


# Monovision LASIK- the best option to treat presbyopia?

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AMO Meeting Zermatt 200

## Treatment of Refractive Errors

- Femto-LASIK
- Epi-LASIK/ PRK/  
LASEK
- Phakic IOL
- Refractive lens  
exchange

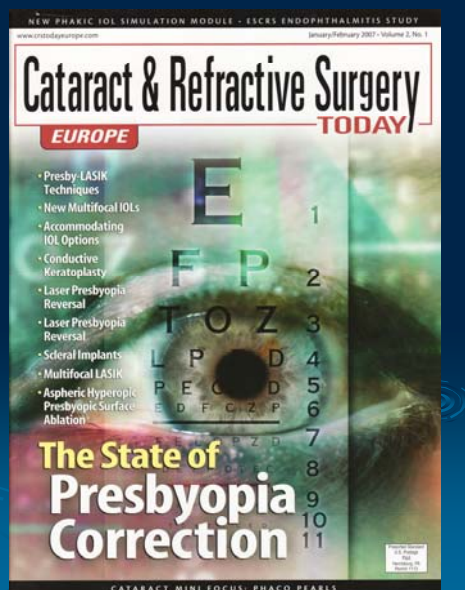


# Treatment of Presbyopia



# Treatment of Presbyopia

- No perfect cure yet
- Compromise

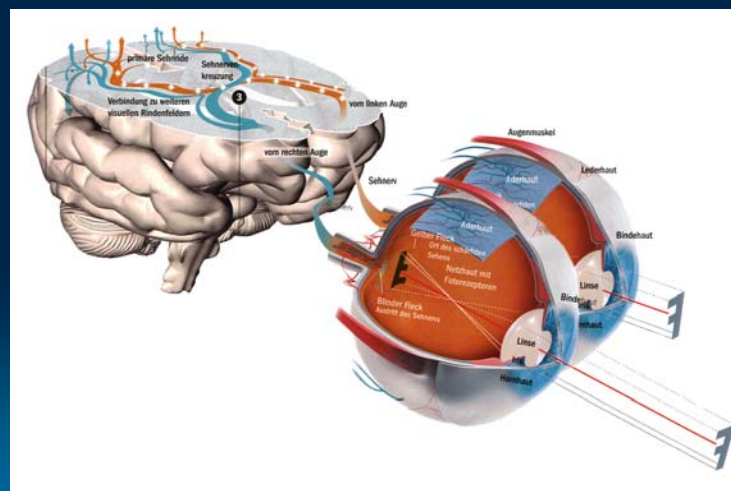


## Treatment of Presbyopia

- **Laser treatment options**
  - Monovision LASIK
  - CK
  - PresbyLASIK
  - Intrastromal femtosecond procedure (intraCOR™, FEMTEC)
- **Presbyopia-correcting IOLs**
  - Multifocal IOLs (ReZoom, ReSTOR, Tecnis, AcriLisa)
  - „Accomodating“ IOLs (Crystalens, Synchrony)
- **Intracorneal Inlays (AcuFocus™)**

## Monovision LASIK

- **Principle**



## Monovision Concept

- Intraocular suppression of blur depending on cortical function: brain factor
- Conflicting images, binocular fusion
- Limit myopic defocus to -1.0 to -1.5 D
  - Avoids asthenopia
  - Preserves contrast sensitivity
  - Better stereoacuity

## Monovision LASIK

Results Mannheim 2007/2008

- 1.1.2007 to 1.11.2008  
Retrospective observational case series
- Monovision was offered to all **273** (pre)presbyopic patients ( $\geq 40$ y.)
  - **165** patients chose bilateral distance correction
  - **108** patients were tested preop (CL) for MV
    - **63 patients (58%) decided to have monovision** (Mean Age  $50.4 \pm 5.0$  years (42 to 66 years))

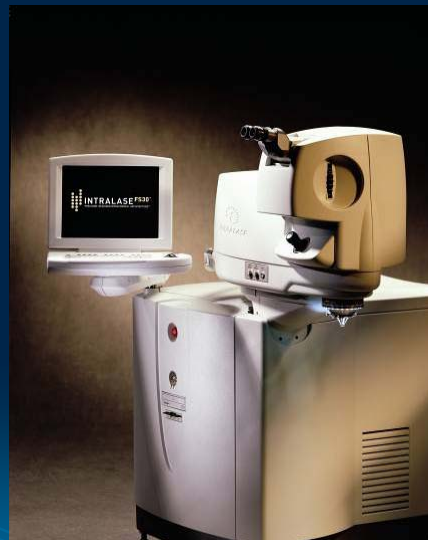
## Monovision LASIK

Results Mannheim 2007/2008

- Conventional monovision
  - dominant eye corrected for distance
  - non-dominant eye corrected for near
- Preoperative monovision trial with soft contact lenses
- Target refraction monovision eye  
-1.0 to -1.5 D

## Monovision LASIK

Visx Star S4 IR



IntraLase 60

## Monovision LASIK

- Spectacle independence in all patients for everyday tasks
- Reading glasses required for prolonged reading in 6.3 %

## Monovision LASIK

- 8 retreatments:  
dominant (distance-corrected) eye  
undercorrected
- 1 patient not satisfied with monovision:  
monovision reversal
- *Success rate 98.5%*

## Monovision LASIK

- Braun EH, Lee J, Steinert RF.  
*Monovision in LASIK.*  
Ophthalmology.2008 Jul;115(7):1196-202

## Monovision LASIK

- 284 LASIK patients > 45 y.
  - 188 (67%) chose monovision
  - 96 (34%) chose bilateral distance correction
- 85% chose conventional MV (dom. eye corrected for distance)
- 7% monovision reversal
- 27.9% of patients had subsequent enhancement of their distance vision eye
  - Monovision patients have a lower tolerance for residual refractive error

## Monovision LASIK

➤ Fawcett SL et al.

*Stereoacuity and foveal fusion in adults with long-standing surgical monovision.*

J AAPOS. 2001 Dec;5(6):342-7

## Monovision LASIK

➤ Advantage: reversable

➤ Disdvantage:

- Reduced stereoacuity dependent on amount of anisometropia
  - > 1.5 D: stereoacuity 150"
  - < 1.5 D: stereoacuity 100"
  - Control group: 40 "





## Conclusion

- Modified Monovision LASIK offers spectacle independence for everyday visual tasks in most patients
- Monovision has the advantage that it can be corrected for distance and for near with glasses if maximum visual performance is required

## Conclusion

- Glasses for driving!
- Always perform contact lens trial as 42% of patients did not accept monovision correction!

Thank you very much!

Vielen Dank!