

Ask The Experts

What is bladeless laser cataract surgery?

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Q My 62-year-old uncle has cataracts and has been advised to go for bladeless laser cataract surgery. Can you tell me more about this procedure?

A As a person ages, a cataract can occur when the natural lens inside the eye becomes cloudy, causing symptoms such as blurred vision, glare or halos around bright lights, loss of colour or depth perception, and difficulty with vision in dim light.

Cataracts cannot be treated by medication or wearing spectacles, so surgery is the best option.

What is cataract surgery?

Modern cataract surgery is a safe and effective 20-minute outpatient procedure that involves making a 2mm incision on the cornea, cutting the cataract into small pieces, removing the pieces and implanting a lens implant.

The surgery is also an opportunity for patients to correct or reduce pre-existing myopia (short-sightedness), astigmatism and presbyopia ("lao hua").

Traditional cataract surgery

For the last 50 years, surgeons have been performing cataract surgery with a manual technique — using blades to make corneal incisions, and phacoemulsification (ultrasound) to cut up cataracts — which has limited precision and possible human error.

Modern cataract surgery

In bladeless laser cataract surgery, a femtosecond laser machine is used to complete many of the steps previously performed manually by the

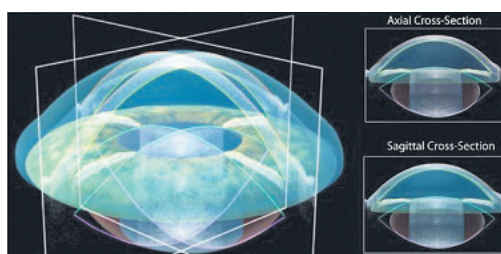


surgeon, thus reducing the chance of human errors.

This allows cataract surgery to become more precise and, ultimately, improve on safety and visual outcomes.

The femtosecond laser system uses a technology that is based on:

■ **3D Optical Coherence Tomography (OCT) imaging:** Like a fingerprint, every eye has a unique size and shape. Before the treatment, the femtosecond laser system scans the patient's eye and makes precise 3D maps of eye structures using real-time, high-definition OCT imaging (below) to plan a customised treatment map of each eye.



■ **Laser precision:** Without manual cuts, the femtosecond laser (gas bubbles) creates a precise opening on the lens capsule for the removal of the cataract.

■ **Gentler cataract surgery:** The femtosecond laser then softens and divides the cataract into multiple pieces, blade-free. The surgeon can remove the cataract more gently, which also enables faster post-op

visual recovery for patients.

Computer-guided lens implantation

After the removal of the cataract, the surgeon uses a computer-guided lens implantation system (left) that enables him to see alignment images during the actual insertion of the lens implant. This helps the implant attain near-perfect overlap and accurate centration.

Overall advantages

The advantages of using femtosecond laser and computer-guided lens implantation systems include:

- Improved safety and precision,
- Can be performed using topical anaesthetic eye-drops,
- No sharp blades involved,
- No stitches required,
- More precise alignment of artificial lens implant, and
- Quicker return of vision after surgery.

Dr David Goh



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TREATMENT FOR PRESBYOPIA AND CATARACT

- 100% bladeless cataract surgery
- Computer-guided lens implantation

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