

Omega 3s and Prostatic Cancer ?

- Brasky et al. Plasma Phospholipid Fatty Acids and Prostate Cancer Risk in the SELECT Trial.
 - Journal of the National Cancer Institute
- Higher plasma levels of DHA & EPA associated with higher rate of prostate cancer

Omega 3s and Prostate Cancer

- Study measured plasma levels
 - Plasma levels fluctuate wildly depending on immediate intake
 - Red blood cell levels - medium term intake
- EPA + DEA Plasma levels between the two groups:
 - 4.48% no-cancer group
 - 4.66% in total cancer group
- 4.66% in low grade CA
- 4.71% in high grade CA

Omega 3s & Prostate Cancer

More studies that demonstrate a REDUCTION in Prostate CA with Omega 3

- Brasky TM, Schatz M, Neeroti S, Lopez SW, Peters U, Farnsworth RL, White E. Specialty supplements and prostate cancer risk in the VITamins and Lifestyle (VITAL) cohort. *Men Cancer* 2014;16(5):573-82.
- Supremakki EM, Wheeler DC, Mucci LA. Fish consumption and prostate cancer risk: a review and meta-analysis. *Am J Clin Nutr* 2012;95(2):323-33.
- Terry R, Ishikawa K, Probsting M, Wilborn A, Webb A. Fatty fish consumption and risk of prostate cancer. *Lancet* 2011;377(9744):6.
- Leiferman ME, Scarpello M, Michaud DS, Aggarwal N, Cabot MC, Willett WC, Giovannucci EL. Dietary intake of n-3 and n-6 fatty acids and the risk of prostate cancer. *Am J Clin Nutr* 2004;80(2):204-16.
- Mina H, Edwards L, Johnson KC. An inverse association between per capita fish and prostate cancer: results from a population-based case-control study in Canada. *Men Cancer* 2008;10(2):211-6.
- Kippen MS, Kasperk SA, McNeill G, Giovannucci EL, Peto A, Willet A, Hakansson N, Park A, Andersson SO, Anderson H. Dietary fatty acid intake and prostate cancer survival in Oxfordshire, Sweden. *Ann Epidemiol* 2011;21(7):483-53.
- Haidich V, Chang L, Liang G, Wei H, J. Dietary omega-3 fatty acids, cyclooxygenase-2 genetic variation, and aggressive prostate cancer risk. *Clin Cancer Res* 2009;15(20):6346. See review at: <http://www.ajph.org/perspectives/omega-3-fatty-acids-and-risk-for-prostate-cancer>

Omega 3 and Prostatic Cancer

Independent reviewers

Dr Gerald Chodak Urologist
The bottom line is that we cannot determine from this study design whether the intake of omega-3 fatty acids will cause prostate cancer and raise a man's risk for high-grade disease

Dr D'Amico Urologist
"The thing that concerns me the most is that you can find almost anything associated with aggressive prostate cancer. You can find that driving a Cadillac [could be linked to it] ... if you don't adjust for the factors that are known to be associated with it, and you know, from a truly scientific standpoint that's what makes this association extremely weak and possibly false."

PRN – Omega 3

- Good for Patients with Dry eye
- Good for Ophthalmologists

Laser Refractive Update

Laser Ablation Profiles

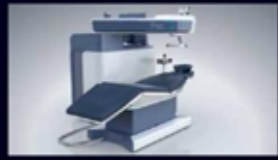
Marcela Espinosa MD



'Dry Eye - Our approach...' (slides 41-47)

Sheraz Daya MD FACP FRCS(Ed) FRCOphth

Laser Ablation Profiles



MARCELA M. ESPINOSA-LAGANA, MD



The Excimer Laser

- "Excited Dimer" – Argon-Fluoride
- 193nm wavelength
- Vaporizes tissue
 - No / minimal thermal reaction
 - Minimal wound healing response
- Cornea "Sculpting"



SIMPLE MYOPIA



EXCIMER LASER ABLATION PROFILES

SINGLE ZONE MYOPIC ABLATION

SPHERIC
 Central Ablation Depth = $\frac{D \times \text{mm}^2}{3}$

D = Diopters of Myopia
mm² = Ablation zone diameter



EXCIMER LASER ABLATION PROFILES

NON REFRACTIVE EFFECT
effect Phototherapeutic effect

REFRACTIVE EFFECT Myopic
Hyperopic
Astigmatic
Presbyopic



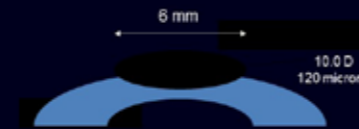
EXCIMER LASER ABLATION PROFILES

NON REFRACTIVE PHOTOTHERAPEUTIC KERATECTOMY (PTK)

A uniform amount of tissue is ablated without intended refractive change



SINGLE ZONE



EXCIMER LASER ABLATION PROFILES

HYPEROPIC ABLATION

Minimal amount of tissue is removed centrally, and progressively more stroma is ablated towards the periphery so that the central cornea is steepened



PHOTOTHERAPEUTIC KERATECTOMY



EXCIMER LASER ABLATION PROFILES

PHOTOTHERAPEUTIC KERATECTOMY

- Recurrent Erosions
- Bullous Keratopathy
- Band Keratopathy
- Nodular Scarring in Keratoconus
- Corneal dystrophies
- Scars



EXCIMER LASER ABLATION PROFILES

HYPEROPIC ABLATION

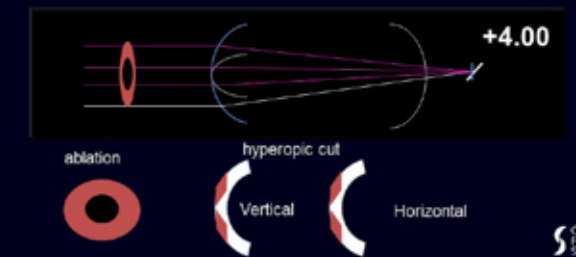
COMPONENTS

- ABLATION -mid periphery
- TWO BLEND ZONES - inner and outer

Hence: Large zones are required (8mm or greater)



HYPEROPIA



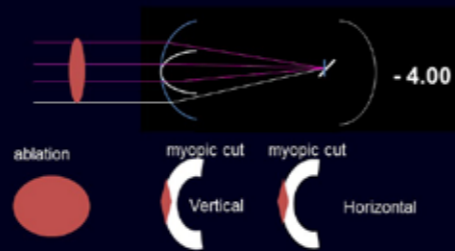
EXCIMER LASER ABLATION PROFILES

MYOPIC ABLATION

Greatest amount of tissue is removed centrally and progressively less removed toward the periphery



MYOPIA



SIMPLE HYPEROPIA



EXCIMER LASER ABLATION PROFILES

ASTIGMATIC

- Compound Myopic Astigmatism
- Simple Myopic Astigmatism
- Mixed Astigmatism
- Simple Hyperopic Astigmatism
- Compound Hyperopic Astigmatism



'Laser Ablation Profiles'

(slides 1-16)

Marcela Espinosa MD



CYLINDER

VERTICAL cylinder acts in HORIZONTAL PLANE

CENTRE FOR SIGHT

EXCIMER LASER ABLATION PROFILES

ASTIGMATIC

EACH meridian is ablated differently
 STEEP meridian is selectively FLATTENED
 or
 FLAT meridian is selectively STEEPENED

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MYOPIC ASTIGMATISM

ELLIPTICAL ABLATIONS

CENTRE FOR SIGHT

SIMPLE Myopic Astigmatism

CENTRE FOR SIGHT

SIMPLE Myopic Astigmatism

CENTRE FOR SIGHT

COMPOUND Myopic Astigmatism

CENTRE FOR SIGHT

COMPOUND Myopic Astigmatism

CENTRE FOR SIGHT

SIMPLE Hyperopic Astigmatism

TOO FLAT

CENTRE FOR SIGHT

SIMPLE Hyperopic Astigmatism

CENTRE FOR SIGHT

COMPOUND Hyperopic Astigmatism

CENTRE FOR SIGHT

COMPOUND Hyperopic Astigmatism

CENTRE FOR SIGHT

MIXED Astigmatism

CENTRE FOR SIGHT

MIXED ASTIGMATISM

CENTRE FOR SIGHT

Wavefront treatment

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What is a WAVEFRONT ?

Ideal Optical System focuses incoming rays with a plane wavefront ...

Flat wavefront ... to one point.

CENTRE FOR SIGHT

Wavefront - Perfect Optical System

Outgoing light rays from a focal point have again ...

... a plane wavefront.

CENTRE FOR SIGHT

'Laser Ablation Profiles'

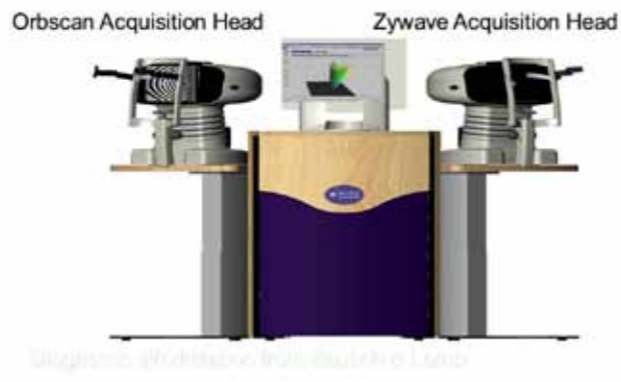
(slides 17-32)

Marcela Espinosa MD

Wavefront - Not perfect Optical system

Outgoing light rays from a system with Aberrations have ...

... a deformed wavefront.



PATIENT ACQUISITION
Automated Scanning Range
Multiple Exams
Averaged Data

ZERNIKE REPORTING
over 6 mm pupil size
against normal band

WAVEFRONT

Wavefront guided Ablation

ABLATION & SHAPE

- ABLATIVE TECHNIQUES
 - Irreversible
 - Can be unforgiving
- Topography & Aberrometry – ESSENTIAL
- GOOD UNDERSTANDING - VITAL

3-D IRIS RECOGNITION TRACKER

- ROTATIONAL TRACKING

Patient at Slit Lamp
Horizontal marking aligned with slit

Patient under operating microscope
Cyclotorsion 16° (away from retractor)

Patient under operating microscope
Correction of axis realigned with FS Key LED

Iris Recognition Eyetracker

Adapted for medical use from military technology utilised for high level security control

1 out of 3,493,224 or
1 out of 3,493,000,000,000,000,000,000,000

Aspheric treatment

Prolate Corneas

- All predators including humans have Prolate corneas

Eagles versus Frogs

- What is "PROLATE"???

Prolate Oblate

Oblate corneas

- Frogs have Oblate corneas with a lot of spherical aberration
- Peripheral vision is better than central vision

Spherical Aberration & Night Vision

- Spherical Aberration (SA) increases with age
- Laser eye surgery traditionally increases SA
- SA more relevant in those with Big Pupils
- Relevance ?
 - Spherical aberration causes Night vision problems
- Not inducing Spherical Aberration will decrease night vision problems...

Refractive Surgery and Spherical Aberration

- Possible reasons for induced Spherical Aberration

Biomechanical effect Cosine spread (winter-summer effect) Increased reflectance

Zyoptix Aspheric

- Zyoptix Aspheric considers two aspects:
 - Compensates induced aberrations from refractive correction
 - Considers preop Q-Value (corneal asphericity)
- The design-goal of Zyoptix Aspheric = maintain the preoperative Asphericity for virgin eyes.
 - Reduces induction of spherical aberration compared to other B & L algorithms

Dilemma . . .

Address the higher order aberrations identified on wavefront analysis

Or

Maintain /restore asphericity of prolate cornea and minimise spherical aberration

Wavefront aspheric treatment

- SOLUTION: combined wavefront and aspheric treatment
- Combined treatment gives best of both worlds with potential for the best visual outcome

ABLATION PROFILES

- Good Understanding Required
- How to alter corneal shape
 - Alter refraction



Thank you...



Laser Refractive Update

LASIK & Presbyopic LASIK

Sheraz Daya
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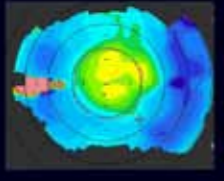
‘Laser Ablation Profiles’

(slides 49-50)

Marcela Espinosa
MD

SUPRACOR

A laser solution for Presbyopia



CENTRE FOR SIGHT

Financial Declaration


- The presenter is a consultant for:
 - AMO
 - Bausch & Lomb
 - Carl Zeiss Meditec
 - Physiol
 - Staar Surgical
 - Tear Science
 - Technolas Perfect Vision



CENTRE FOR SIGHT

Presbyopia

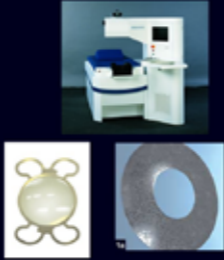
- Presbyopic Correction
 - PRESBYOPIA
 - Spectrum – Age & Lens
 - Young presbyopes – 42 to 55(to 60) year olds
 - Pre-cataract presbyopes – 55(to 60)+



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Presbyopia – Final frontier

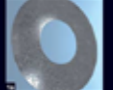
- PRESBYOPIA SOLUTIONS
 - Corneal Approach
 - Laser surgery
 - Presbyopic Corneal Inlays
 - Lens Approach
 - Accommodative
 - Multifocal



CENTRE FOR SIGHT

Presbyopia - Cornea

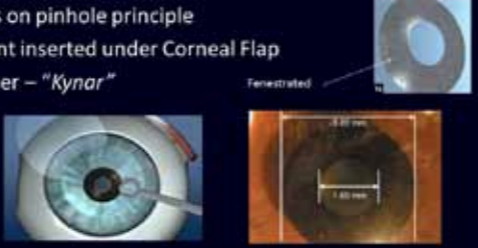
- INLAYS
- Acufocus
- Presbylens – Revision optics
 - 2mm diameter inlay inside a corneal pocket
 - Alters corneal shape to increase power centrally
- Presbia – Flexvue
 - 3mm wide, 20 microns thick
 - Refractive power



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Acufocus

- Works on pinhole principle
- Implant inserted under Corneal Flap
- Polymer – "Kynar"

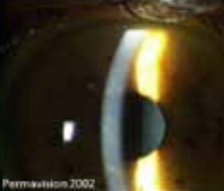


CENTRE FOR SIGHT

Corneal Implants - Presbyopia

Implants

- History of problems with implants in the cornea
- Acufocus
 - Centration vital
 - Complications
 - Flap issues – same as Lasik
 - Halos – possible
 - Decreased contrast (placed in non-dominant eye)



Permevision 2002

CENTRE FOR SIGHT

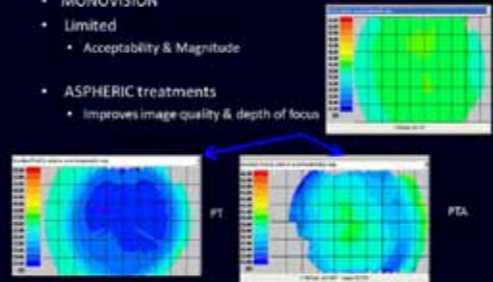
PRESBYOPIA - Cornea

- LASER SURGERY
- Mono vision and Hyper-aspericity
- Intracor
- Presby-Lasik
- Supracor

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Presbyopia – Laser options


- MONOVISION
 - Limited
 - Acceptability & Magnitude
- ASPHERIC treatments
 - Improves image quality & depth of focus



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Presbyopia – Laser options

- Technolas Perfect Vision – VICTUS
 - Uses Biomechanic changes to influence shape of cornea
 - Sub-Bowman's Femtosecond intrastromal ablation
 - Concentric rings – small diameter
 - cornea moves forwards



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IntraCOR – Ruiz (45 eyes)

IntraCOR Presbyopia

Simultaneous UCVA Distance/Near: Pre Op vs latest Post Op

	J12	J11	J10	J9	J8	J7	J6	J5	J4	J3	J2	J1
00/70												
00/70	***	***	***	***	***	***	***	***	***	***	***	***
00/70	*	**	**	**	**	**	**	**	**	**	**	**
00/70												
00/70												
00/70												

Pre Op Post Op

CENTRE FOR SIGHT

IntraCor

- Minimally invasive
- Rapid recovery
- Concerns
 - Long term data
 - Influence of Intrastromal transection
 - Corneal Strength
 - Corneal Stability = Refractive Stability



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LASIK for Presbyopia

- Multifocal Cornea
- Two Approaches:
 - Central or peripheral increased "Add"
 - Aspheric ablations
 - Limited range / depth of focus
- Issues
 - Decreased Contrast
 - Possible loss of BSCVA
 - ? Reversibility ?

CENTRE FOR SIGHT

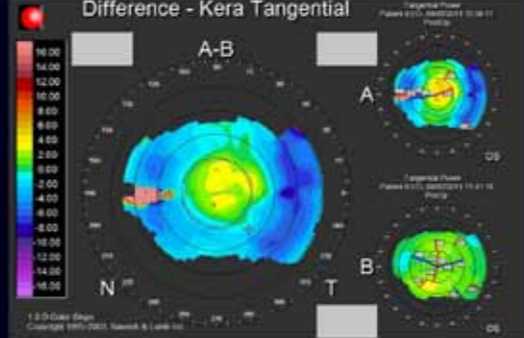
Presbyopia – LASIK options

- Supracor
 - Derived from - Intracor
 - Multifocal cornea
 - Minute area of increased power
 - Enough to provide near acuity
 - Compromises distance minimally
 - Early Myopia – regresses
 - Adaptation required – like any multifocal procedure
 - Promotes corneal asphericity - desirable

CENTRE FOR SIGHT

Difference - Kera Tangential

A-B



CENTRE FOR SIGHT

Supracor

- SUPRACOR
 - Available NOW for Hyperopia (Far Sight - + prescriptions)
 - Myopic Supracor – "Any time" 2012
 - May be very useful for Pseudophakes (Monofocal cataract procedures) looking for near vision correction

CENTRE FOR SIGHT

'LASIK & Presbyopic LASIK'

(slides 1-16)

What Is SUPRACOR?

- Other Presbyopic algorithms create undesired aberrations inside the pupil region
- SUPRACOR
 - Provides expected near correction
 - Decreases induction of undesired aberrations

Aberration Analysis:

- Zernike Deconvolution
- Raytrace Analysis

What Is SUPRACOR?

Optical performance generated:

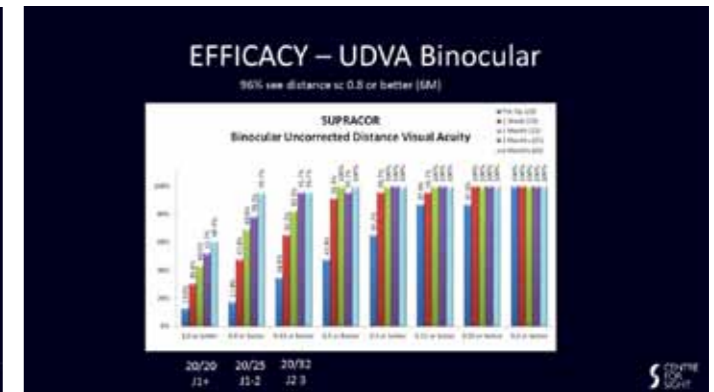
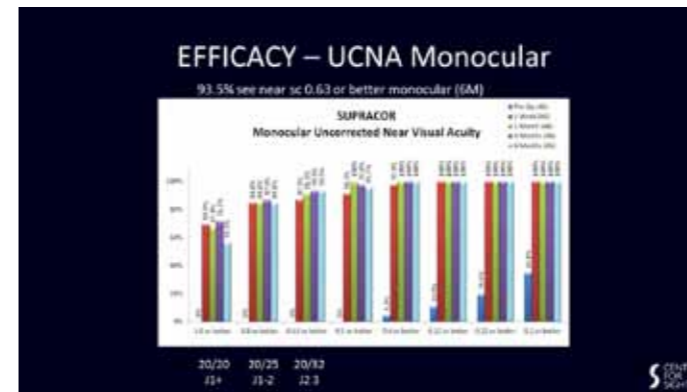
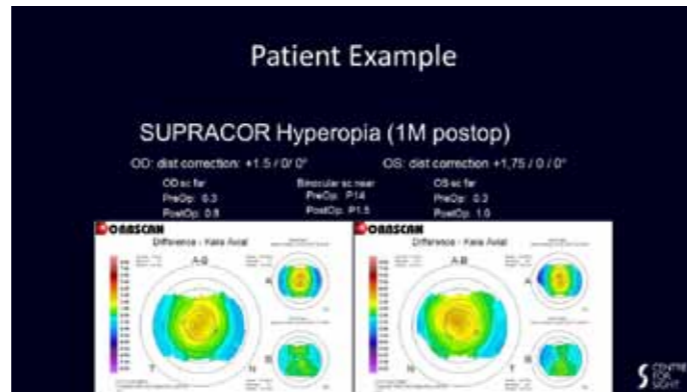
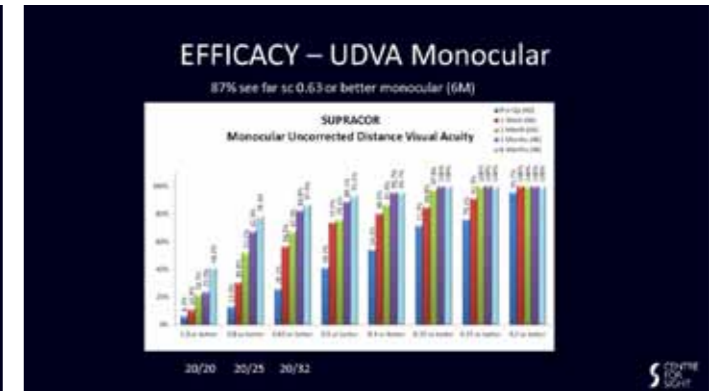
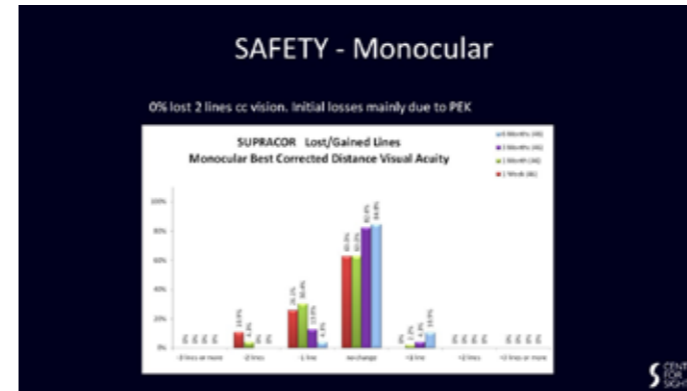
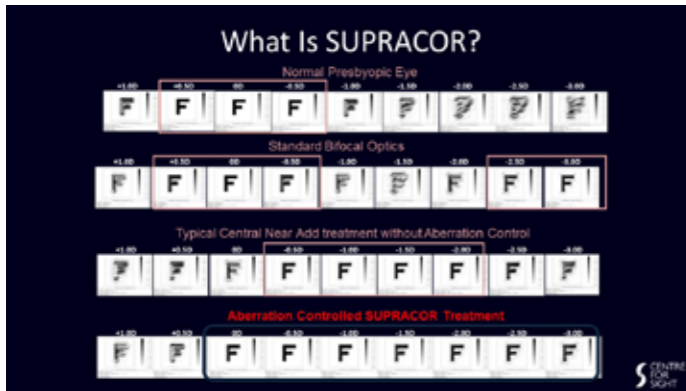
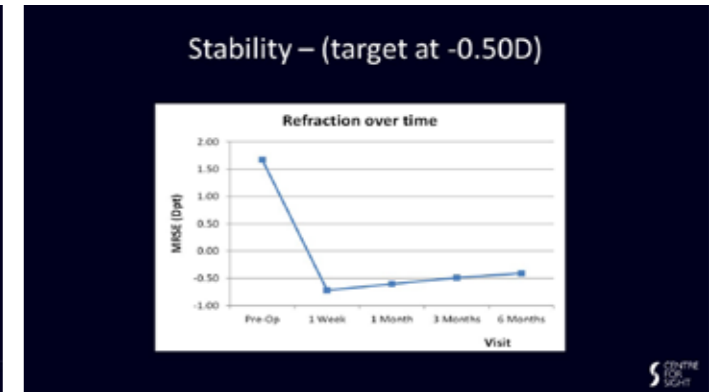
- based on the postop observed topography
- Simulates performance for
 - Near, Intermediate and Distance Vision:

Simulation of the retinal images for objects in Near, Intermediate and Distant positions:

CE Study

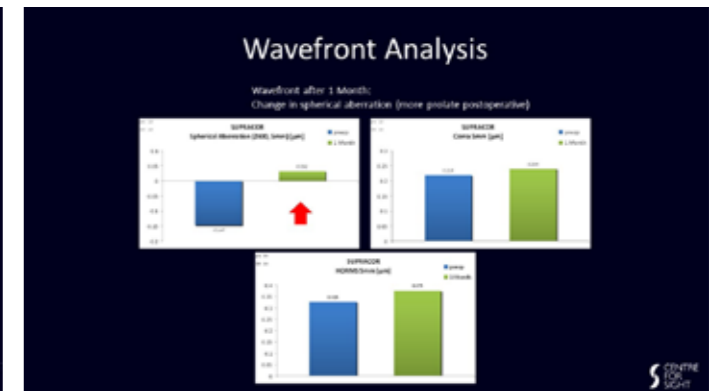
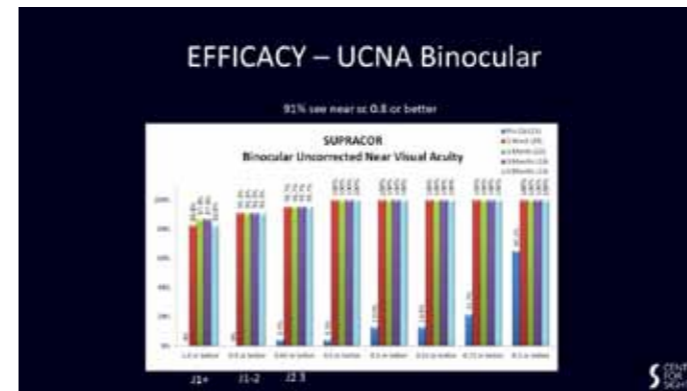
- Demographics
- preop refraction

SUPRACOR Spherical Equivalent (SE)									
Pre-Op	Post-Op	Mean	SD	Min	Max	Pre-Op	Post-Op	Mean	SD
20/20	20/20	0.00	0.00	-0.25	0.25	20/20	20/20	0.00	0.00
20/25	20/25	0.00	0.00	-0.25	0.25	20/25	20/25	0.00	0.00
20/30	20/30	0.00	0.00	-0.25	0.25	20/30	20/30	0.00	0.00
20/40	20/40	0.00	0.00	-0.25	0.25	20/40	20/40	0.00	0.00
20/50	20/50	0.00	0.00	-0.25	0.25	20/50	20/50	0.00	0.00
20/60	20/60	0.00	0.00	-0.25	0.25	20/60	20/60	0.00	0.00
20/70	20/70	0.00	0.00	-0.25	0.25	20/70	20/70	0.00	0.00
20/80	20/80	0.00	0.00	-0.25	0.25	20/80	20/80	0.00	0.00
20/90	20/90	0.00	0.00	-0.25	0.25	20/90	20/90	0.00	0.00
20/100	20/100	0.00	0.00	-0.25	0.25	20/100	20/100	0.00	0.00



What are the clinical outcomes?

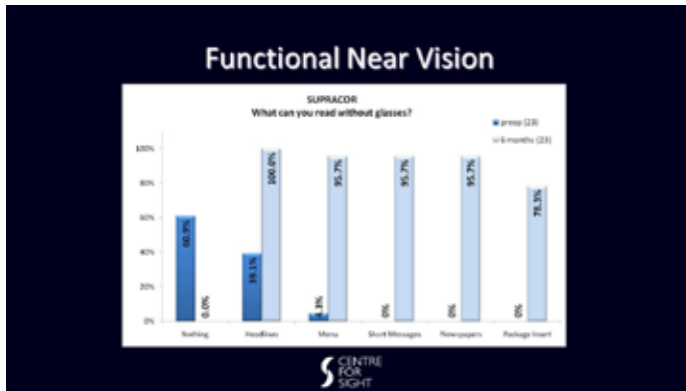
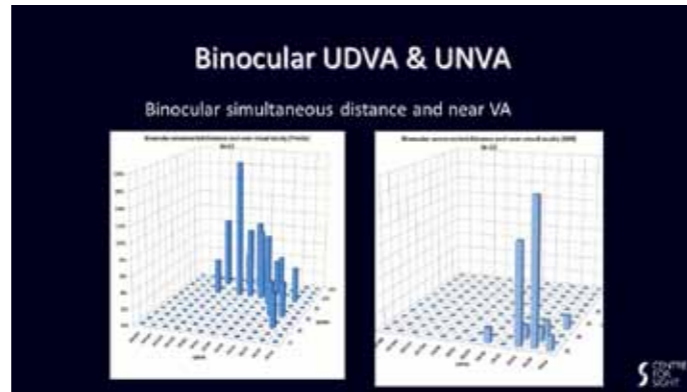
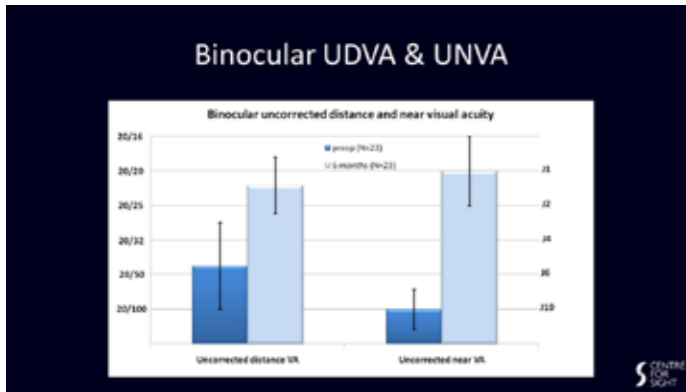
- CE Study
 - Multicenter European study for SUPRACOR Hyperopia
 - The following surgeons were participating in the study
 - Dr. Jean-Jacques Chaubard / Nice (principal investigator)
 - Dr. Jorge Castanera / Barcelona
 - Dr. Dominique Pietrini / Paris
 - Dr. Antoine Roure / Nice
 - Bilateral LASIK treatment
 - No monovision
 - Nomogram adjustment for sphere after first 6 patients
 - 6 months follow up of all patients



'LASIK & Presbyopic LASIK'

(slides 17-32)

Sheraz Daya
MD FACP FRCS(Ed) FRCOphth



What Patients Need to Know

Distance VA – poor in 30%

- Initial gain – 2 to 3 weeks
- Slow gain – 3M (small number upto 6M)

Halos - temporary

Poor UDVA- Temporary

- WHY ?
 1. Myopic overcorrection – intended
 2. Accommodation
 3. Multifocal Cornea - cortical adaptation
 4. Dry eye - temporary

Supracor Summary

- Uncompromising BINOCULAR Solution
 - Both eyes treated similarly
 - Both eyes obtain Near and Distance Vision simultaneously
 - NEAR – very good immediately and stable
 - DISTANCE
 - a bit blurry at first – both eyes better
 - Big change 1 month, good at 3 months and very good 6 months - (cortical adaptation)
 - NIGHT VISION
 - Some difficulty initially – gets better with time



‘LASIK & Presbyopic LASIK’

(slides 33-39)

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