

## **Laser corneal surgery to improve vision after previous eye surgery**

*NICE 'HealthTech guidance' advises the NHS on when and how new procedures can be used in clinical practice.*

This leaflet is about when and how laser corneal surgery can be used in the NHS to improve vision after previous eye surgery. It explains guidance (advice) from NICE (the National Institute for Health and Clinical Excellence).

This HealthTech guidance makes recommendations on the safety of a procedure and how well it works. An interventional procedure is a test, treatment or surgery that involves a cut or puncture of the skin, or an endoscope to look inside the body, or energy sources such as X-rays, heat or ultrasound. The guidance does not cover whether or not the NHS should fund a procedure. Decisions about funding are taken by local NHS bodies (primary care trusts and hospital trusts) after considering how well the procedure works and whether it represents value for money for the NHS.

This leaflet is written to help people who have been offered this procedure to decide whether to agree (consent) to it or not. It does not describe problems with vision after previous eye surgery or the procedure in detail – a member of your healthcare team should also give you full information and advice about these. The leaflet includes some questions you may want to ask your doctor to help you reach a decision. Some sources of further information and support are on page 8.



## What has NICE said?

This procedure can be offered routinely as a treatment option for people with vision problems after previous eye surgery provided that doctors are sure that:

- the patient understands what is involved and agrees to the treatment, and
- the results of the procedure are monitored.

The procedure should only be done by ophthalmologists with specific training in corneal surgery, and they should also decide which patients should have this procedure.

## Other comments from NICE

It is important for patients to inform their practitioner that they have had this type of laser surgery if they are ever tested for glaucoma or have cataract surgery.

*This procedure may not be the only possible treatment for vision problems after previous eye surgery.*

*Your healthcare team should talk to you about whether it is suitable for you and about any other treatment options available.*

## Laser corneal surgery to improve vision after previous eye surgery

The medical name for this procedure is 'laser correction of refractive error following non-refractive ophthalmic surgery'.

The procedure is not described in detail here – please talk to your specialist for a full description.

Refractive errors include myopia and hyperopia (short and long sightedness) and astigmatism (blurred vision), and can develop after eye surgery such as cataract surgery (replacing a cloudy lens) or

cornea transplant (replacing the clear layer of tissue at the front of the eye).

People with refractive errors usually need to wear glasses or contact lenses to correct the problem, but further correction is sometimes necessary. This includes making small cuts in the eye to adjust the cornea, or cataract surgery.

Laser surgery involves using a laser to permanently alter the shape of the cornea to improve vision. There are three different procedures: photorefractive keratectomy (PRK), laser epithelial keratomileusis (LASEK) and laser in situ keratomileusis (LASIK). All are performed under a local anaesthetic.

## What does this mean for me?

NICE has said that this procedure is safe enough and works well enough for use in the NHS. If your doctor thinks laser surgery is a suitable treatment option for you, he or she should still make sure you understand the benefits and risks before asking you to agree to it.

## You may want to ask the questions below

- What does the procedure involve?
- What are the benefits I might get?
- How good are my chances of getting those benefits? Could having the procedure make me feel worse?
- Are there alternative procedures?
- What are the risks of the procedure?
- Are the risks minor or serious? How likely are they to happen?
- What care will I need after the procedure?
- What happens if something goes wrong?
- What may happen if I don't have the procedure?

*You might decide to have this procedure, to have a different procedure, or not to have a procedure at all.*

## **Summary of possible benefits and risks**

Some of the benefits and risks seen in the studies considered by NICE are briefly described below. NICE looked at 6 studies on the procedures.

### **How well does the procedure work?**

In 4 studies of 207 patients (275 eyes operated on) who had LASIK after different types of eye surgery (including refractive and non-refractive surgery, multifocal lens implantation, or cornea transplant), vision had improved when patients were checked 6 months to 5 years after the procedure.

In a study of 38 patients (46 eyes) who had LASIK after a cornea transplant, 29 out of 46 eyes had close to normal vision 5 years after the procedure.

In a study of 62 patients (87 eyes) who had LASIK after different eye surgeries, the number of eyes with 50% of normal vision or better increased from 4 out of 87 before the operation to 61 out of 87 at 1 year after the operation.

In 3 studies of 169 patients who had LASIK after eye surgery, a second LASIK procedure was needed in 29 out of 229 eyes to correct problems remaining after the first operation.

As well as looking at these studies, NICE also asked expert advisers for their views. These advisers are clinical specialists in this field of medicine. The advisers said that the aims of the procedure are to improve vision, reduce errors in vision, maintain good eyesight when wearing glasses, and improve quality of life.

## Risks and possible problems

In a study of 48 patients (57 eyes) who had LASIK after a cornea transplant, reduced vision was reported in 8 out of 52 eyes 1 year after the procedure.

Haze in the cornea which required further treatment occurred in 3 eyes in a study of 41 patients (44 eyes) who had PRK after a cornea transplant.

In 2 studies of 59 and 48 patients (142 eyes) who had LASIK after receiving a lens implant or cornea transplant, dry eye was reported in 7 eyes. In the study of 59 patients, this was treated with frequent lubrication.

The study of 48 patients reported: 4 eyes with growth of new cells in the cornea which needed to be removed (between 1 week and 1 year after surgery); 5 eyes needing a repeat cornea transplant for either persistent astigmatism or swelling (between 8 months and 3 years after surgery); and 5 eyes where the flap made in the cornea during the procedure had moved and was treated by stitches, or flap removal or repositioning (within 1 week of surgery).

A study of 57 eyes treated with LASIK reported: 1 eye with bleeding in the retina 7 days after the procedure, 4 eyes with growth of new cells in the cornea, 2 eyes with new astigmatism, 2 eyes where the flap made in the cornea during the procedure came free and 14 eyes with night vision problems (all at an average of 9 months after the procedure).

In patients treated with LASIK after a cornea transplant, rejection of the transplant was successfully treated in 1 eye in the study of 38 patients.

As well as looking at these studies, NICE also asked expert advisers for their views. These advisers are clinical specialists in this field of medicine. The advisers said that theoretical problems could include:

bulging or scarring of the cornea; the outer layer of the cornea coming away (recurrent erosion) or developing defects; bleeding, wrinkles, debris and inflammation in the flap in the cornea; glare from lights; infection; and pain.

## More information about refractive errors

NHS Choices ([www.nhs.uk](http://www.nhs.uk)) may be a good place to find out more. Your local patient advice and liaison service (usually known as PALS) may also be able to give you further information and support. For details of all NICE guidance on refractive errors, visit our website at [www.nice.org.uk](http://www.nice.org.uk)

## About NICE

NICE produces guidance (advice) for the NHS about preventing, diagnosing and treating different medical conditions. The guidance is written by independent experts including healthcare professionals and people representing patients and carers. They consider how well an interventional procedure works and how safe it is, and ask the opinions of expert advisers. This guidance applies to the whole of the NHS in England, Wales, Scotland and Northern Ireland. Staff working in the NHS are expected to follow this guidance.

*To find out more about NICE, its work and how it reaches decisions, see [www.nice.org.uk/aboutguidance](http://www.nice.org.uk/aboutguidance)*

*This leaflet is about 'laser correction of refractive error following non-refractive ophthalmic surgery'. This leaflet and the full guidance aimed at healthcare professionals are available at [www.nice.org.uk/guidance/HTG256](http://www.nice.org.uk/guidance/HTG256)*

*You can order printed copies of this leaflet from NICE publications (phone 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) and quote reference N2480). The NICE website has a screen reader service called Browsealoud, which allows you to listen to our guidance. Click on the Browsealoud logo on the NICE website to use this service.*

*We encourage voluntary organisations, NHS organisations and clinicians to use text from this booklet in their own information about this procedure.*

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