

Amadeus or M2 Performance differences in LASIK with the Allegretto-Wave

AAO/ISRS subspecialty day 2003
Anaheim, CA



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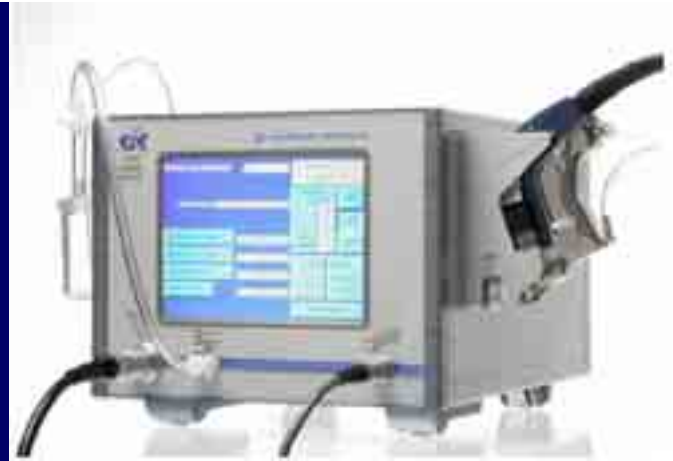


The author(s) acknowledge no financial interest in the subject matter of this presentation.



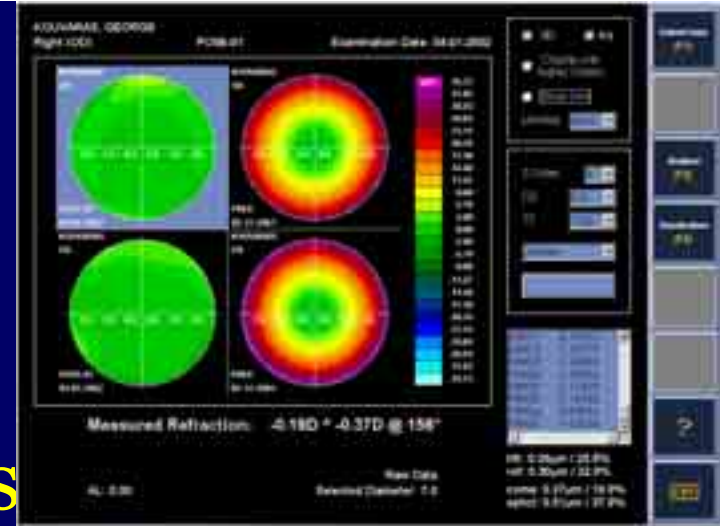
Methods

- 100 consecutive eyes, underwent LASIK for myopia or myopic astigmatism with the Wavelight ALLEGRETTO-WAVE laser.
- We utilized in random assignment the Amadeus 160 head(Allergan, CA) and the M2 110 head (Moria, France) microkeratomes.
- We evaluated pre-and postop refraction, UCVA, BCVA,

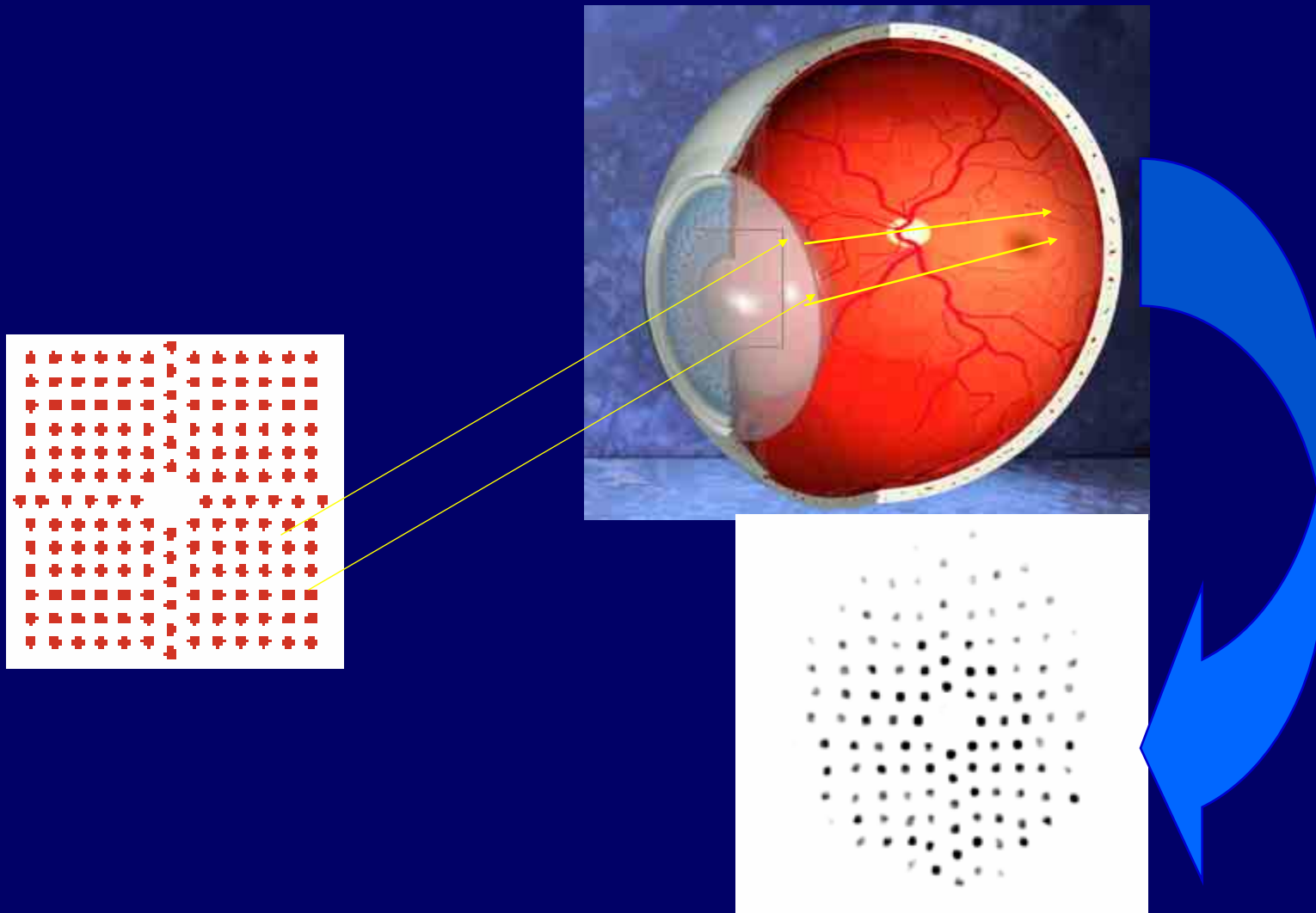


Methods

- Flap parameters: thickness, diameter, quality and complications. Mean follow-up was 4 months (3-5)
- Wavefront changes (high order aberrations RMSH),



Measurement principle Tserrning



Results

- 49 eyes were assigned to the Amadeus 160 and 51 to the M2 110.
- Mean values:
- pre-operative sphere was -4.75 D (-1.00 to -12.50)
- cylinder -1.25 (-0.25 to -3.75)

Results

- In both Amadeus and M2 groups combined:
- UCVA improved from 20/200 to 20/25.
- At 3 months 87% of the eyes were 20/20,
- 47% 20/15 and 32% 20/10.
- 100% of eye were within +/- 1D at 3 months.

Results

- Flap diameter
 - Amadeus: 10.8 mm (+/- 0.5)
 - M2: 8.7 mm (+/- 0.5)
- Flap thickness
 - Amadeus 160: 155 microns (+/- 28)
 - M2 110: 125 microns (+/- 21)
- Postoperative increase of RMSH in both groups combined 35% (mean 6% pre-op to 9% post-op).
- Statistical difference in aberrations induction Amadeus 55%, M2 27% ($p < .0.01$).

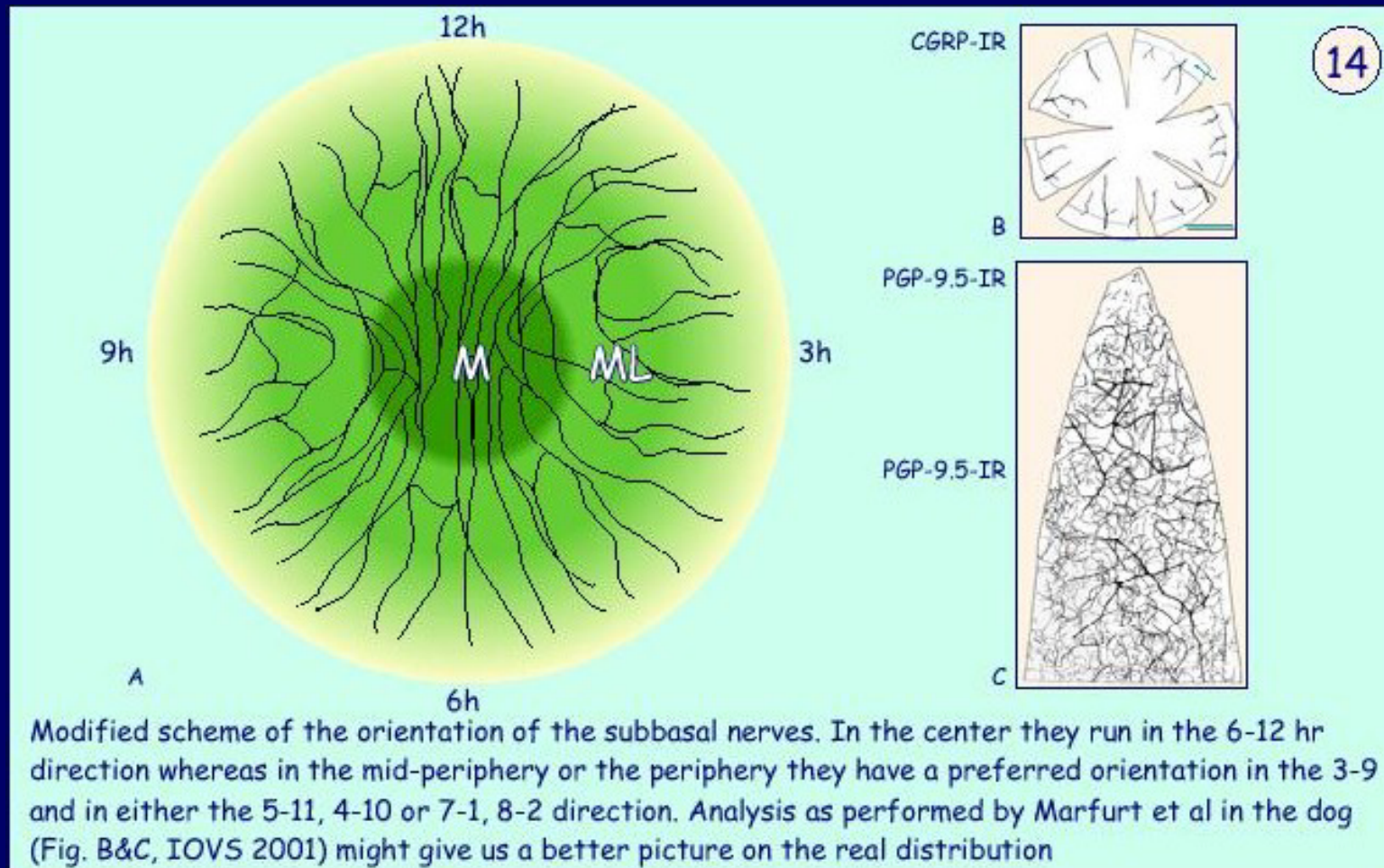
Results

- There were 3 irregular flaps with the Amadeus, 160 1 with the M2 110,
- There were 5 cases of mild epithelial ingrowth with the Amadeus only.
- Statistical difference in first post-op day UCVA :20/28 with the Amadeus, 20/22 with the M2 ($p < 0.05$).
- No significant complications were noted in this limited group.

Conclusions

- LASIK utilizing either of the 2 microkeratomes and the ALLEGRETTO laser appears to be safe and very effective in the correction of myopic astigmatism.
- The M2 may induce less high order aberrations
 - Smaller diameter flap with M2: 8.7 vs 10.2
 - Thinner flap with M2: 125 vs 155
 - Tear film disturbance due to the larger flap in the Amadeus group

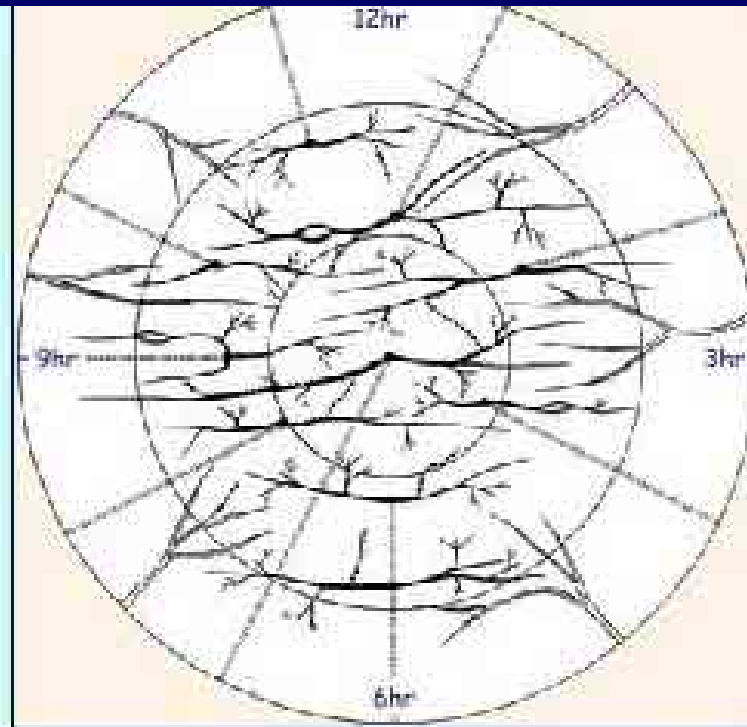
Flap orientation can affect dry eye-Subbasal nerves



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Courtesy of Linda Muller, PhD- ARVO 2003

Orientation of NF bundles in subbasal plexus



Published scheme based on light and electron microscopical observations. Interrupted lines represent stromal nerve fiber bundles and black lines nerve fiber bundles in the subbasal plexus (Müller et al. IOVS 1997)

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Conclusions

- The Amadeus was considered louder and longer on its pass than the M2 inducing potentially higher patient anxiety
- The customised ring and stopper profile with the M2 provide adequate flap dimensions for different keratometry cases
- The Amadeus was easier to use, as there is no intra-operative assembly

Thank you



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