Institute of Vision & Optics

"Your Vision Our Future, Our Vision Your Future…"

Prof. I. Pallikaris

http://www.ivo.gr/en

A leader in the field of Eye Research

The Institute of Vision & Optics (IVO) is part of the University of Crete and focuses on the fields of research, training, technology development and provision of medical services.

It employs ophthalmologists, doctors, opticians and optometrists, medical photographers, nursing personnel and also scientists from the fields of physics, mathematics, chemistry, biomedical engineering, computer system technicians, laboratory chemists and administrative staff.

The close cooperation of the aforementioned specialists under the guidance of the Center Director, **Prof. I. Pallikaris**, who is the inventor of "LASIK", results in **IVO** being in the forefront of international innovation and Translational Research in the Vision field of knowledge. **IVO** is one of the few Institutes worldwide that has the ability to research, design, construct and apply in preclinical and clinical level all of its innovative results.

IVO operates on a non-profit making basis. The incomes of the institute are used to cover the expenses of research, the upgrade of its clinical equipment, as well as the technical and material infrastructure which is necessary for its activities.

Services

IVO is constantly in the forefront of global developments in the field of Ophthalmology and Vision Sciences. It offers the most recently developed diagnostic and treatment procedures worldwide with the most modern equipment:

- ✓ Refraction
- ✓ Refractive Surgery,
- ✓ Corneal Design (topography, ultrasonic pachymetry, optical tomography, confocal microscopy, specular microscopy, aberrometry)
- ✓ Corneal Microsurgery
- ✓ Glaucoma (nerve fiber analysis, confocal microscopy, dynamic contour tonometry)
- ✓ Uveo-retinal diseases (fundus photography, macular perimetry, retinal optical coherence tomography retinal)

Identity

In the Institute of Vision and Optics basic and clinical research is conducted in the field of Ophthalmology and Visual Sciences.

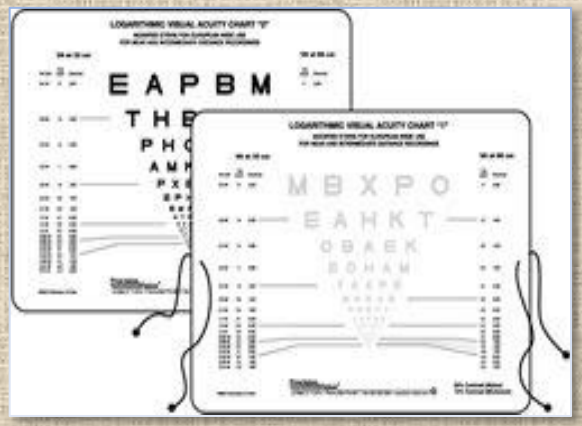
The excellence of research conducted at the **IVO** arises from the close collaboration between medical doctors and researchers from the fields of physics, mathematics and biology. Cooperation provides the ideal condition for rapid approach and thorough investigation of any topic of interest within the scope of the Institute.

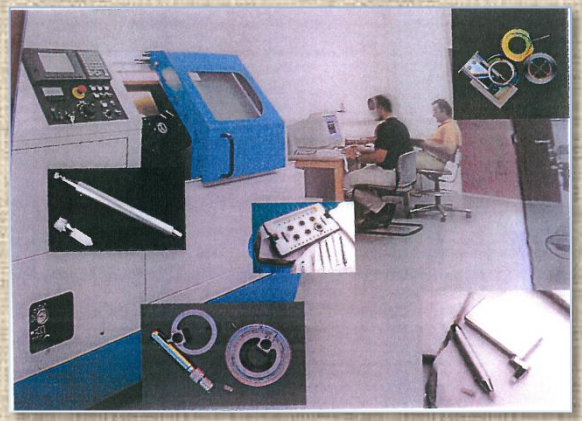
The following fields of interests can be mentioned indicatively:

- **Microsurgery**: development of new surgical techniques for the most effective treatment of eye diseases
- **Medical Imaging**: Evaluation and use of innovative imaging systems as well as development of new instruments for the imaging of ophthalmic structures with high resolution.

- **Application of Lasers in Ophthalmology**: new approaches for refractive surgery as well as photodynamic surgery for retinal diseases.
- **Bioengineering of the eye**: development of new instruments and methods for measuring mechanical properties of the wall of the eye and understanding the mechanisms that connect the mechanical properties of the eye in pathophysiology and evolution of frequent diseases such as age related macular degeneration and glaucoma.
- **Molecular, cellular and genetic basis of eye diseases**: development of new methods to evaluate the mechanisms of vision and pathologies at cellular and molecular level. Establishment of genetic databases for hereditary eye diseases.
- **Optical metrology of the eye**: evaluation of existing and development of new instruments and methods for measuring optical aberrations.
- -**Assessment, study and design of new drugs**.

One of the central departments and activities of **IVO** is also the **International Eye Training Medical Center** that supports the educational activities of the Institute such as the teaching of under and postgraduate courses related to Optics and Vision, the training of residents and fellows and the organization of educational activities such as summer schools, conferences and specialized training programs for physicians and paramedical staff.



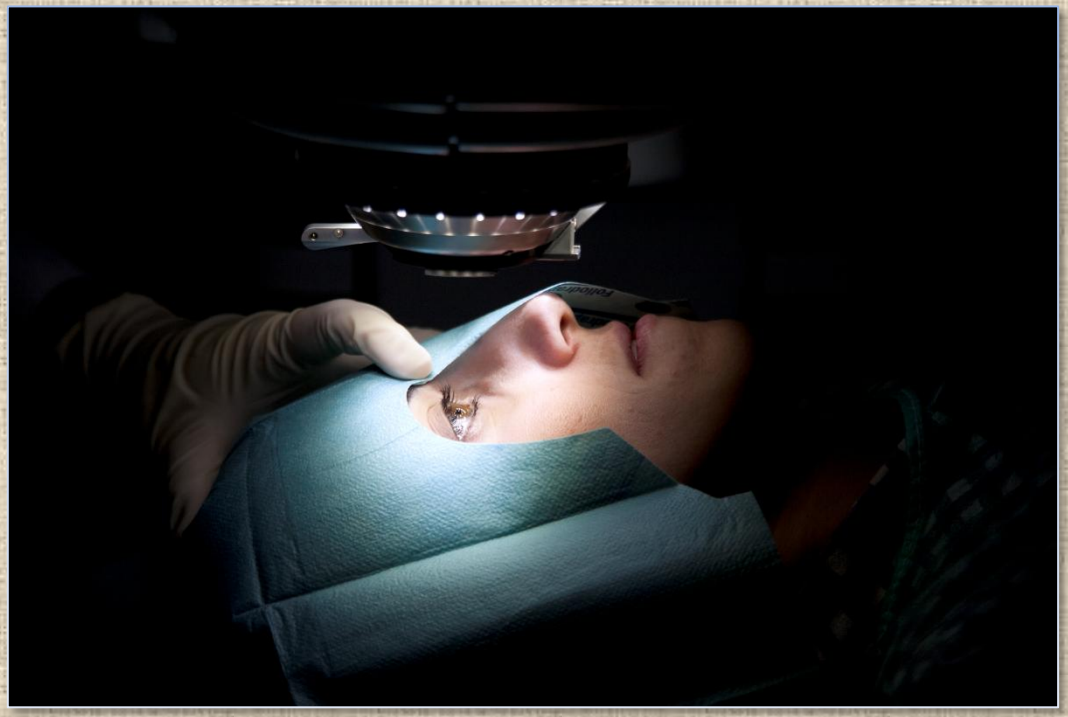


Refractive surgery

See the world clearly from the moment you wake up!

Refractive surgery refers to all the surgical techniques applied to millions of people worldwide to correct refractive errors such as myopia, hyperopia and astigmatism.

It contents all procedures that regulate the focus of the eye in order to let us see clearly without the help of glasses or contact lenses. There are many different techniques, and each is chosen to provide the best outcome in each patient personally. Thanks to technologic developments and experience, each technique is safe and able to meet the needs of the patient.



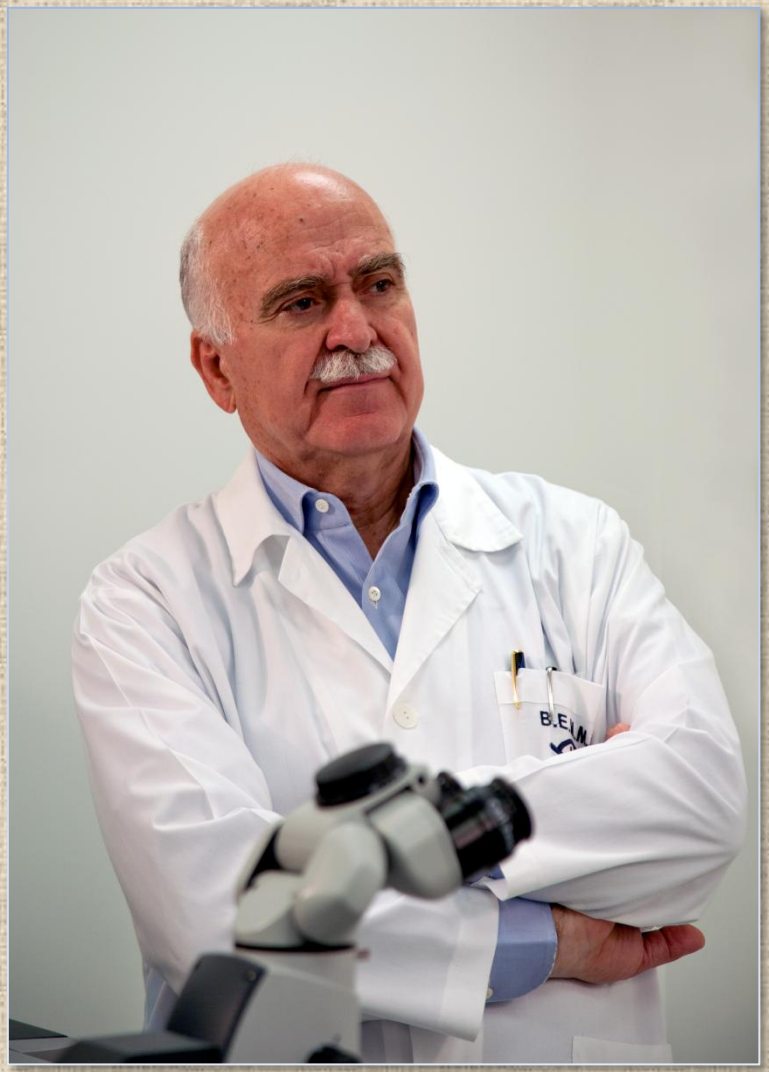
The main goal of refractive surgery is to change corneal curvature by sculpting the surface using a laser beam. The outcome is the light to focus on the retina for clear vision without glasses.

For patients that are not able to receive laser treatment, an intraocular lens implantation is a possible option. These procedures are intraocular instead of the surface procedures and have similar results.

LASIK - Femtosecond LASIK

Conventional method (LASIK):

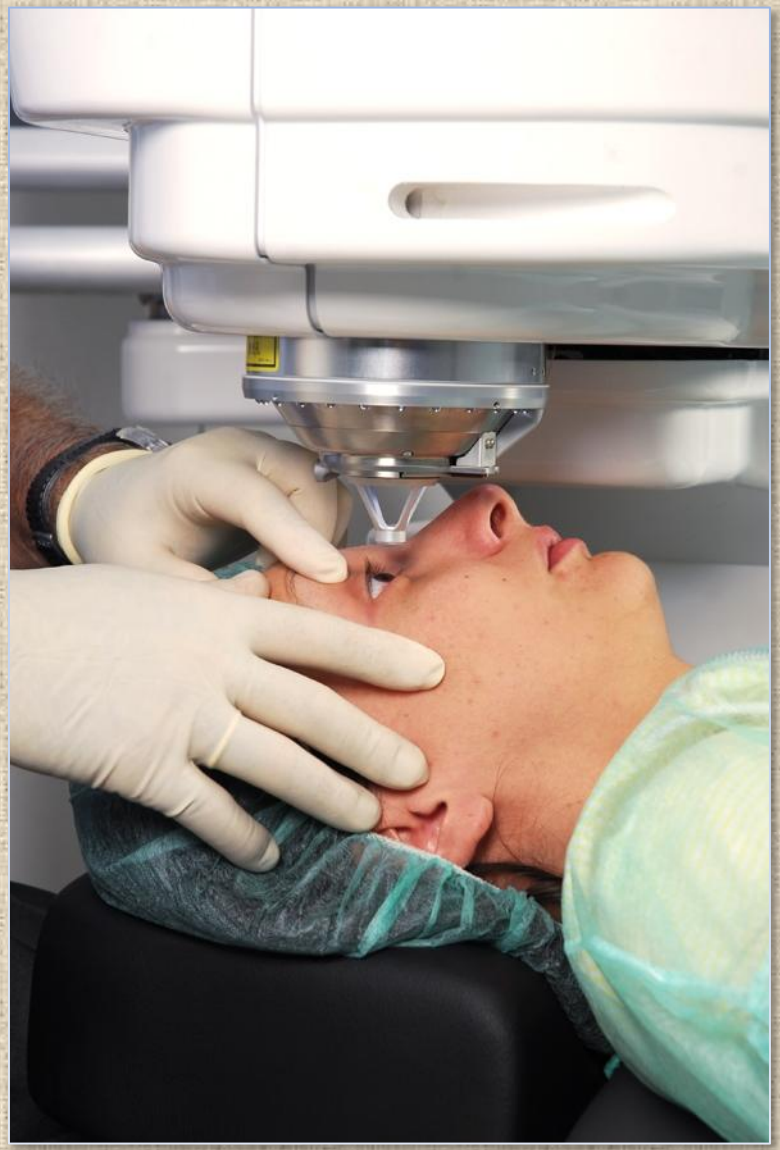
In this method, the correction of myopia is not conducted in the surface of the cornea but under a thin surface layer (flap) created with a special tool. Initially, the surgeon places the tool for the separation of the flap which remains attached with the cornea in its upper side, and after the flap lift, the laser beam corrects the refractive error by changing the curvature of the cornea. Afterwards, the surgeon places back the flap in its position. The duration of this procedure is a few minutes for each eye and it is painless due to the use of anesthetic drops. **This method was invented 20 years ago by professor Ioannis Pallikaris in the University of Crete and today is the most popular refractive operation in the world.**



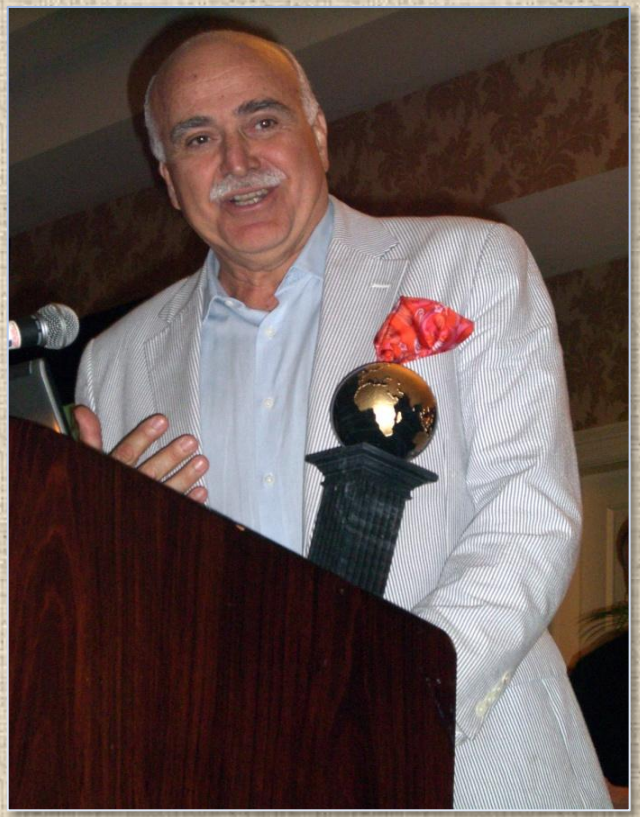
Femtosecond LASIK: the most modern method of refractive correction exclusively with Femtosecond laser use.

Our Institute, uses the latest technology for the creation of the surface petal (flap) for LASIK.

The laser we use replaces the use of the mechanical microkeratome for the creation of the flap. One of the advantages of this laser is the precision of the incision with characteristics and dimensions that the surgeon selects, depending on the particular anatomy of each patients' eye. Subsequently the surgeon uses a laser beam to change the curvature of cornea as in the conventional LASIK and to correct the refractive error of the eye. The rehabilitation of the visual acuity is immediate, hence the patients can see clearly after surgery. The procedure lasts a few minutes for each eye and it is conducted under local anesthesia.



Professor I. Pallikaris has been awarded numerous times for his contribution in Ophthalmology worldwide (eg. Barraquer prize) and holds the title of being the “Father of LASIK”.



Social Activity

Our Institute provides health services of high quality ranging from primary care to specialized tertiary care facilities.

The mobile ophthalmological unit of IVO through the monthly voluntary actions of the University of the Mountains, frequently visits remote areas of Crete and the Aegean islands and offers free of charge complete ophthalmological exams to all residents.

In these areas there is no opportunity for routine medical monitoring. This social contribution of our Institute has received warm response from the local society, since in many cases eye diseases have been early diagnosed and treated and serious complications have been prevented.

The mobile unit is also a very useful tool for conducting epidemiological trials.

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