Parador de Baiona. Pontevedra. España
11-13 Noviembre 2010

CONGRESO
DE QUERATOCONO

Ablaciones excimer guiadas por topografía

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DE CATALUNYA

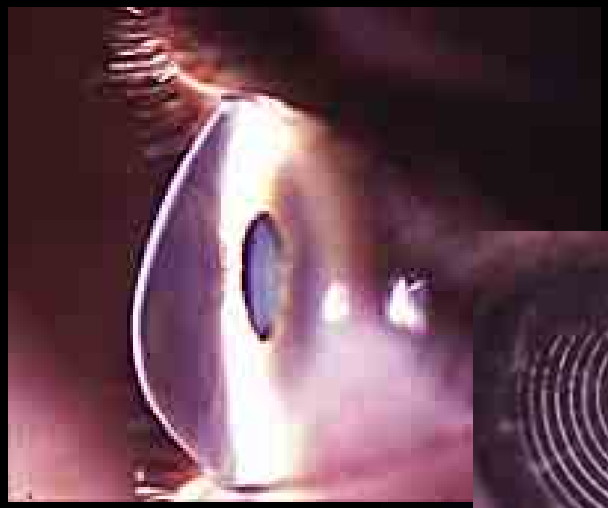
área
OFTALMOLÓGICA
avanzada

Keratoconus is an anterior ectasic corneal degeneration, bilateral, asymmetric, with hereditary implications and weakening of the corneal biomechanics.



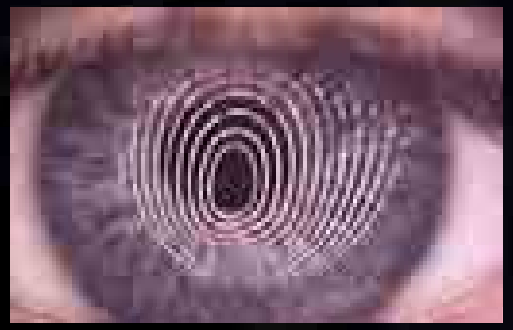


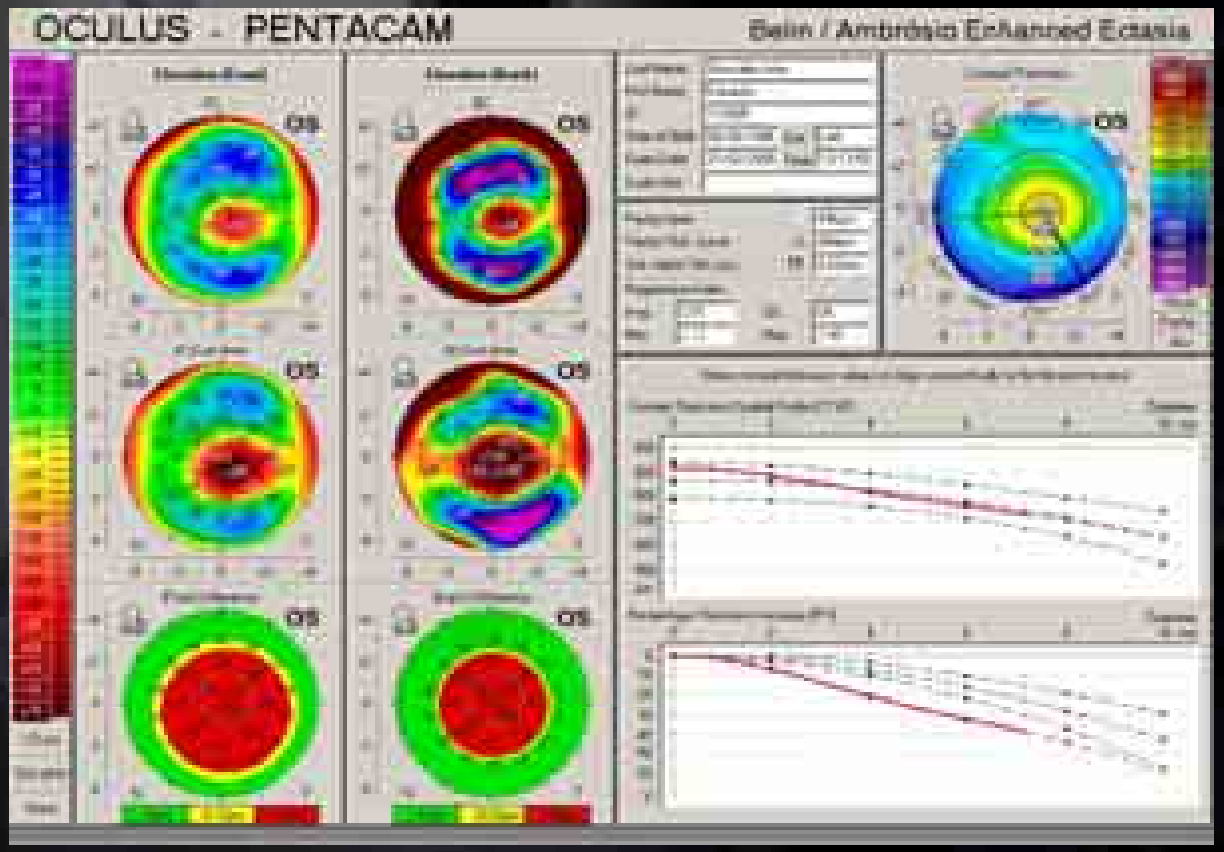
CORNEAL MAPS





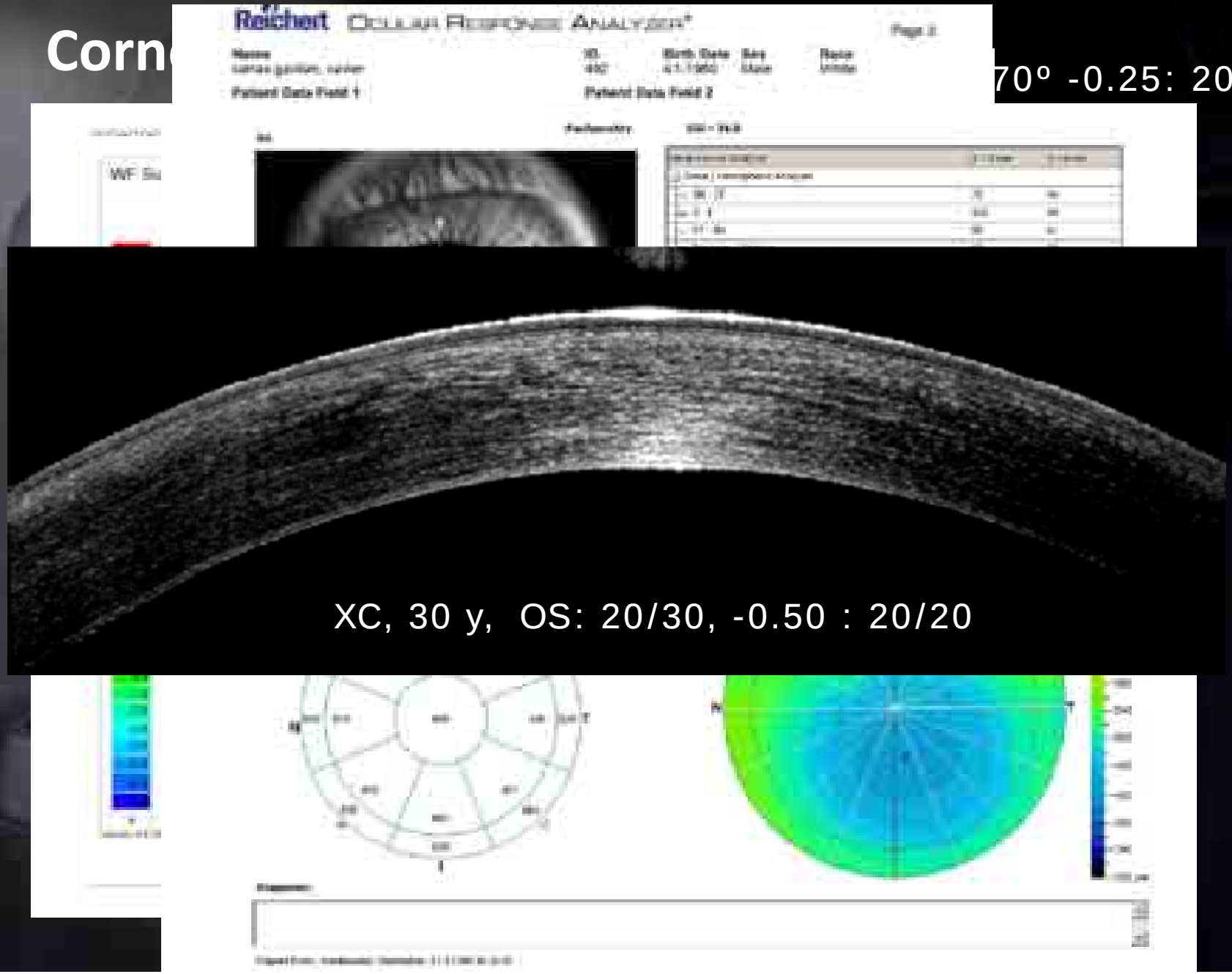






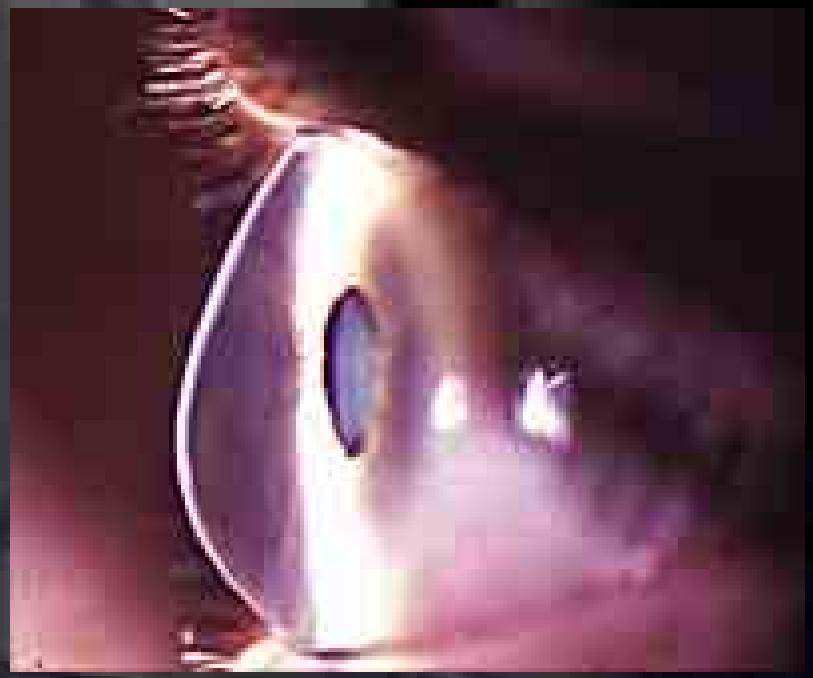
Corn

70º -0.25: 20/30



XC, 30 y, OS: 20/30, -0.50 : 20/20

Keratoconus is a corneal disease with a progressive visual impairment.

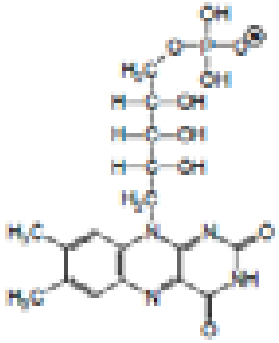




Background of corneal cross linking

1. Combined application of UVA and riboflavin

riboflavin (vit. B2) **Ultraviolet irradiation**



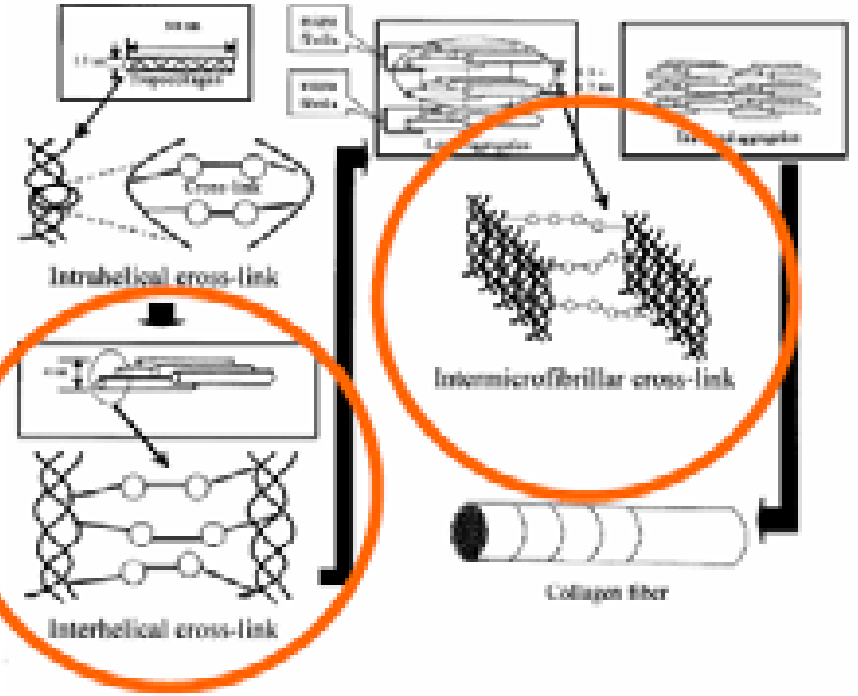
2. Production of oxygen radicals

O_2^-

3. Induction of collagen cross-links



collagen fibril **collagen fibril**



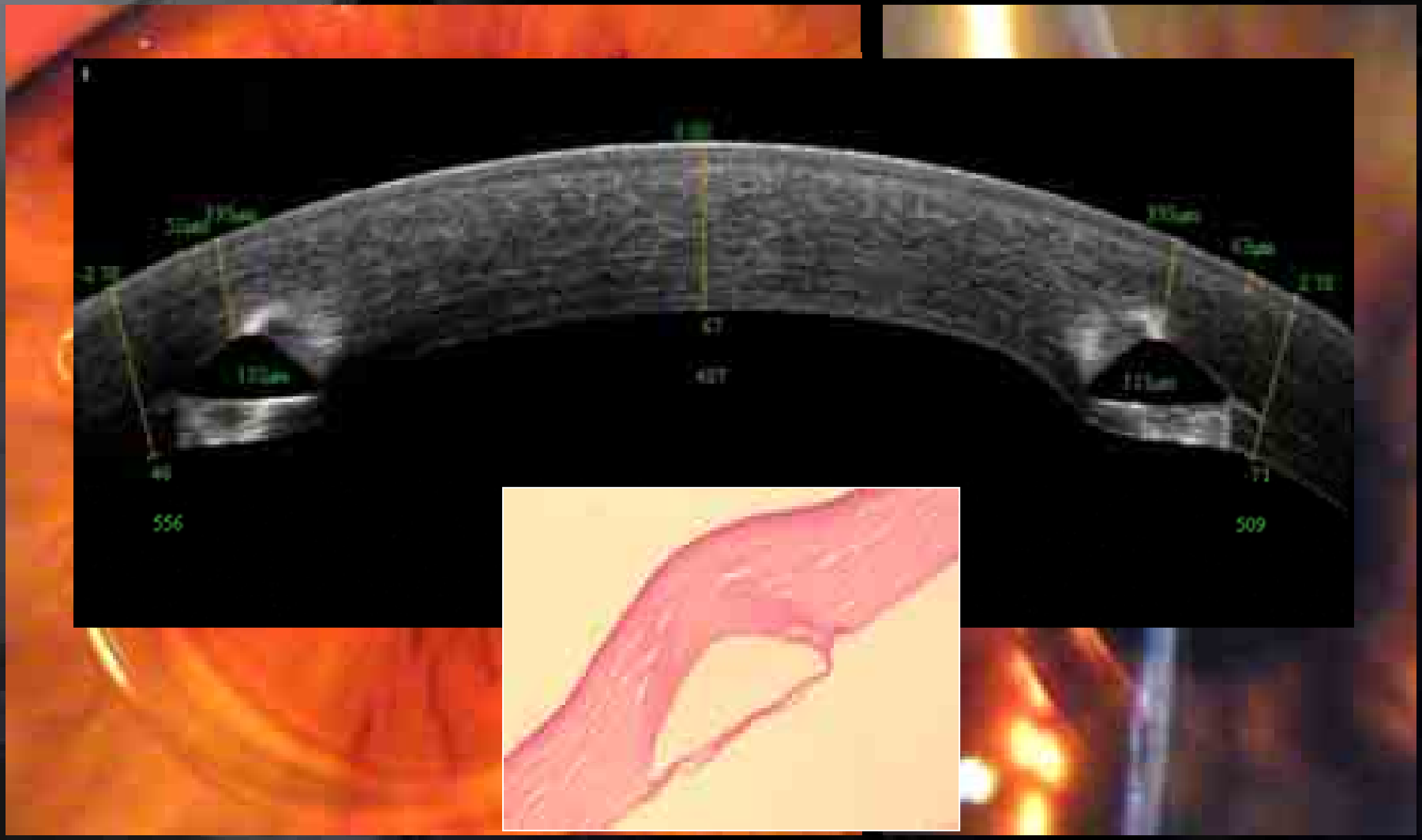
Prof. Dr. Michael Mrochen,

INTRACORNEAL SEGMENTS



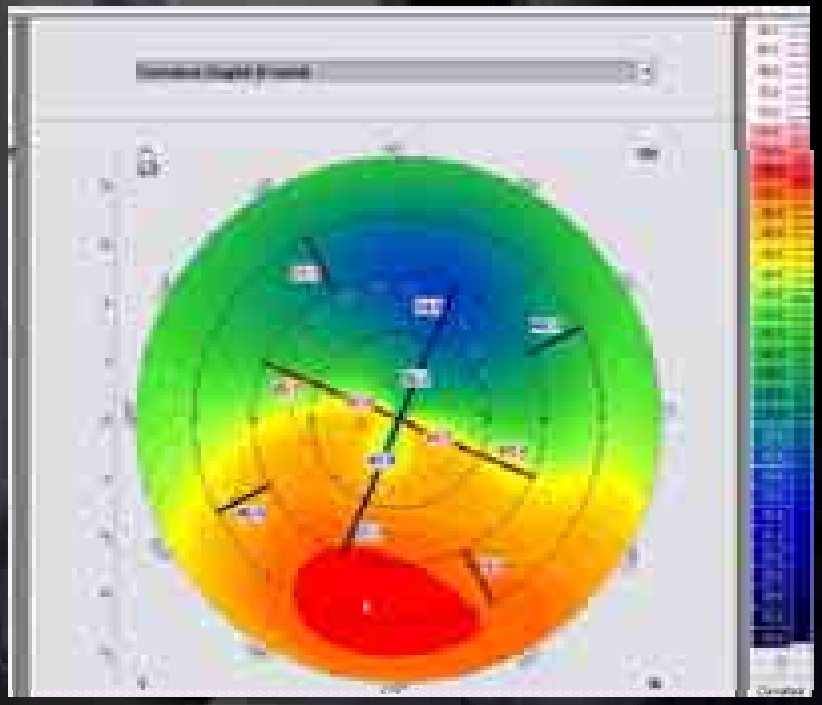


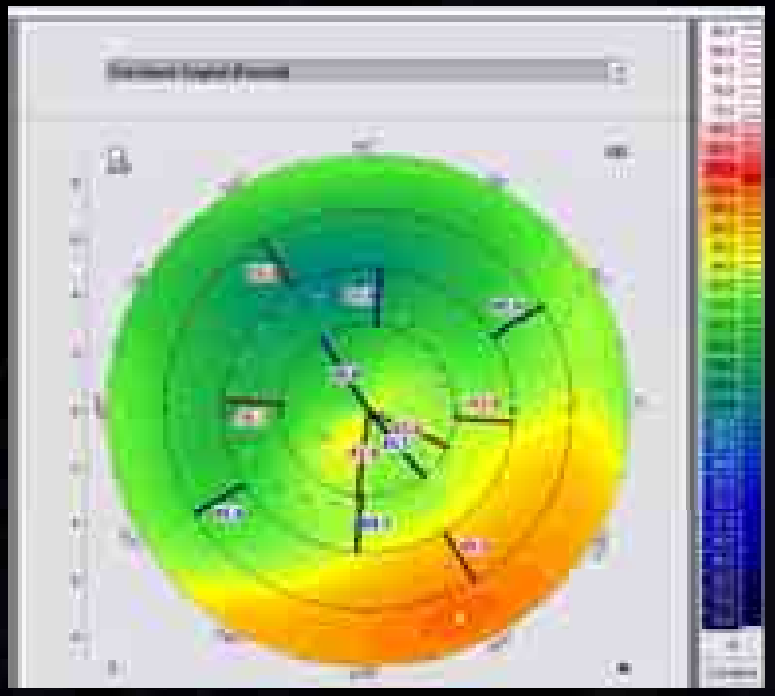
Keratoconus and Corneal Rings



Mechanism of Action

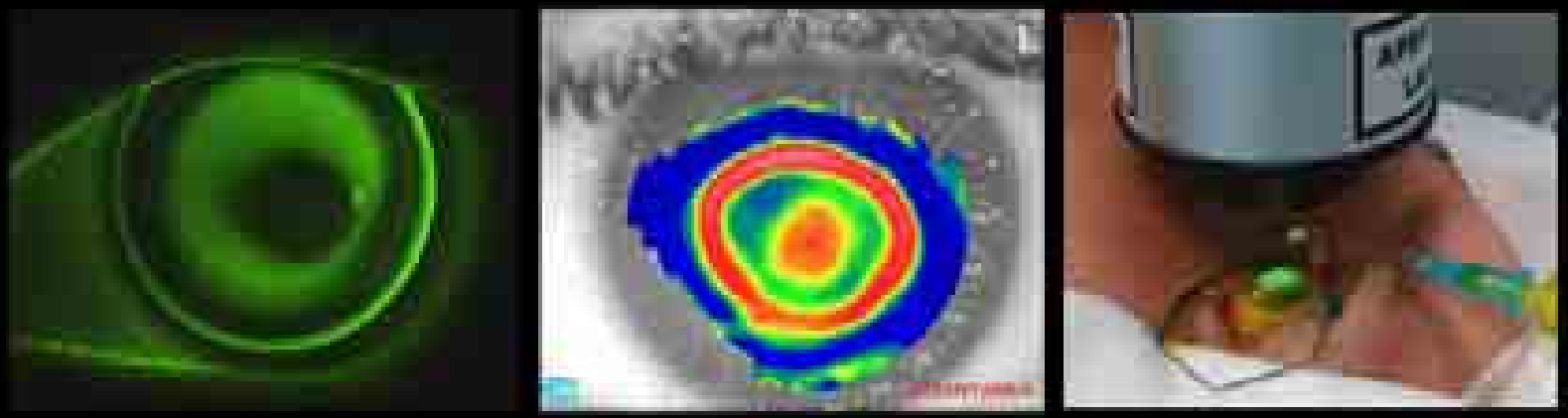
Central and peripheral flatening





ORTHOKERATOLOGY AND CROSS LINKING

Antonio Calossi



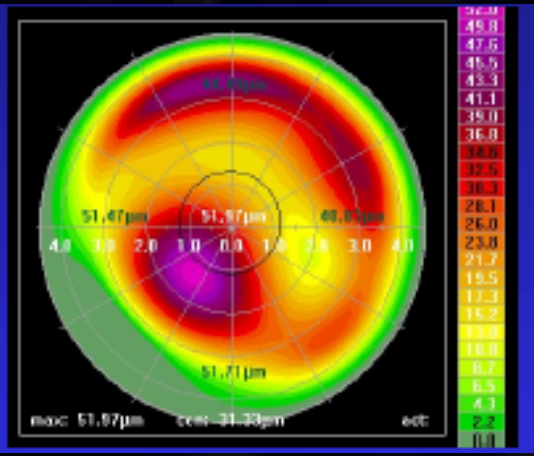
- Overnight orthokeratology may reshape the keratoconic cornea without significant adverse reactions
- Riboflavin-UVA corneal collagen cross-linking is quite safe, but it is not able to stabilize the OK molding effect
- Nevertheless, UCVA and BSCVA did not go back to the baseline level
- At the present time, we are not able to explain this discrepancy

Surgical visual rehabilitation techniques after UV-CXL

- Implantation of toric Artisan or Artiflex IOL's (PIOL)
  - Nuijts (Maastricht, The Netherlands)



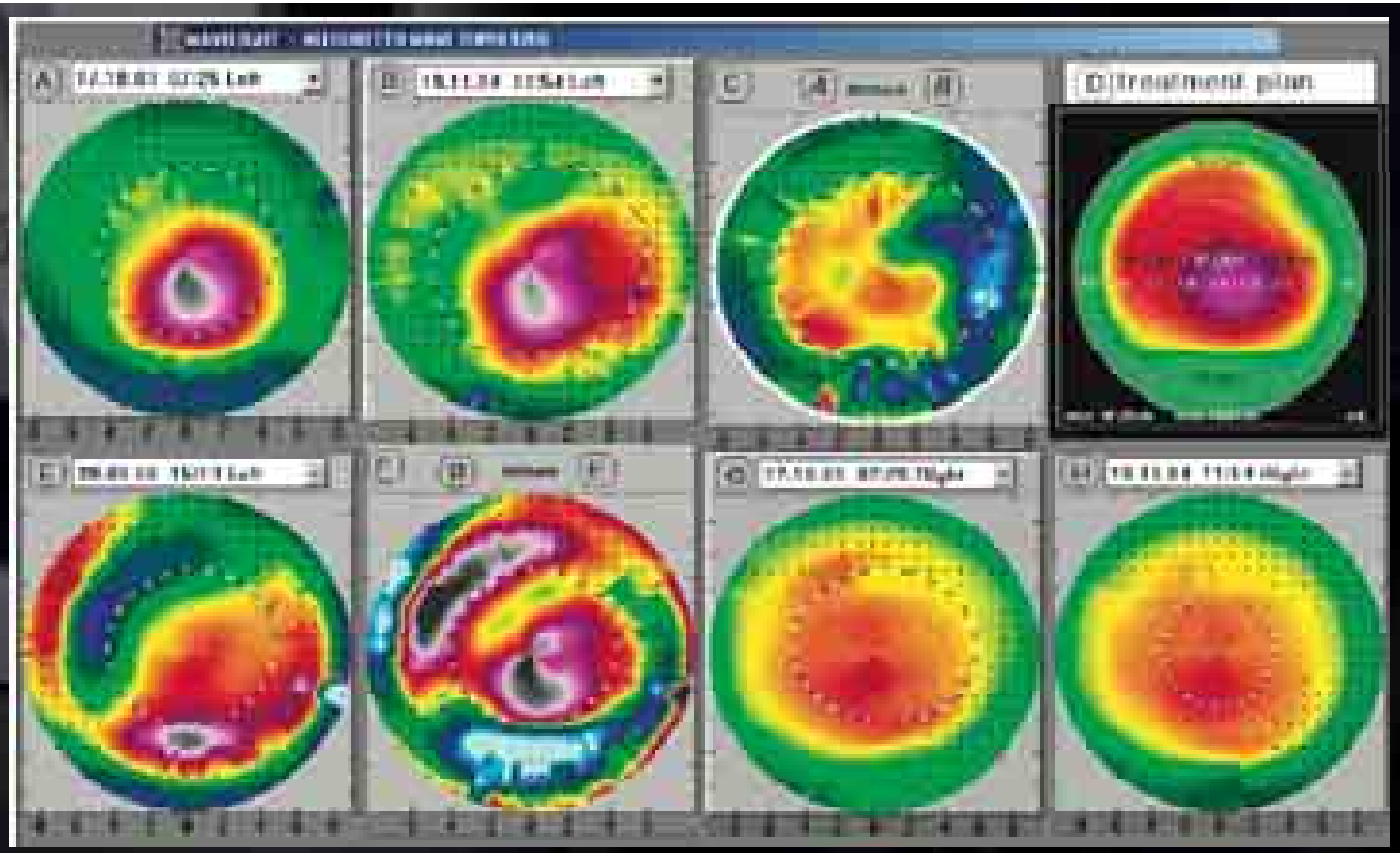
- Topography-guided surface ablations (TG-PRK)
  - Seiler (Zürich, Switzerland)
  - Kanellopoulos (Athens, Greece)



Collagen Cross-Linking (CCL) With Sequential Topography-Guided PRK

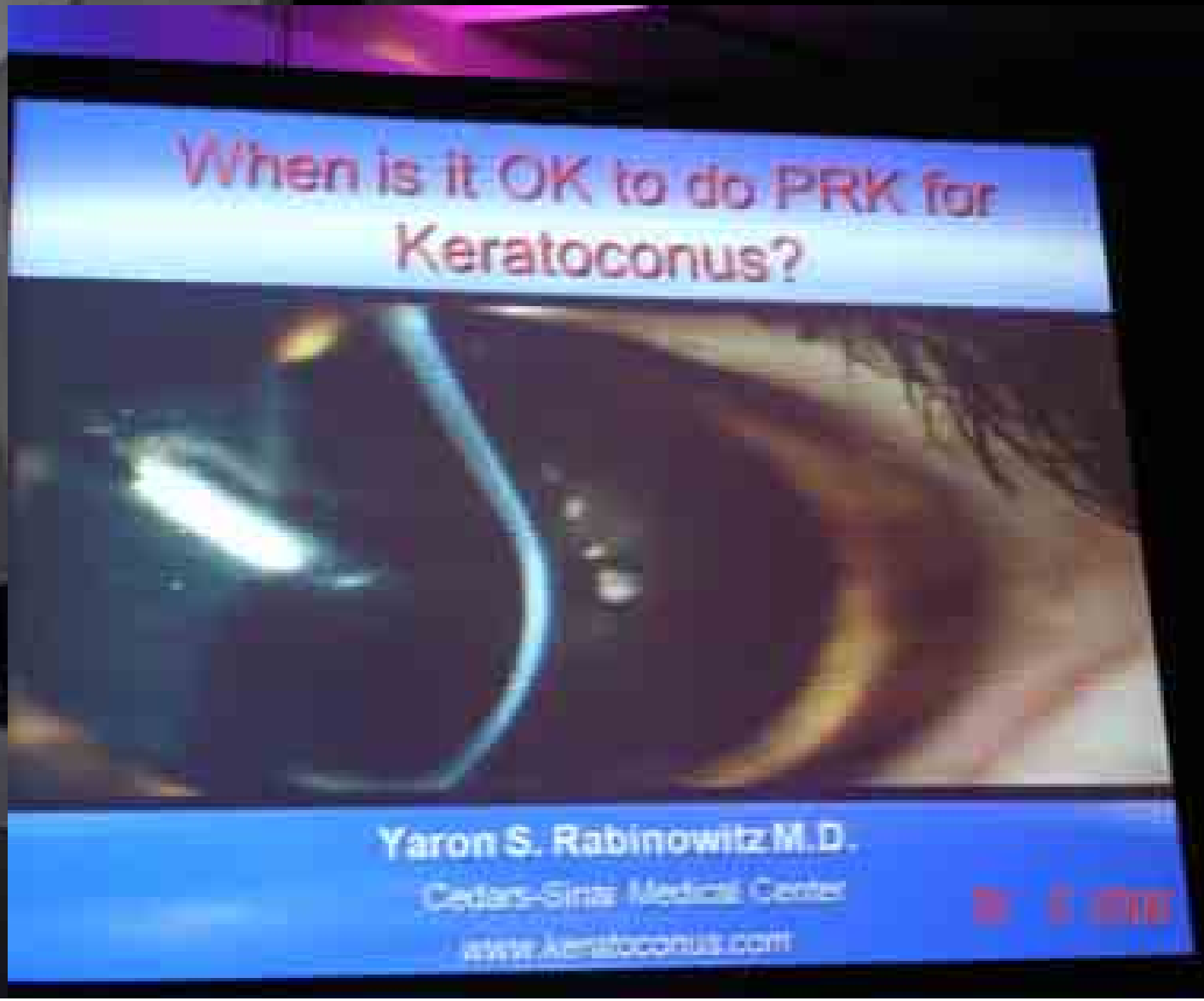
A Temporizing Alternative for Keratoconus to Penetrating Keratoplasty

A. John Kanellopoulos, MD†‡ and Perry S. Binder, MS, MD§*



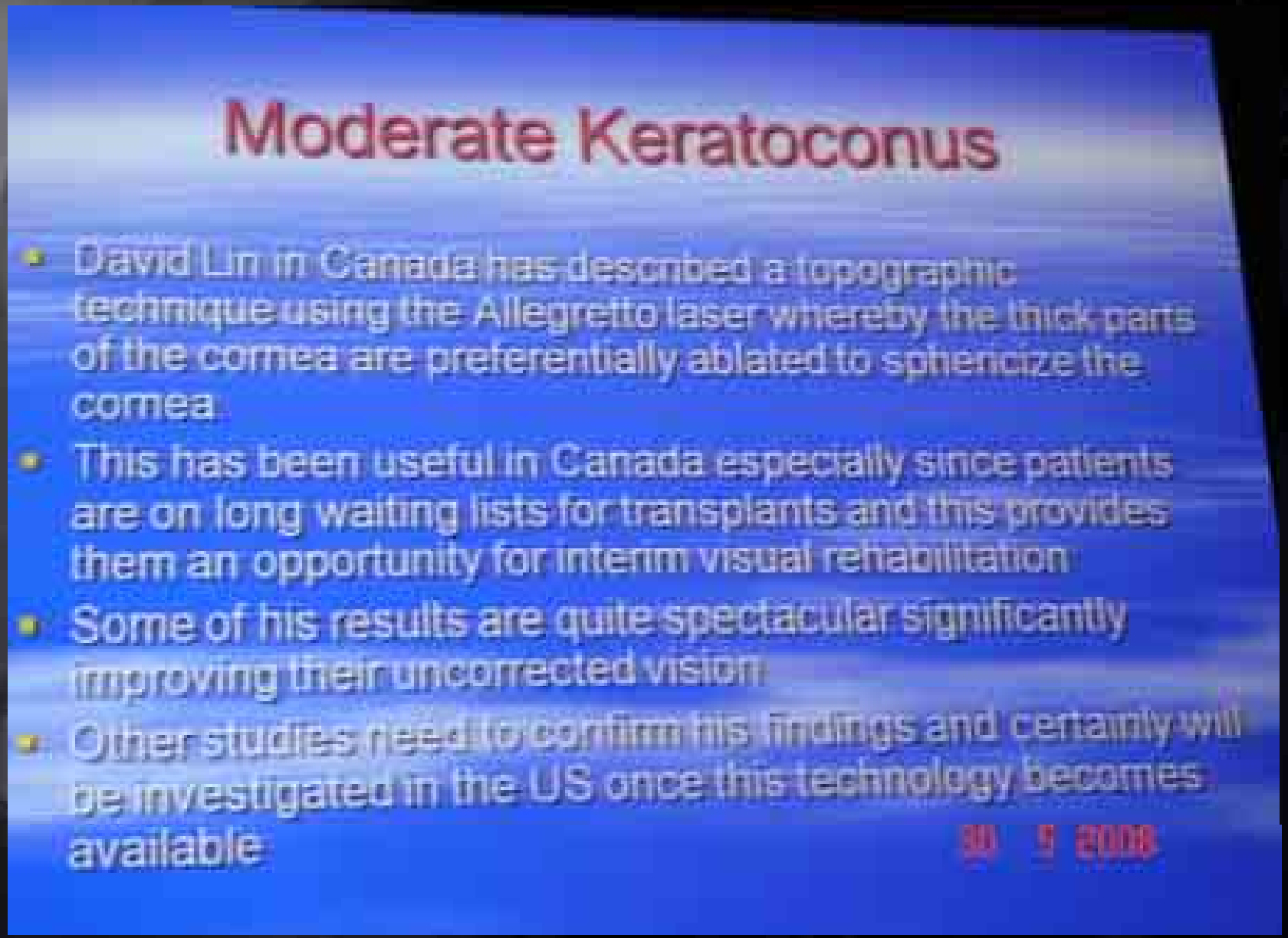

Gustavo Tamayo 2010
SEQUENTIAL TOPOGRAPHY GUIDED PRK AND CROSS LINKING IS THE BEST TRETATMENT
TO RESTOR VISION IN KERATOCONUS AND POST-LASIK ECTASIA

ONE OF MY MAIN CONTRADICTORS




Treatment Options
for Keratoconus
1. Glasses
2. Contact Lenses
3. Lamellar procedures
4. INTACS
5. PRK
6. Phakic IOL's
7. Collagen Cross-linking?
8. Cornea Transplants(I.E.K.)
9. Gene Therapy?
30 5 2008

WHAT WE HAVE BEEN DOING...



KERATOCONUS SURFACE ABLATION SURGICAL TREATMENT OPTIONS

- **Mild to moderate Keratoconus**: Surface ablation with excimer laser
- **Moderate to severe Keratoconus:** Corneal implants (Kerarings) or Phakic lenses.
- **Severe Keratoconus:** Lamellar or penetrating corneal transplant (with Intralase today).

KERATOCONUS SURFACE ABLATION SURGICAL TREATMENT OPTIONS

- Surface ablation with excimer laser: HIGHLY PREDICTABLE SURGERY
- Corneal segments: LESS PREDICTABLE SURGERY
- Lamellar or penetrating corneal transplant. HIGHER RISK AND LESS PREDICTABILITY

KERATOCONUS SURFACE ABLATION SURGICAL TREATMENT OPTIONS

- *Glasses do not provide the best visual acuity*
- *Dependence of contact lens wear is extremely high.*
- *Contact lens provides excellent visual acuity but at the same time produces symptoms:*
  - *a) Redness*
  - *b) Tearing, burning sensation, F.B. sensation*
  - *c) Corneal ulcers, “Jumping out” of the eye, etc.*
- *Contact lens tolerance is usually very difficult*

SURFACE ABLATION WITH EXCIMER LASER FOR KERATOCONUS

- *Is an excellent surgical option in low to moderate keratoconus:*
  - *a) Contact lens intolerance*
  - *b) Handicapped VA with glasses*
  - *c) No contraindication for surgery.*
- *Is a highly predictable surgery when patient is properly selected*
- *Is used sometimes as a temporary relief for a future corneal transplant.*

SURFACE ABLATION WITH EXCIMER LASER FOR KERATOCONUS

CONTRAINDICATIONS

- *Corneal curvatures over 54.00 diopters*
- *Scars or haze or marked “Striae” in the visual axis*
- *Corneal thickness of less than 430 microns*
- *Residual bed of less of 350 microns (Surface always)*
- *“Active” Keratoconus or under 25 yrs of age*
- *Very inferiorly decentered cone.*

SURFACE ABLATION WITH EXCIMER LASER FOR KERATOCONUS

SURGICAL TECHNIQUE

- *No manifest refraction in keratoconus*
  - *a) It can not be exactly determined in most of the cases*
  - *b) Great variation according to pupil size*
  - *c) Axis of the astigmatism is hard to be determined: undercorrection*
- *When Custom ablation can not be performed: the goal of the treatment: correction of shape.*

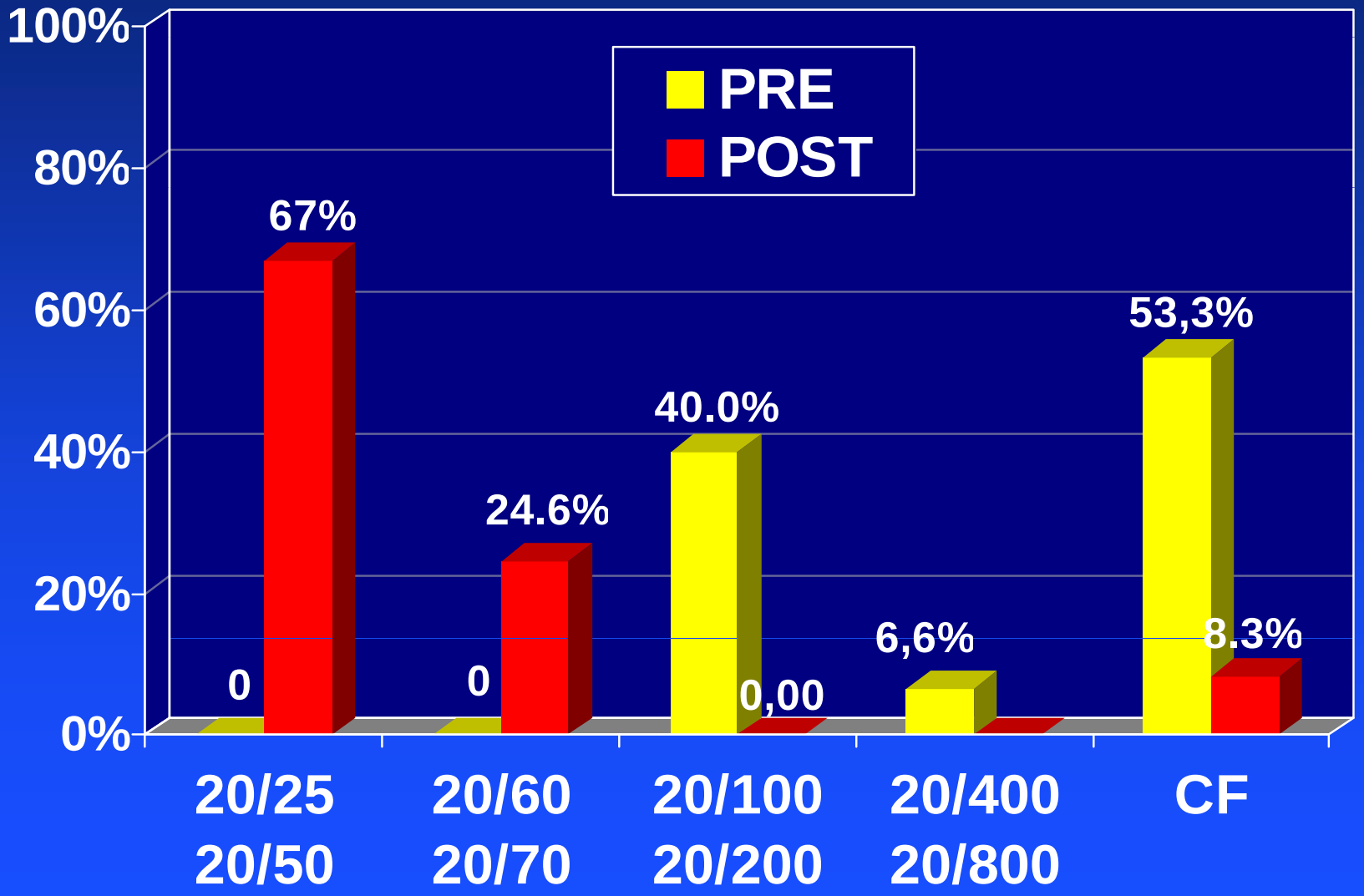
TOPOGRAPHY GUIDED ABLATION

SURFACE ABLATION WITH EXCIMER LASER FOR KERATOCONUS

DEMOGRAPHICS

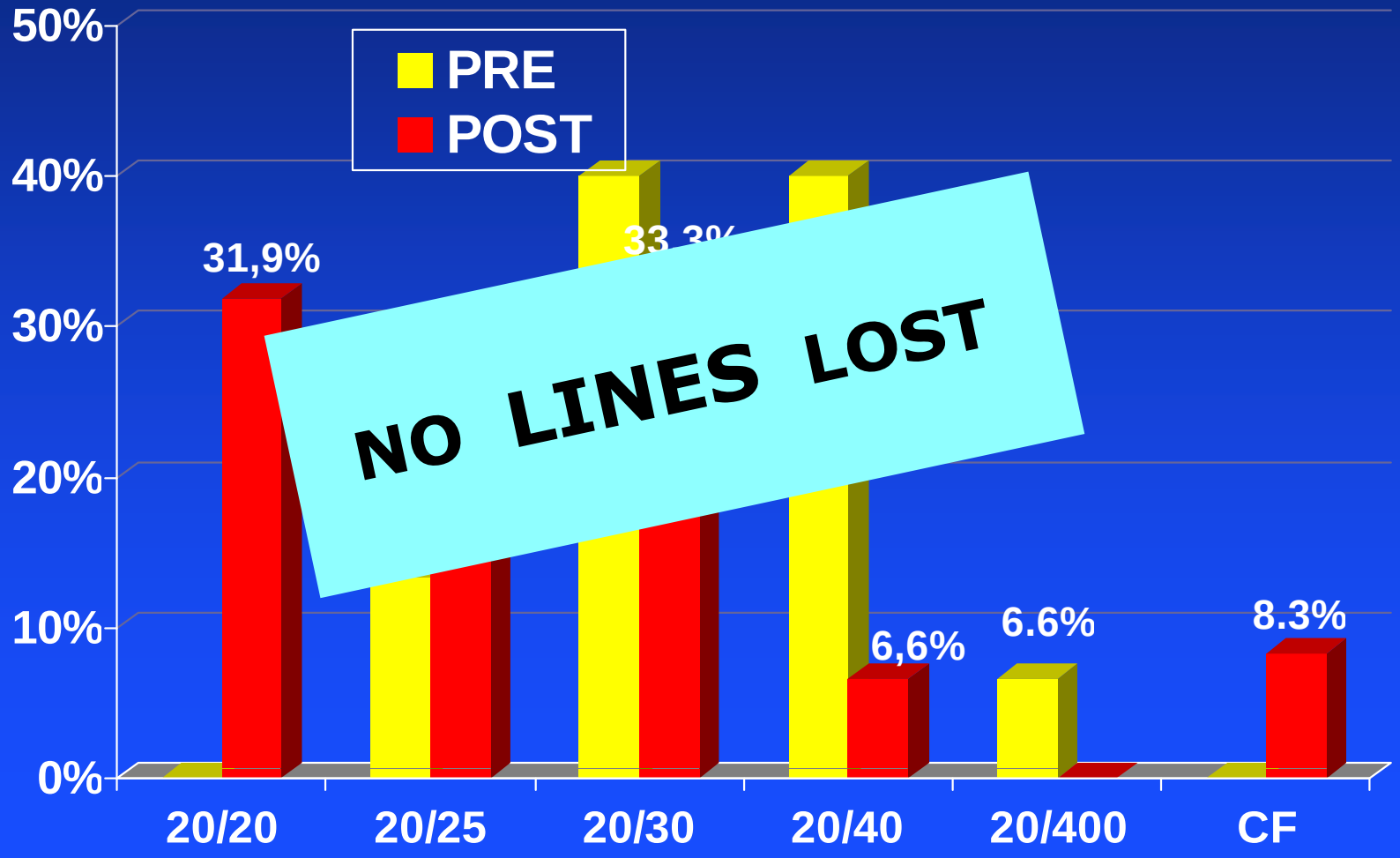
- 95 eyes: 39 right eyes
- Sex: Male: 46
- Age x: 34 years (20 yrs - 53 yrs)
- Mild to moderate Keratoconus: <4 D se
- F/U x: 55.4 m (34.3-69.2 m)

KERATOCONUS - UCVA -



GT

KERATOCONUS - BCVA -



GT

CONCLUSION:

Topographic guided PRK and Cross Linking appear as a ***valid alternative*** treatment in Keratoconus and should be investigate with a new mentality.


Gracias
por vuestra atención