

# Laser Refractive Surgery: in a nutshell

Misconceptions surrounding laser vision corrective surgery and other forms of refractive surgery are not uncommon. It is hoped this somewhat simplistic overview of LASIK (laser assisted insitu keratomileusis), the most common form of laser vision correction surgery, will assist the reader. The corneal surface is the main refractive apparatus of the eye and therefore a change in corneal shape can correct refractive error. These lasers sculpt the cornea by precisely removing tissue, like a lathe.

## How safe and successful is it?

LASIK is 20 years old and over 18 million patients worldwide have had this treatment. A number of large series have been published. For example, the US Army offers laser correction for active soldiers to improve their combat effectiveness and in 2005, a series involving 32,068 eyes from this program was published (*Ophthalmology* 2005;112:184-190); 85.6% achieved over 6/6 unaided vision following treatment; only 3 cases of infectious keratitis; and no patients had worse than 6/12 vision. A ten-year series from Singapore involving 37,932 laser treatments was recently published, with similar results.

## How is the treatment performed?

LASIK involves cutting a circular corneal surface flap and laser treatment is applied under this flap to reshape the cornea. The average procedure takes 10-20 minutes per eye and the laser is active for only 1 to 2 minutes. Both eyes can be treated in the same session.

## What anaesthetic is required? Is it painful?

Topical anaesthetic is used as the patient needs to actively look at a fixation light during treatment. Some parts of the procedure may be uncomfortable, however, most patients do not experience pain during treatment.

## What is the recovery period?

Patients typically recover in 1-2 days after LASIK. (Other forms of laser correction directly applied on the corneal surface can take up to 4 weeks to recover.)

## Who is suitable for the treatment?

A detailed initial eye examination, which includes various computerised scans, determines the patient's suitability based on the degree of refractive error, corneal thickness, ocular health and other factors. In short, LASIK can treat +5 to -10 diopters of spherical error and up to 6 diopters of astigmatism. This range covers most patients with reasonable thickness glasses.



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## What about reading glasses in a 50-year-old?

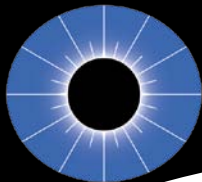
In presbyopia the problem is the inability of the eye to change focus between distance and near, which is an ageing effect. LASIK can only correct the overall focus of the eye to one distance. It cannot restore the ability to change focus due to ageing. However, we can still help these patients using LASIK and other refractive surgery by utilising multifocal optics or monovision.

## What are the risks and side effects?

Problems from LASIK are rare, as illustrated by series above. Major sight-threatening complications occur in less than 1 in 10,000; and dry eyes and glare at night are uncommonly recognised side effects.

## How much does it cost?

Bilateral treatment costs around \$6000 in WA. More than half of this sum is related to technology. For instance, the brand new, state-of-the-art laser at the Eye Surgery Foundation costs more than an average house. Medicare and most health funds do not cover these treatment ■



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