contact lenses have always taken for granted.*
- *Be able to enjoy all the little things that are so easy for everyone else; such as taking a shower without the blurriness; not needing to put in your contact lenses in the morning; exercising without worrying about your glasses and avoiding the daily risk of a contact lens infection.*
- *Be able to live life the way it should be – without the needless hassle of glasses and contact lenses.*

TransPRK

A touch-free alternative if you're unsuitable for blade-free LASIK

What is TransPRK?

Transepithelial Photorefractive Keratectomy or TransPRK is an advancement in traditional PRK laser eye surgery.

Traditional PRK was first performed in the United States in 1987. It is the first type of laser eye surgery for vision correction.[6] With traditional PRK, the laser eye surgeon manually removes the thin outer layer of the cornea (epithelium) following the application of an alcohol solution. They then reshape the corneal bed with a laser. Most laser eye surgeons in Brisbane performing PRK use this traditional method.

At VSON, we use TransPRK. Unlike conventional methods like LASEK, Epi-LASIK and PRK, with Transepithelial PRK the eye is not touched with any instrument. This touch-free procedure is non-invasive, safe, and gentle to the eye.[7]

Are you suitable?

You may be a good candidate for TransPRK if:

- *You're 21 years or older.*
- *You haven't experienced any significant changes in your vision prescription in the past six months to a year.*
- *You're in good health and do not have any serious eye conditions.*
- *Your corneas are too thin for LASIK, are unusually shaped, or you are prone to dry eye problems.*
- *You're at a higher risk of flap-related complications because of your occupation or normal activities. E.g., you're a professional athlete or a first responder.*

An ultra-safe, touch-free alternative if LASIK is not an option

6 Excimer Lasers in Refractive Surgery. (2019, December 1). PubMed Central (PMC). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7004285/

7 SCHWIND TransPRK – the no-touch laser eye treatment. (2020). Schwind. https://www.eye-tech-solutions.com/transprk#:%7E:text=Unlike%20with%20conventional%20methods%20like,and%20gentle%20to%20the%20eye.

How does TransPRK work?

TransPRK is similar to blade-free LASIK in that it uses laser energy to reshape the cornea to treat refractive errors. One key difference is that blade-free LASIK involves the creation of a corneal flap, and PRK does not.

It takes slightly longer to recover from TransPRK than blade-free LASIK because the surface cells of the cornea need to regenerate. Your vision should be good enough to resume work, driving and the rest of your normal activities within a week of surgery.

The key benefits of TransPRK include:

- *Touchless: no suction, no flap, no incision.*
- *Safe: high corneal stability.*
- *Fast: treatment in one step.*
- *Shorter healing process.*
- *Fantastic clinical results.*[8]

The drawbacks of TransPRK

- *Longer recovery time compared to Femtosecond LASIK. The majority of vision recovery happens over 2 weeks. It takes up to 6 to 8 weeks for full vision recovery.*[9]
- *Need to wear sunglasses for 3 months.*
- *More eye drops needed for a longer period.*
- *Higher cost as compared to standard PRK.*

The results– see the world in high definition

After TransPRK you should...

- *Be able take advantage of clear vision, free from glasses or contact lenses.*
- *Be able to go about your daily life without the inconvenience of corrective eyewear.*
- *Be able to notice how much more enjoyable work and leisure are without glasses or contacts.*
- *Have the confidence to engage in a wide variety of contact sports or physically demanding occupations.*
- *Be able to enjoy the freedom to live life to the fullest.*

8 Clinical outcomes of Transepithelial photorefractive keratectomy to treat low to moderate myopic astigmatism. (2018). NCBI. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5944066/#:~:text=Results,0.50D%20of%20intended%20correction.

9 Gaeckle, H. C. (2021, April 16). Early clinical outcomes and comparison between trans-PRK and PRK, regarding refractive outcome, wound healing, pain intensity and visual recovery time in a real-world setup. BMC Ophthalmology. https://bmcophthalmol.biomedcentral.com/articles/10.1186/s12886-021-01941-3

Lenticular Extraction

The most minimally invasive form of LASIK to maximise comfort and speed-up recovery

What is SmartSight?

SMILE and SmartSight are forms of lenticule extraction. Many eye surgeons regard lenticule extraction as the most cutting-edge, minimally invasive laser eye surgery for the correction of myopia (short-sightedness), with or without astigmatism.[10]

We at VSON use SmartSight, so we'll focus our discussion on that. However, for the purposes of this document, the terms SmartSight and SMILE are interchangeable.

How does SmartSight work?

With SmartSight, a laser places a series of pulses within the cornea, forming bubbles less than 1/1000th the width of a human hair. These bubbles outline the tissue that needs removing and creates a tiny connecting tunnel through which we can extract it. Removing this tissue alters the shape of the cornea, correcting nearsightedness.

The benefits of SmartSight

With SmartSight, we don't create a flap, so the eye is more comfortable postoperatively than with other laser eye surgery techniques.

Bladeless & maximised comfort

[10] Harvard Health. (2020, May 14). SMall Incision Lenticule Extraction (SMILE): It's what's new in laser vision correction. https://www.health.harvard.edu/blog/small-incision-lenticule-extraction-smile-its-whats-new-in-laser-vision-correction-2020051419765#:%7E:text=The%20FDA%20approved%20SMILE%2C%20the,of%20myopia%20and%20myopic%20astigmatism.

The drawbacks of SmartSight

With SmartSight, we don't create a flap, so the eye is more comfortable postoperatively than with other laser eye surgery techniques.

- *SmartSight can only treat a narrow range of refractive errors relative to LASIK.*
- *Visual recovery takes slightly longer compared to LASIK. With a LASIK procedure, a patient can experience instant visual recovery. SmartSight's visual recovery can take several days.*
- *Enhancements are more challenging compared to LASIK.*
- *More expensive.*
- *Relatively short-term clinical experience and followup compared to TransPRK and LASIK.*

Is SmartSight better than LASIK & PRK?

Not necessarily. All three procedures achieve the same results. However, your cornea will be stronger with SmartSight as we don't need to create a flap or remove any layers of your cornea, as is the case with LASIK and PRK.[11]

There will always be a place for LASIK and PRK, because not everyone will be suitable for SmartSight.

[11] Doroodgar, F., Sedaghat, M., Rezazadeh, A., and Niazi, S. (2019). Article SMILE vs LASIK vs PRK: Advantages and Indications. RESEARCHGATE. https://www.researchgate.net/publication/334318783_Article_SMILE_vs_LASIK_vs_PRK_Advantages_and_Indications

Implantable contact lens surgery (ICLs)

Clear vision without glasses and contacts if you do not qualify for laser eye surgery

What is implantable contact lens surgery?

If you want clear vision without glasses and contacts but do not qualify for LASIK, implantable contact lenses (ICLs) may be a good option for you.

Are you suitable for implantable contact lens surgery?

You may be a suitable candidate for vision correction with ICLs if:

- *You are at least 21 years old.*
- *You want clear, crisp vision without glasses or removable contact lenses.*
- *You've had a stable prescription for at least one year before treatment.*
- *You don't meet the requirements for LASIK because either your prescription is too high or your corneas are too thin.*
- *You want the flexibility to reverse or change if your visual needs change in the future.*

How does implantable contact lens surgery work?

ICLs are clear lenses implanted between the lens (the clear lens inside your eye) and the iris (the coloured part of the eye). They do not replace the eye's natural lens, and you will no longer need visual aids to see. As light passes through the ICL, it focuses light onto the retina at the back of the eye enabling you to see clearly.

Not suitable for laser? We've got you covered

The benefits of implantable contact lens surgery

The benefits of implantable contact lens surgery (ICLs) include:

- *ICLs can treat a wide prescription range.*
- *Fantastic visual quality. Because the eye maintains a natural shape with ICL, the quality of vision is excellent. This is particularly good for higher prescriptions. As a result, night vision can be better than with other procedures.*
- *No need to change your cornea such as with LASIK.*
- *There is no thinning of the cornea or risk of laser-induced dry eye.*
- *You cannot see or feel ICLs after implantation, and you do not need to clean them.*
- *The artificial lens also contains UV protection. This prevents UV rays from affecting the eye and contributing to eye disorders.*
- *The surgery is reversible and we can remove the lens at any stage. For instance, if you need cataract surgery later in life.*
- *It can also help people who may not be suitable for other types of vision correction treatment.*

The drawbacks of implantable contact lens surgery

ICLs are not for everyone:

- *ICLs are not for everyone: Use of an ICL is intended for the age group 21 - 50. Under the age of 21, your prescription and eyes are still changing.*
- *You may experience halos around light.*
- *You may not be able to have further laser to enhance any mild residual focusing error depending on your eye health.*
- *You will need to have regular checks with your optometrist to detect if there is any change in your prescription.*

The results

- *You will be able to see as clearly as you do while wearing contacts (or even more clearly).*
- *You won't have to worry about the maintenance and hassle of taking your contacts out and putting them back in.*
- *You'll enjoy great night vision with few side-effects.*
- *You can enjoy the peace of mind that you can reverse the procedure if you change your mind.*
- *You won't be able to see or feel the lenses. You'll only notice your vision is clearer and sharper.*

Vision Correction Ages 40+

Free yourself from the hassle of glasses and contact lenses

As you get into your 40s, you'll notice the effects of age-related vision changes inside your eye. This condition is called presbyopia, and everyone gets it. No one is immune.

Vision correction can address presbyopia by removing the natural lens inside the eye and replacing it with an artificial one. These lens surgery procedures treat presbyopia, in addition to refractive errors like short-sightedness, long-sightedness and astigmatism.

Virtually identical to cataract surgery, lens replacement removes the natural lens and replaces it with an advanced artificial lens to restore clear vision and sharp focus. The only difference is that we remove that clear but optically challenged or abnormal lens and replace it with an artificial implant that lasts longer than your lifetime.

Usually, this presents a once-in-a-lifetime opportunity to replace that rigid lens with a particular type of implant.

This implant can restore not just your distance vision but a whole range of vision to give clear distance, intermediate, and close vision. Some of these lenses can even correct astigmatism. That means that, after lens replacement, you'll no longer need glasses or contact lenses for almost everything you do. As a bonus, you'll never need cataract surgery in the future because an artificial lens implant never gets a cataract.

If you are highly motivated to get out of your glasses and contact lenses and are starting to become presbyopic, then lens replacement might be perfect for you.

However, another laser eye surgery procedure called Laser Blended Vision is highly effective and less invasive than lens replacement.

So, while we may not stop the ageing process in its tracks, we can make it much more comfortable and convenient for almost everyone.

LASIK blended vision

An alternative to reading glasses, multifocal glasses and monovision contact lenses

Are you over the age of 40? Has your optometrist told you that you need to wear multifocal glasses or contact lenses? Perhaps you have good distance vision with visual aids, but now you're dependent on them to see up close too.

If the answer to these questions is yes, you could benefit from LASIK blended vision.

LASIK blended vision is the latest laser treatment to correct ageing eyes (presbyopia).[12]

Are you suitable for LASIK blended vision?

You may be suitable for LASIK blended vision if you...

- *Wear reading glasses or multifocals.*
- *Need reading glasses or multifocals.*
- *Do not have other medical eye conditions apart from requiring glasses.*
- *Are over 40.*
- *Are over experiencing problems achieving good vision for all tasks with your contact lenses or glasses.*
- *Have undergone a contact lens trial to simulate the result of LASIK blended vision and were very satisfied with the outcome.*

12 Advantages of Laser-Blended Vision. (2009). CRSTEurope. https://crstodayeurope.com/articles/2009-jan/0109_06-php/

How does LASIK blended vision work?

After LASIK blended vision, one eye will be able to see at both computer and reading distances. Your other eye (usually your dominant eye) will be able to see at long-distance.

The benefits of LASIK blended vision

The benefits of LASIK blended vision include:

- *Minimally invasive compared to refractive lens replacement surgery.*
- *Very short treatment time of a few minutes.*
- *Very rapid restoration of near vision.*
- *Very high quality of vision at all visual distances.*
- *Possible simultaneous correction of visual defects such as myopia, hyperopia or astigmatism.*
- *High patient satisfaction.*[13]
- *Excellent clinical results.*[14]

The drawbacks of LASIK blended vision

LASIK blended vision addresses the symptoms of presbyopia by helping the eye focus on close objects. But it does not fix the cause of presbyopia which is the ageing of your eyes' natural lens. LASIK blended vision therefore slows down the effects of ageing eyes, but cannot stop it.

LASIK blended vision is a safe and effective interim step between needing reading glasses, multifocal or progressive glasses.

The results – Enjoy more comfort and convenience

After LASIK blended vision, you will have significantly improved vision for a range of distances without glasses.

13 Functional Outcome and Patient Satisfaction after Laser In Situ Keratomileusis for Correction of Myopia and Myopic Astigmatism. (2015). PubMed Central (PMC). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4302464/

14 Watson, S. (2019, December 20). Twenty Years Later, LASIK Has Its Pros and Cons. WebMD. https://www.webmd.com/eye-health/news/20191220/twenty-years-later-lasik-has-its-pros-and-cons#:%7E:text=LASIK%20has%20a%20high%20success,get%20LASIK%20need%20another%20surgery.

Lens replacement

What is lens replacement?

Lens replacement, also known as refractive lens exchange, is a vision correction procedure. It aims to help people over the age of 40 who have lost their range of vision due to age, see clearly without glasses or contact lenses.

Are you suitable for lens replacement?

You may be a good candidate for lens replacement if:

- *You're over 40 and want spectacle-independent vision, but are not a good candidate for LASIK or PRK.*
- *You have a glasses prescription that is higher than the accepted range for laser eye surgery.*
- *You are starting to experience a diminished range of vision due to the effects of ageing in the eyes.*

How does lens replacement surgery work?

We remove the natural lens and replace it with an advanced artificial lens to restore your range of focus which cannot be achieved naturally for most people over the age of 40.

The benefits of lens replacement surgery

The benefits of lens replacement surgery include:

- *It can correct a wide range of visual errors including long-sightedness, short-sightedness, presbyopia, astigmatism.*
- *It is suitable for people over 40 to restore a loss of range of eyesight.*
- *It eliminates the need for cataract surgery in later life.*
- *It can help individuals with very high levels of focusing error who aren't suitable for laser eye surgery.*
- *Treatment is painless.*
- *Recovery is quick.*

The limitations of lens replacement surgery

The limitations of lens replacement surgery include:

- *For many patients, getting the final vision outcome with minimal dependence on glasses can be a multistage process that may take over several months to achieve. The reason is that up to 30% of patients will require an additional procedure; usually, laser vision correction (LASIK), to achieve sharp near or distance vision without glasses. Until we have completed this final step, the vision may not be as sharp as possible, and you may need to wear glasses for certain tasks.*
- *Not everyone is suitable for Lens Replacement Surgery. To determine if you are suitable for this treatment option, you will need to undergo a detailed and somewhat lengthy (90 minute) pre-operative assessment.*
- *Lens Replacement Surgery will incur additional fees compared to laser vision correction to cover premium lenses and refractive enhancement with LASIK, PRK or insertion of a piggyback intraocular lens procedure. Health funds will not completely cover the cost of laser cataract surgery.*
- *In rare cases, we may need to change an intraocular lens because of night vision symptoms. The cost of this additional surgery is completely covered by the original cost of the lens replacement surgery.*

The results – Enjoy more comfort and convenience

After lens replacement surgery...

- *You should have a very high level of independence from glasses and contact lenses for a wide range of activities depending on the implants you choose with your surgery. This can include freedom from glasses and contacts for distance, midrange and reading.*
- *If you do need glasses, it will likely only be for specifically visually-demanding tasks.*
- *You won't need cataract surgery later in life to remove and replace a cloudy lens*

Read again without glasses or contact lenses if you're 40+

Laser cataract surgery

Treat your cataracts and dramatically reduce your need for reading and distance glasses

What is laser cataract surgery?

Residual refractive errors are common after cataract surgery, resulting in a dependence on glasses. This may interfere with their satisfaction with their vision following surgery. These people would benefit from laser cataract surgery.

Laser cataract surgery uses the latest techniques in cataract surgery and laser vision correction to maximise your freedom from glasses after cataract removal.

Are you suitable for laser cataract surgery?

Irrespective of your prescription, if you have a cataract that is affecting the quality of your vision you are likely as good a candidate for laser cataract surgery as you are for routine cataract surgery. The choice to have laser cataract surgery is mainly dependent on lifestyle and needs.

If you would like to reduce dependence on glasses and contact lenses for a wide range of visual tasks, then laser cataract surgery may be a suitable option.

15 Antwi-Adjei EK, Owusu E, Kobia-Acquah E, Dadzie EE, Anarfi E, Wanye S (2021) Evaluation of postoperative refractive error correction after cataract surgery. PLoS ONE 16(6): e0252787. https://doi.org/10.1371/journal.pone.0252787

How does laser cataract surgery work?

Laser cataract surgery can be broken down into two steps:

Step 1:

We use a laser to access the capsule the natural lens sits in and remove the cataract.

Step 2:

We replace the cataract lens with a new advanced lens.

A critical part of step 1 is creating a capsulotomy or opening the capsule which contains the cataract. In standard cataract surgery, the surgeon makes the incision manually. In laser cataract surgery, a laser makes the incision. This method is more precise and has higher repeatability.[16]

The laser capsulotomy technique also enables us to use more advanced extended depth of focus (EDOF) implants designed explicitly for laser cataract surgery. This improves the stability of multifocal implants. Your surgeon can position these lenses with a much higher degree of accuracy, resulting in improved visual outcomes.

The specific type of lens that will best suit you depends on your vision needs and preoperative testing. At your assessment, we conduct extensive analysis to determine which lens will meet your lifestyle requirements.

Sometimes after cataract surgery, the eye needs laser vision correction to fine-tune the focus. Using LASIK and SmartSurface technology, we can refine the focus of your eye and the quality of your vision following surgery.

Our surgeons have a laser vision correction background. This gives them a specific skill set to consider your quality of vision after the removal of cataracts.

The intraocular lenses

There is no single "best" lens that would meet the needs of everyone. Intraocular lenses vary as much as we differ as individuals with our own vision and lifestyle needs. We have a complete range of the latest lens types and laser vision correction techniques available. These will help you achieve the vision that will best suit your lifestyle and vision needs after surgery.

16 All About Vision. 2021. Laser Cataract Surgery. [online] Available at: <https://www.allaboutvision.com/en-gb/laser-cataract-surgery/> [Accessed 28 July 2021].

We can select lens implant (Intraocular lenses) types or combinations to give a range of vision, from distance to close. We calculate the lens power using non-invasive scans taken at your initial assessment for surgery that provide precise measurements of the dimension of your eye and from these scans the intraocular lens required can be accurately matched to your eye.

At your assessment, your ophthalmologist will discuss lens options with you and your vision requirements for work and leisure activities. This enables us to select the implant and focus target to best meet your needs.

Some possibilities include:

01
- ***Multifocal lens implant combined with extended-depth-of-focus (EDOF) lenses –*** *This option gives the best possibility of reducing your dependence on glasses for distance, mid-range (computer) and most near vision activities with the ability to read small print. Night vision is affected by halos but to a lesser extent than if multifocal implants were used in each eye. Desktop computer vision also tends to be better than with multifocal implants in each eye. Magnifiers may be needed for low contrast fine print or reading in dim light.*

02
- ***Multifocal lenses -*** *This option usually will provide that greatest range of vision with most patients achieving both excellent distance vision and near vision without glasses. Readers may be required for low-contrast fine print. Glare and halos are very common in the first few months following treatment. These gradually fade and are tolerable for most people. In rare cases, an implant may need to be exchanged to reduce night vision issues.*

03
- ***Extended Depth of Focus (EDOF) implants with Blended Vision–*** *This can reduce your dependence on glasses for most day-to-day distance, mid-range and near tasks. Night vision quality is very good in most cases. Some people may require intermittent use of spectacles in dim light situations. This is the best option if you have had "monovision" as a contact lens wearer.*

What are the benefits of laser cataract surgery?

- *The aim of laser cataract surgery is to not only improve both the clarity of your vision but to restore your range of vision for distance and near while maximising your independence from glasses. Following standard or lifestyle cataract surgery, by contrast, most people are likely to require glasses for some or all activities.*
- *Laser cataract surgery involves using the latest advances in laser technology and intraocular lenses to maximise the range of vision that you can achieve without glasses.*
- *If laser vision correction, such as LASIK, is required to achieve the best possible focusing outcome the cost of this additional treatment is included in Laser Cataract Surgery. The cataract procedure itself cannot guarantee achieving the intended focusing outcome and, in many cases, laser vision correction is performed at three to six months following the cataract surgery to attain the best possible vision without glasses. There is no additional cost to undergo laser vision correction if you have selected Laser Cataract Surgery*
- *The vision that you achieve tends to remain stable over your lifetime. Cataracts will not form again. It is very rare that any additional surgery or replacement of an intraocular lens would ever be required if you are happy with your vision at 4 months following surgery.*

What are the drawbacks of laser cataract surgery?

- *For many patients, getting the final vision outcome with minimal dependence on glasses can be a multistage process which may take over several months to achieve. The reason is that up to 30% of patients will require an additional procedure, usually laser vision correction (LASIK) to achieve sharp near or distance vision without glasses. Until this final step has been completed, the vision may not be as sharp as possible and some glasses use may be required.*
- *Not everyone is suitable for Laser Cataract Surgery. In order to determine if you are suitable for this treatment option, you will need to undergo a detailed and somewhat lengthy (90 minute) pre-operative assessment which is more rigorous than would be required for standard or lifestyle cataract surgery.*
- *Laser cataract surgery will incur additional fees to cover premium lenses and refractive enhancement with LASIK, PRK or insertion of a piggyback intraocular lens procedure. Health funds will not completely cover the cost of laser cataract surgery.*
- *In rare cases, an intraocular lens may need to be changed because of night vision symptoms. The cost of this additional surgery is completely covered by the original cost of the laser cataract surgery.*

The results of laser cataract surgery

Live a richer life free from cataracts, glasses and contact lenses

After surgery, you'll no longer need glasses for a range of distances – including reading or driving at night.

Key things to consider

When weighing up the decision, there are considerations that must be made by yourself and your surgeon beforehand. You must be aware of the possible side-effects and complications, the expected outcome and the cost.

Importantly, before a vision correction procedure, your eye surgeon will need to assess your eyes to ensure you're a suitable candidate. They will consider factors like age, vision prescription and eye health and take detailed measurements.

When it comes to eye surgery, there are no right answers. Carefully consider these factors, weigh your preferences and risk tolerance, and make sure you have realistic expectations. Talk to an eye surgeon in whom you feel confident and can get your questions answered. In the end, if it feels right, proceed, but if it doesn't, don't rush into anything.

The first step is a LASIK consultation. You'll want to find a surgeon you can trust with your precious eyesight, and the consultation is your opportunity to ask questions about the procedure.

But what questions should you ask during a consultation?

Here are some questions to ask a LASIK surgeon about his training and ability.

- *Do you perform any other types of vision treatment?*
- *How many of your patients achieve vision results of 20/20 or better?*
- *How do you handle complications? What percentage of patients have complications with the surgery?*
- *Have you ever performed LASIK on a family member or staff member?*

Thankfully, most vision correction complications are not severe and are limited to dry eyes or a "halo effect" which may affect night vision quality. In fact, a recent large multicenter prospective study has proven that dry eyes and halos after LASIK, in the hands of skilled surgeons, are significantly less than in those who wear contact lenses.[17]

Top 2 questions to ask at a first assessment

No-one should undergo any form of elective surgery without feeling fully informed, safe and comfortable. You should ask your surgeon as many questions as you feel are necessary to help you make a decision.

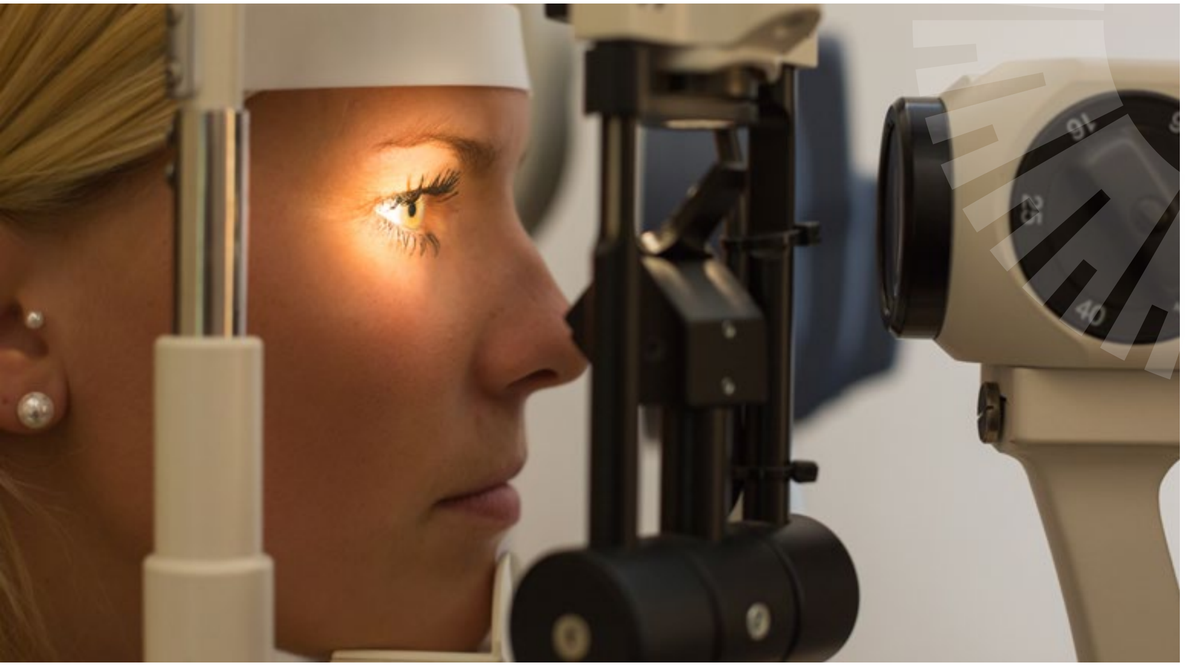
Here are some good starting points:

How much time will you spend with me before my surgery?

There is no official guideline for how long a pre-operative assessment for eye surgery must be. But you should feel that the surgeon or clinical team have spent a generous amount of time with you. They should answer all your questions and conduct all the necessary clinical examinations.

Will I have access to my surgeon after treatment?

This is important. A surgeon should be responsible for your care, even if they have delegated some aspects of the aftercare to their clinical staff. They should also provide you with a mobile number so that you can contact them at any time should you have any concerns.



Safety considerations for vision correction

Rather than asking, 'Is laser vision correction surgery safe?", you should be looking at the track record of your chosen provider.

The key to safe laser vision correction surgery is to ensure that your chosen eye surgeon:

- *Has a great track record.*
- *Utilises the very latest technological advancements.*
- *Has extensive personal experience in carrying out the chosen procedure.*

At VSON, we aim to provide the highest level of safety, precision and accuracy when it comes to treatment. We use the latest technology and our team is extremely experienced and able to support our patients through every step of their journey.

17 "LASIK is arguably safer than long-term contact lens wear, with an almost three times advantage in terms of ocular discomfort and better levels of 20/16 vision, with no long-term differences in glare, halos, starbursts or dry eye symptoms," Steven J. Dell, MD, said at the American Society of Cataract and Refractive Surgery meeting. Steven J. Dell. The retrospective study included 1,232 long-term contact lens wearers, 3,502 patients who were examined 1 month after wavefront-guided LASIK and 1,351 patients examined 5 years after LASIK. Mean patient age was 29 years in the contact lens and 1-month LASIK groups, and 30 years in the 5-year LASIK group. https://www.healio.com/news/ophthalmology/20160508/study-gives-advantage-to-lasik-over-longterm-contact-lens-wear-with-regard-to-ocular-discomfort

18 SCHWIND. (2021). SCHWIND AMARIS 1050RS: High performance eye laser. SCHWIND Eye Tech Solutions. https://www.eye-tech-solutions.com/schwind-amaris1050
19 Johnson & Johnson. (2021). iFS® Advanced Femtosecond Laser. Johnson & Johnson Vision. https://www.jnjvisionpro.com/products/ifs%C2%AE-advanced-femtosecond-laser
20 Johnson & Johnson. (2021). iFS® Advanced Femtosecond Laser. Johnson & Johnson Vision. https://www.jnjvisionpro.com/products/ifs%C2%AE-advanced-femtosecond-laser
21 Johnson & Johnson. (2021). iFS® Advanced Femtosecond Laser. Johnson & Johnson Vision. https://www.jnjvisionpro.com/products/ifs%C2%AE-advanced-femtosecond-laser
22 Johnson & Johnson. (2021). iFS® Advanced Femtosecond Laser. Johnson & Johnson Vision. https://www.jnjvisionpro.com/products/ifs%C2%AE-advanced-femtosecond-laser
23 Johnson & Johnson. (2021). iFS® Advanced Femtosecond Laser. Johnson & Johnson Vision. https://www.jnjvisionpro.com/products/ifs%C2%AE-advanced-femtosecond-laser
24 Johnson & Johnson. (2021). iFS® Advanced Femtosecond Laser. Johnson & Johnson Vision. https://www.jnjvisionpro.com/products/ifs%C2%AE-advanced-femtosecond-laser
25 SCHWIND. (2021). SCHWIND AMARIS 1050RS: High performance eye laser. SCHWIND Eye Tech Solutions. https://www.eye-tech-solutions.com/schwind-amaris1050

What technology do you use?

It is the responsibility of the eye care provider to ensure that only the most advanced laser technology is used. This is the best way to achieve optimum results.

At VSON, we use the IntraLase® Femtosecond Laser and the SCHWIND AMARIS 1050RS to perform our laser procedures. Unlike conventional laser eye surgery methods, the eye is not touched with any instrument. This touch-free approach is non-invasive, safe, and gentle to the eye.[18]

iFS® Advanced Femtosecond Laser

Utilised in over eight million procedures and cited in hundreds of scientific articles, the iFS® laser offers highly customisable LASIK flap creation with multiple options to individualise LASIK procedures to each patient's unique visual needs.[18] The key benefits of this technology include:

- *Fast treatment*[20]
- *Short healing process*[21]
- *Safe: high corneal stability*[22]
- *Fewer dry eye signs and symptoms*[23]
- *High predictability and reproducibility*[24]

SCHWIND AMARIS Excimer laser

The SCHWIND AMARIS Excimer laser is one of the world's highest-performance eye laser systems for refractive surgery.[25] The key benefits of this method include:

- *1050 Hz pulse rate resulting in the highest possible ablation precision and shortest possible treatment times with an ablation rate of 1.3 seconds per dioptre.*[26]
- *Maximum safety through intelligent 7D eye-tracking.*[27]
- *Touchless transepithelial PRK: no suction, no flap, no incision.*[28]
- *Unparalleled patient safety and comfort.*[29]
- *Fast: treatment in one step.*[30]
- *Shorter healing process.*

26 SCHWIND. (2021). SCHWIND AMARIS 1050RS: High performance eye laser. SCHWIND Eye Tech Solutions. https://www.eye-tech-solutions.com/schwind-amaris1050
27 SCHWIND. (2021). SCHWIND AMARIS 1050RS: High performance eye laser. SCHWIND Eye Tech Solutions. https://www.eye-tech-solutions.com/schwind-amaris1050
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Life after vision correction

After vision correction, patients often feel exhilarated. Their vision has changed so dramatically overnight. They often describe feeling free and liberated from their glasses and contact lenses. They can finally live life the way they want to, unencumbered by visual aids.

If you're tired of missing out and are ready to upgrade your life, take the first step and figure out your vision correction options.

10 common myths & misconceptions about laser eye surgery

There are lots of unreliable sources, myths and inaccuracies on the internet which could lead you down a path of fear and false beliefs.

Do you recognise any of these laser eye surgery myths?

Myth #1: The effects of laser eye surgery wear off

Truth: Regression ***(a tendency of the eye to return to its original shape)*** **occurs in 5-15% of cases.**

Typically, regression is not complete, but partial. We can typically treat regression with an enhancement procedure. In most cases, the effects of laser eye surgery are permanent. However, as we get older, a natural ageing process called presbyopia affects the performance of the eyes.[31]

Fortunately, we have some fantastic procedures that can restore both your distance and close vision. You'll be able to remain glasses and contact lens free even as you age. These procedures include LASIK blended vision and lens replacement.

Myth #2: Laser eye surgery is still a relatively new procedure

Truth: Vision correction surgery is no new concept. In 1987, eye surgeons performed the first laser treatment known as PRK ***(Photorefractive Keratectomy).***

A couple of years later in the early 90s, Greek eye doctor Ioannis Pillakaris and Italian eye doctor Lucio Burrato developed LASIK.

They used to use a blade to make an incision in your eye. Some eye centres in Brisbane continue to use the same technique today. Modern refractive practices such as VSON, perform LASIK, or Laser In-Situ Keratomileusis, using an all laser technique. Firstly, we use a machine-controlled femtosecond laser to precisely create a thin layer of corneal tissue, the LASIK flap. We then use an excimer laser to change the cornea to correct the focusing error of the eye. Over the last thirty years, over 50 million people around the world have undergone laser eye surgery. The majority of those people were able to live free of glasses and contact lenses.

In 2009, the FDA, the National Eye Institute (NEI), and the Department of Defense (DoD) launched the LASIK Quality of Life Collaboration Project (LQOLCP). The aim of this project was to help better understand the potential risk of severe problems that can result from LASIK. The results were fantastic. More than 95% of participants reported that they were satisfied with their vision following LASIK surgery.[32]

[31] Healthline. 2021. LASIK: How Long Does It Last?. [online] Available at: <https://www.healthline.com/health/eye-health/how-long-does-lasik-last> [Accessed 4 August 2021].

[32] FDA U.S. Food & Drug Administration. 2018. LASIK Quality of Life Collaboration Project. 7th January 2020.

Myth #3: Laser eye surgery is painful

Truth: Surgeons use anaesthetic eye drops to prevent any pain during the procedure.

It is common to feel pressure in the eye for approximately 30 seconds during the procedure. It is rare to experience any pain. You may experience mild discomfort (grittiness or scratchiness) as you recover, but we can manage this with painkillers and eye drops.

Myth #4: Laser eye surgery does not correct long-sightedness

Truth: We can now correct long-sightedness with the following eye treatments:

- *LASIK*
- *PRK*
- *Visian ICL*
- *Lens replacement*

All patients must attend an initial assessment to determine whether their eye condition is eligible for surgery.

When we assess someone for laser eye surgery, we need to make sure that they have:

- *A stable prescription.*
- *A healthy eye.*
- *A cornea that is the correct shape and strength to withstand the effects of surgery.*

Myth #5: Laser eye surgery does not correct astigmatism

Truth: We can correct astigmatism with LASIK and PRK.

If laser eye surgery is not an option, we can correct astigmatism with lens implant surgeries. These include implantable contact lenses and lens replacement. These artificial lenses replace the natural lens inside the eye.

At VSON, we offer several premium implantable lens options for lens replacement. These include

- *Multifocal intraocular lenses which improve near, intermediate, and far-distance vision.*
- *Toric lenses correct your astigmatism and your nearsightedness or farsightedness.*

Myth #6: Laser eye surgery can cause blindness

Truth: Millions of laser eye surgery procedures have been performed worldwide with very high levels of safety and effectiveness.

It would be extremely unusual for anyone to go blind. Of the sources that agree you can go blind from laser eye surgery, it's generally estimated that the risk of this happening to you is around 1 in 5 million. To put that into perspective, your chance of dying by falling out of bed is 1 in 2 million. If you play the lottery, your chance of matching 5 numbers and the bonus ball in the lottery is around 1 in 7 million.

The risk of going blind from laser eye surgery falls somewhere between those two scenarios. You have a higher chance of going blind from contact lens infections than going blind from laser eye surgery. However, putting in contact lenses is something that millions of people do in Australia every day. So, if fear of blindness is the thing putting you off laser eye surgery, you might also want to rethink your contact lens habits.

Did you know that if you don't clean your contact lenses correctly, it could lead to a corneal ulcer, eye infection and blindness?[34]

US ophthalmologist William Mathers conducted a study published in the Archives of Ophthalmology. It found that:

- *1 in 100 contact lens wearers is likely to develop a serious lens-related injury.*
- *1 in 2,000 contact lens wearers will likely end-up with long-term vision difficulties or damage from consistent use.*[35]

With laser eye surgery, this risk of losing even a tiny bit of sight is 1 in 1000. Even then, we can correct this with additional treatment.[36]

Myth #7: You can't have cataract surgery after having laser eye surgery

Truth: We can perform cataract surgery after any vision correction procedure, including LASIK and PRK.

At VSON, our lens replacement procedure is very similar to cataract surgery, and it eliminates the need for cataract surgery later in life.

Myth #8: If you blink or move during laser eye surgery it's game over

Truth: This is impossible. We use an eyelid holder so that you cannot blink during your surgery.

We also use lasers with advanced high-speed eye-tracking systems that track and adjust for small eye movements. On the rare occasion that a larger movement (or even a power outage) occurs, the laser stops and treatment resumes.

Myth #9: Laser eye surgery cannot correct a high prescription

Truth: The technology laser eye surgery relies upon is continuously developing.

New procedures are less invasive, meaning we can now correct higher prescriptions than ever before. To be 100% certain that you are a suitable candidate, you must have an initial assessment with a laser eye surgery clinic. Many people who have a very high prescription are better suited to an ICL procedure.

Myth #10: It's cheaper to stick with glasses and contact lenses than to have laser eye surgery

Truth: Absolutely not.

In just 20 years, the average person spends between $2,000 and $6,000 on glasses, and around $5,000 on contact lenses. That kind of money could buy you a permanent vision correction procedure and a few luxury holidays to the Maldives.

Risks and side-effects during or after vision correction

Laser eye surgery performed by a trained and qualified surgeon, with the right technology and aftercare, is exceptionally safe. The National Institute for Health and Clinical Excellence (NICE) is the official body that produces guidance for UK doctors on the effectiveness of medical treatments. In 2006, NICE completed a two-year, in-depth study of laser eye surgery. It concluded that laser eye surgery "is safe and efficacious for use in appropriately selected patients."[37]

Numerous review articles of the published literature on laser eye surgery have demonstrated excellent patient satisfaction, clinical outcomes, and safety.

All surgery carries some risk of complications (a complication is defined as an unexpected occurrence). In laser eye surgery, complications are very rare, and advances in technology and surgical expertise mean that almost all complications can now be corrected. In fact, the chance of a trained and qualified surgeon being faced with a situation of marked permanently reduced vision or quality of vision that he or she could not correct satisfactorily is about 1 in 30,000.

To better understand risk, it helps to understand how safety is measured in laser eye surgery.

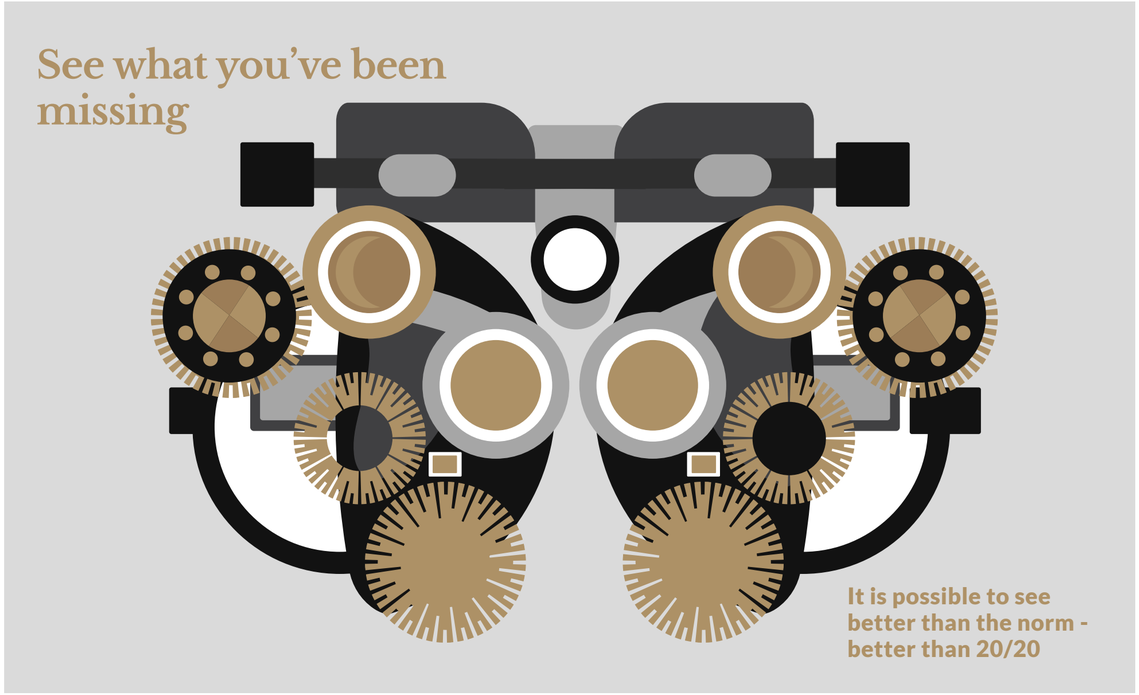
Measures of safety take into account any risk of 'compromise' to your vision. Visual compromise is defined as blurring, doubling or other distortion that glasses cannot correct to achieve the same level of vision you had before surgery with glasses (your CDVA).

37 Photorefractive (laser) surgery for the correction of refractive errors Interventional procedures guidance [IPG164]Published: 22 March 2006 https://www.nice.org.uk/guidance/ipg164/chapter/1-guidance

This is different from a situation in which vision is improved after surgery. Yet, there is some blurring that you can correct with glasses. In this case, the vision is not compromised; it is simply not entirely focused (and can be corrected by glasses or, more usually, by a simple enhancement procedure).

In terms of measuring the extent of visual compromise, the standard method is to measure blurring by the number of lines on the eye chart that the patient can no longer read. So, for example, let's say that before surgery, you were able to see the 20/16 line with glasses. Then, after surgery, your vision - even with glasses - is 20/25. So we would describe that difference as a loss of two lines of CDVA.

The 2006 NICE report looked at the results of studies published in medical journals and found that, on average, less than 1% of LASIK patients lost more than two lines of best-corrected vision (CDVA) after laser eye surgery.



However, in the hands of trained and qualified eye surgeons, the likelihood of an eye losing two lines of best-corrected vision is even less. The level of risk varies slightly depending on your prescription. Still, on average, the risk of an eye losing two lines of best-corrected vision is around 1 in 1,000. The risk may be higher for those with higher prescriptions, and we'll indicate that risk at your appointment if it applies to you.

The best way to ensure that your treatment is as safe as possible is to have treatment with a trained and qualified surgeon who chooses to operate with the best technology and insists upon comprehensive testing before surgery and regular follow-up appointments after surgery.

Frequently asked questions

At VSON, we love answering our patient's questions. You'll find many of our answers to the most common questions on our blog.

You can also reach out to us via the webchat facility on our site and pose your questions there. You can also give us a call and ask your questions on the phone. Ultimately, you'll want to come in and ask your questions after a free assessment.

Only then can we recommend a procedure, which will enable you to ask specific questions about your case. In the meantime, we've answered some common questions in the following pages.

Can laser eye surgery treat the loss of reading vision?

Yes. The loss of reading vision occurs due to ageing. The eye begins to lose their ability to 'zoom' from distance to near. This means that the close vision deteriorates. If you are between 40 and 50 years of age, we can treat your presbyopia with LASIK blended vision. This laser eye surgery procedure treats one eye to view objects at a distance and a little up close, and the other to view objects up close and a little at a distance. The brain learns to combine the two images, enabling you to see far and intermediate distances and up close, without effort.

If you are over 50 years of age, we may choose to treat your presbyopia with lens replacement. This is where we remove the natural lens inside the eye and replace it with an artificial one.

Which procedure will I be suitable for?

The vast majority of patients who have laser eye surgery worldwide are suitable for LASIK. If you have very thin corneas or suffer from dry eyes, you may be more suited to implantable contact lenses. These sit on top of the natural lens and don't require removing tissue to correct your prescription, as is the case with LASIK. If you take part in certain contact sports or high risk activities, you may be more suited to PRK. This is also because the procedure does not involve creating a corneal flap that is more vulnerable to injury.

If you are over 40 and experiencing age-related vision loss (presbyopia), we may recommend either LASIK blended vision or lens replacement. You will need to discuss which option is better for you with your surgeon.

Can I drink after laser eye surgery?

We recommend that you don't drink immediately after laser surgery. We will give you a sedative before your surgery to help you relax, which could react with alcohol. The very next day, after the effects of the sedative have worn off, it is fine to have a normal amount of alcohol. For PRK, we recommend you wait until the surface of your eye has healed - usually 2 to 3 days.

Is it possible to perform laser eye surgery on both eyes?

If you need laser surgery in both eyes, then it would be the normal practice to treat both eyes on the same day.

What if you rub your eye after laser eye surgery?

It's a very good idea, after LASIK surgery, in particular, not to rub your eyes in the first few weeks after the procedure. Generally, a small amount of eye rubbing does not disturb the treatment. However, our strong advice is to avoid eye rubbing and instead use the eyedrops we provide.

When is the best time to have vision correction

The sooner you have the surgery, the more years you have to enjoy the unique benefits it has to offer. One of the most common comments we get from patients after going through laser vision correction is, "Why didn't I do this earlier?"

When will you start to see the results after vision correction?

As soon as a patient opens their eyes after a procedure, they can tell that their vision has improved. It may still be a bit foggy and hazy due to a little bit of swelling in the cornea. However, by the next day, when the swelling has gone, and the eye heals, the vision will improve.

How long does laser eye surgery take?

You'll be in the theatre for around ten minutes; this includes getting ready for surgery and resting for a few minutes afterwards. The length of time that the laser is applied to your eyes ranges from just a few seconds to two minutes, depending upon the complexity of your prescription.

What happens if I look away, blink, cough or sneeze during the procedure?

Nothing will happen. Although your eye will move during surgery, eye-tracking technology ensures your safety. The laser tracks your eye hundreds of times every second and compensates for any movements.

What will I feel during and after the laser eye surgery procedure?

There is no pain involved during laser eye surgery. We will give you a topical anaesthetic to numb your eyes. Most patients report feeling some pressure on the eye (which can be a strange sensation) but not painful.

Many LASIK and SmartSight patients do not experience any discomfort after surgery. It is normal to experience some grittiness, light sensitivity and eye-watering for the first 24 hours.

After PRK, the eyes take a few days to heal. Patients will not find the healing process painful. We provide pain-relief medication and cover the eyes with protective bandage contact lenses.

What is the risk of a complication during laser eye surgery?

Laser eye surgery is very safe. Yet, no surgery is without some level of risk. A trained and qualified eyesurgeon will know how to manage complications and will be able to correct them if needed.

Do laser eye surgery results differ between prescriptions?

The results are very accurate for myopia, up to -7.00 and long sightedness up to +2.50, and astigmatism up to 3 dioptres. Outside of this range, the likelihood of a residual prescription (under or overcorrection) is higher and there is an increased likelihood of requiring an enhancement procedure.

When you review a clinic's results, you should look for outcomes for prescriptions that are similar to yours. This will provide you with a more accurate picture of the clinic's success rates.

I have astigmatism, can I still have laser eye surgery?

Yes. Laser eye surgery can treat astigmatism at the same time as it corrects short or long-sightedness. No extra procedure is needed.

Is my prescription too high?

In most cases, having a very high prescription will not prevent you from having laser eye surgery.

Suppose you are turned away by a clinic because your prescription is too high. This often does not mean that you are not suitable. It may mean that your chosen clinic does not have the technology or ability necessary to treat you.

Our laser has the capacity to treat from -15.00 to +8.00 and astigmatism -7.00. However, we generally recommend that patients with high prescriptions undergo lens based procedures. These procedures can correct almost any prescription.

Am I too old / too young?

Laser eye surgery patients must be at least 18 years old; there is no upper age limit.

What range of prescriptions can be treated?

The majority of laser eye surgery is performed on patients with:

- Myopia up to -8.00 D
- Hyperopia up to +3.00 D
- Astigmatism up to -4.00 D.

Does everyone get presbyopia?

Yes. Presbyopia typically develops during your 40s. Although some patients do not begin to lose their reading vision until their mid-50s. When presbyopia develops, people begin to need glasses for reading, even if they have never worn glasses before. People who previously wore glasses will need a different prescription for reading than for distance (e.g. bifocals).

What are the risks of laser eye surgery?

Laser eye surgery is, by any medical standard, a safe procedure. However, as with all surgical procedures, there are some risks to consider.

Complications that result in a loss of vision are very rare. But certain side-effects of laser eye surgery, particularly dry eyes and temporary visual problems such as glare, are fairly common. These usually clear up after a few weeks or months, and very few people consider them to be a long-term problem.

Risks of laser eye surgery include:

Dry eyes.
Laser eye surgery causes a temporary decrease in tear production. For the first six months or so after your surgery, your eyes may feel unusually dry as they heal. Dry eyes can reduce the quality of your vision.

Your eye doctor might recommend eyedrops for dry eyes. If you experience severe dry eyes, you could opt for another procedure to get special plugs put in your tear ducts to prevent your tears from draining away from the surface of your eyes.

Glare, halos and double vision.
You may have difficulty seeing at night after surgery, which usually lasts a few days to a few weeks. You might notice increased light sensitivity, glare, halos around bright lights or double vision.

Even when a good visual result is measured under standard testing conditions, your vision in dim light (such as at dusk or in fog) may be reduced to a greater degree after the surgery than before the surgery.

Undercorrections.
If the laser removes too little tissue from your eye, you won't get the clearer vision results you were hoping for. Undercorrections are more common for people who are nearsighted. You may need another laser procedure within a year to remove more tissue.

Overcorrections.
It's also possible that the laser will remove too much tissue from your eye. Overcorrections may be more difficult to fix than under corrections.

Astigmatism.
Astigmatism can be caused by uneven tissue removal. It may require additional surgery, glasses or contact lenses.

Flap problems.
Folding back or removing the flap from the front of your eye during surgery can cause complications, including infection and excess tears. The outermost corneal tissue layer may grow abnormally underneath the flap during the healing process.

Regression.
Regression is when your vision slowly changes back toward your original prescription. This is a less common complication.

Vision loss or changes.
Rarely, surgical complications can result in loss of vision. Some people also may not see as sharply or clearly as previously.

What causes glare and halos after laser eye surgery?

Immediately after laser eye surgery, it's normal for patients to experience night glare or halos around lights.

This is a key part of the eye's healing process. The effects you notice to your vision at night result from swelling in the cornea, triggered by the procedure to accelerate the eye's recovery. It can take approximately three months for this swelling to settle.

After this time, most patients will get very few night vision problems interrupting their vision. However, if patients still have residual night vision glare after this time, we can perform testing to determine where that night vision glare is originating and what we can do to resolve it.

How does the LASIK flap stay in position?

The corneal flap is self-healing. Straight after laser eye surgery, we return the flap to its original position, where it is held in place by a vacuum effect. The cells lining the inner surface of your cornea, known as endothelial cells, pump water out to the inner part of the eye, creating suction that holds the flap in place.

During the first day or two after surgery, the outer surface of the cornea, known as the epithelium, seals the edges of the corneal flap. Then, over the next few weeks, natural substances inside your cornea bond the corneal flap to the underlying tissue.

Common questions about what prevents you from having laser eye surgery

Can you have laser eye surgery at VSON if you are older than 60?

Yes. There is no upper age limit for laser eye surgery, as long as your eyes are healthy. Some older patients experience a more extended healing period after laser eye surgery. If that's likely to apply to you, we will discuss it at your assessment or consultation.

Can you have laser eye surgery at VSON if you are pregnant or breastfeeding?

No. We do not recommend laser eye surgery until 2 months after breastfeeding is complete. This is because increased hormonal activity during pregnancy and breastfeeding can affect visual outcomes. While this is not dangerous, it increases your likelihood of being under- or over-corrected and, therefore, requires an enhancement procedure. In addition, the medications used before, during and after laser eye surgery could also be transmitted to your unborn baby. You should avoid this.

Can you have laser eye surgery at VSON if you are taking prescription drugs?

Yes, probably. You should indicate which drugs you are taking (prescription or otherwise) during your assessment. Occasionally, certain medications can prevent you from having laser eye surgery - however, this is rare.

Can you have laser eye surgery at VSON if you are younger than 18?

No. All laser eye surgery patients must be at least 18 years old before treatment.

Can you have laser eye surgery at VSON if you have amblyopia (lazy eye)?

Yes. The aim of laser eye surgery is to achieve the same level of vision as you had with glasses before surgery. Having a lazy eye does not mean that you are unsuitable for laser eye surgery. Many patients with a lazy eye have had very successful overall outcomes. That is, the surgery achieved the same level of vision as with glasses before surgery but can also improve peripheral vision. If you have ever been told that you have a lazy eye (also known as amblyopia), mention this at your assessment so that we can discuss your options in detail.

Can you have laser eye surgery at VSON if you have astigmatism?

Yes. Laser eye surgery has been used to treat astigmatism since 1994.

Can you have laser eye surgery at VSON if you have cataract?

Yes. Laser eye surgery does not 'cure' a cataract. However, a mild cataract (which is not significantly affecting your vision) should not prevent you from having laser eye surgery. Should the cataract worsen, you can still have successful cataract surgery after laser eye surgery. However, you should be aware that cataract surgery after laser eye surgery is a specialist field. Thus, having laser eye surgery may limit your choice of surgeon for your cataract procedure. If the cataract already affects your vision, we usually recommend you have cataract surgery (lens replacement). Then, we'd combine that with a laser 'top-up' procedure to better focus the vision if required.

Can you have laser eye surgery at VSON if you have a collagen vascular disease?

Yes. You should indicate this when you have an initial assessment.

Can you have laser eye surgery at VSON if you have a compromised immune system?

Perhaps. We assess this on a case-by-case basis and will provide you with an answer at your initial assessment.

Can you have laser eye surgery at VSON if you have a connective tissue disorder (i.e. rheumatoid arthritis)?

Perhaps. These conditions can be associated with altered healing responses by the body and therefore present a slightly higher risk of complications after laser treatment. However, if the connective tissue disorder is controlled, you will likely be suitable. We assess this on a case-by-case basis and will provide you with an answer at your initial assessment.

Can you have laser eye surgery at VSON if you have had a detached retina?

Yes. However, it depends on the severity of your condition. Laser eye surgery does not treat a detached retina itself.

Common questions about what prevents you from having laser eye surgery

Can you have laser eye surgery at VSON if you have dry eyes?

Probably. Your suitability for laser eye surgery will depend on the cause and severity of the dry eye. We would likely recommend a lenticular extraction (i.e. SmartSight) rather than LASIK surgery (or occasionally for a surface procedure, if the dry eye is especially severe). We sometimes monitor serious dry eye conditions for several months (or even years) before surgery to ensure your optimum safety.

Can you have laser eye surgery at VSON if you have epilepsy?

Yes.

Can you have laser eye surgery at VSON if you have glaucoma?

Yes. Laser refractive surgery is not a treatment for glaucoma. Still, your surgeon will work with your glaucoma specialist to ensure that your glaucoma management is not affected by your laser eye surgery.

Can you have laser eye surgery at VSON if you have hepatitis C?

Yes. You should indicate this when you have your initial assessment.

Can you have laser eye surgery at VSON if you have HIV?

Yes. You should indicate this when you have your initial assessment.

Can you have laser eye surgery at VSON if you have (or have ever had) herpes infection of the eye?

Only if there has not been a reoccurrence of the infection for at least 12 months before having the procedure.

Can you have laser eye surgery at VSON if you have diabetes?

Yes, if the diabetes is controlled and you don't have any signs of active diabetic retinopathy. To be sure, you'll need to be examined for this at your initial assessment. Patients with uncontrolled diabetes are not suitable for laser eye surgery.

Can you have laser eye surgery at VSON if you have ever had iritis?

Only if there has not been a reoccurrence of the condition for at least 12 months prior to having the procedure.

Can you have laser eye surgery at VSON if you have keloid scarring?

Yes.

Can you have laser eye surgery at VSON if you have keratoconus?

No. keratoconus is a progressive disease that results in the thinning of the cornea. Therefore, we do not advise removing corneal tissue with laser treatment because it will further destabilise the shape of the cornea. However, surgeons at our sister clinic OKKO can successfully stabilise keratoconus - or protect patients from further progression - through a cross-linking treatment. If you have ever been told that you may have keratoconus, mention this as early as possible. Then we can conduct the necessary investigations and direct you to the right treatment pathway.

Can you have laser eye surgery at VSON if you have large pupils?

Yes. We have successfully treated patients with very large pupils without inducing night vision disturbances with our custom programmed treatments.

Can you have laser eye surgery at VSON if you have macular degeneration?

Yes. However, you should note that laser eye surgery does not treat macular degeneration itself. For example, suppose your central vision is significantly reduced as a result of macular degeneration.

In that case, laser eye surgery may provide little improvement to your uncorrected central vision (although it is likely to improve your uncorrected peripheral vision).

Can you have laser eye surgery at VSON if you have night vision

Yes.

Common questions about what prevents you from having laser eye surgery

Can you have laser eye surgery at VSON if you have nystagmus (involuntary eye movements)?

Yes. Laser eye surgery will not treat nystagmus but can be safely performed using sensitive eye-tracking systems (now fitted to most modern lasers).

Can you have laser eye surgery at VSON if you have only one good eye?

Yes. But you have to consider the greater risk.

Can you have laser eye surgery at VSON if you have prism?

Yes. However, you may still need prism glasses if you have double vision with contact lenses or without the prism in your spectacles.

Can you have laser eye surgery at VSON if you have strabismus (squint)?

Yes. However, laser eye surgery techniques alone will not resolve a strabismus problem unless the strabismus is a fully accommodative squint. We sometimes see this in some long-sighted people whose eye turns in without their glasses or contact lenses but is perfectly straight with glasses or contact lenses. In general, laser eye surgery is unlikely to restore vision beyond that which is attainable with glasses or contact lenses.

Can you have laser eye surgery at VSON if you have systemic lupus erythematosus?

Yes, if it is well controlled. Your surgeon will assess your suitability on a case-by-case basis.

Can you have laser eye surgery at VSON if you have thin corneas?

Perhaps. Suppose you have been turned down for laser surgery due to corneal thickness. In that case, it is worth having a complete preoperative assessment with us to rule out keratoconus. On the other hand, suppose you have thin corneas but do not have keratoconus. In that case, you will likely still be a candidate for laser eye surgery using lenticular extraction (i.e. SmartSight) or a surface procedure.

Paying for treatment

The big question

One of the big questions on the forefront of everyone's minds is 'how much does laser eye surgery cost?'

The first thing to note is that there isn't a set cost. In fact, the price of laser eye surgery can vary a lot.

In Australia, laser eye surgery costs can range anywhere from $2600 to $3700 per eye.

Whatever your budget is, you should ensure you have it done by a practice that's straight-forward. They should be transparent about how their pricing works.

We're not the cheapest, and we're okay with that!

When it comes to the cost of laser eye surgery in Brisbane, we're not the cheapest.
This is because:

- *We spare no expense when it comes to ensuring our patient's safety.*
- *We have the latest technology available in the market.*
- *Our surgeons are world-class.*

Here's how we compare against other laser eye surgery prices in Brisbane...

- *We charge only one price per treatment regardless of your prescription.*
- *All prices are transparent.*

This table breaks it down here: https://vson.com.au/laser-eye-surgery-cost-comparison/

We offer flexible financing

We offer flexible financing options where you can spread your laser eye surgery cost as far out as 2 years. We don't need an initial payment and we can offer interest-free financing for 2 years. That can make the procedure more affordable on a monthly basis.

No surprises

We charge no extra costs. We have no hidden costs. That means that your fee covers all your visits. It also covers the cost of all the medications and drops for use after the treatment.

Does health insurance cover laser eye surgery?

Most insurance programs, including Medicare, use the term "medical necessity" to determine coverage. If a medical procedure preserves health, health insurers consider it a medical necessity. Thus, they approve of it.

Routine surgeries to preserve vision rarely fall under these protections. That means that people who want laser eye surgery may not be able to use their Medicare benefits to do so.

Is laser eye surgery worth the money?

Is laser eye surgery worth the money?

Laser vision correction may seem like an expensive option to correct vision. However, over a lifetime, most patients will pay much less for laser vision correction than what they would spend on their glasses or contact lenses.

When compared to glasses and contact lenses, you can get your payback on LASIK after about 10 years. If you plan to wear glasses or contact lenses over the next 10 years, then you'll likely pay the same as you'd pay for a quality LASIK procedure.

Consider the cost of refilling prescriptions, lens fitting, lens solution, and buying new glasses. Consider the amount of time you can waste fiddling with glasses and contact lenses. All in, you'll save money when you stop renting your vision and start owning it.

If you're going to pay for it anyway, you might as well get the vision you want without needing to wear glasses and contact lenses.

The first step

Don’t decide yet

When it comes to the laser eye surgery cost, the most important thing to do before anything is to find out if you’re suitable. To do that, you need to call us and book an appointment for a free laser vision assessment.

In the meantime, check out our laser eye surgery prices on our website: https://vson.com.au/pricing-financing/

Aftercare: What aftercare regime is provided in my treatment plan?

A good clinic should check-in with patients over the course of the first few months following treatment. This is to give the eyes time to settle and ensure that they have achieved the desired outcome.

The number of aftercare appointments needed will depend on the procedure. Patients who have had surface treatments (PRK) should be monitored during the first five days after surgery. For LASIK and SmartSight procedures, most patients should have follow-up appointments at:

- *1 day after surgery*
- *1-4 weeks after surgery*
- *3 months after surgery*

Our enhancement policy

For those patients that might need a "fine-tune" or enhancement procedure, we offer 10 years of re-treatments at no charge if the original treatment was for the correction of shortsightedness (myopia with or without astigmatism). We offer three years of re-treatments at no charge if the original treatment was for the correction of long-sightedness (hyperopia with or without astigmatism).

You may need an enhancement if your corrected vision deteriorates due to regression. In some cases, regression can gradually occur due to a change in the thickness profile of the corneal epithelium after laser treatment. We will enhance your original procedure if we detect that your eyes are returning back to the state they were in before the eye surgery.

No eye treatment will stop your eyes from the natural ageing process or prevent them from injury or other health conditions. If you lose close vision or continue to lose more close vision with age (presbyopia), the cost of treatment of this condition is not covered by our re-treatment policy.

Final words

My aim with this Guide was to give you a comprehensive overview of the current options available in vision correction surgery. I hope that you've found this resource valuable and feel even more enthusiastic to look further into how you can benefit from this modern miracle of medicine.

If you were to ask me what we do best, I can say without a doubt that we are ***world-class*** at ***customising*** treatments for individuals.

As well-trained and qualified eye surgeons, we provide a full range of vision correction options using leading technology and tailor modern approaches to achieve the ***best possible result*** based on your lifestyle, needs and ocular health.

At VSON, you can be ***confident*** that you've found a surgeon who is precise and empathetic in equal measure. I look forward to guiding you through this journey.

Glossary

A

Acuity
The sharpness or clarity of vision. The most common measure of visual acuity is the Snellen acuity chart used by optometrists and ophthalmologists. Normal visual acuity is known as '20/20 vision'.

Astigmatism
A condition in which the cornea's surface is not spherical but shaped like a rugby ball. An astigmatic cornea focuses incoming images on two separate points in the eye, creating a distorted image. The second number on your glasses prescription refers to your degree of astigmatism.

B

Bifocals
Corrective lenses that have two powers of correction. Typically, most of the lens is used for distance vision, while a smaller area is for near vision. Bifocals and varifocals are normally prescribed for individuals with presbyopia (ageing eyes).

C

Cataract
A condition caused by the clouding of the natural lens inside the eye.

Cornea
The transparent covering at the front of the eye. Most laser eye surgery procedures work by changing the curvature of the cornea.

D

Dry eye
The term 'dry eye' is used to describe a variety of disorders with similar symptoms: discomfort, a feeling of dryness, burning or stinging, grittiness, foreign body sensation and photophobia.

E

Ectasia
An outward bulging and thinning of the cornea due to raised internal eye pressure and/or a weakened cornea.

Enhancement
A secondary laser eye surgery treatment or re-treatment performed to refine or improve the original visual result.

Epi-LASIK
See LASEK.

Epithelial ingrowth
A potential complication of LASIK, in which epithelial cells under the corneal flap begin to grow and multiply. The most common treatment is lifting the corneal flap, removing the cells, irrigating the interface and repositioning the flap. Most cases, if managed appropriately, have a good outcome.

Epithelium
The outer surface layer of the cornea – the skin. Measurement of the epithelium's thickness is one of the most sensitive methods for detecting a condition called keratoconus.

Excimer laser
An argon-fluoride laser that emits ultraviolet light in pulses at a wavelength of 193nm. The term excimer comes from the concept of 'an energised molecule with two identical components'. Each pulse of this cool laser removes 1/4000th of a millimetre of tissue from the targeted surface by breaking the bonds between collagen molecules. It would take about 200 pulses from an excimer laser to cut a human hair in half.

F

Far-sightedness
See 'Hyperopia'.

Femtosecond laser
A femtosecond laser is a laser that emits optical pulses with a duration of 1/4000th of a second. Femtosecond laser technology is used for the SmartSight laser eye surgery procedure and creates a corneal flap in LASIK.

Focusing power
The cornea is responsible for about two-thirds of the focusing power of the eye. As light enters the eye, it is focused by the cornea. Then, as the light passes through the pupil, the lens adjusts the focus, depending on the distance of the object being viewed. Close objects, such as a book or computer screen, require more power than distant objects, such as traffic signs.

G

H

Halos
Images from light sources look blurred, with circles radiating outward from the centre. Halos can appear as a complication of refractive surgery, but they also occur naturally.

Hyperopia
Also known as farsightedness or longsightedness. Hyperopia occurs when the eyeball is too short from front to back, or the focusing mechanism is too weak. This causes light rays to be focused behind, rather than on, the retina. People with hyperopia have difficulty seeing objects that are close by.

I

Intraocular
Inside the eye.

Implantable Contact Lens (ICL)
Silicone, acrylic or plastic lens used to replace the natural crystalline lens of the eye.

K

Keratectomy
Surgical removal of corneal tissue.

Keratoconus
A disorder that causes thinning and asymmetry of the cornea. The normally symmetrical shape of the cornea becomes distorted. A cone-shaped bulge develops, and this can result in significant visual impairment. Laser eye surgery is not recommended for patients with keratoconus. These patients may consider cross-linking to strengthen the cornea.

Keratomileusis
A refractive surgical technique in which a thin, circular flap of the cornea is removed, frozen, reshaped on a lathe and replaced upon the cornea.

L

Laser
LASER stands for Light Amplification by the Stimulated Emission of Radiation. Laser light is composed of one colour (wavelength), travelling in one direction, and each light wave is in step with the next. This makes laser light millions of times more powerful than ordinary daylight.

LASIK blended vision
A laser eye surgery technique for the correction of presbyopia, in which one eye is treated to view objects mainly at a distance, but a little up close and the other is treated to view objects mainly up close, but a little at a distance. The brain combines the images and enables the individual to see clearly at all distances.

Laser in-situ keratomileusis (LASIK)
A surgical procedure to reshape the central cornea, decreasing or eliminating myopia, hyperopia, and astigmatism. The surgeon creates a flap in the cornea, and the exposed eye surface below is reshaped using an excimer laser. After altering the corneal curvature, the flap is replaced. It adheres quickly, without stitches.

Laser-assisted sub-epithelium keratectomy (LASEK)
A surgical procedure to reshape the cornea by detaching the epithelium with an alcohol solution that softens it and allows it to be rolled back into a flap. After excimer ablation to correct the vision, the flap of epithelium is repositioned over the cornea.

Lens (also called crystalline lens)
The natural lens of the eye is located behind the iris. It helps rays of light to focus on the retina. The lens is transparent, but with age, it can become cloudy (this is known as a cataract). The lens can 'zoom' its focus from distance to near; however, this reduces with age (this is known as presbyopia).

Lens replacement
Also known as refractive lens exchange, is a vision correction procedure. It helps people 50-plus see clearly without glasses or contact lenses.

Long-sightedness
See 'Hyperopia'.

M

Microkeratome
A surgical device for creating a flap of corneal tissue, used in older forms of LASIK. Most modern laser eye surgeons now use a femtosecond laser to create corneal flaps instead of a microkeratome.

Monovision
A technique using contact lenses laser treatment to overcome the effects of presbyopia by correcting one eye for near vision and the other for distance vision.

Myopia
Also known as near-sightedness or shortsightedness. Myopia occurs when the eyeball is too deep from front to back, or the eye's focusing mechanism is too strong. This causes light rays to be focused in front of, rather than on, the retina. People with myopia have difficulty seeing distant objects.

N

Near-sightedness
See 'Myopia'.

O

Ophthalmic
To do with the eye.

Ophthalmologist
A medical doctor who specialises in the diagnosis and medical or surgical treatment of eye diseases. Ophthalmologists have medical degrees and further specialist training. Ophthalmologists are usually trained as surgeons, but some choose not to perform surgery and work as medical ophthalmologists. An ophthalmologist may also prescribe glasses and contact lenses.

Optometrist
An optometrist is a non-medical eye health provider who specialises in the examination, diagnosis, treatment, management and prevention of diseases and disorders of the visual system. Many optometrists dispense glasses and contact lenses. Optometrists may not prescribe medicine, as they are not medical doctors.

P

Peripheral vision
The ability to see objects and movement outside the direct line of vision.

Photorefractive keratectomy (PRK)
A surgical procedure using an excimer laser to reshape the central cornea to give a flattened shape for people who are myopic or a more curved surface for people who are hyperopic.

Presbyopia
Part of the normal process of ageing. As we become older, the crystalline lens begins to lose its ability to zoom from distance to near vision. To compensate for this, people wear reading glasses such as bifocals.

Pupil
The small black circular space in the centre of the iris. The pupil changes its diameter in response to different light levels, becoming bigger in the dark and smaller in bright light. The pupil controls the amount of light reaching the retina and the depth of focus of the eye.

Q

R

Refractive error
A measurement of visual imperfection. The degree to which images received by the eyes are not focused on the retina (causing myopia, hyperopia, presbyopia or astigmatism), measured in dioptres.

Refractive lens exchange
See 'Lens replacement.'

Refractive surgery
Any surgical procedure that alters the eye's focusing power (including, but not limited to, the laser eye surgery and intraocular procedures covered by the guide).

Retina
The light-sensitive layer of cells (rods and cones) on the eye's inner, back surface that converts light images into nerve impulses. These are then sent along the optic nerve for transmission to the brain.

Re-treatment
See 'Enhancement'.

S

SmartSight and SMILE®
SMILE® and SmartSight (known generically as lenticular extraction) is an evolution of LASIK laser eye surgery, in which a tiny amount of corneal tissue is removed through a 'keyhole' incision – no flap is created

T

U

V

Visual acuity
See 'Acuity'.

Visual field
The extent of an area seen by the eye in a given position of the gaze. The central visual field is directly in front of the object at which we are looking. The peripheral visual field is 'side vision'. The fields in each eye partly overlap.

W

X

Y

Z

"If you were to ask me what we do best, I can say without a doubt that we are world-class at treating our patients as individuals. As experienced surgeons, we provide a full range of vision correction options using leading technology to achieve the best possible result based on your lifestyle, needs and ocular health."

About the Author

Dr. Matthew Russell, Vision correction specialist

Dr. Matthew Russell is the Clinic Director and Founder of VSON Laser Vision Specialists and OKKO Eye Specialist Centre. He is a renowned ophthalmic microsurgeon specialist with international training in laser vision correction surgery, medical retinal disease, and cataract surgery, and has performed over 20,000 ophthalmic procedures.

Dr. Russell earned his medical degree from the University of Otago in New Zealand. He received the distinguished KG Howsam Medal from the Royal Australian and New Zealand College of Ophthalmologists for the highest academic performance.

Upon graduation, Dr. Russell completed extensive specialist training, including three international fellowships including positions in the United States and Canada.

Dr. Matthew Russell has obtained the following achievements:

- *Clinical Assistant Professor at the University of British Columbia in Vancouver (Canada)*
- *Post-fellowship training in refractive surgery (University of Sydney)*
- *Awarded the prestigious KG Howsam Medal for the highest-ranked academic performance of Australasian graduates from the Royal Australian and New Zealand College of Ophthalmologists*
- *Subspecialty fellowship training at the world renowned Doheny Eye Institute, University of Southern California, Los Angeles (USA)*
- *Subspecialty fellowship training at the University of British Columbia in Vancouver (Canada)*
- *Qualified as an ophthalmologist with The Royal Australian & New Zealand College of Ophthalmologists' (RANZCO) in 2002*
- *Completed medical degree in 1994*

Dr. Russell also pioneered the following treatments, technologies and techniques:

- *Early adopter of microincisional cataract surgery*
- *Pioneered the introduction of new intraocular lens technologies and microsurgical techniques in Brisbane*
- *First surgeon to use extended depth of focus multifocal implants (Symfony™) in Brisbane*
- *First surgeon internationally to use the revolutionary Zepto™ capsulotomy system during cataract surgery in combination with next generation FEMTIS intraocular implants to enhance the precision of implant positioning.*
- *First in Brisbane to introduce small aperture intraocular lens for post LASIK presbyopic correcting cataract surgery enhancing post-operative depth of focus (Acufocus IC-8™)*
- *First surgeon in Brisbane to implant a piggy-back small aperture implant (Morcher XtraFocus™)*
- *Adapted ICL technology for post-cataract surgery vision enhancement*
- *First Australian surgeon to use CapsuLASER laser-assisted cataract surgery technique*

Dr. Russell is affiliated with the following professional organisations:

- *Fellow of the Royal Australian and New Zealand College of Ophthalmologists*
- *Member of the American Society of Cataract and Refractive Surgery*
- *Member of the European Society of Cataract and Refractive Surgery*
- *Member of the International Society of Cataract and Refractive Surgery*

In addition to the above, Dr. Russell has produced multiple scientific publications in peer-reviewed journals, is a member of the Australian medical advisory committee for Bayer Pharmaceuticals for the indication of Diabetic Macular Oedema, and has been invited to speak at multiple international conferences about his experience and interests.

"With 20 years of experience, I enjoy the privilege of helping patients of all ages reclaim clear vision or preserve it for as long as possible.

Vision correction treatment hinges on the skill set of the provider. It's important that you choose an Ophthalmologist that knows how to minimise the risk of complications and maximise the chances of success.

I understand that medical and surgical eye care is a serious undertaking. I take the time to address whatever questions and concerns you might have. I believe everyone's eyes are unique and require a customised solution tailored to your needs and goals.

With my solid foundation based on international training I aim to deliver the best possible results for patients of all ages. I have a passion for helping my patients enjoy the clear, high-definition vision they need to live rich and active lives. Now, I have hand-picked a team of professionals that share my passion and commitment to exceptional care."

-Dr. Matthew Russell,
Vision correction specialist

VSON

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