



Title	Laser Eye Surgery for the Correction of Refractive Errors – Early Assessment Briefs (Alert)
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Aim

To assess the scientific evidence with reference to the following questions:

- What improvements in visual acuity can patients expect following refractive surgery?
- How are other measures of visual quality affected?
- What complications appear, how common are they, and what do they mean for the patient?
- Which method is most cost effective?

Conclusions and results

Assessments of 3 surgical methods to correct errors of refraction in the eye (PRK, LASEK, and LASIK) yield similar results in myopia up to -6 diopters. In 96% to 99% of the cases, surgery results in visual acuity of 0.5 or more in the operated eye. The corresponding results in hyperopia up to +3.5 diopters are 87.1% to 89.5% for PRK, 90.3% to 90.7% for LASEK, and 93.2% to 97% for LASIK. The percentages reaching full visual acuity (1.0 or more) are substantially lower. These conclusions are rated as Evidence Grade 1.

The surgical procedures are associated with some risk for permanent side effects, eg, greater sensitivity to glare and increased contrast. Although many different complications have been reported, individually they are uncommon. Vision loss (measured as two lines or more on the eye chart – a general measure of complications) is unusual with moderate errors of refraction. These conclusions are rated as Evidence Grade 1.

There is insufficient scientific evidence to draw firm conclusions on the cost effectiveness of these methods. Considering treatment outcomes, complication risks, and surgical costs, LASIK would appear to be the most cost effective. This, however, does not apply to high levels of refractive error.

Recommendations

No recommendations.

Methods

A systematic search of the literature was conducted primarily via electronic databases (PubMed and Cochrane Library) and other relevant databases. To be included in the systematic review, articles needed to meet pre-determined criteria: the results of the studies should be relevant to the questions posed by the project, ie, have appropriate endpoints, follow-up period, and study design. Ethical and economic implications were considered.

Further research/reviews required

None.