

Das Prinzip des KAMRA-Implantates zur Korrektur der Alterssichtigkeit



Wie machen wir das?

Hr. Dr. Markus Bauer

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Prinzip

- Funktionsprinzip der stenopäischen Lücke
- Implantation in das nicht-dominante Auge nach einem Femtolaser-LASIK-Schnitt
- Dadurch Erhöhung der Tiefenschärfe
- Ohne wesentliche Kontrasteinbuße in der Ferne

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Inlay Design

Thickness: 5μ

Weights less than a salt crystal

Curvature: 7.5 mm radius

1.6mm \varnothing

8,400 holes (5-11 μ)

3.8mm overall diameter

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Near Vision

Young Eye

Lens accommodates to focus near object

Presbyopia

Lens cannot accommodate

WithInlay

Inlay

Depth of Focus Simulation

$f/5.6$
simulates
human eye
~ 4.0 mm
pupil

$f/22$
Simulates the
effect of the
Inlay ~
1.6 mm pupil

Patient Selection

Presbyopes
Ages 40+

Emmetropes
Plano to -1.00D
Cylinder up to -0.75D

Ametropes
-5.00D to +3.00 D
Cylinder up to -3.00D

Pseudophakes
-5.00D to +3.00 D
Cylinder up to -3.00D

Pocket Surgical
Procedure

Combined LASIK

Combined LASIK

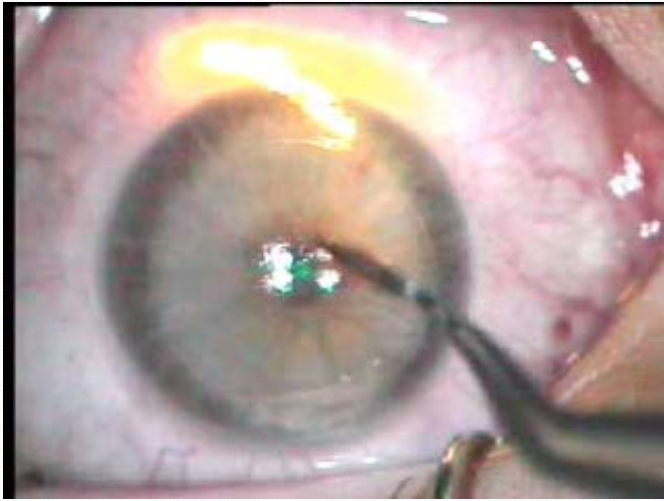
Pocket Surgical Procedure



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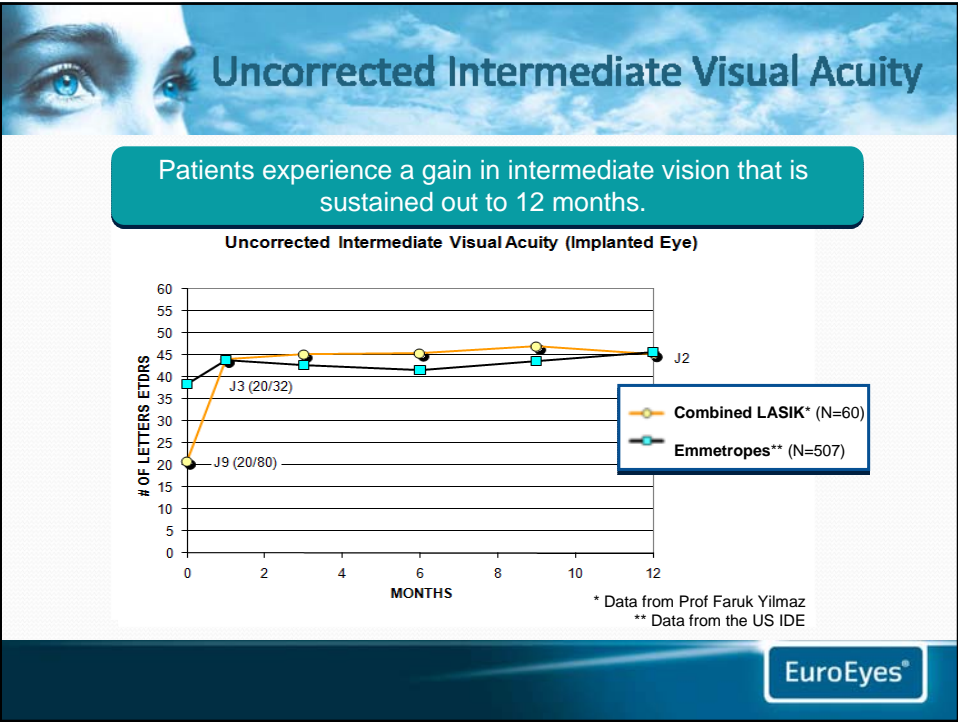
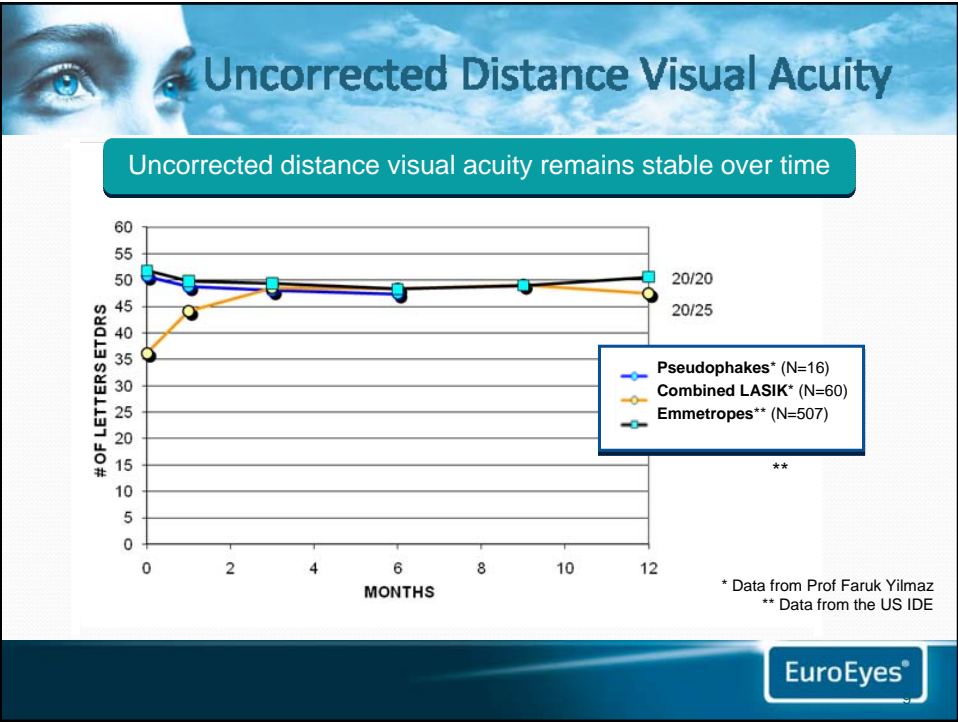
The image shows a close-up, microscopic view of a surgical instrument, likely a phacoemulsification probe, positioned within a pre-made capsular bag. The instrument is surrounded by the clear, circular structure of the bag. The background is dark, highlighting the metallic and transparent components of the surgical setup.

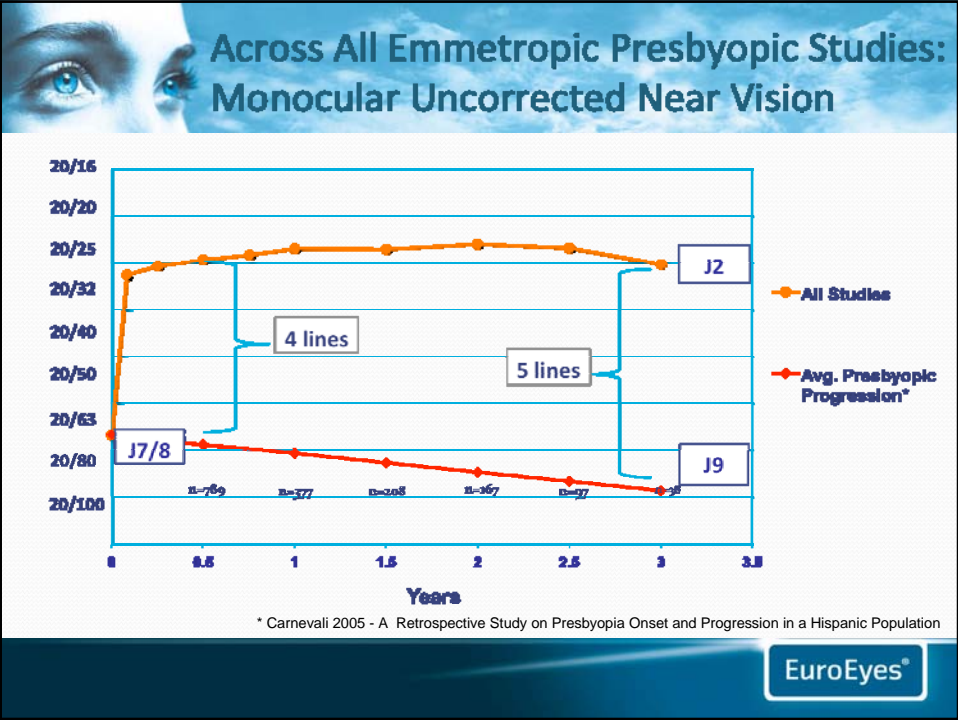
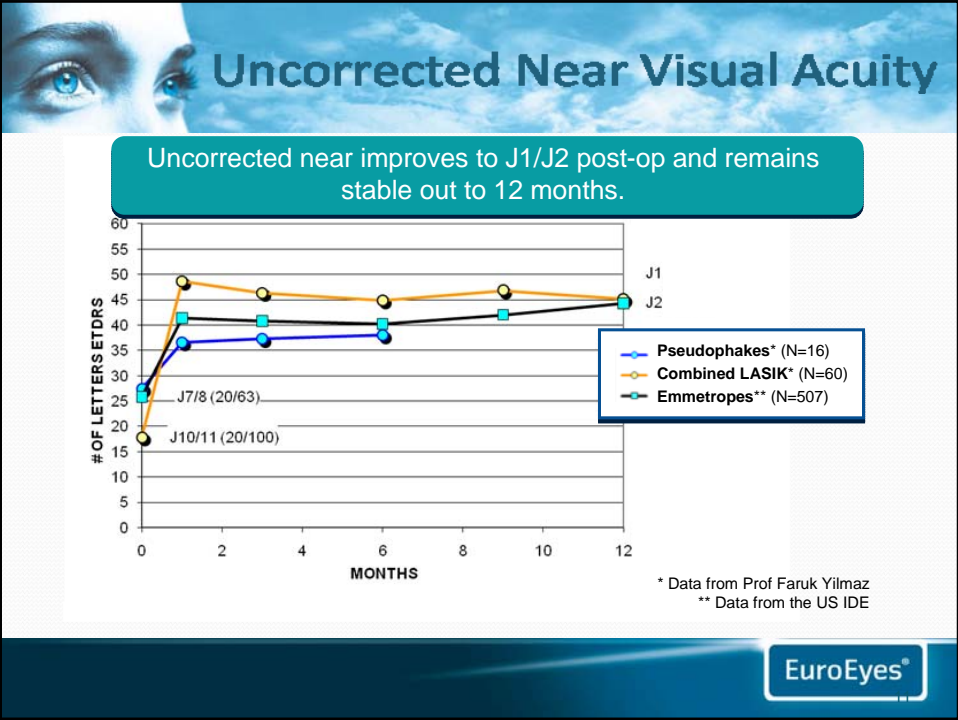
Combined LASIK

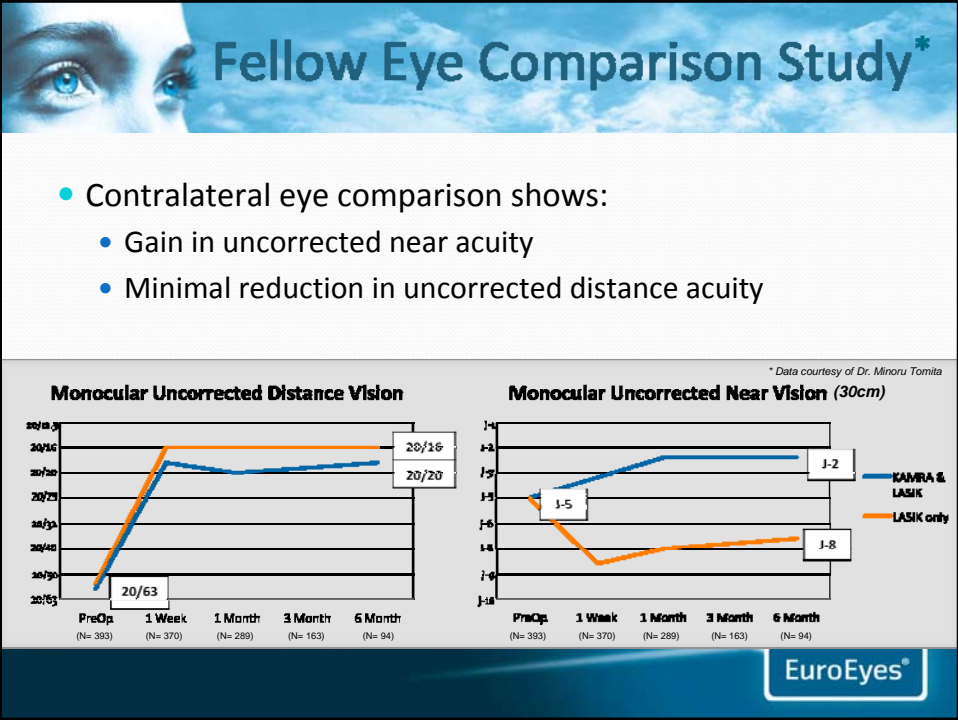


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The image displays an intraoperative view of a combined LASIK procedure. A circular flap of the cornea has been lifted, revealing the underlying stroma. A surgical instrument is visible, performing a procedure on the posterior surface of the flap. A bright yellow light source is positioned above the eye, illuminating the surgical field.







The AcuTarget™ System

- Pre-op Diagnostic
 - Identify 1st Purkinje reflex
 - Identify pupil centroid
- Surgical Guidance
 - Real-time inlay placement indicator
- Post-op Assessment
 - Intended vs. achieved placement

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Pre-Operative Planning

Patient ID: 7
Patient Eye: OD
Pocket Angle: 0.00

SMI
Surgical Micro-Instruments

Planned Pocket

1st Purkinje Reflex & Pupil Centroid

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Intra-Operative Guidance

Patient Info:
Patient ID: 7
Patient Eye: OD
Pocket Angle: 0.00
Cornea Chamber: 4.20

Patient Info:
Patient ID: 7
Patient Eye: OD
Pocket Angle: 0.00
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Inlay Placement Indicator

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Post-Op Evaluation

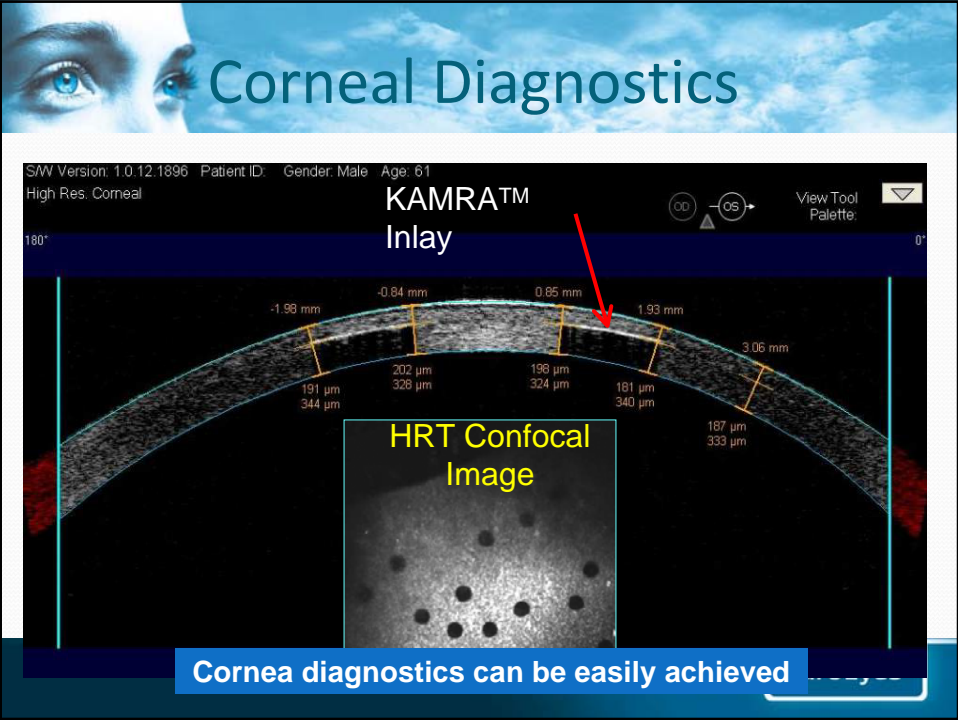
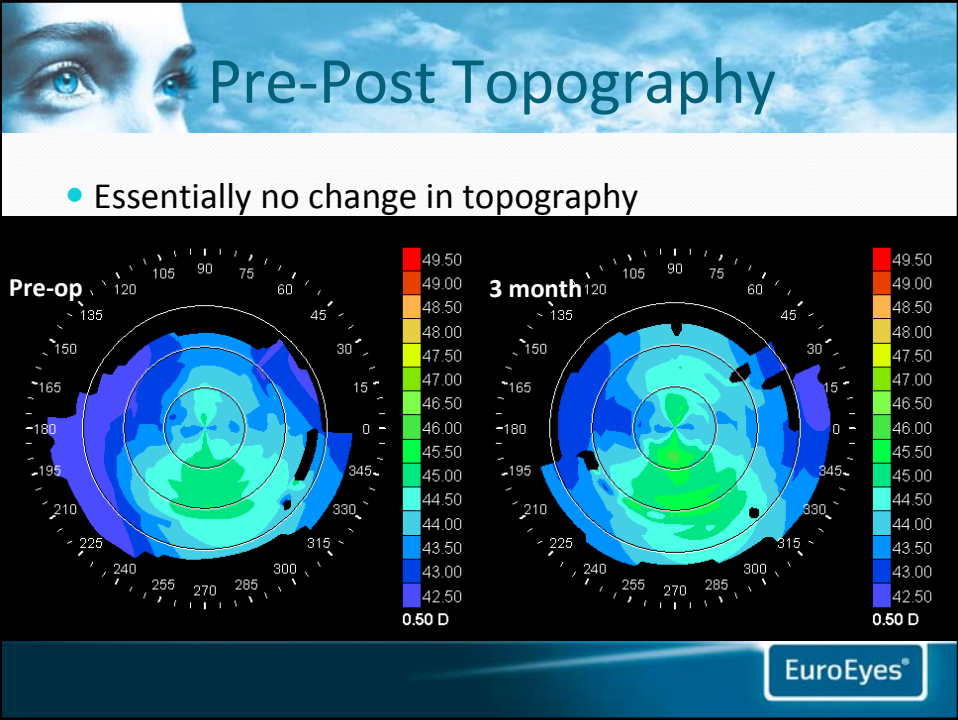
Centered Inlay

Decentered Inlay

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How does the KAMRA Inlay affect ophthalmic assessments?

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Anterior Chamber Angle

Gonioscopy imaging can be easily achieved

Images courtesy of Gunther Grabner, MD

Chamber Angle Image

Patient Name: [REDACTED] DOB (age): 09/10/1958 (49) Sex: [REDACTED]	Disease Category: Algorithm Version: A3, 0, 2, 0 Gender: F	Photographer: Salter, Lavin S Examine Date: 05/22/2008 Primary Physician: Shaker, Perry S
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OS CL - Angle SSI = 48.6 3,000nm Scan Length

of Averages: 12
Average
No Average

Chamber angle imaging can be achieved with the inlay in place

Report Date: Thursday May 22 11:31:21 2008

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Image courtesy of Gunther Grabner, MD

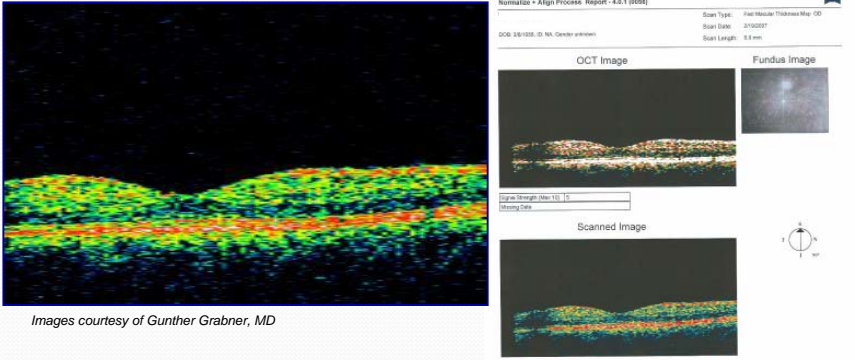
Crystalline Lens



Cataracts and lens opacities can be easily viewed with a dilated pupil

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Macula: Stratus-OCT 6 months post-op

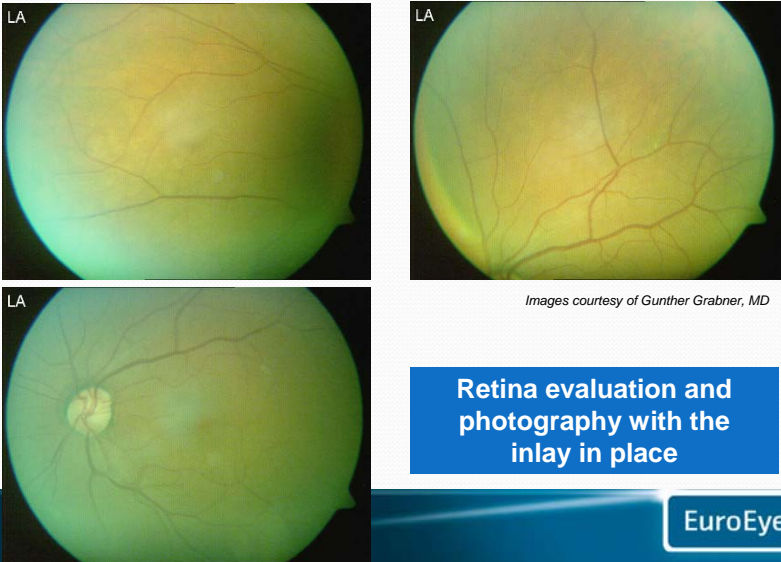


Images courtesy of Gunther Grabner, MD

High resolution retinal imaging can be easily achieved even though an non-dilated pupil

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Fundus Exam: Center & Periphery



LA

LA

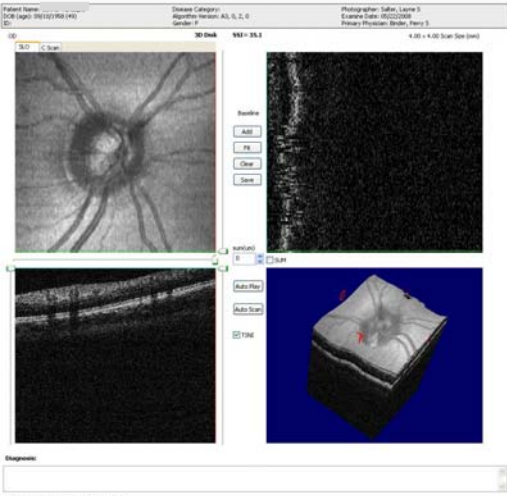
LA

Images courtesy of Gunther Grabner, MD

Retina evaluation and photography with the inlay in place

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Optic Nerve Imaging 6-months post-op



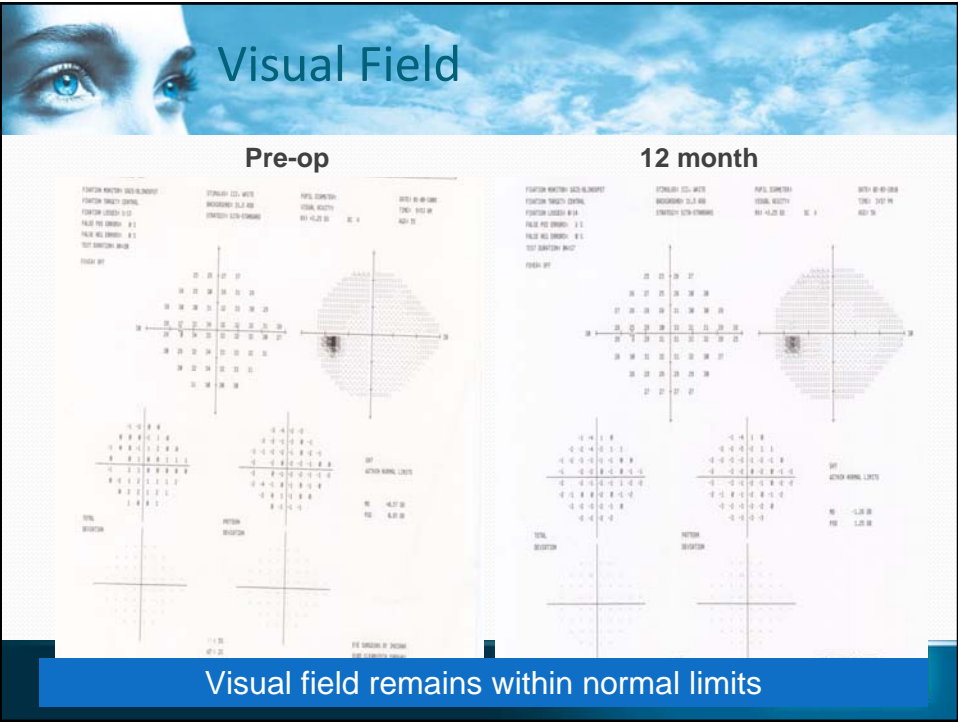
Optic Nerve and RNFL evaluation easily achieved

3D Disk 181 x 18.1 4.00 x 4.00 Scan Size (mm)

Diagnosis:

Report Date: Thursday, May 22 11:08:50 2008

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Eigene Ergebnisse

Totals	# of Subjects	Mean UCNVA	Mean UCDVA	Mean DCNVA w/ ADD	Mean DCDVA
Pre-op	5	27,4 J-7/J-8	52,4 20/20	54,8 J-1+	54,8 20/16
1 Month	5	38,8 J-3	47,2 20/25		
3 Months	5	51,0 J-1	49,0 20/20	52,0 J-1	50,8 20/20
6 Months	5	43,6 J-2	45,8 20/25	50,4 J-1	47,0 20/25
9 Months	4	50,0 J-1	49,5 20/20	52,3 J-1	50,8 20/20
12 Months	4	49,0 J-1	51,0 20/20	56,5 J-1+	55,5 20/16

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Beurteilung durch die Patienten

	Wiederholung OP	Abhängigkeit von Brille	Sehqualität	Zufriedenheit	Erwartungen erfüllt	Symptome \geq Grad 5
1	Ja	3	2	1	2	Halo (6) Blendung (6) Nachtfahrprobleme (8)
2	Nein	3	3	2	3	Nachtfahrprobleme (8)
3	Unentschieden	3	3	2	3	--
4		2	5	4	4	Trockenheit (5) Halo (5) Blendung (5) gelegentlich verschwommene Sicht (5) Nachtsicht (5)
5	Nein	Explantiert	nach 6 Monaten			


0 = keine Schwierigkeiten 10 = sehr starke Schwierigkeiten

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Vorteile

- Einfache OP
- Übergangloses Sehen
- Keine Refraktionsänderung
- Keine Gesichtsfeldeinschränkung
- Reversibel
- Simulierbar


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Mögliche Komplikationen

- Dezentrierungen
- Entzündungsreaktion
- Infektion
- HH-Einschmelzung
- Visusreduktion
- Kontrasteinbuße
- Schleiersehen
- Halo
- Blendung

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Was sagt man dem Patienten?

- Weniger Abhängigkeit von der Lesehilfe:
„Nicht mehr ständig für Preisschilder oder Handy die Lesebrille zücken müssen.“
- Zum dauerhaften Lesen kann trotzdem eine Lesehilfe notwendig sein
- Wundheilungsprozeß und Gewöhnung dauern einige Wochen
- Es kann zu einem geringen Sehschärfenverlust in der Ferne auf dem operierten Auge kommen, der – soweit bisher im Rahmen der Studie bekannt – binokular jedoch nicht sonderlich stört.
- Bei heller Iris kann das Implantat kosmetisch stärker auffallen („Pseudoanisokorie“).
- Nachtsichtprobleme möglich

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Vielen Dank

EuroEyes alz augenklinik münchen



Dr. M. Bauer

Dr. J. Joergensen

Prof. Th. Neuhann

Dr. B. Lege

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