

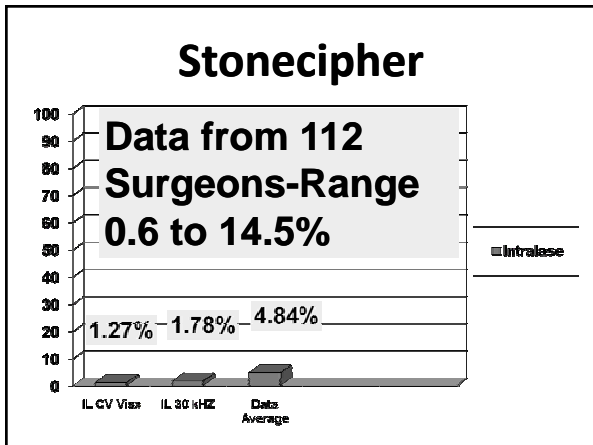
Thin Flap LASIK: Why all the excitement?

EyeWorld Symposium
New Orleans, LA
Karl Stonecipher, MD

LASIK Enhancement Rates: Femtosecond Laser vs. Mechanical Microkeratomes

Predictability

- **Superior Quality of Vision**
 - Durrie/Kezirian. JCRS,2005.
- **Postoperative induced cylinder in SPHERE treatments showed significantly less astigmatism with Intralase than either mechanical keratome (p < 0.01)**
 - Stonecipher / Kezirian JCRS, 2004
 - Durrie / Kezirian JCRS Jan, 2005
- **Surgically Induced Refractive Change**
 - SIRC with the Hansatome: 0.42+/-0.28 D
 - SIRC with the Intralase: 0.05 +/-0.11 D
 - Stonecipher,/Kezirian ESCRS 2005
- **Enhancements**
 - 1000 consecutive IL LASIK flaps. Binder PS, JCRS 2006



ENHANCEMENTS

	C-LASIK	INTRALASIK
NUMBER	572/13,721	131/9361
ENHANCEMENT RATE	4.17%	1.39%

Enhancement Rates

- Lasers are improved
- Tracking is improved
- Registration is improved
- Nomogram development is better

However with the FS laser....

Surgical induced refractive change (SRIC) is less with the FS laser

- Use IntraLase to produce smaller diameter flaps with controlled hinge angle results in greater exposure of effective stromal bed area. (*Slade ILUM 2006/Assil ESCRS 2007*)
- IntraLase created flaps with 60 kHz produce a smoother corneal surface than the Zyoptics XP (*Binder JCRS, 2007*)

Less Flap-Induced Higher Order Aberration (*Tran, et al, JCRS, 2005/ Durrie and Kezirian, JCRS, 2005*)

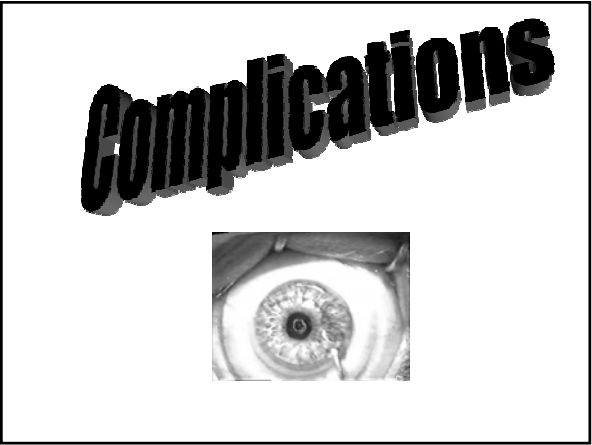
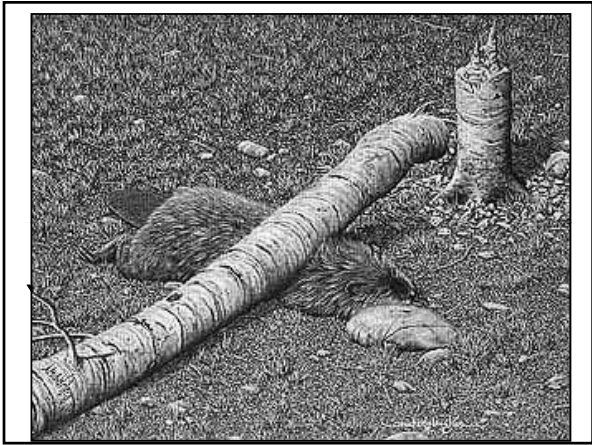
Flap architecture is better

- Blade cuts also require fluid whereas the FS laser bed is dry (*Stonecipher JCRS 2004*)

Biomechanics are better

Loss of mechanical strength after Microkeratome Incision (*Jaycock, Lobo, Tyrer, Marshall JCRS 2005*)

Complications and Complication Rates with Mechanical Microkeratomes and Femtosecond Lasers



Complications: The Study

A prospective series of 23082 LASIK cases performed by me. I have also added to the list published values when available.

Keratome related Complications

Example of published Incidences**

	MK*	FS**	MK**
E.I. Requiring Removal	1.7 %	0.03%	0.12%
Epithelial Defects	5.0%	0.016%	0.45%
Keratoectasia	0.02 %	0.0%	0.02%
Incomplete Pass	1.2 %	0.05%***	0.19%
Thin Flap	0.3 %	0.012%	0.072%
Free Cap	0.1 %	0.0%	0.01%
Button Hole	0.3 %	0.0%	0.015%
Torn Flap	NA	0.03%	0.0%

**Prospective data KGS 13721 MK cases & 9361 FS cases

***Still able to treat

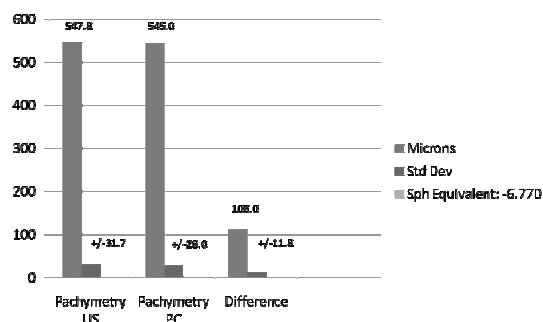
So if that did not help
convince you how about this?

**How many of you rule out
patient's in your practice for
surgery?**

So how do we decide?

- **Pachymetry?**
– 500 microns
- **Corneal Topography?**
– Asymmetric Bow-Tie
- **Posterior Float?**
- **Clinical History?**

Pachymetry US/Pentacam IL 100 u Flap (N-2659)



When I looked at a prospective series of 2659 eyes

- I would have cancelled 10.4% (277) of these cases if I did not have access to a FS laser
 - PRK is an option but less predictable
 - ICL is an option but expense is an issue

Now that is a big
number....

Thank you