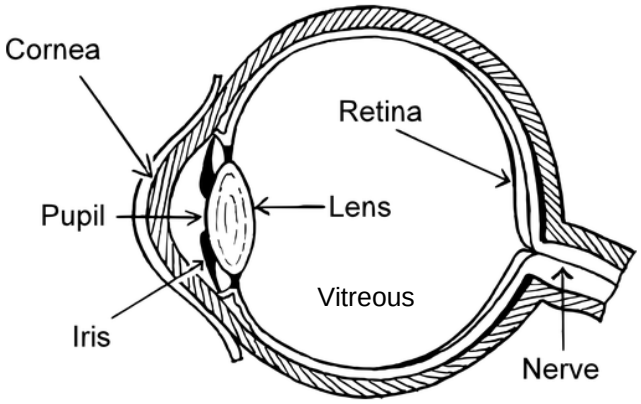
ANIMAL EYE CARE

CATARACT SURGERY



The eye

The lens is the clear round structure located behind the coloured part of the eye called the iris. The small hole in the centre of the iris is called the pupil. When the lens is clear, the hole is seen to be black because you are seeing the black internal space of the eye. Light travels through the clear window of the eye (the cornea), through the pupil (the opening in the iris), and through the clear lens to reach the retina. The retina contains the photoreceptors which convert the light information to electrical information. The optic nerve carries this electrical information to the brain where it is interpreted as a picture. There is a jelly-like fluid located between the lens and the retina called the vitreous. The lens is also surrounded by a clear, membrane-like structure called the lens capsule.

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What is a cataract?

A cataract is a white opacity (not a film or a coating) in all or part of the lens. When small, a cataract may not have any effect on vision. If the cataract affects the entire lens, vision in that eye is impaired. If the entire lens is affected by cataracts in both eyes, the patient will be unable to see. When a cataract occupies the entire lens, the normally black pupil is seen to be greenish when early, or white when advanced. Throughout the day, the pupil becomes larger and smaller in response to light. This causes the cataract to become uncovered or covered by the surrounding iris tissue. This can make the cataract appear larger or smaller but it's not.

What causes a cataract?

There are many possible causes of cataracts that include: diabetes, inherited causes in purebred dogs, and PRA (progressive retinal atrophy), but often we do not find a specific cause. Breeds often seen at Animal Eye Care with inherited cataracts include Cocker Spaniels, Poodles, Australian Cattle Dogs, Maltese, Boston [illegible] and Golden Retrievers.

"The most predictable thing about cataracts, is that they are unpredictable!"

What is the treatment for cataracts?

Surgery is the only effective method to remove cataracts. There are no known preventative treatments for cataracts. From time-to-time various drops, lotions, pills, and special diets have been suggested to help with cataracts, but none have been proven to help dissolve or reduce a cataract. If left untreated, cataracts can cause inflammation in the eyes which may need to be controlled with long-term eye drops.

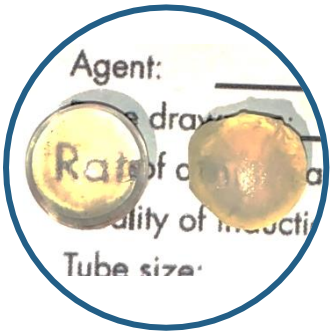
When is the best time to operate?

In the past, cataract surgery was delayed until the cataract had matured, and the patient had become totally blind. We now know that surgery is far more successful if the cataract is removed *before* it matures. We will recommend removing a cataract if it is likely to progress. This can be predicted by the animal's age, breed, size and location of the cataract, and health status.

Allowing the cataract to fully mature reduces the success rate of surgery for several reasons:

- Firstly, mature cataracts are more likely to develop uveitis (inflammation), which can lower the success rate by as much as 20 to 30%.
- Secondly, mature cataracts can cause vitreous degeneration or cloudiness
- Thirdly, the risk of retinal detachment is increased.
- Fourthly the lens capsule which holds the lens protein, can become cloudy and opaque.

an intraocular lens



a clear lens &
a cloudy cataract

a photofragmentation
hand-piece

How is surgery done?

Cataract surgery is performed using the most up-to-date technique of phacofragmentation. This is the same as what is presently done in humans.

The surgery is performed with the aid of an operating microscope. A specialised general anaesthetic is given, and a neuromuscular block is administered, which helps to improve access to the eye. Whilst under general anaesthesia the patient is carefully monitored by our nursing team – our equipment measures blood pressure, blood oxygenation, temperature, heart rate with ECG and respiratory rate with capnography.

A small, 2.8mm long, incision is made into the eye. Through this, a small window of the anterior capsule is removed with a fine pair of forceps. The cataract is then removed by phacofragmentation, whereby a probe using ultrasound breaks down the cataract and simultaneously vacuum to remove the cataract pieces. The incision in the eye is then enlarged to 8 mm, and the intraocular (artificial) lens is then inserted.
The incision is then stitched closed with fine, hair like, dissolving sutures.

Sometimes in human cataract surgery, laser can be used to treat scarring.
This is *not* something we do with cataract surgery in animals.

One or Both Eyes?

Until quite recently in humans, only one eye would ever be done at a time. Most veterinary ophthalmologists are happy to do both eyes at the same time.

There is a small risk that the surgery may not be successful in both eyes if a complication such as an infection should develop. Fortunately this is very rare with the new small incision techniques. The benefits of doing both eyes are that the surgery is substantially less expensive, and only one anaesthetic is required. The decision to operate on one or both eyes is yours to make. Our specialists will sometimes recommend cataract removal in only one eye if the other is deemed unfit for surgery.

Should my pet have cataract surgery?

Most blind animals cope very well as they have good senses of smell and hearing, and they know their home environments extremely well. However, successful cataract surgery can greatly improve an animal's quality of life. You can see the back of this brochure for testimonials from clients who have removed their pet's cataracts. Factors that need to be considered include the patient's age, wellbeing, general health, and the health of the eyes themselves.

The decision to remove a cataract is a joint one between you, your local veterinarian and Animal Eye Care. Please feel free to speak to us any time if you have any additional questions about cataracts and surgery.

Is my pet a good candidate for cataract surgery?

After deciding to proceed with cataract surgery, three additional factors are considered to best predict the outcome for your pet:

1. The eye. During the examination processes, the eye is assessed for the presence of active inflammation (uveitis), past inflammation (scarring), function of the eye, and potential for post-operative complications. Our vets will perform gonioscopy to check the eye's drainage angle to determine if your pet is predisposed to glaucoma (high pressure in the eye), and look at the back of the eye for signs of retinal detachment.

2. The patient. If the eyes are deemed to be good candidates for cataract removal, the health and behaviour of your pet are considered.

a) Health: The most important consideration is that of anaesthetic safety. Is your pet considered healthy enough to expect an easy recovery from the anaesthesia required for cataract removal? Some health concerns that can affect this include heart, throat or lung problems, liver or kidney disease, or clotting disorders.

Age alone is not a deterrent to cataract surgery. With the use of modern anaesthetic agents, cataract surgery has been successfully performed on dogs and cats as old as 19 years. Age however, does increase the risk for retinal degeneration.

Diabetic dogs make excellent candidates for cataract removal. The increased water levels in the lens make the cataract softer and easier to remove. Uncommon problems associated with diabetics include slower wound healing times and increased potential for infection. We use extra sutures and antibiotics to overcome these problems. Overall, diabetic patients tend to have a higher success rate.

b). Behaviour: The after care of cataract patients is significant. Post-operative care includes eye drops and oral medications several times daily, as well as re-examination by the ophthalmologist to monitor the healing process. Post-operative care is just as important as the surgical procedure in the success of cataract surgery; patients that will not tolerate eye drops or who are too aggressive to be re-examined are not considered good candidates for cataract surgery.

3. The family. Patient care following cataract removal, while labour intense, is manageable with foresight. Before committing to surgery, the time to care for your pet and return to the clinic for rechecks must be considered. Scheduling cataract surgery before a major family event or anticipated travel is not recommended. Cataract surgery is not inexpensive. While 6 weeks of post-operative rechecks are included in the surgery cost, charged rechecks, as well as medication cost do continue after this time regardless of the surgical outcome.

Success and Potential Complications

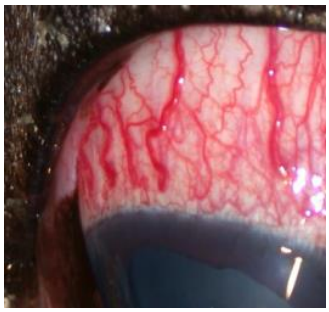
Our success rate at Animal Eye Care is comparable to other veterinary eye specialists around the world. We regularly discuss and review our techniques with our colleagues. Young animals with early cataracts, have the highest success rate at over 93%. This means 93 out of every 100 eyes regain useful vision that is maintained for 12 months. Several years after surgery useful vision is retained in around 90%. In cases where the cataract is mature, and particularly those with pre-existing inflammation in the eyes (lens inducted uveitis), a lower success rate is to be expected. Our specialist will determine your pet's expected success rate following a thorough initial examination of their eyes.

Complications can occur following cataracts surgery in both humans and animals. These include glaucoma (increased pressure in the eye), uveitis (inflammation in the eye), capsular fibrosis (cloudiness of the lens capsule), corneal oedema (a blue haze to the cornea), retinal detachment, sudden retinal degeneration, and haemorrhages in the eye. In some cases, we do not regain vision because of these complications. In an effort to minimize complications, regular check-ups for a number of weeks following surgery are required.

Jasper had cataracts removed from both of his eyes

What is lens induced uveitis (inflammation)?

As cataracts form, the lens proteins inside the eye change. This change may allow the lens protein to leak outside the lens capsule and into the eye. This causes inflammation (lens-induced uveitis) in the eye, which must be treated. Owing to the rapid onset of cataract formation, diabetic dogs seem to be especially prone to this inflammation. Cataracts that develop due to retinal degeneration (PRA) will also often cause lens induced uveitis.



Signs of lens-induced uveitis include all or some of the following:

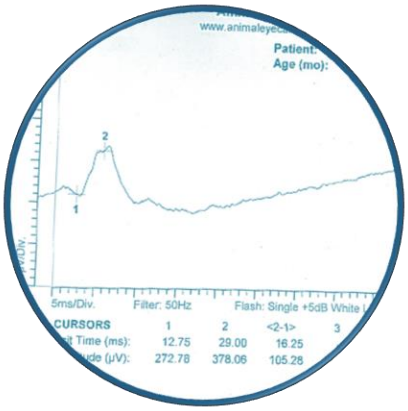
- redness of the whites of the eye
- increased or persistent squinting
- grey or blue-grey hazing of the cornea
- small pupil

Lens-induced uveitis can cause painful and vision threatening outcomes such as glaucoma (elevated eye pressure) or lens displacement (lens luxation). Pre-operative lens-induced uveitis can lower the success rate of cataract surgery. Treatment and control of lens-induced uveitis in most cases is with long-term drops and in some cases tablets. Cataract surgery is often helpful in controlling lens-induced uveitis, but diligent pre-surgical preparation is required to optimize the success of this surgery.

Why do we check the retina?

The retina (the nerve tissue at the back of the eye) must be healthy for cataract surgery to restore vision. Many purebred dogs such as Labradors, Australian Cattle Dogs, Australian and Silky Terriers, Poodles, and Cocker Spaniels can have PRA. This is the cause of the poor vision and the cataracts. PRA in the early stages presents as poor night vision, followed by poor day vision and eventually cataracts. In many cases the early signs of PRA are overlooked, even by the most diligent of owners, and it is assumed that the cataracts are the cause of the vision loss. In these cases, the dog is blind because of the PRA. So cataract surgery will not restore vision.

an ERG being performed



a normal ERG wave

an ultrasound image of a cataract

Electroretinography & Ocular Ultrasound

On the day of surgery, an electroretinogram (ERG) will be performed. This is an electrical test of the retina performed under sedation. Using a computer, we measure the electrical response to bright lights flashed into the eye. If the retina is healthy the ERG will show a normal wave pattern; if the retina is diseased with PRA the ERG is flat. If the ERG shows that the retina is not working, then cataract surgery will not help to improve vision.

As part of the general workup before surgery we also perform an ocular ultrasonography. This is usually done at the same time as the ERG. The ultrasound is used to image the inside of the eye to make sure that the eye is healthy enough for surgery. In particular we are looking for changes not revealed by ERG such as advanced degenerations of the vitreous (the fluid behind the lens), and retinal detachments.

Prior to Surgery

When surgery is scheduled, you will need to follow a regime of eye drops to get your pet's eyes ready for the surgery. This regime includes two different anti-inflammatory eye drops that are given two, and three times daily, for three days leading up to the surgery date.

Our specialist will provide you with prescriptions to obtain these eye drops from you local chemist, as you will use them again after surgery.

It is vital that your dog's teeth are clean and free of any gum infections before cataract surgery. Dental cleaning is best performed 6 weeks prior to cataract surgery to minimise the potential for bacterial spread to the eyes during surgery.

Ruby had cataracts removed from both of her eyes

Maximising the Success

In order to maximise the success of your animal's cataract surgery, it is important to carefully follow all of the pre- and post-operative instructions. If you are ever unsure about anything at any stage in the process, please call Animal Eye Care at any time. We are here to help!

In certain breeds (Bichons, Boston Terriers, Poodles), if the eye is inflamed, the cataract has been present for some time, if the posterior lens capsule is ruptured or needs to be removed, the risk of retinal detachment is greatly increased.

In these cases, we will recommend retinopexy to reduce the risk of retinal detachment. Using a laser, the retina is adhered to the back of the eye. If problems arise during surgery, the retinopexy can be done immediately after surgery. Even with retinopexy it is still possible for the retina to detach, but it occurs much less frequently.

When can my pet come home?

Cataract surgery is a day procedure. Your dog will get dropped off at the clinic first thing in the morning, then will go home later that same afternoon. You will need to return the following day for a check-up. We need to do this to monitor the IOP (intraocular pressure). An increase in the IOP above 30 is diagnostic of glaucoma. This is something we will do regularly throughout your pet's recovery.

Bella had the cataract from her left eye removed

Following Surgery

Your dog will need to wear an Elizabethan Collar for at least 1 week. This may cause some disorientation for the first 24 hours. We feel that this is a small price to pay to minimise the chance of accidental damage to the eye. It is very important to make sure that the E-Collar is not rubbing the skin, especially underneath the neck.

Generally, there is little if any pain associated with cataract surgery. Most dogs settle down very quickly after leaving the clinic. We routinely give a pain-relief injection on the morning of surgery and send the patient home with oral anti-inflammatory pain relief too.

We then need to recheck the eye(s) at 1, 3, 10, and 24 days after surgery. These visits are included in the surgery fee if seen at the East Malvern clinic during normal business hours Monday – Friday. A charge will also apply if seen at a travel clinic. An emergency fee of $300 will apply if seen outside of normal scheduled business hours. We then suggest visits every 6 to 12 months to monitor the progress and health of the eye. A revisit consult fee is charged for these long-term follow up visits.

Usually, 4 to 6 weeks after surgery the top of the eye may become a little red and blue. This is due to a reaction developing as the sutures dissolve out. This does not seem to be associated with any pain or discomfort. The prescribed eye drops will help to reduce this reaction.

Will the Cataract Grow Back?

Generally, no. However sometimes in very young dogs, the lens may try to regrow. In young dogs scarring of the back of the lens capsule can sometimes occur. In most cases this does not seem to affect the dog's vision, even though you may notice cloudiness.

Skittles 30 minutes post-op

Jimmy 10 months post-op

Vision after Successful Surgery

Following a succesful cataract surgery, your dogs vision will be greatly improved. We recommend that we replace the cataract lens with a plastic intraocular lens (IOL). We find that with an IOL animals regain their vision much more quickly. The IOL also helps with their close-up vision and depth perception.However, not all patients are suitable for an IOL. Before surgery this may include patients with excessive scarring or loose lenses, or during surgery if they lens capsule will not support a lens.

Without an IOL after cataract surgery, the patient's close up vision (less than 75 cms) is generally poor, but the mid to long distance vision is normal.

As in humans, *it can to take 3 to 7 days* for a dog to regain useful vision. In some cases it may take up to 6 weeks for the dog to learn how to see again.This is often the case where an IOL has not been inserted. It is important to bear this in mind and not feel discouraged if your dog does not immediately see well after surgery.

Typical Timeline

Initial assessment – examination of eyes including tear testing, fluorescein stain, intraocular pressure, gonioscopy, discussion about cataract surgery, cost outline, discussion of specific areas of concern.

Recheck examinations if required to monitor response to therapy of concerns raised at initial examination.

Three days before surgery – start medication chart provided to you.

Night before surgery – fasting from midnight, water is ok overnight.

Day of surgery
- no breakfast and ½ dose of insulin if diabetic
- drop off at clinic
- you will be called when surgery is completed
- pick up from clinic

Day after surgery – recheck at clinic

Subsequent rechecks

Day 3
Day 7
Day 14
Day 28

exact timing of rechecks may vary depending on your pet's response to treatment

Day 60 (review visit fee)
Day 240 (review visit fee)

Any questions?

We understand that the decision of whether to have cataract surgery on your pet is a big one. We welcome any questions or concerns that you may have. Please feel free to contact us on **(03)9563 6488** or email us at **info@animaleyecare.com.au**

CATARACT TAILS

"Lou woke up on 3rd December 2020 as completely blind and this changed his life from that day as he could not see anything. As a very active poodle, this stopped his life as we all had known it as being so friendly and playful for all of us over the last 12 years of his very active life.

We made a decision to take Lou to Animal Eye Care and Lou passed every single examination that are part of the steps required to proceed with Cataract Surgery. We were so happy to be given the ok for cataract surgery by Dr Robin when Lou passed the final step, so we followed the very easy process that was outlined by us to proceed with Lou's cataract surgery.

Lou had his surgery on the 03.02.21 and he has been so happy to be able to see his way around the house indoors and outdoors and I can say that he is back to his former self and so confident to walk in the dark or light at any time.

Obtaining Lou's vision back has certainly changed his life and has allowed for Lou to live his life as he used to and we could not be happier with this outcome and it was great to deal with Animal Eye Care to allow for Lou to live the life that he deserves.

We love Animal Eye Care for fixing Lou and making him brand new again."

"Gypsy, our 12yo ShihTzu-Poodle ripped our hearts out when she lost her sight last year. After surgery and successful follow-up visits, our perky 'puppy' is back and loving life as much as we adore her. Thank you, team."

"When Alby hit 10 his eyes went cloudy and we thought nothing of it. As he hit 11 he started to lose vision and he became very anxious and easily distressed. I finally decided to get his cataracts out when he was almost 12.

I was super worried beforehand- Alby had a bad back, what if he responds poorly to anaesthesia, he's an anxious dog, how does pre-op work… I'm sure everybody goes through this. Everybody at Animal Eye Care was super helpful through the process! I asked a lot of questions before our appointment and they gave me heaps of information and explained everything really clearly.

They handled Alby really well in consults too (he is not a great patient sometimes). Our appointments were a great balance between getting a good examination time in and not overstressing Alby. Also, the costs from end to end were really clear so I had time to plan my budget and set an appointment at a time that I could manage financially.

Honestly the hardest part of this process was making the decision to go through with it. The surgery itself and recovery were the easiest parts for me. The team were awesome and really supportive of Alby (and me!) through the recovery process. They gave me a chart so I didn't forget all the drops, we were given a little information pack with all the answers to questions I hadn't thought to ask till I got home and when I was a bit worried about Alby's recovery, they were super helpful at troubleshooting and got us to come in if I was worried.

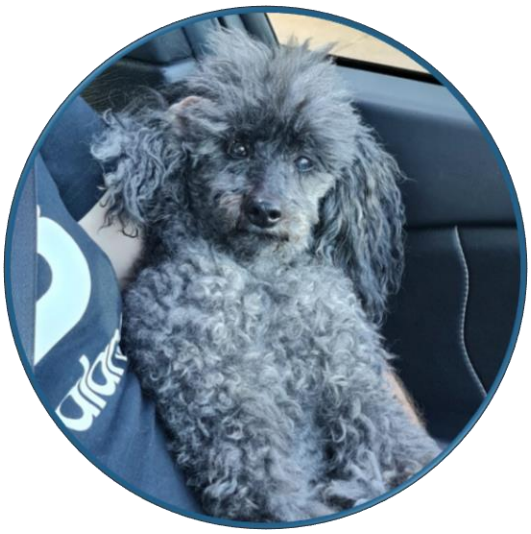
The recovery time flew by! Alby was a total champ through the recovery process. He was doing a lot of squinting and sleeping for the first day or so, but around day 2 or 3 it was clear that he could see again… by all the food he kept trying to steal.

Now Alby is up to his old tricks- digging up the garden, using his humans as furniture and going for walks again! Alby is so much happier and interacts so much more with the world now he can see again. I'm so glad we made the big decision and so glad Alby is back to causing mischief."

"My boy was 14 when he had cataract surgery on both eyes. He was a bright & happy dog until he lost his eyesight in very fast, & was depressed & lost his happy & bright personality. Bobby was forever bumping into things & was miserable. Some don't go ahead when they hear about all the eye drops, not at all a problem its easy they get used to it, it's the least we can do!

I was impressed with how thorough & honest Dr Robin was with explaining the process & with doing certain checks prior to going ahead to ensure Bobby was a good candidate. He's 15 now & loving every day!

"This is Alfie (Alfonso) our 12-year-old Toy Poodle. Dr Robin Stanley removed cataract from both of his eyes and that was the best decision we made for our fur baby. Thank you, Dr Stanley"



"In 2018 Minka was found to have a significant heart murmur and bilateral cataracts. She was 12+ years when she had cataract surgery in 2019. Absolutely no problems as far as heart was concerned. Although now going deaf, she has a good quality of life and has a wonderful time with the new sister puppy Misty (5months). It was a wonderful decision to have the cataracts done. Thanks everyone so much."