



UPDATE ON PRESBYOPIA-CORRECTING IOLS

FRANCESCO CARONES, MD
MEDICAL DIRECTOR AND PHYSICIAN CEO
CARONES VISION, MILAN, ITALY



FINANCIAL DISCLOSURES

Francesco Carones, MD consults for the following companies:

- **Alcon Laboratories (relevant to this presentation)**
- **CSO (relevant to this presentation)**
- **Johnson & Johnson Vision (relevant to this presentation)**
- Slack (not relevant to this presentation)
- Vivior (not relevant to this presentation)
- WaveLight (not relevant to this presentation)



MONOFOCAL, MULTIFOCAL, BIFOCAL, TRIFOCAL, ETC. WHAT IS ALL OF THIS?

- For lenses, focality (focus, focal length, focal point) is the distance between the lens and the point where the light is focused
- Simple lenses have one focus, i.e., they are monofocal



WHAT IS A MULTIFOCAL LENS?

Any lens providing more than one focal point

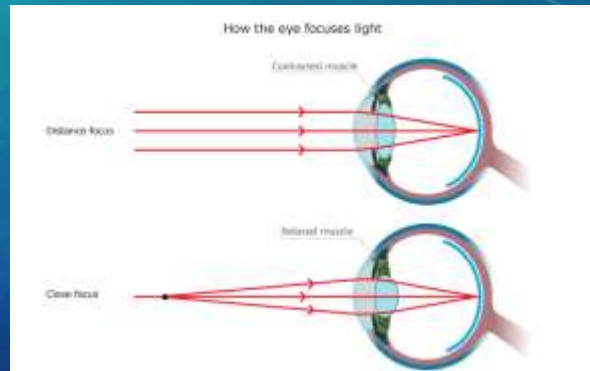
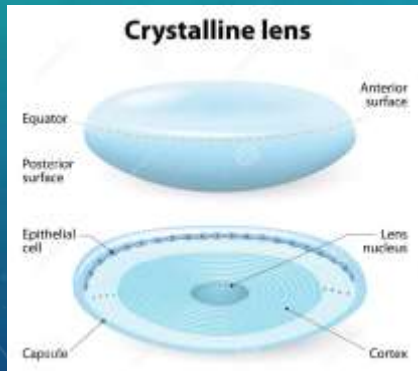
- Static or Dynamic





WHAT IS A MULTIFOCAL LENS?

Any lens providing more than one focal point



WHAT ARE MULTIFOCAL IOLS?

Any IOL providing more than one focal point

- Static multifocal IOLs
 - Bifocal (**Alcon ReSTOR**, Oculentis MPlus, **J&JV MF**)
 - Trifocal (**Zeiss AT LISA Tri**, **PhysIOL FineVision**, **Alcon PanOptix**)
 - Extended Depth Of Focus (**J&JV Symphony**, **SiFi MiniWell**, **Zeiss AT Lara**)
- Dynamic multifocal IOLs
 - Accommodative (**Bausch + Lomb Crystalens**)



MULTIFOCAL IOLS

Multifocality thanks to optics

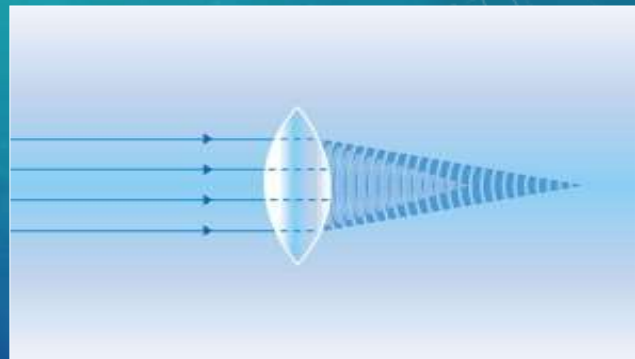
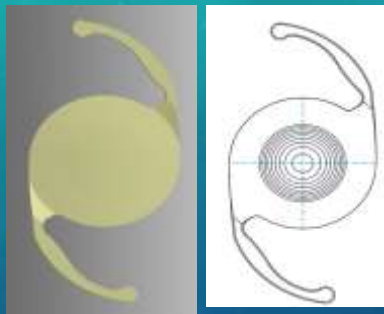
- Zonal Refractive (Mplus, MiniWell)
- Diffractive (At Lisa Tri, Panoptix, ReSTOR, FineVision,...)
- Diffractive Echelette (Symfony)

Multifocality thanks to movement in the eye

- True accommodative



DIFFRACTIVE MULTIFOCAL IOLS



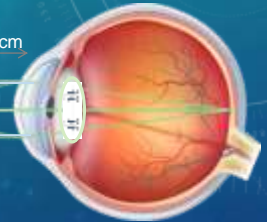
- Small optical discontinuities (steps) simultaneously create more than one focal point independent of pupil size

DIFFRACTIVE MF TECHNOLOGY PRINCIPLES



- **Traditional bifocal IOLs (ReSTOR):**
- 1 step height = 1 add power

Step 1: 40 cm

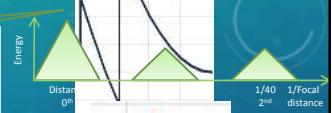


DIFFRACTIVE TECHNOLOGY COMPARISON



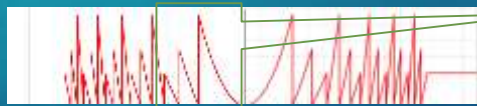
Traditional Trifocal:

- 2 step heights = 2 add powers
- Intermediate focal point of 80 cm to maintain usable near vision



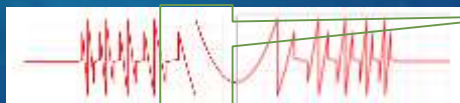
Quadrifocal Technology:

- 3 step heights = 3 add powers
- Energy evenly distributed among Distance, 120 cm, 60 cm and 40 cm



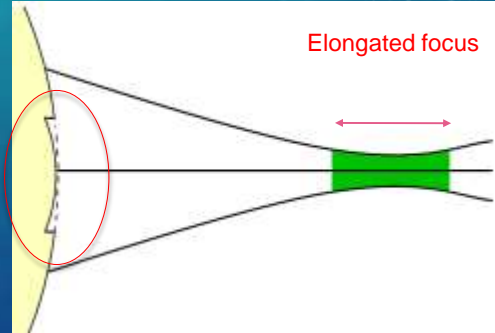
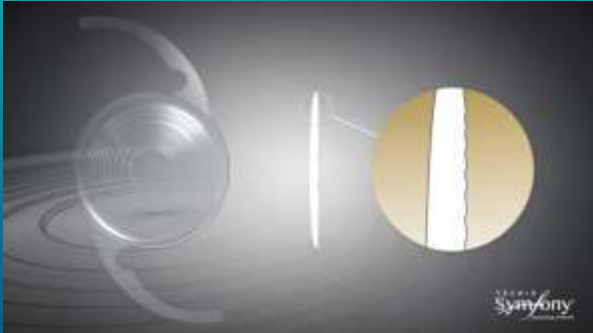
ENLIGHTEN™ Optical Technology:

- 2 step heights = 2 add powers
- Redirects light from the 1st step height (120 cm) to Distance
- Light splits three ways: Distance, 60 cm, and 40 cm





DIFFRACTIVE ECHELETTE EDFOF IOL



DIFFRACTIVE TECHNOLOGY COMPARISON



Monofocal IOL



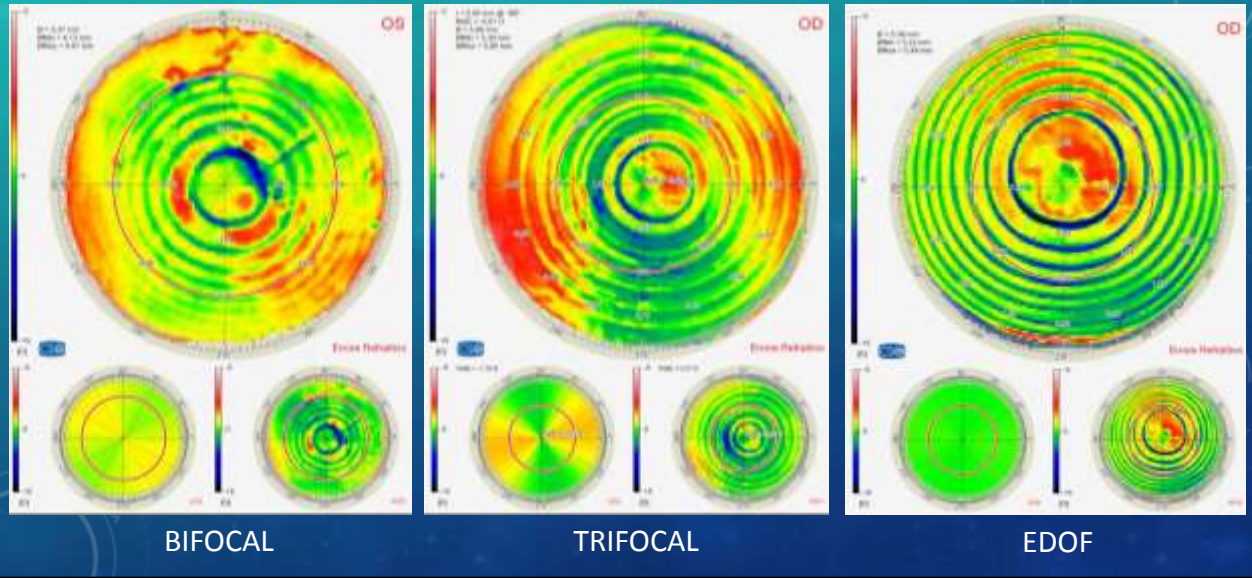
Multifocal IOL



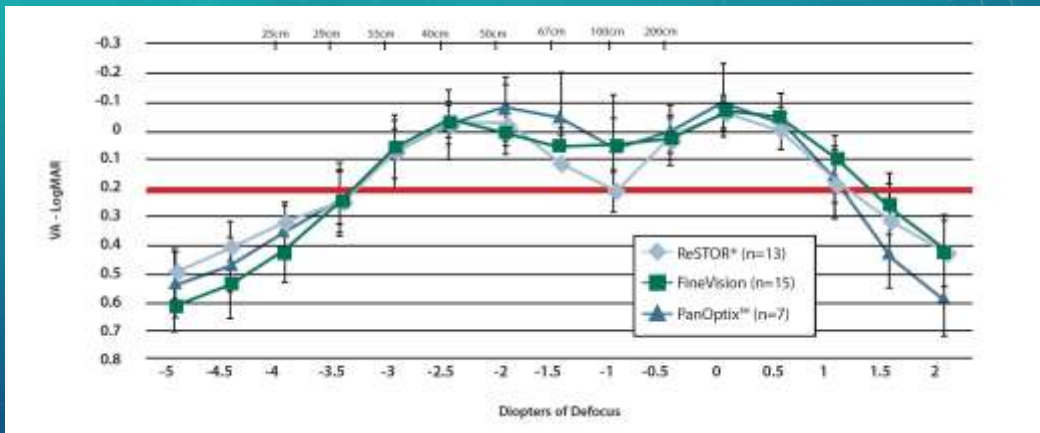
TECNIS® Symphony IOL



DIFFRACTIVE TECHNOLOGY COMPARISON



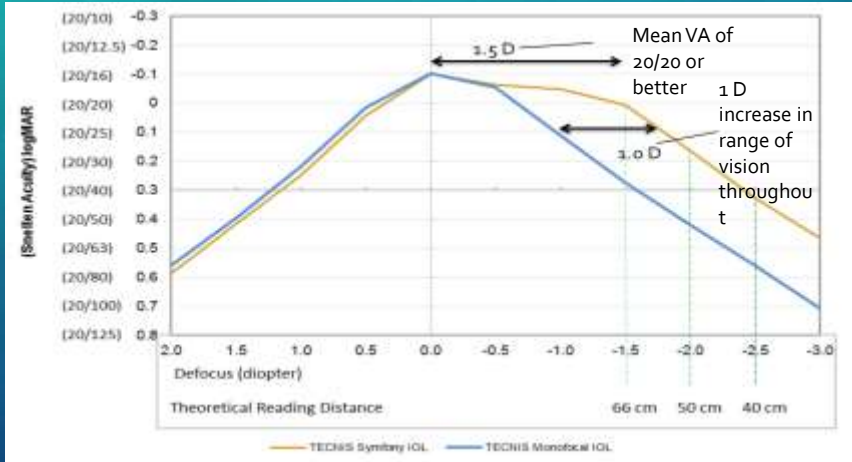
DEFOCUS CURVE – BI AND TRIFOCAL IOLS



Source: R Nuijts, Spotlight Supplement to Ocular Surgery News Europe Edition, Jan 2016



DEFOCUS CURVE – EDOF IOL

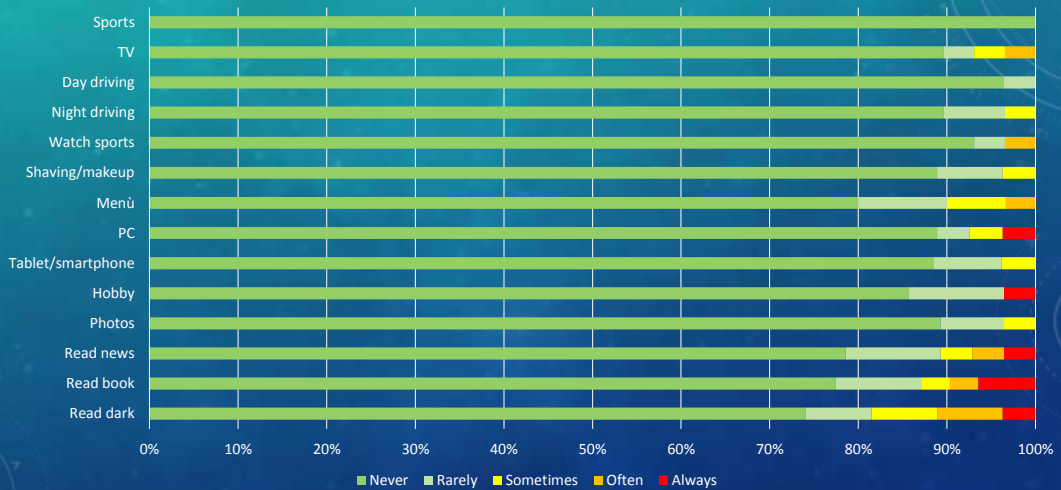


Source: Abbott Medical Optics, data on file



SPECTACLE INDEPENDENCE - TRIFOCALS

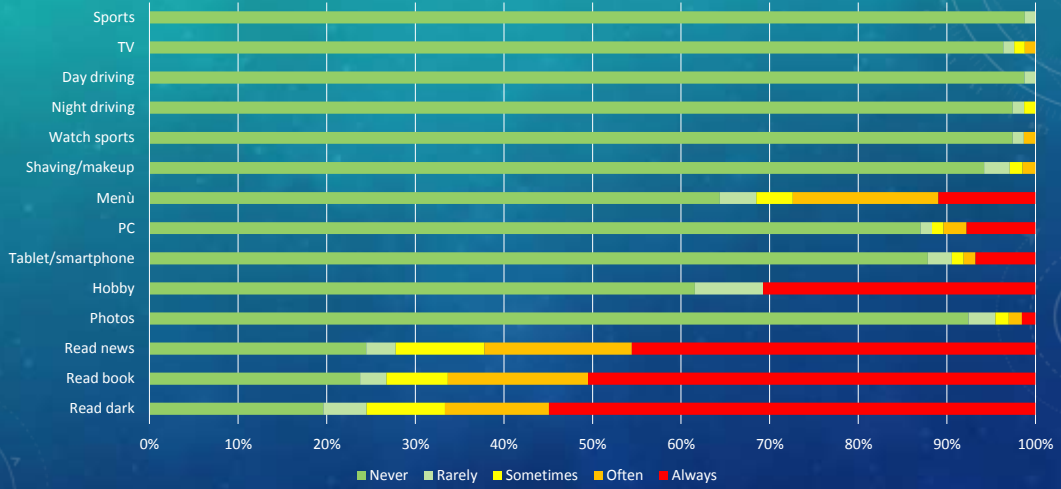
How Often do you use spectacles or contact lenses?





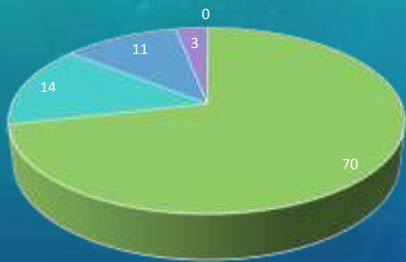
SPECTACLE INDEPENDENCE - EDOF

How Often do you use spectacles or contact lenses?



SPECTACLE INDEPENDENCE FOR READING

How often do you use glasses?



Legend: Never, Occasionally, Sometimes, Often, Always

Trifocal

How often do you use glasses?



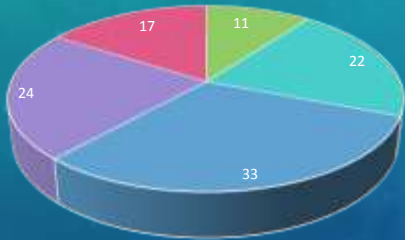
Legend: Never, Occasionally, Sometimes, Often, Always

EDOF



QUALITY OF VISION

Haloes & Night Vision Problems?



Legend: Never, Occasionally, Sometimes, Often, Always

Trifocal

Haloes & Night Vision Problems?

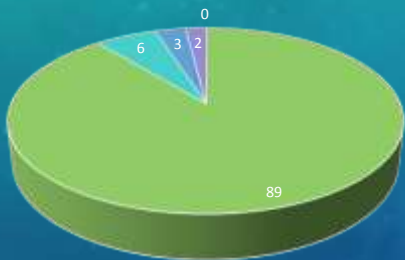


Legend: Never, Occasionally, Sometimes, Often, Always

EDOF

PATIENT SATISFACTION

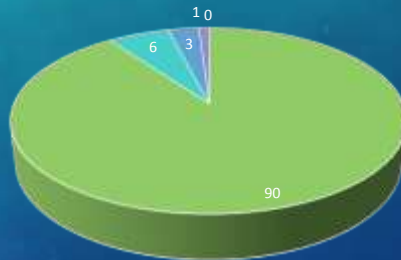
Happy with the Results?



Legend: Completely, Almost, Partially, Not really, Not at all

Trifocal

Happy with the Results?



Legend: Completely, Almost, Partially, Not really, Not at all

EDOF





PRESBYOPIA-CORRECTING IOLS – CONCLUSIONS

There is not a single IOL to fit all patients

- Disclose and help the patient fully understand the **compromise** involved with presbyopia-correcting IOLs
- Give a clear and realistic **expectation** regarding the level of spectacle independence the IOLs are going to provide
- **Choose the IOL type that best matches patient's expectation and compromise**



THANK YOU!

THANK YOU!