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# Evolution of Refractive Surgery 2003

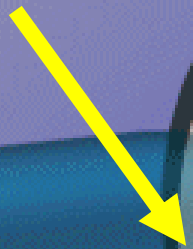
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Daniel S. Durrie, MD  
Overland Park, Kansas  
USA

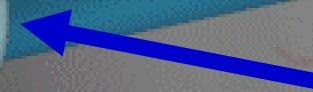


# Surgical Options

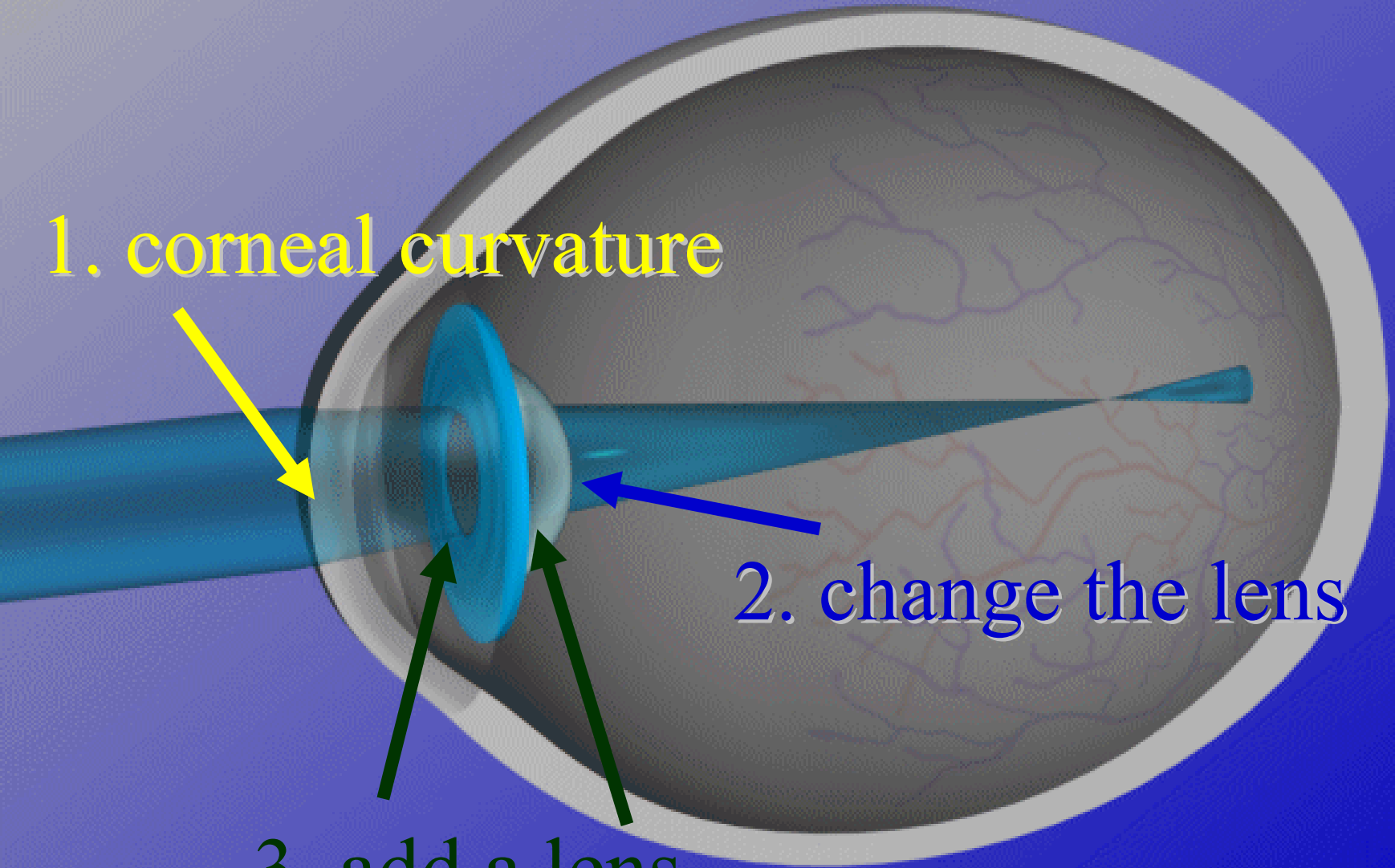
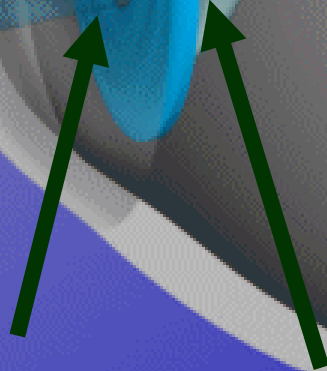
1. corneal curvature



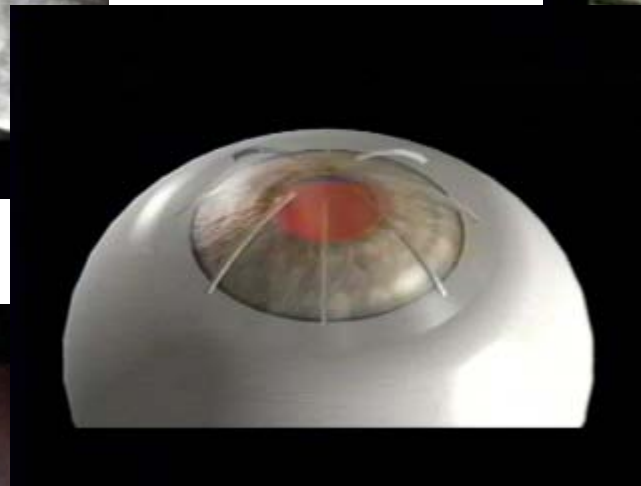
2. change the lens



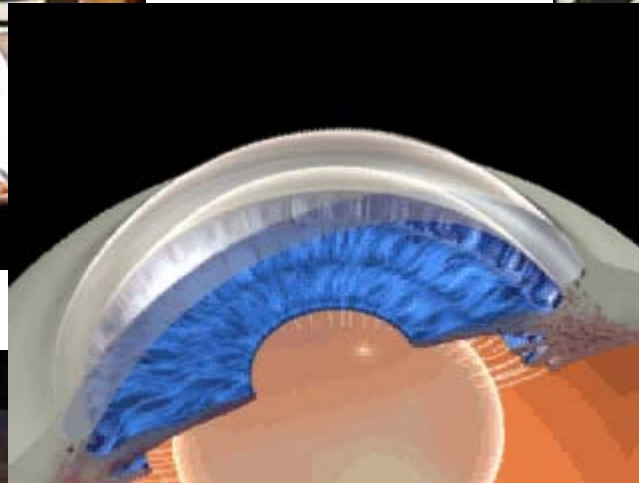
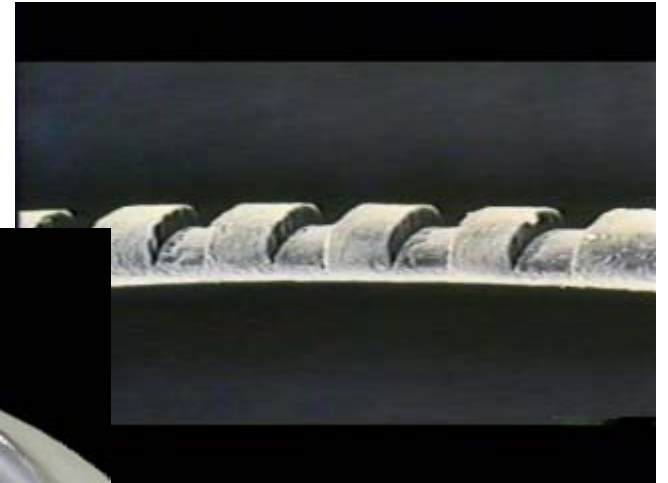
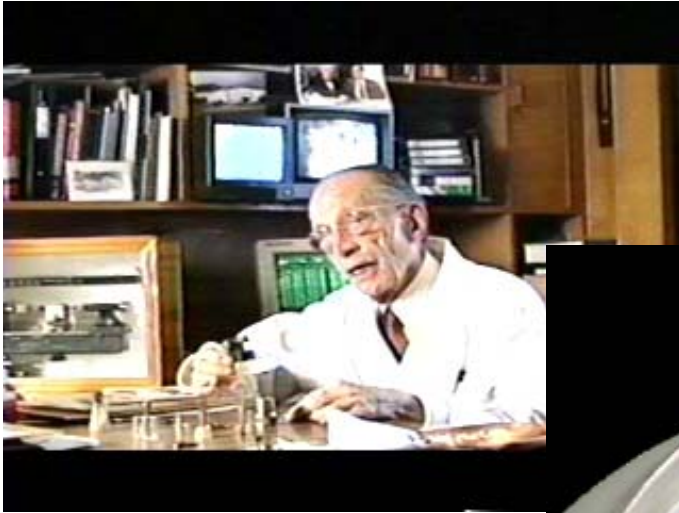
3. add a lens



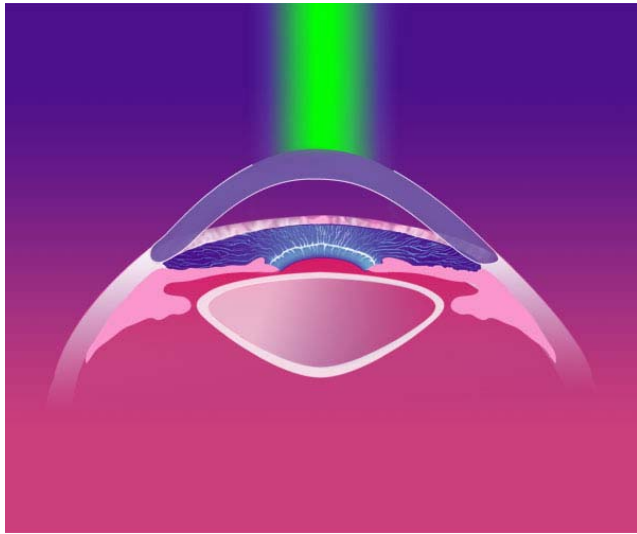
# Evolution of Refractive Surgery



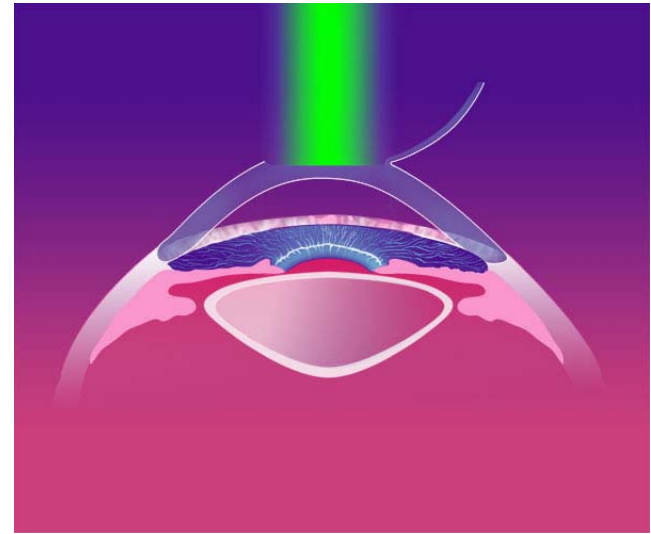
# Evolution of Refractive Surgery



# Evolution of Refractive Surgery



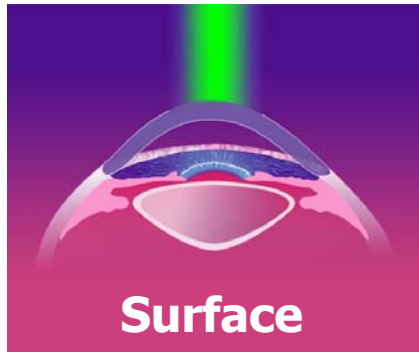
**Surface Ablation**



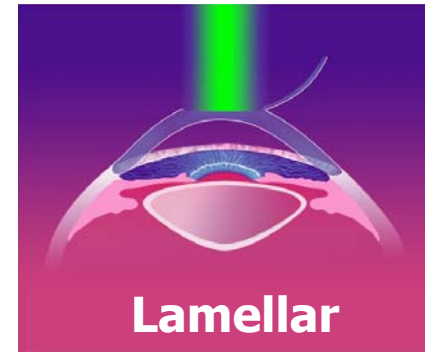
**Lamellar Ablation**

# Evolution of Refractive Surgery:

## - Technique **1989**



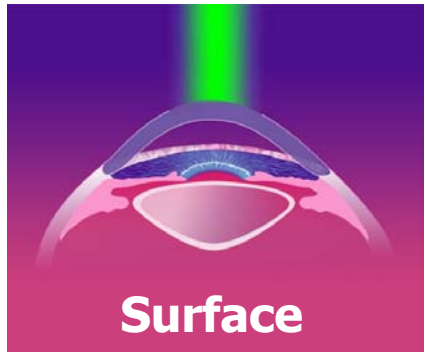
- **PRK**
- Broad beam laser
- Mechanical debridment
- 4.5 to 5.0 mm OZ
- No transition zones
- Unilateral surgery



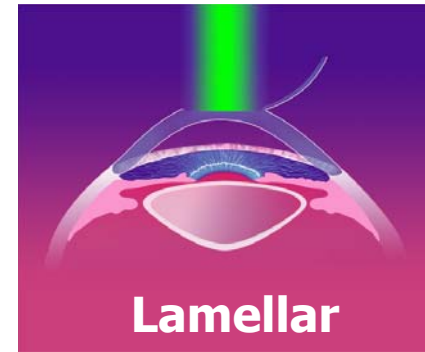
- **Excimer Laser Keratomileusis**
- Free cap – 240 microns
- Underside of the flap ablated
- Sutured in place

# Evolution of Refractive Surgery:

## - Technique **1990**



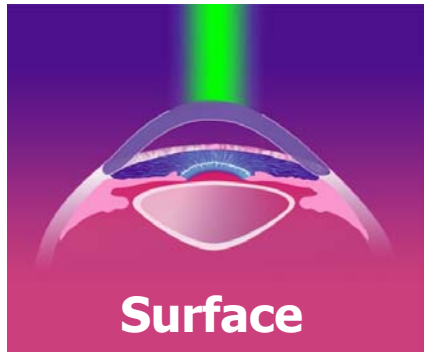
- **PRK**
- Broad beam laser
- Mechanical debridment
- 4.5 to 5.0 mm OZ
- No transition zones
- Unilateral surgery



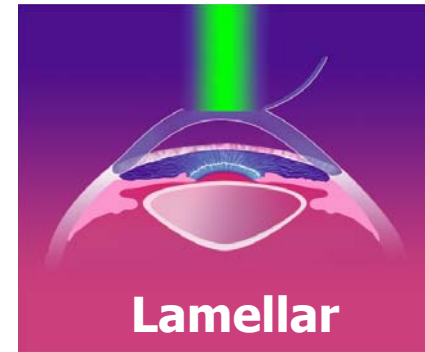
- **Excimer Laser Keratomileusis**
- Free cap – 240 microns
- Underside of the flap ablated
- Sutured in place

# Evolution of Refractive Surgery:

## - Technique **1991**



- **PRK**
- Broad beam laser
- Mechanical debridement
- 5.0 mm OZ
- No transition zones
- Unilateral surgery

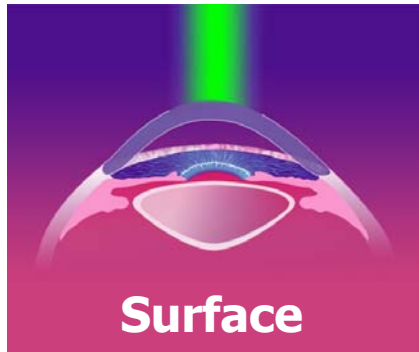


- **LASIK**
- Hinged flap
- Stromal ablation
- No sutures needed
- Nasal hinge
- Barraquer Keratome

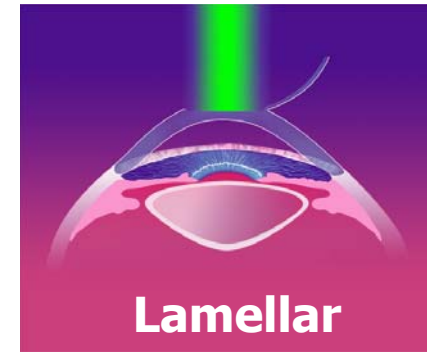


# Evolution of Refractive Surgery:

## - Technique **1992**



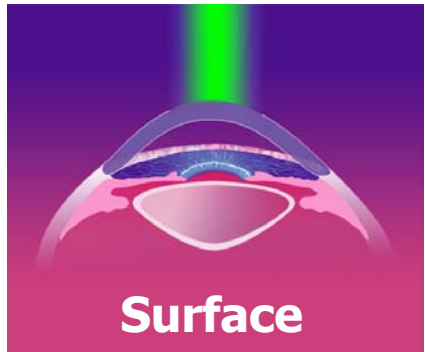
- **PRK**
- Broad beam, scanning slit and spot lasers
- Mechanical debridment
- Up to 7.0 mm OZ
- Unilateral surgery



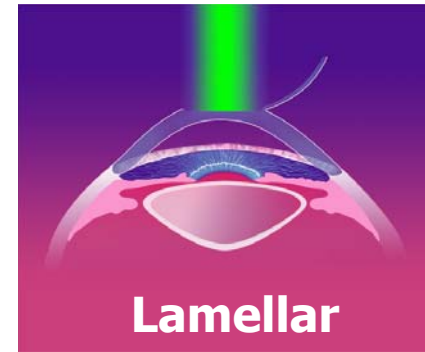
- **LASIK**
- Hinged flap
- Stromal ablation
- No sutures needed
- Nasal hinge
- ACS Keratome

# Evolution of Refractive Surgery:

## - Technique **1993**



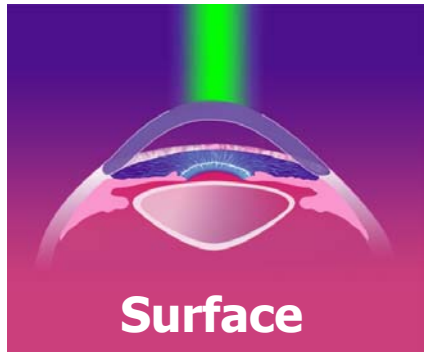
- **PRK**
- Broad beam, scanning slit and spot lasers
- Mechanical debridment
- Up to 7.0 mm OZ
- Multizone/multipass



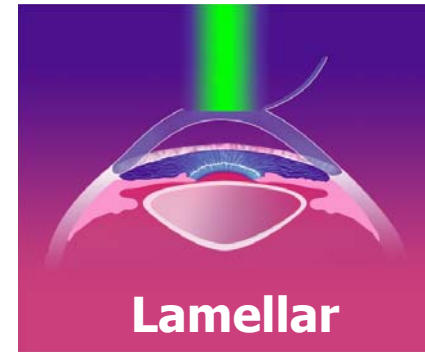
- **LASIK**
- Hinged flap
- Nasal hinge
- ACS Keratome

# Evolution of Refractive Surgery:

## - Technique **1994**



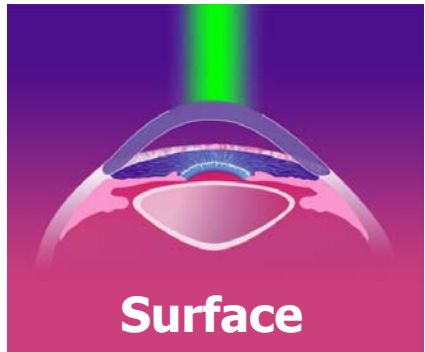
- **PRK**
- Broad beam, scanning slit and spot lasers
- Alcohol debridement
- Up to 7.0 mm OZ
- Bandage contact lenses



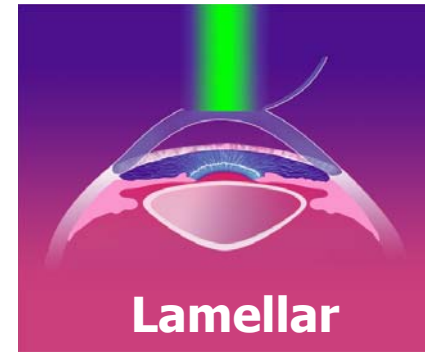
- **LASIK**
- Hinged flap
- Nasal hinge
- ACS Keratome

# Evolution of Refractive Surgery:

## - Technique **1995**



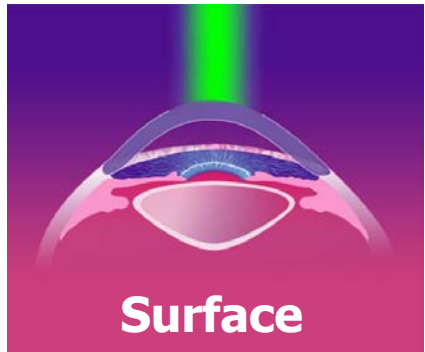
- **PRK – FDA approved**
- Broad beam, scanning slit and spot lasers
- Alcohol debridement
- Up to 7.0 mm OZ
- Bandage contact lenses



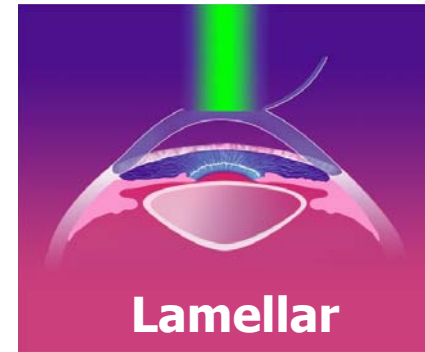
- **LASIK**
- Hinged flap
- Nasal hinge
- ACS Keratome

# Evolution of Refractive Surgery:

## - Technique **1996**



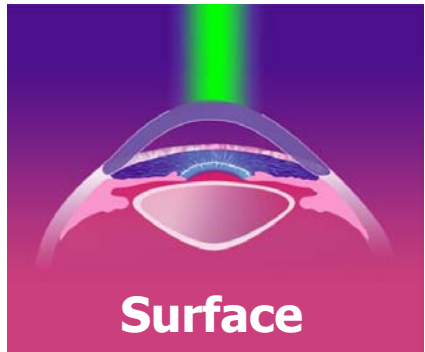
- **PRK – FDA approved**
- Broad beam, scanning slit and spot lasers
- Alcohol debridement
- Up to 7.0 mm OZ
- Bandage contact lenses



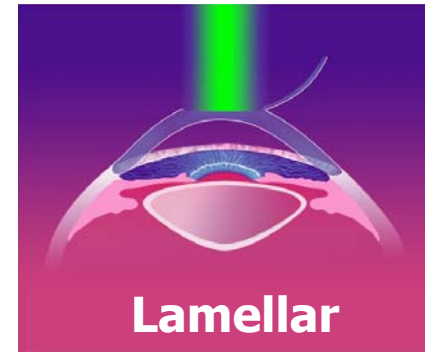
- **LASIK**
- Hinged flap
- Nasal hinge
- ACS Keratome

# Evolution of Refractive Surgery:

## - Technique **1997**



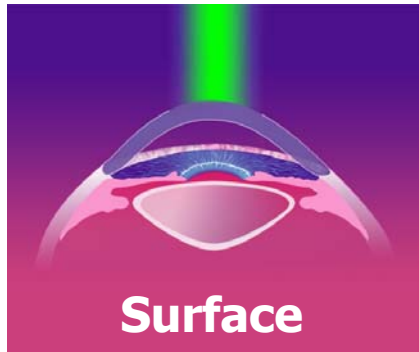
- **PRK – FDA approved**
- Broad beam, scanning slit and spot lasers
- Laser scrape
- Up to 7.0 mm OZ
- Bandage contact lenses



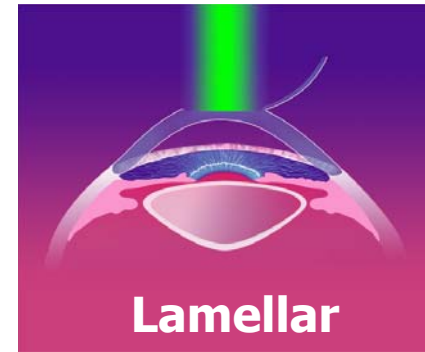
- **LASIK**
- Hinged flap
- Nasal hinge
- ACS Keratome

# Evolution of Refractive Surgery:

## - Technique **1998**



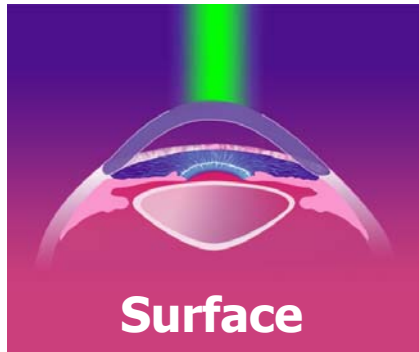
- **PRK – FDA approved**
- Broad beam, scanning slit and spot lasers
- Laser scrape
- Up to 7.0 mm OZ
- Bandage contact lenses



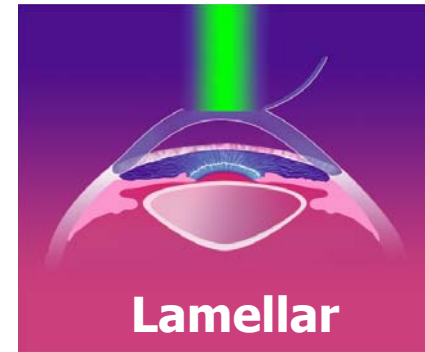
- **LASIK**
- Hinged flap
- Superior hinge
- Hansatome Keratome

# Evolution of Refractive Surgery:

## - Technique **1999**



- **PRK – FDA approved**
- Broad beam, scanning slit and spot lasers
- Laser scrape
- Up to 7.0 mm OZ
- Eye trackers

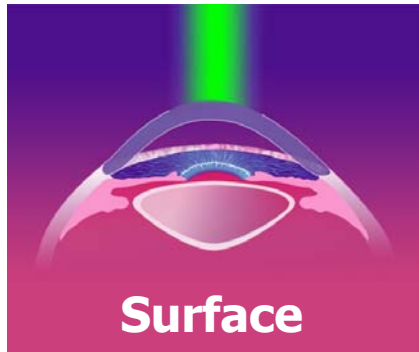


- **LASIK**
- Hinged flap
- Superior hinge
- Hansatome Keratome
- Nomograms

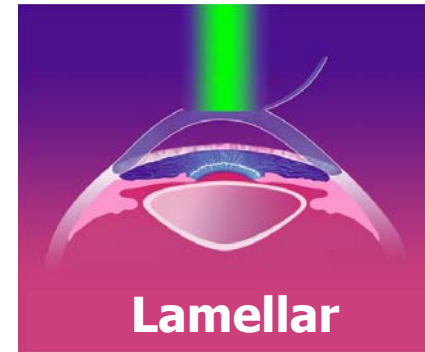


# Evolution of Refractive Surgery:

## - Technique **2000**



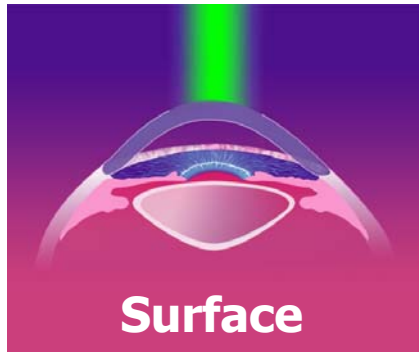
- **LASEK**
- Broad beam, scanning slit and spot lasers
- Epithelial flap
- Up to 7.0 mm OZ
- Eye trackers



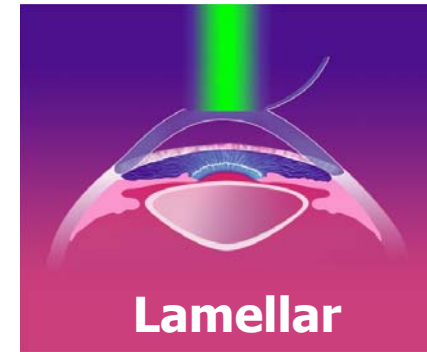
- **LASIK – FDA approved**
- Hinged flap
- Superior hinge
- Hansatome Keratome
- Nomograms

# Evolution of Refractive Surgery:

## - Technique **2001**



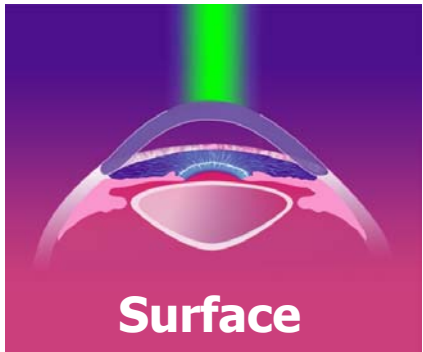
- **LASEK**
- Broad beam, scanning slit and spot lasers
- Epithelial flap
- Up to 7.0 mm OZ
- Eye trackers



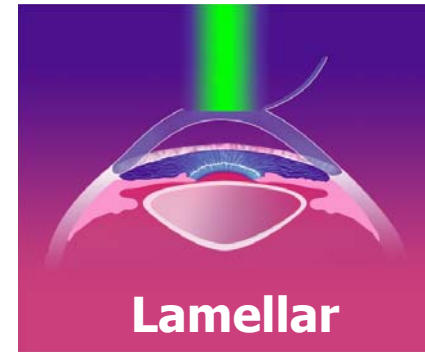
- **LASIK – FDA approved**
- Hinged flap
- Hansatome Keratome
- Nomograms
- Wavefront custom ablation

# Evolution of Refractive Surgery:

## - Technique **2002**



- **Advance Surface Ablation**
- Flying spot lasers
- Alcohol debridment, no flap
- Wavefront custom ablation



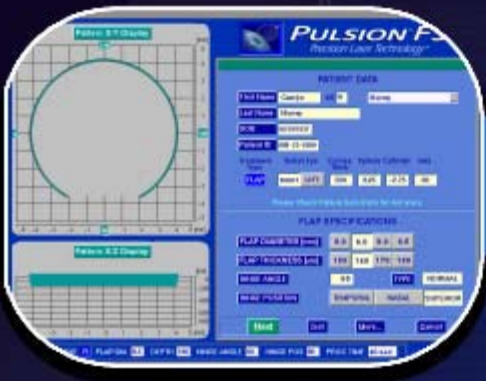
- **IntraLasik**
- Precision laser flap
  - Choice of hinge position and flap thickness
  - Centered on visual axis
- Wavefront custom ablation

# LASIK Technique 2003



# Breakthrough Safety Technology Platform

## Software Controlled Laser



- Optimal Precision
- Ease of Use
- Customizable

## INTRALASE FS Laser



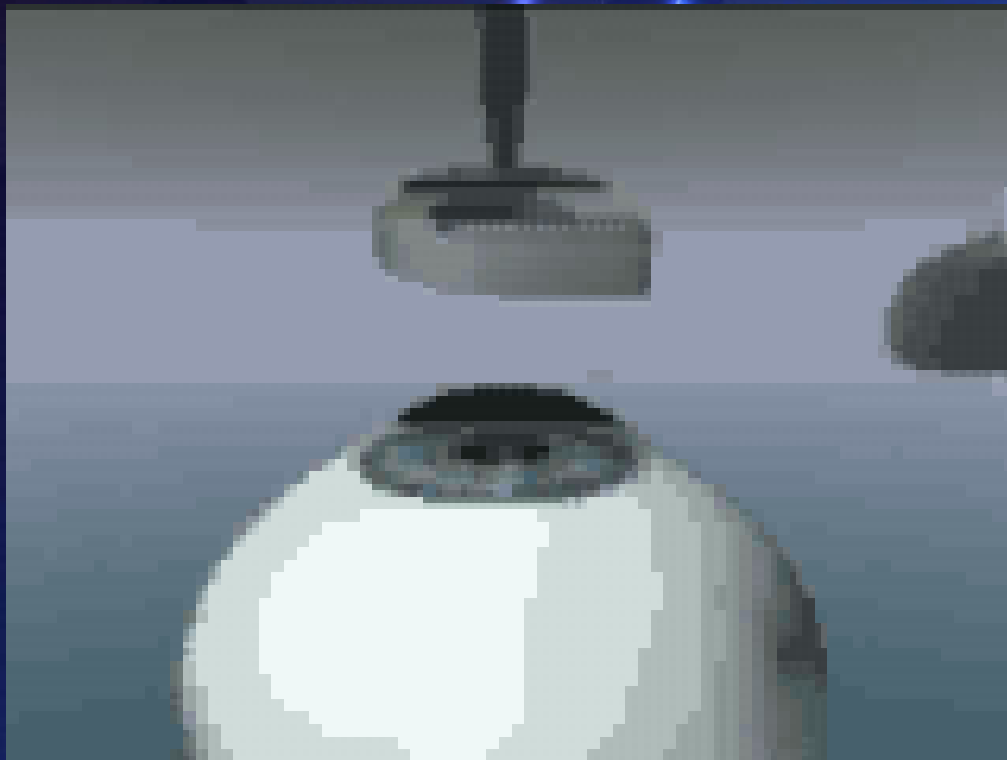
- Revolutionary Ultra Fast
- Micron Level Precision
- Safety Platform

## Patient Interface

- Single Use Disposable
- Sterile
- Simple



# Evolution to IntraLASIK

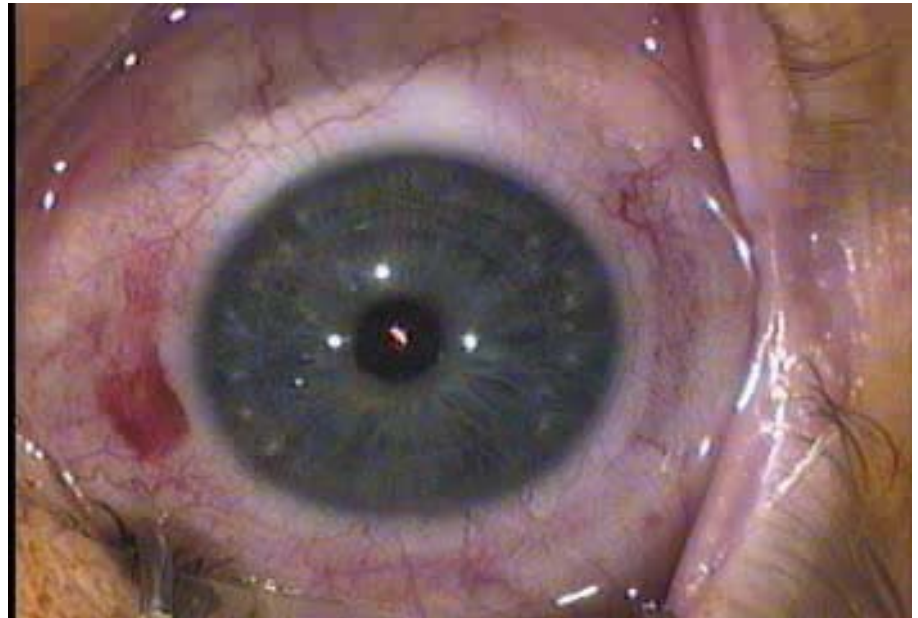
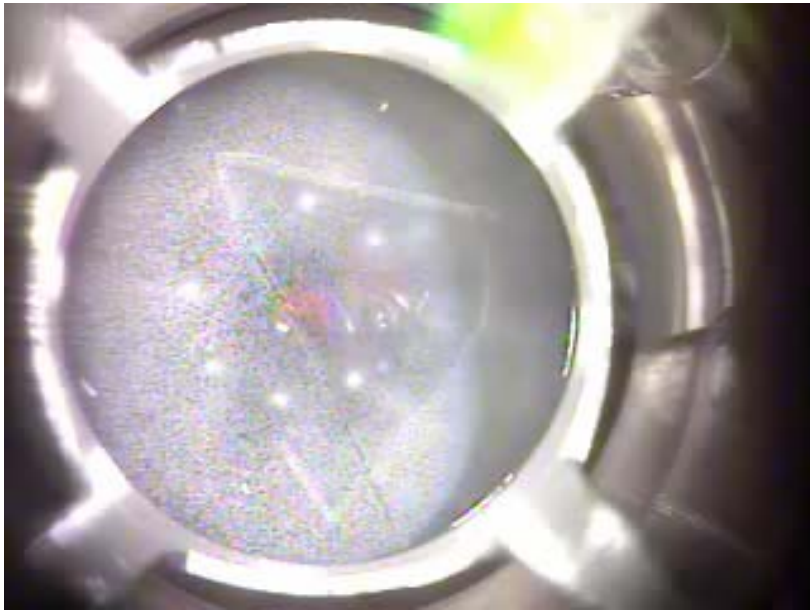




# Evolution to IntraLASIK

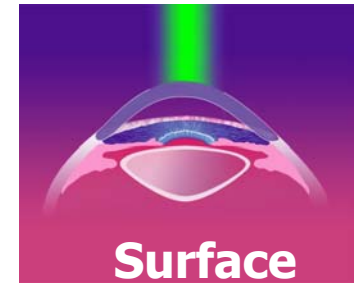


# IntraLASIK Technique 2003





# Surface Ablation Technique 2003



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# Evolution of Refractive Surgery: 2003

- We have worked over the past 10 years to improve safety
  - We have improved our techniques, hardware and software
  - Goals 2003 and beyond:
    - Improve the quality, not just Snellen acuity
    - Choose the technology and procedure that is best for the patient, not your pocketbook
    - Work to help those patients that have had previous refractive surgery upgrade to new technology
-