

Health & Medicine

*The Refractive Revolution...Refractive Surgery 2001:***Reshaping the New Millenium**

By Dr. Laura Harris



Many people in Wilmington, nationally and internationally, have undergone the LASIK (Laser-Assisted In-Situ Keratomileusis) procedure for vision correction and to reduce

their need for spectacle correction or contact lens. This is the most frequently used method by most refractive surgeons. LASIK is only the tip of the iceberg compared to surgical options in the future, now being called the "refractive revolution." Many of the next procedures discussed are in the initial FDA approval stages, however, in the near future, these options may well become a reality. The following procedures and definitions are options to look forward to in the future:

LASIK, now in its second decade of use, is a procedure to ablate corneal tissue to reshape the curvature of the cornea to reduce the need for glasses or contact lens. This is achieved by using a sophisticated microkeratome to create a thin corneal flap, and then the laser energy ablates (removes) microns of tissue to produce improved vision.

Some of the newer procedures for vision correction in which patients should stay informed are as follows:

FEMTOSECOND (Nd:YLF) LASER KERATOME - intrastromal (in the cornea) femtosecond laser that can photodisrupt tissue to create a corneal flap incision without using a true blade incision.

PHAKIC IOLS- the word "phakic" means lens. Phakic intraocular lenses are implants placed inside the eye without removing the natural lens. Some are secured on the iris and others are secured behind the iris. These are frequently done in Europe, South America and in some parts of the United

States as well. Usually these lenses are more appropriate for high myopic and hyperopic refractions (approximately -14.00 diopters and over +6.00 diopters).

MECHANICAL CORNEAL MODELING - uses a corneal topography unit to map a 2-D picture of the 3 dimensional curvature of the cornea. Some trade name examples of this unit are Orbscan, EyeSys, or Humphreys.

WAVEFRONT ABLATION- enhancement of laser ablation patterns on the cornea by use of software-guided pictures of irregular astigmatism.

BIOPTICS- the uses of an implantable phakic lens implant, usually in a high refractive error patient, then fine tuning the prescription with enhancement by LASIK.

ADJUSTABLE LENS IMPLANTS- Cataract and phakic intraocular lens that have adjustable power once inside the eye. This is achieved by use of an external laser after the lens is in the eye.

INTRACORNEAL LENS IMPLANTS - a synthetic lens that is placed in the cornea at the time a LASIK surgery flap is made, but without the usual laser ablation.

SCLERAL EXPANSION and SCLERAL RELAXATION - will be used to reduce presbyopia (the inability to accommodate or see things close up, usually after age 40). The theory is to implant small pieces of an inert material into the sclera, the white part of the eye, to give room for the muscles inside the eye to move and focus better.

ACCOMODATING LENS IMPLANTS - a silicone lens that can change power strength by moving back and forth with contraction of the ciliary muscle in the eye that normally focuses up close. This would give distance and near vision for

patients after cataract surgery.

PTK-PHOTO-THERAPEUTIC KERATECTOMY - the therapeutic use of the laser to polish the outer surface of the cornea to eliminate scar and erosions on the cornea.

CLEAR LENS EXTRACTIONS - remove of the natural lens in cases of severe refractive error (greater than -15 diopters or + 6.00 diopters) and replacement with an intraocular permanent lens implant.

CORNEAL INTACTS - small polymethylmethacrylate (PMMA) segments that are implanted in the cornea to reduce myopia and are currently under study to help with hyperopia.

LTK- LASER THERMAL KERATECTOMY - use of a "no touch laser" to help reduce low amounts of hyperopia.

CTK - CONDUCTIVE KERATOPLASTY - use of the induction of radio frequency energy (not laser) to shrink corneal collagen. This is an alternative to LTK or LASIK for low hyperopes (+.75 - +3.00).

Dr. Laura L. Harris is Wilmington's only Corneal and Refractive Fellowship Trained Specialist. She has performed thousands of microsurgical corneal procedures, including state-of-the-art refractive, cataract and corneal transplantation surgeries. She received her residency and fellowship training in Ophthalmology from the prestigious Johns Hopkins University. She has published multiple articles and has given national lectures on the topics of refractive surgery.

