

Excluded: Procedure not routinely funded

**Bedfordshire, Hertfordshire, West Essex, Luton and Milton Keynes
Priorities Forum statement - adapted for Bedfordshire CCG**

Number	80
Subject	Laser Eye Surgery in Myopia
Date of decision	October 2017
Date of review	October 2020

GUIDANCE

Laser eye surgery for myopia is not normally funded, and would only be considered on an exceptional basis through the individual funding requests process.

Background and evidence

Myopia, commonly known as short- or near-sightedness, is a condition that occurs when the eye focuses light on an area in front of the retina due to refractive apparatus being more powerful than is necessary to focus well. Conservative management of refractive errors revolves around the use of spectacles and contact lenses. Many people are now opting for laser eye surgery as a means of removing their reliance on these. There are several different laser eye procedures that can be undertaken in cases of refractive error:

LASIK – Laser-assisted in-situ ketatomileusis

A thin layer of the corneal epithelium is lifted with a microkeratome to form a flap. The laser then alters the curvature of the cornea to correct the refractive error. The flap is then replaced and sticks to the cornea underneath¹. See Figure 1 (right).

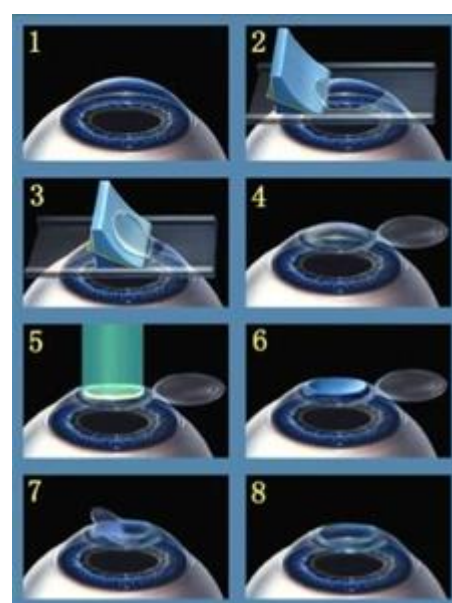


Figure 1 - LASIK procedure¹²

LASEK – Laser-assisted subepithelial keratomileusis

Similar to LASIK a laser is used to take a flap of corneal epithelium. The flap is thinner than in LASIK and creation of it involves the use of alcohol solutions to loosen the epithelia layer. The cornea underneath is then treated in the same way as in LASIK. The flap is replaced but requires holding in place with a bandage contact lens. Healing times are generally longer than in LASIK and as such it also takes longer for vision to recover¹.

PRK – Photorefractive keratectomy

In this procedure the outer layer of the cornea is removed completely rather than forming a flap for later replacement. This is done with an alcohol solution and/or surgical instruments. The laser is then used to reshape the underlying cornea. New epithelium grows back over the following days¹.

The different procedures are the subject of a number of Cochrane reviews. One such review compares LASEK to PRK in the correction of myopia². The authors looked at 11 RTCs involving a total of 428 participants over the age of 18 who had myopia ranging from low to moderate. They noted no significant difference in the number of eyes with uncorrected visual acuity of 20/20 at 12 months between the LASEK and PRK groups. Another trial looking at best-spectacle corrected visual acuity found that one of the eyes in the LASEK group actually lost 1 line at 12 month follow up whilst none of the 51 PRK eyes did (very low quality evidence – RR: 3.00, 95% CI 0.13 – 71.96). The authors of the Cochrane review note that the data available was insufficient to say which of the methods is better at correction of myopia, as well as which has better scores in adverse outcomes at 12 months.

A review comparing PRK to LASIK was published in 2013³. Here the authors note that there is sufficient evidence to say that LASIK leads to a more rapid recovery with less pain than PRK, but that visual results 1 year post-surgery were comparable, and that both procedures are safe.

A further Cochrane review comparing LASIK to LASEK is pending at the time of writing⁴. A 2013 independent review of the same procedures found that there was no significant difference in efficacy, predictability, safety, epithelial healing time and corneal haze formation between LASIK and LASEK, but again the authors note that the evidence is limited and further study is required⁵.

NICE guidance on the use of excimer laser corrective surgery also states that there are no significant differences between the three different procedures with regard to achieving the predicted refractive outcome.⁶

Some studies have looked at factors affecting recovery from these procedures. It was found that patients who have used soft contact lenses prior to undergoing a LASEK procedure suffer significantly more corneal oedema than those who have never used the lenses, and this effect was related to duration of use. However, they found that postoperative haze and refractive correction were not affected by the use of contact lenses⁷. Another study comparing postoperative pain after PRK and LASEK found that whilst there was more pain on day-1 post-LASEK, this difference had resolved by day 2, and that visual outcomes between the procedures were not significantly different⁸.

Another option for the correction of refractive error is the insertion of a phakic intraocular lens (IOL). A cochrane review comparing the use of IOLs vs laser refractive surgery in moderate to high myopia found no significant difference in the percentage of eyes achieving an uncorrected visual acuity (UCVA) of 20/20 or better at 12 months¹¹. However, they did conclude that IOL insertion was a safer procedure as it resulted in a significantly reduced rate of loss of best spectacle corrected visual acuity (BSCVA) at 12 months (Odds ratio 0.41, 95% CI 0.33, 0.51). The authors also acknowledge the low risk of developing early cataract with phakic IOLs. Despite this they note that it leads to better contrast sensitivity and patient satisfaction questionnaire scores compared to laser surgical correction.

Studies looking at the economic impact of laser eye surgery compared to conservative management with contact lenses have been favourable. A 1994 study

showed that at the time PRK became cost-effective when compared to 10 years of daily soft contact lens use⁹. Another more recent study suggested that with a cost per refractive unit gained of 519 Euros, that LASIK had demonstrated what they viewed as “encouraging cost effectiveness”¹⁰.

In conclusion, whilst there is insufficient evidence to suggest that any one of the modalities of laser eye surgery for myopia offers significant superior long-term outcomes, the safety and clinical efficacy of the procedures are well established through a number of trials. No evidence was found to suggest that laser corrective surgery provides superior corrected acuity to spectacles or contact lenses, and as noted previously, can actually cause a reduction in BSCVA.

References

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12. Figure 1 - Image depicting LASIK procedure. Taken from: <http://theeyemds.com/lib/sitefiles/images/lasik/lasik-diagram-2.jpg> [Accessed 19th Dec 2016]