

# SHOULD ALL CATARACT PATIENTS HAVE MULTIFOCAL IMPLANTS??



## CHOOSING THE RIGHT LENS OPTION FOR YOU.

*ONLY* at the  
**Mehta International Eye Institute**  
Asia's Most Advanced Eye Centre

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# MULTIFOCAL IOL

- ✘ Until recently cataract patients received monofocal lens implants that had only a single power. This meant you had a choice of correction for either far or near vision. This meant that people over the age of 50 would still need glasses for either reading or for distance vision.
- ✘ The multifocal IOL lens can increase your chances for a life free of dependence on glasses or contacts after cataract surgery for near, far, and intermediate vision.
- ✘ Especially for driving, it makes a world of difference as you can see near the dashboard of your car and also distance simultaneously.
- ✘ All multifocal lenses are a “marriage of convenience”, a very successful marriage of near and distance with a compromise of seeing rings around the bright light sources at night and a slight blur around the sharp edges of objects .

Monofocal lens

Multifocal lens



Simultaneous Far and Near Vision



Far, Near and Intermediate Vision



Far, Near, Intermediate and Very Near Vision



# WHAT ARE THE DIFFERENT TYPES OF MULTIFOCAL IMPLANTS

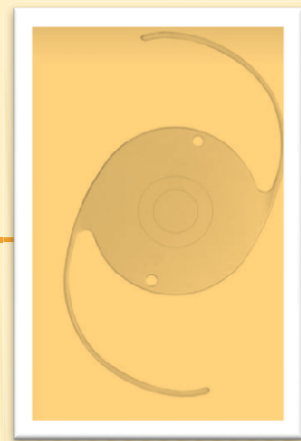
Multifocal implants fall into three clear groups:

## 1. Three Zone Multifocal Implants:

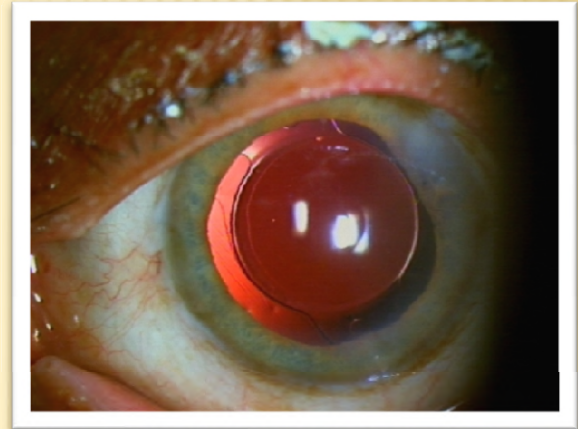
Very economical and just marginally costlier than monofocal lenses, have only a three rings with power, usually near, intermediate and distance, which falls short of giving good vision and essentially are a compromise based on price. The advantages are that with the lesser number of Optical Zones, the IOL works even in case of less dilation of the pupil. There is also a lower chance of haloes in night as there is less scattering of light.

## 2. Five Zone Multifocal Implants:

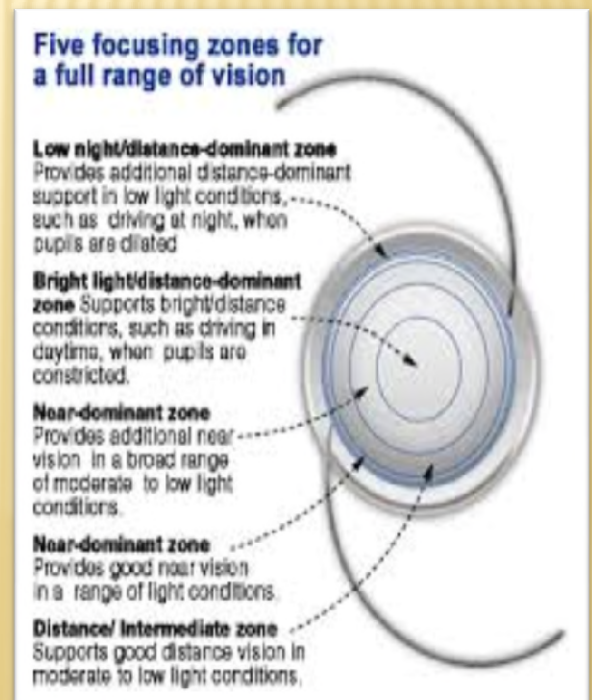
These have alternate near and distance, and use complex geometrical curves based on refraction to attain the best distance, near and intermediate range. In this group we have the Rayners M-Flex (British) IOL, and the AMO ReZoom (American) implants.



3 Zone Preziol Lens

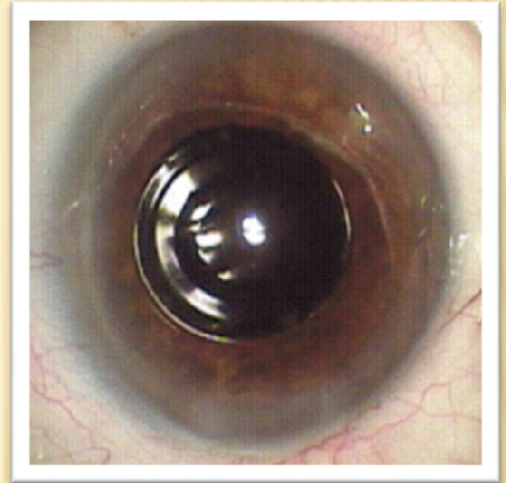


Lens In Eye



# FIVE ZONE MULTIFOCAL IOLS

- ✖ The Five Zone Multifocal Implants work well with patients with plus powers, and for those who value their distant vision, especially those who drive at night and in the day time. They are also good for near vision, but do not function well in the intermediate zone and are hence they are not recommended for computer operators, librarians, architects, etc.
- ✖ The central zone is for distance. The next four zones alternate near and distance vision. The edges of the zones are blended, which creates a small quantum of intermediate vision also.



5 Zone Rayner Lens in Eye



Rayner in Eye



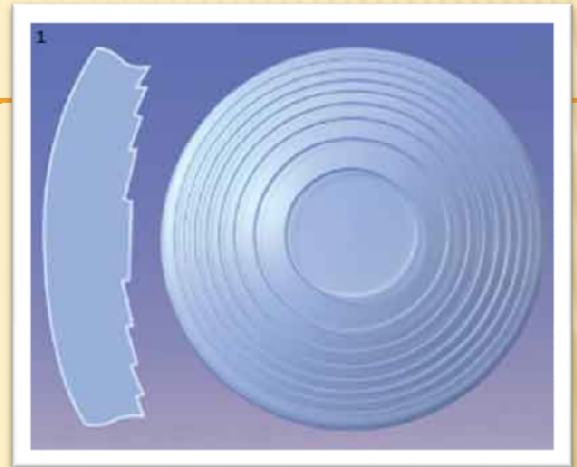
ReZoom Lens



# DIFFRACTIVE MULTIFOCAL IMPLANTS

- 3) Diffractive multi-zonal implants use a combination of diffraction and refraction. Diffraction is easy to understand. A diffractive lens consists of a series of radial rings or "zones" of decreasing width. The structure focuses light because rays hitting the outer zones of the lens are deviated more than rays hitting in the centre. Light of different wavelengths will be deviated by different amounts so it works as a multifocal implant.

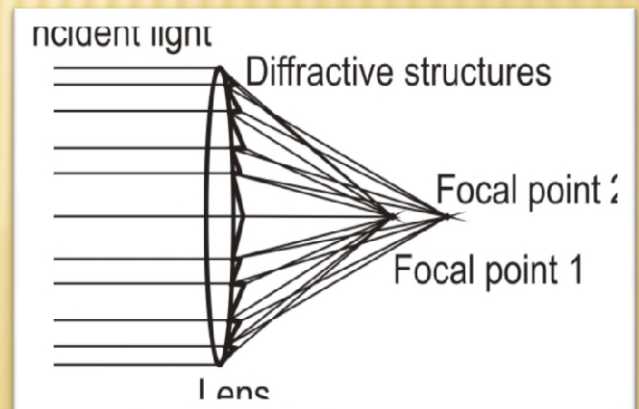
- ✖ In this category there are three popular implants the AcryLISA made in Europe, the Alcon ReSTOR (American) and the Tecnis Multifocal IOL.



Diffractive Rings on the Lens



Tecnis IOL

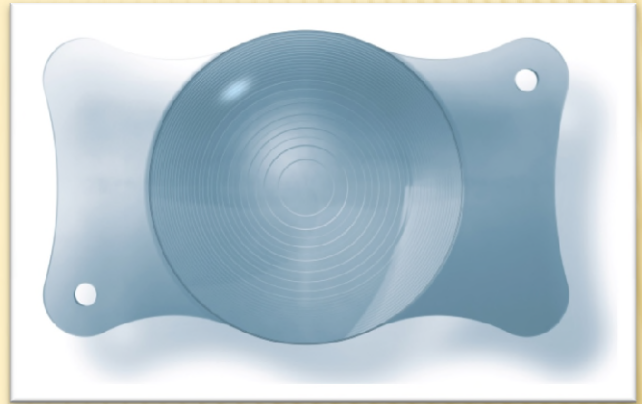


Functioning of Refractive Focuses.

Note: Double Focus

# DIFFRACTIVE TYPE OF MULTIFOCAL IOL'S

- ✖ The diffractive type of lenses is ideal for patients with smaller or larger pupils, or if the patient frequently drives at night. They are more likely to satisfy the reading expectations of myopes, who tend to read fairly close without glasses and are unaccustomed to having good uncorrected intermediate vision.
- ✖ Since, in a diffractive multifocal, dependence on the pupil size is limited, even in the presence of relatively small pupils, this IOL provides excellent near vision. This significantly reduces the severity of night time halos, compared with the five zone multifocal IOL.



**Zeiss Multifocal IOL**



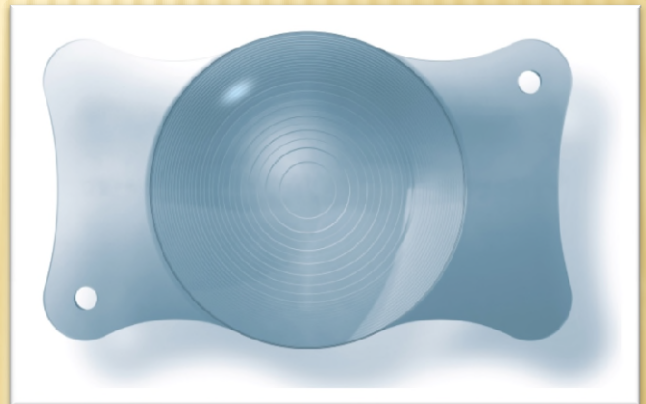
**Zeiss Toric Lens Can Also Correct Astigmatism**

# TRIFOCAL MULTIFOCAL LENSES

- ✗ The erroneously labelled "Multifocal Lenses" are actually Bifocal lenses providing distance and near but no intermediate vision.
- ✗ Trifocal lenses have exactly what the word means, 3 points of focus including intermediate vision which is vital for using computers, seeing the dashboard on the car and using a mobile phone or iPad at a comfortable distance. Please be aware not all providers use the same lenses.
- ✗ TWO Trifocal lenses are available in the market - FINEvision by Physiol available since January 2011 and AT-LISA Trifocal by Zeiss available since July 2012. Both lenses work on similar principles.



PureVision Trifocal



Zeiss AcriTri Trifocal



# TRIFOCALS REDEFINE THE QUALITY OF VISION

- ✘ Today patients wish to enjoy life in all its dimensions and expect surgery to provide them with vision quality that they enjoyed before presbyopia. They want to lead an active life without being troubled by glasses.
- ✘ Since computer usage is now mandatory for a functional lifestyle, superior intermediate vision is mandatory. For a desk job worker using a mainframe computer is often very important which becomes difficult with the older bifocal.
- ✘ Especially for a chartered accountant, a stock broker, a librarian, an architect or even a pilot, the difference the Trifocal makes is very significant.
- ✘ Interestingly, Trifocal lenses have less haloes, better quality especially at night which increases patient satisfaction.



**Trifocal enables all distances to be visible for the Architect, Librarian, Chartered Accountant & Pilot**



# HOW SOON WILL I ADAPT TO MULTIFOCAL IMPLANTS

- ✖ Sometimes patients complaints of overlapping images, reduced contrast sensitivity and halos and occasionally, a waxy vision.
- ✖ With a multifocal implant there is a simultaneous projection of different images on the retina — one that is focused on distance and one focused on near or intermediate, the brain requires a period of adjustment known as neuroadaptation. It involves suppressing near vision when gazing at distant objects and restricting distance vision when focusing up close and involves the brain learning to use these different images.
- ✖ As a general rule, younger patients tend to adapt more quickly to alterations in their visual systems. The older you are, the longer it's going to take, Neuroadaptation can take several weeks to 12 months to occur. But rest assured, finally, the brain adapts to the vision very successfully.
- ✖ Several recent studies have shown that playing active games involving moving objects like table tennis, and even carrom, have the ability to help patients improve adaptation. Playing video games has shown to rapidly permit adaptation and is the preferred method internationally.



Playing Carrom



Playing Table Tennis



Playing Video Game



# Mehta International Eye Institute

## Knowing Prof. Dr. Keiki R. Mehta



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D.O. (London), F.N.E.R.F(U.S.A.)F.R.S.H. (London), F.I.O.S.(U.S.A.)**  
Chief Surgical & Medical Director, Mehta International Eye Institute  
Awarded **PADMASHREE** by the President of India in 2008 for  
Exemplary Surgical Skills and his outstanding Achievements and  
Research in Ophthalmology

- Prof. Dr. Keiki R. Mehta is India's foremost Consultant Ophthalmic Surgeon, and is The Surgical Chief & Medical Director of The Mehta International Eye Institute, Colaba, Mumbai, considered to be Asia's most advanced and foremost Ophthalmic Institute, and specializes in Cataract, LASIK, Glaucoma, Squint, Lazy Eyes, Keratoconus, Retinal surgeries and treatment. An outstanding researcher and clinician, he has extensive experience of Excimer Laser, PRK and LASIK techniques which he has done on over 11000 patients over the last 15 years.
- Received the "ASCRS Honored Guest Award", the highest recognition award by the American Society of Cataract and Refractive Surgeons, (ASCRS), the world's largest ophthalmic society, at the ASCRS Annual Symposium held in Boston, USA this April, 2014 by the President of the Society, Prof. Dr. Eric Donnenfield.
- Awarded the Antonio SCARPA Medal and Oration of the Italian Ophthalmic Society, which is the highest honor given by the Italian Ophthalmic Society for outstanding Work, Research, Outstanding Surgical Skills in Ophthalmology by the President of the Society, Prof. Matteo Piovella in Milan, Italy, May 2014.
- He has been honored by the Swiss Eye Research Foundation, by the President of the Swiss Ophthalmic Society, Prof. Bojan Pajic at the recently concluded Congress EyeAdvance Focus conference, June 2014.
- He is the only Indian to be elected a Member of the Legion d' Honor of the Instituto Barraquer, Barcelona, Spain
- Prof. Dr. Keiki Mehta is the only distinguished Indian Ophthalmic surgeon to be ever invited to Operate Live at Video Cataracta in Milan, Italy, where only the best of the best are invited, at Europe's biggest Live Surgery Conference
- Prof. Dr. Keiki R. Mehta is considered India's foremost Ophthalmic surgeon, and has conducted Live Surgical workshops in every major city in India, and has trained thousands of doctors in Intraocular implant surgery and Phacoemulsification and Laser refractive surgery including Lasik

.... P. T. O.



# Mehta International Eye Institute

## Knowing Prof. Dr. Keiki R. Mehta



Prof. Keiki Mehta receives the Grand Honors award from the ASCRS in Boston at the hands of the President Prof. Eric Donnenfield



Prof. Keiki Mehta presented the Prestigious Antonio Scarpa Medal in Italy.



Prof. Keiki Mehta receives Leading International Ophthalmological Award from Swiss Eye Research Foundation Award

- The American Implant Society awarded him its Appreciation Award, at San Francisco for pioneering Soft Intraocular implants for the first time in the world. He has received Grand Honors Award from the National Eye Research Foundation, Chicago, USA, the only Indian to be ever awarded. Presented the prestigious Lim International Award from the Asia Pacific Intraocular Implant Association for outstanding work in Ophthalmology in the Asia Pacific Region, the only India to be presented this award. Awarded the Triple Ribbon Award of the American Society for Cataract and Refractive Surgery, USA, for Outstanding Research presentations in Ophthalmology. Presented the Outstanding Recognition Award by International Council of Cataract Surgeons for Outstanding Research & Development in Cataract Surgery, award presented at Barcelona, Spain. Presented advanced research papers on Lasik Internationally and won the Outstanding Presentation Award at San Diego, USA
- He is the winner of 11 Gold Medals in India, having received virtually all the Honors possible, has been the President of the All India Ophthalmologists Association and President of the Intraocular Implant and Refractive Society among many others. Chairman and Organizing Secretary of the very successful Eye Advance Congresses for the last 18 years 1996- 2014. These have now reached an iconic status and are recognized worldwide.
- He is Honorary Visiting Professor at ONO Eye Hospital in Geneva, Switzerland and St. Luke's Institute, Texas, USA
- He is the Consultant Ophthalmic Surgeon to the Governor of Maharashtra, to the Armed Forces, Government of India and to the Maharashtra Police.



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