

Artisan Lens

Over the past few years the Artisan (or Verisyse) lens has been developed from an earlier lens design termed 'lobster-claw' – so called because of the method by which the lens is supported inside the eye by attachment to the iris. Artisan lenses are made from Perspex (polymethylmethacrylate) – the standard material used for lens implants since their introduction in 1950, so it is known that the biocompatibility of the lens is good. These lenses can be used to correct both myopia (from -3D to -23.5D) and hypermetropia (from +1 to +12D). Toric Artisan lenses can be used when there are higher degrees of astigmatism requiring correction.

Since the range of optical defects correctable by the Artisan lens overlaps with that which can be achieved with LASIK, or with Implantable Contact Lens (ICL) surgery, for some people there may be a choice between the treatments, decided upon by the following factors:

LASIK advantages:

Easily adjusted optical outcome and generally effective correction of astigmatism.

Possibly less risk of severe adverse complications as the surgical procedure does not penetrate the eye.

Cheaper than Artisan lens surgery.

LASIK disadvantages:

The quality of the optical correction with LASIK may sometimes not be as good as that achieved by an Artisan lens, especially in high degrees of myopia or hypermetropia. This is because the final optical surface created can be less regular than that of a manufactured lens, due to variables in the surgical procedure and the wound healing process.

In addition, LASIK can only be performed over a limited size of optical zone especially when attempting to correct very high optical defects. A small optical zone size can lead to relatively poor visual performance with poor contrast sensitivity, especially in low light conditions.

LASIK causes irreversible changes to the corneal structure, and if too much corneal tissue is removed the cornea may undergo ectasia leading to poor vision and loss of correction.

If needed, fitting of contact lenses may be difficult post-operatively, due to the irregular shape of the cornea.

Artisan advantages:

Potentially reversible.

Good quality correction of spherical or astigmatic optical defects.

No change in ease of contact lens correction post-operatively, should this is needed.

Possibility of adjustment or correction of final optical outcome by LASIK surgery (bioptics).

Artisan disadvantages:

Intraocular lens implantation carries an extremely small but unavoidable risk of introduction of infection into the eye. This is an extremely serious complication which can lead not only to loss of vision, but even to loss of the eye.

Intraocular surgery also carries the risk of damage to other structures in the eye, such as the lens, the iris, and the trabecular meshwork, giving potential complications of cataract, glaucoma, iritis, and also possible retinal complications such as cystoid macular oedema and retinal detachment.

Intraocular surgery causes some irreversible loss of corneal endothelial cells. Although the cell loss does not seem to be progressive, loss of these cells diminishes the functional reserve of the cornea, and could ultimately contribute to corneal failure due to endothelial cell depletion.

Artisan lens (cont)

Because of the close proximity of the Artisan lens to the cornea, corneal complications may possibly be more frequent than with ICL implantation, especially if there is loss of fixation of the Artisan lens to the iris.

The optical outcome may not be accurate, and can only be adjusted by replacement of the Artisan lens or additional surgery such as LASIK. The size of the corneal incision needed to introduce the Artisan lens may create or exacerbate astigmatism, and affect the quality of the optical outcome.

The quality of visual outcome may not be as good following Artisan lens implantation compared to that achieved before surgery with glasses or contact lenses. This is particularly the case in hypermetropia when the magnification factor of glasses is lost following Artisan lens implantation. The quality of vision obtained in low light conditions may be poor if the size of the dilated pupil exceeds the size of the optical portion of the Artisan lens.

Since the long term acceptability of Artisan lenses has not been established, there remains the possibility that lenses implanted in young adults now, will need to be surgically removed at some point in the future, and such further surgery would add to the risk of potential complications.

Because of the risk of complications such as glaucoma, insertion of an Artisan lens makes regular long term follow-up advisable.

The presence of the Artisan lens may be noted on close inspection of the eye. Artisan surgery is more expensive than LASIK.

Artisan Lens Surgery

The insertion of the Artisan lens is carried out with either local or general anaesthetic. In a local anaesthetic, drops are put into the eye to constrict the pupil and anaesthetise the cornea. With local peribulbar anaesthesia, an injection of local anaesthetic is made beside the eye. A 6-7mm incision is made at the edge of the cornea, and the lens is inserted into the eye and carefully clipped to the iris tissue.

When an Artisan lens has been inserted in position in front of the pupil, it can impede the flow of aqueous fluid to some extent (the front part of a normal eye (anterior segment) is filled with aqueous fluid which circulates from the ciliary body, through the pupil, to the trabecular meshwork in the angle between the iris and the cornea). To avoid problems of aqueous obstruction, a small opening (iridotomy) is created in the iris to allow some of the aqueous fluid to by-pass its normal route through the pupil.

Sutures are used to close the wound. After the operation antibiotic drops are given to help prevent infection and steroid drops to suppress inflammation. Visual recovery is rapid, with functional vision virtually straight away and stabilisation of refraction after some weeks when the sutures have been removed. The suture removal is carried out with anaesthetic eye drops during a routine post-operative clinic visit.

