

# COMPARISON OF FEMTO LASIK AND SBK LASIK WITH MECHANICAL MICROKERATOME

Rafael Mateo, M.D.  
L. Felipe Vejarano, M.D.

[felipev@fov.com.co](mailto:felipev@fov.com.co) - [www.felipevejarano.com](http://www.felipevejarano.com)

Fundación Oftalmológica Vejarano  
Popayán - Colombia  
South America

**WE DON'T HAVE ANY FINANCIAL INTEREST**



# WHY AN INTEREST FOR SBK / THIN-FLAP LASIK? (COMPARED TO LASIK)

- Preservation of the larger corneal nerves
  - Less incidence of post-operative dry eye
  - Reduced loss of corneal sensitivity
- Better quality of vision
  - Fewer flap-induced HOAs
  - Better visual acuity
  - Less glare and halos
  - Better contrast sensitivity
- Less flap edema postop
- Biomechanical properties of the cornea are preserved
  - Less risk of ectasia
  - Better stability
  - Leaving a thicker stromal bed
- Treat more patients: thinner corneas, higher levels of myopia
- Less rate of enhancements (diameter of flap)
- Allows enough space for enhancements if needed



## 2 heads: « 90 » and « 90 L » Evolution 3E 5000 series



Head “90”: cuts on average 105,2 microns (Vejarano)

Head “90 L”: cuts on average 104,8 microns (Vejarano)

Head “90 New Blades”: cuts on average 91,59  $\mu$  (Vejarano)



# DISPOSABLE 90 HEAD WITH PLASTIC, COMPOSITE OR METALIC RING (In average)

(260 eyes)

**Vertical Flap Diameter (mm)**

$9,38 \pm 0,32$  (8,80 - 10,00)

**Stromal Ablation Diameter (mm)** (96,78%)

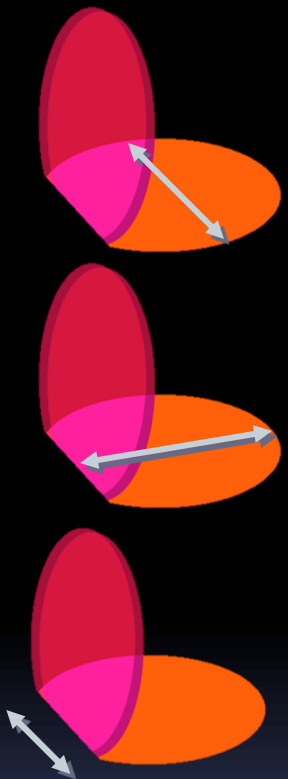
$9,07 \pm 0,29$  (8,30 - 9,80)

**Hinge size (mm)**

$2,89 \pm 2,74$  (0,00 - 5,80)

**Flap thickness ( $\mu$ )**

$105,27 \pm 15,46$  (70 - 141)





# DISPOSABLE 90L HEAD WITH COMPOSITE OR METALIC RING

(In average)

(102 eyes)

**Vertical Flap Diameter (mm)**

$9,74 \pm 0,37$  (9,00 - 10,80)

**Stromal Ablation Diameter (mm)** (95,48%)

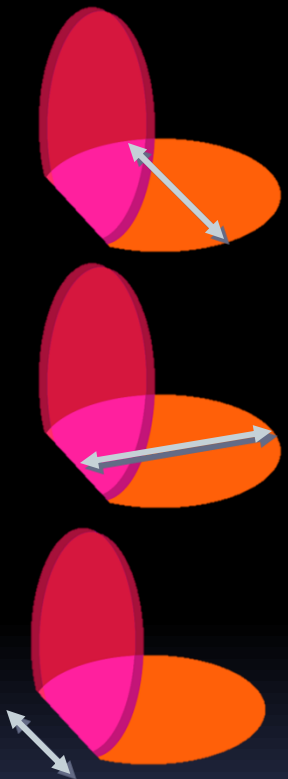
$9,30 \pm 0,31$  (8,80 - 10,00)

**Hinge size (mm)**

$3,90 \pm 1,54$  (0,00 - 6,60)

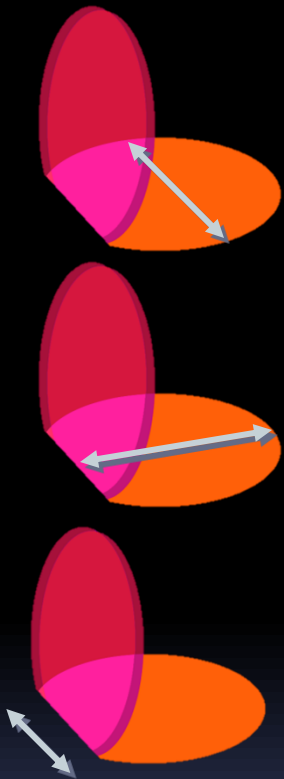
**Flap thickness ( $\mu$ )**

$104,88 \pm 19,47$  (72 - 144)





# DISPOSABLE 90 HEAD “NEW BLADES” WITH METALIC RING (48 eyes)



**Vertical Flap Diameter (mm)**

$9,45 \pm 0,21$  (9,10 - 9,80)

**Stromal Ablation Diameter (mm)** (97,36%)

$9,23 \pm 0,22$  (8,80 - 9,60)

**Hinge size (mm)**

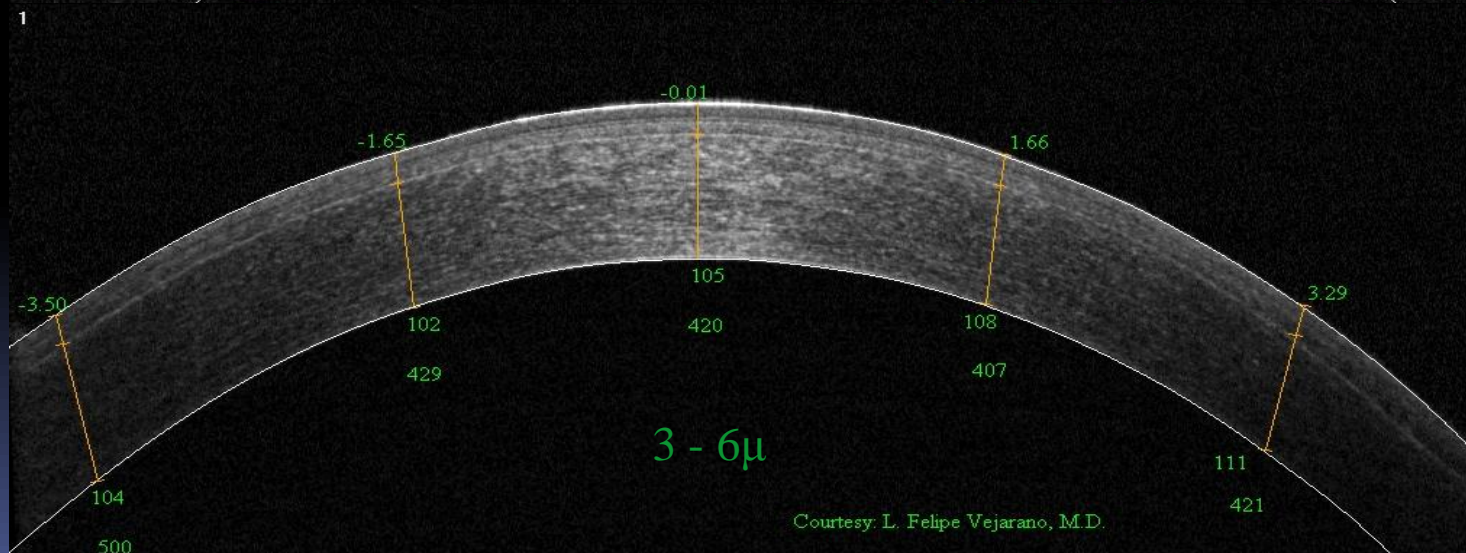
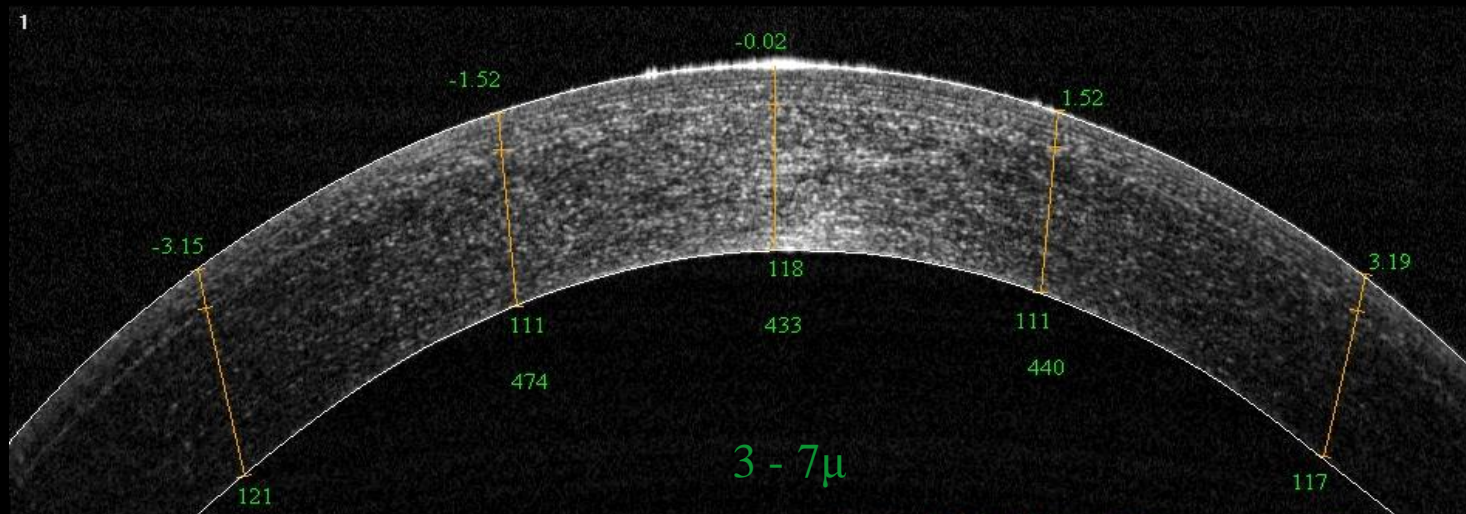
$2,18 \pm 1,61$  (0,00 - 5,00)

**Flap thickness ( $\mu$ )**

$91,59 \pm 12,58$  (63 - 115)

# Regularity of Thick Meniscus Flap OUP 90

Standard Meniscus: 15 to 20 Microns

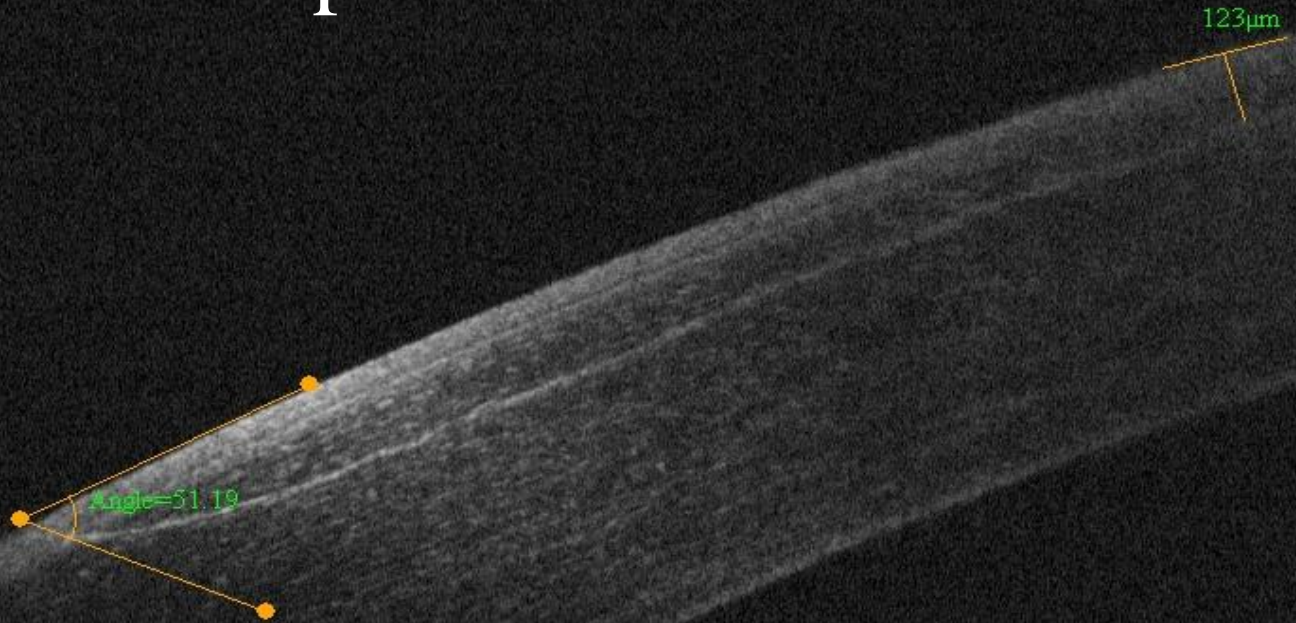


Courtesy: L. Felipe Vejarano, M.D.

OCT OptoVue - RTVue

# Angle of Attack or Side Cut Angle OUP 90

OCT OptoVue - RTVue

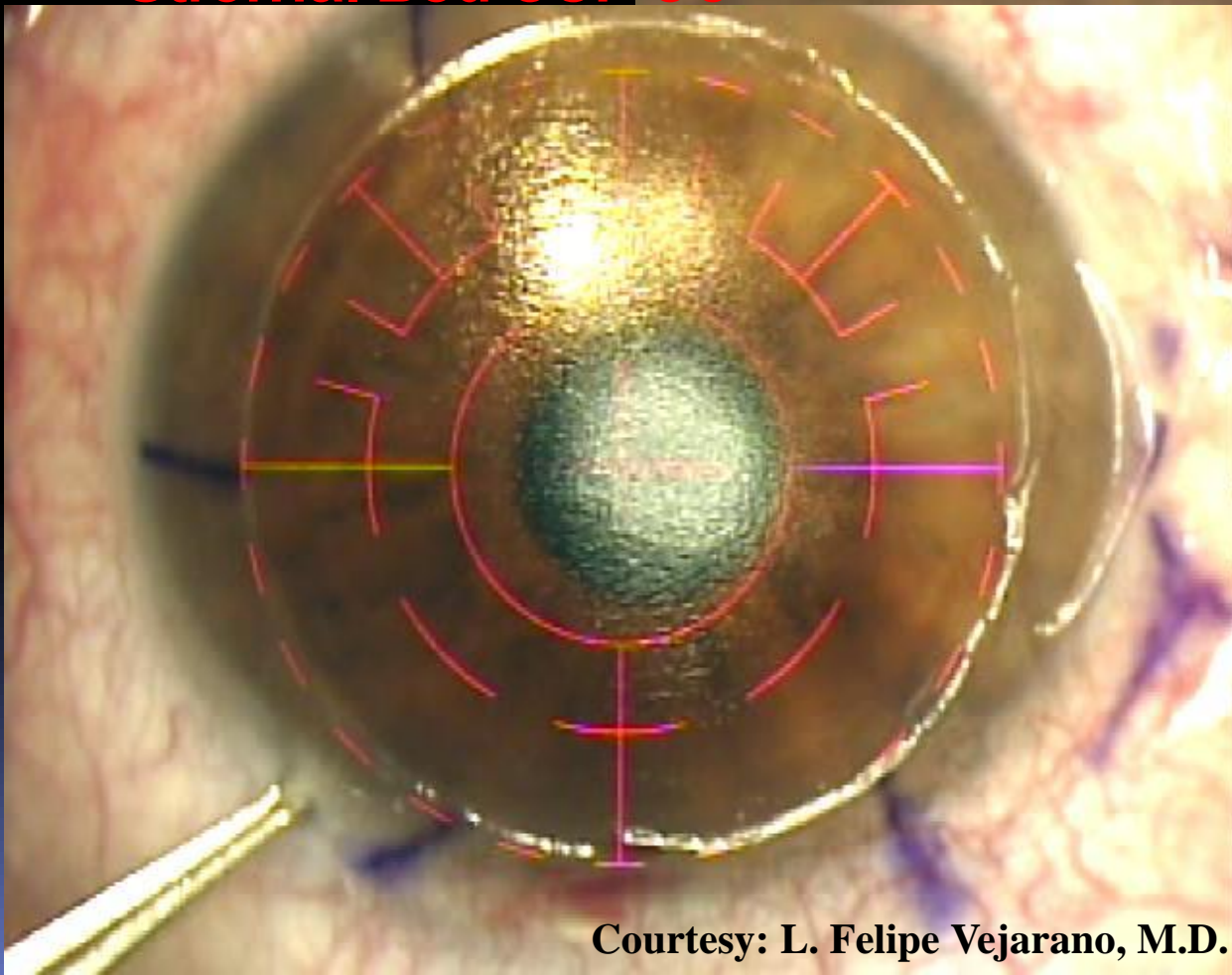






**Angle of Attack or Side Cut Angle oup 90**

**Quality of the Residual  
Stromal Bed OUP 90**

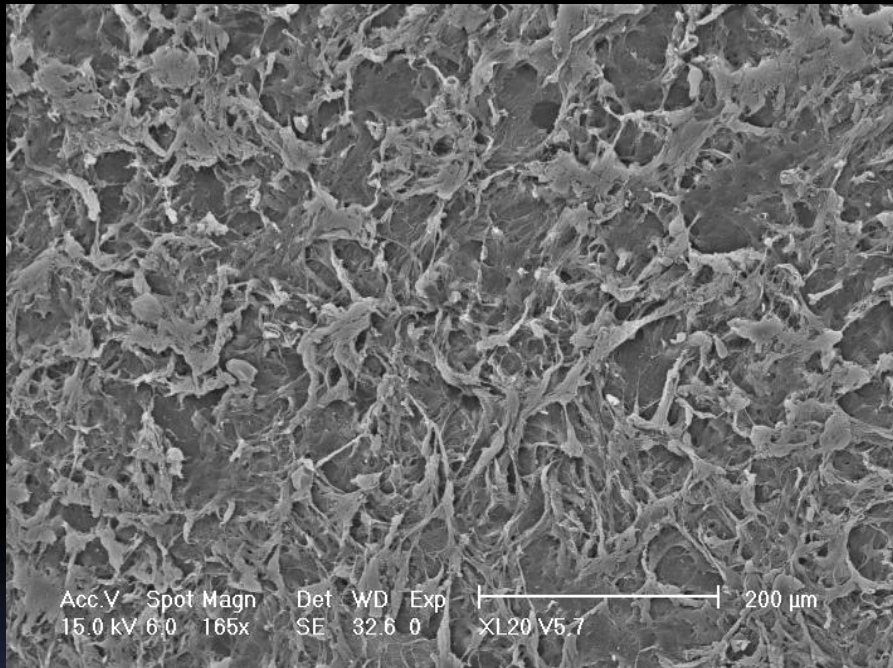


**Courtesy: L. Felipe Vejarano, M.D.**



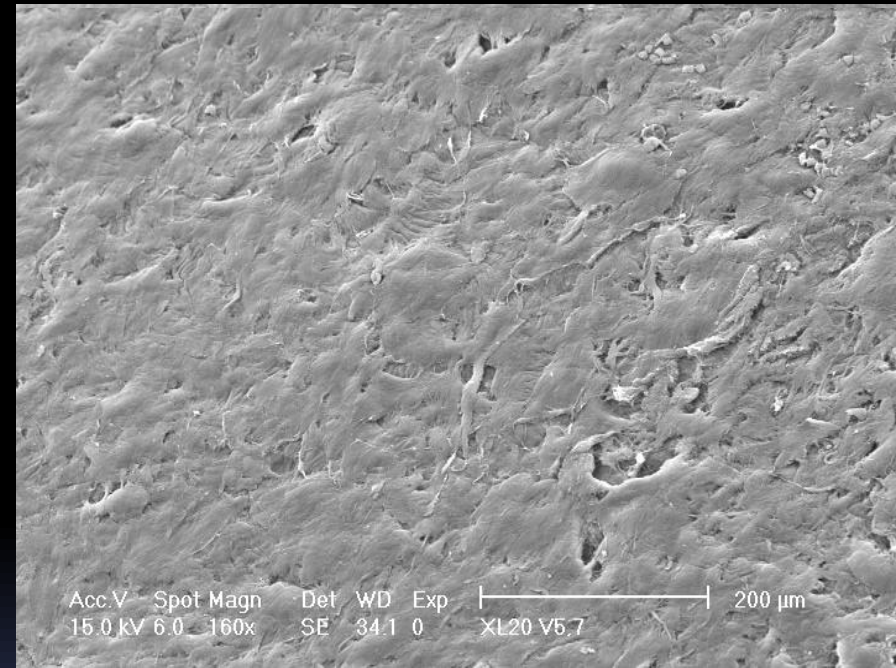
# SEM photographs

Scanning Electron Microscopy x 200



**IntraLase 60kHz**

Irregularities of the residual stromal bed due to the high energy



**OUP SBK**

Residual bed very smooth  
Sharp edges

Richard J. Duffey, MD (ESCRS Berlin 2008)



# Conclusion

**Truely I need to eliminate my Mechanical Microkeratome and buy a new Femtosecond Laser to obtain the “state-of-the-art SBK thin flap LASIK”?**

No I don`t have to..... and Yes,  
**SBK WITHOUT FEMTOLASER IS  
POSSIBLE**



# Conclusion

Good quality stromal beds could be efficiently obtained using the Moria One Use-Plus SBK

**Similar** with femtosecond lasers: Planar Flaps, safety, reliability, reproducibility, no further complications

**Difference** with femtosecond lasers: less time procedure, better regularity of the stromal bed, Inverted Bevel-In Side cut angle:

Intralase 150°; FEMTEC 120/130°;

DaVinci (LDV) 35°; VISUMAX 90/135°;

OUP SBK 56°

The flaps created by the One Use-Plus SBK are highly predictable and consistent in terms of :

**thickness, shape, and size**

Excellent visual outcomes

The Best mechanical microkeratome able to perform Thin-Flap LASIK (Sub-Bowman Keratomileusis)