

LASIK vs. LASEK Comparison Chart ©

	LASIK	LASEK
Name Detail	Laser-Assisted In Situ Keratomileusis	Laser Assisted Sub-Epithelial Keratomileusis
Corrective Uses	Refractive error correction for nearsightedness, farsightedness, astigmatism and presbyopia.	Refractive error correction for nearsightedness, farsightedness, astigmatism and presbyopia.
Procedure Length	Outpatient procedure. Laser treatment requires less than one minute for each eye; total procedure lasts about 15 minutes per eye.	Outpatient procedure. Laser treatment requires less than one minute for each eye; total procedure lasts about 15 minutes per eye.
Procedural Notes	<p>Uses a microkeratome knife and excimer laser in procedure. The epithelium and stroma are cut to a thickness of 100-180 microns, then an excimer laser ablates corneal tissue under the epithelial/corneal tissue flap. An alcohol solution helps lift the epithelium.</p> <p>Main difference Between LASIK and LASEK is thickness of the flap which includes corneal stroma tissue in LASIK and only epithelial tissue in LASEK.</p>	<p>The epithelium is cut to a thickness of 50 microns while the stroma is left uncut. Uses a trephine, a finer blade than that used in LASIK. An excimer laser ablates corneal tissue under the epithelial flap. An alcohol solution helps lift the epithelium.</p>
Healing & Recovery	2 days – 1 week; faster than LASEK. Allowed to drive 1-3 days after surgery.	Flap edges heal within a day. Can drive in about a week with crisp vision in about 6-8 weeks. Recovery slightly longer than LASIK - about 4-7 days.
Benefits	Appropriate for people who have more corneal tissue, less discomfort than LASEK, almost no pain, 20/20 vision or better is typically achieved, corneal haze very rare, immediate clear vision, follow -up enhancements are easier if needed.	Better choice for poor LASIK candidates including people with less corneal tissue, fewer haze outcomes than LASIK, preserves more corneal tissue than LASIK, no complications of stromal flap as in LASIK, less risk of dry eye than LASIK.

LASIK

LASEK

Potential Drawbacks

Those with thinner corneas may suffer less than ideal results, flap may dislodge with trauma, increases higher order aberrations (HOA)**; uneven flap edges may lead to astigmatism, flap may result in scars, post-operational treatment is needed in approximately 5% of patients.

** Higher order aberrations (HOA) affect the contrast sensitivity and fine detail of vision, such as night vision, glare, contrast.

More discomfort than LASIK, takes longer to heal than LASIK, many diseases, medications, and conditions are contraindications, trauma, such as being hit in the eye may cause flap to dislodge, as a fairly new technique, long-term outcomes are not well established, increases HOA, blade can create uneven flap edges leading to astigmatism.

Indications for Procedure

Required thickness of corneal tissue achieved, requirement for painless procedure and/or extremely fast recovery, probably best for correcting over 6.00 diopters of refractive error. Corneas too thin or flat for LASIK.

For both of these procedures, extensive screening is required for qualification. Participants must be between the ages of 18 and 40, vision must be less than -14.00 diopters of nearsightedness, less than +6.00 diopters of farsightedness, and less than 6.00 diopters of astigmatism, a stable prescription must be in place, must not have a history of eye disease or abnormality, the corneas must be within a treatable shape range, the pupils must be of approximately normal size (with slightly larger pupils deferring patient to PRK instead of LASIK), and there must be adequate tearing in both eyes (eye moisture must be healthy).

Contraindications to Procedure

Thin cornea, not within age limit***, uncorrectable range of vision, unstable prescription, eye disease or abnormality, diabetic retinopathy, cataracts, glaucoma, ocular hypertension, autoimmune disorders, contradictory medication, pregnancy, nursing, large pupils, dry eye, prior eye surgery, naturally elevated HOA.

Possible inability to maintain thin flap (resulting in removal of epithelium), not within age limit, uncorrectable range of vision, unstable prescription, eye disease or abnormality, diabetic retinopathy, cataracts, glaucoma, ocular hypertension, autoimmune disorders, contradictory medication, pregnancy, nursing, large pupils, dry eye, prior eye surgery, naturally elevated HOA.

RISKS

The Eye Surgery Education Council (ESEC) reports less than 1% experience serious problems if proper screening is done and an experienced surgeon performs the procedure, and 3-5% experience less serious problems that are correctable. There are NO reports of blindness resulting from LASIK or LASEK surgery. Possibility of complications if the flap (created by surgical cutting) is not thick enough or of proper diameter. Diffuse Lamellar Keratitis (DLK), (infiltrates beneath the LASIK flap) can cause inflammation and scarring. This must be treated with antibiotics and steroids, or possibly scraped for removal. Infection - can lead to loss of vision Irregular astigmatism, double vision, ghosting, can result from not centering the laser correction properly (decentered ablation), halos or starbursts when looking at lights, incomplete corrections, over- or under-correction. Undercorrections can be retreated. Over corrections may require using glasses or contact lenses. Erosion of the epithelium, dry eye, infection, keratectasia, weakened, bulging cornea, the alcohol used in this procedure can kill epithelial cells, loss of visual acuity or best corrected vision (BCV) after the procedure, corneal scarring, eyelid droop, chronic discomfort, inability to tolerate contact lenses.

HOW TO AVOID PROBLEMS

Find a surgeon with thousands of procedures of experience. Exams to include routine eye exam, slit-lamp, fundus, corneal thickness, topography and pupillometry, and a Shirmer test. Follow instructions carefully after surgery. Request wavefront diagnostics or a reason why this is not recommended. Replace old makeup and don't use for several days after surgery. Avoid strenuous exercise for 1 week. Avoid contaminated water for at least 1 week, including seawater, lakes, swimming pools, spas, etc. Avoid rubbing eyes for 2 weeks.

According to studies, surgeons with experience of 700-1,000 or more cases have significantly lower intra-operative complications than surgeons with fewer than 700 cases.

Acronyms not clarified in the chart include:

- BCV = Best Corrected Vision
- BCVA = Best Corrected Visual Acuity (same as BCV)
- DLK = Diffuse Lamellar Keratitis
- HOA = Higher Order Aberrations
- LOA = Lower Order Aberrations
- ASA = Advanced Surface Ablation (Used in PRK and LASEK)
- ICL = Implantable Contact Len
- IOL = Intra-Ocular Lens.

Per the Council for Refractive Surgery Quality Assurance (CRSQA) Standards for refractive surgery:

- Minimum of 90% of patients achieve at least 20/40 uncorrected vision.
- Minimum of 50% of patients achieve at least 20/20 uncorrected vision.
- Minimum of 85% of patients achieve within 1± diopter of target.
- Minimum of 50% of patients achieve within 0.5± diopter of target.
- Maximum of 3% of patients experience complications unresolved by 6 months postop.
- Maximum of 0.5% of patients experience serious (vision-threatening) complications at 6 months post op requiring extensive maintenance or invasive intervention.