



COMPARISON OF THE MEDICONTUR 860FAB HYDROPHOBIC IOL AND THE ACRYSOF IQ LONG TERM FOLLOW UP

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PREFERENCE OF AMERICAN OPHTHALMOLOGIST

„What optic material would you want in an IOL implanted in your own eye regardless of cost? And why?”

Type of material	
Hydrophobic acrylic	63%
Silicone	19%
Collamer	9%
Hydrophilic acrylic	9%
PMMA	0%

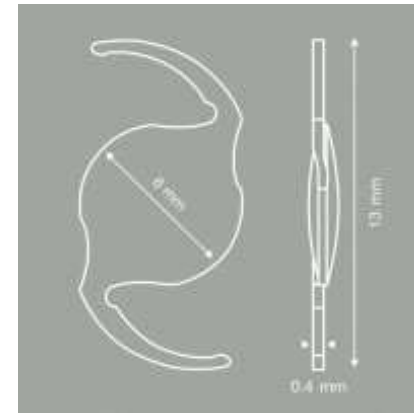
„Assuming no astigmatism, cost no factor, and considering all aspects such as vision quality, near quality, risk of needing LVC after and complication risk, what IOL regimen would you want in your own eyes? And why?”

Type of IOL	
Conventional IOL, emmetropia OU and wear reading glasses	37%
Conventional IOL with monovision	37%
Multifocal IOL	16%
Crystalens, emmetropia OU	2%
Crystalens, with a judicious amount of monovision „boost”	8%

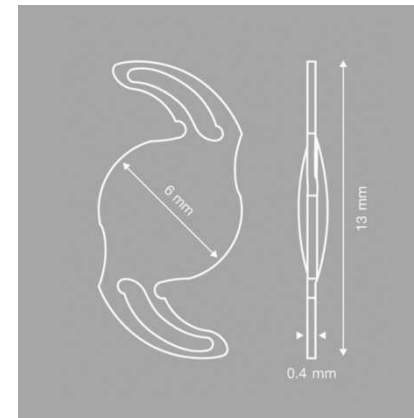
MEDICONTUR HYDROPHOBIC IOLs

- Since 2011 on the market
 - Z-Flex or 860FAB / 860FABY
 - Bi-Flex or 877FAB / 877FABY
- SEMTE hydrophobic co-polymer material
 - reduced tackiness
 - optimal glass transition temperature (T_g) at 4°C
 - excellent pseudo-plasticity for quick centration and positioning
 - low rate of cell adhesion – enhanced PCO prevention
- More than 4000 implantation

Z-Flex

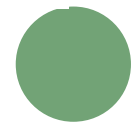
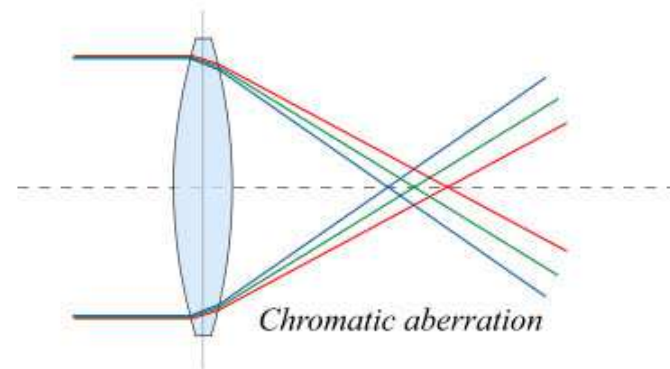
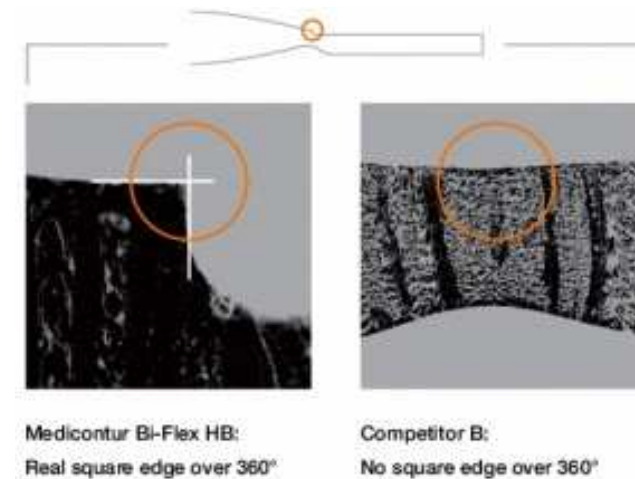


Bi-Flex



MEDICONTUR HYDROPHOBIC IOLs

- Specific lathe cut manufacturing and patented design guarantees the **sharp square edge** all over 360° including the optic–haptic junction zone
- SEMTE material presents the **highest ABBE number (57)** on the market resulting in low chromatic aberration and excellent optical quality



DEMOGRAPHIC DATA

Aim: Compare retrospectively the performance of two hydrophobic IOLs

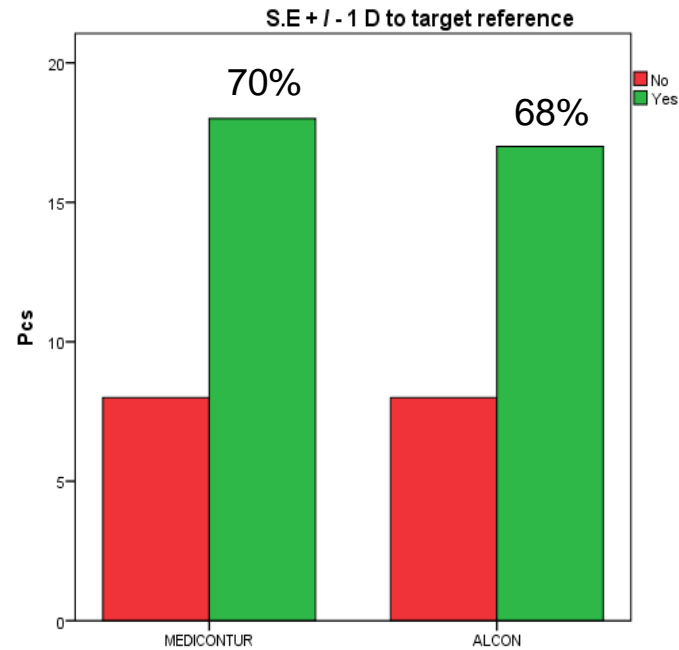
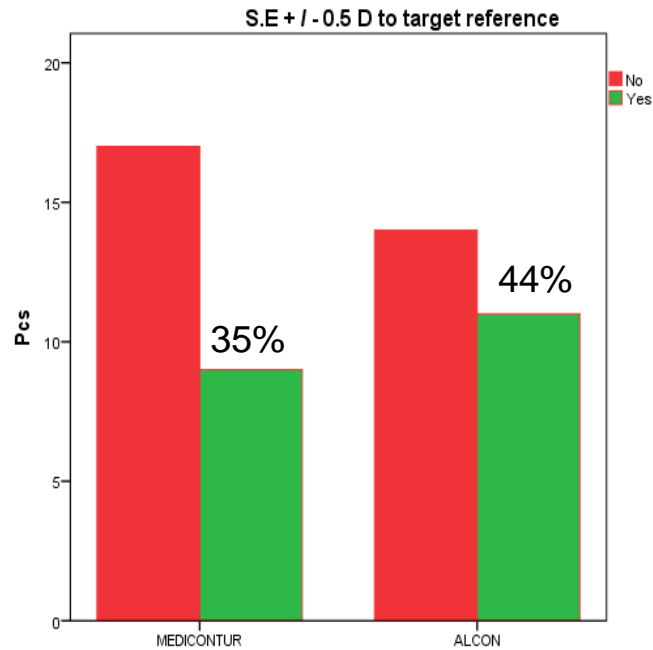
- 860FAB (Medicontur), 26 eyes, 76.09 (± 5.3) years
- SN60WF (Alcon), 25 eyes, 70.60 (± 8.1) years
- One surgeon
- Average follow-up: 4.0 years

Exclusion criteria:

- Any intra- or postoperative complication during phaco
- Corneal or retinal pathology
- Severe dry eye
- Severe or untreated glaucoma
- Anterior capsulorhexis covers not in 360° the edge of the optic
- Other ocular surgery than previous phaco
- Previous YAG laser capsulotomy



REFRACTIVE STABILITY



Pearson's chi-square (Yates continuity correction)
($\chi^2=0.159$, $p=0.690$)

($\chi^2=0.009$, $p=0.925$)

Mean spherical equivalent (Mann-Whitney U test):

Medicontur $\rightarrow +0.36$ D

Alcon $\rightarrow +0.19$ D

($p=0.416$)

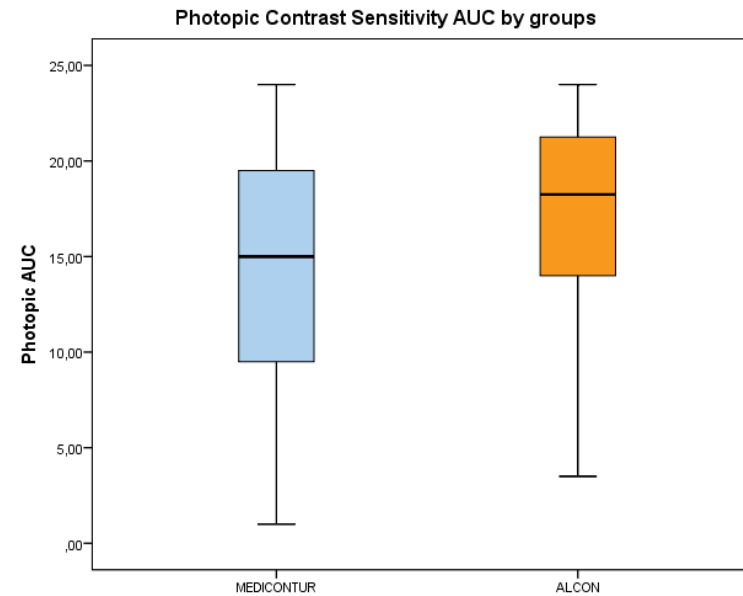
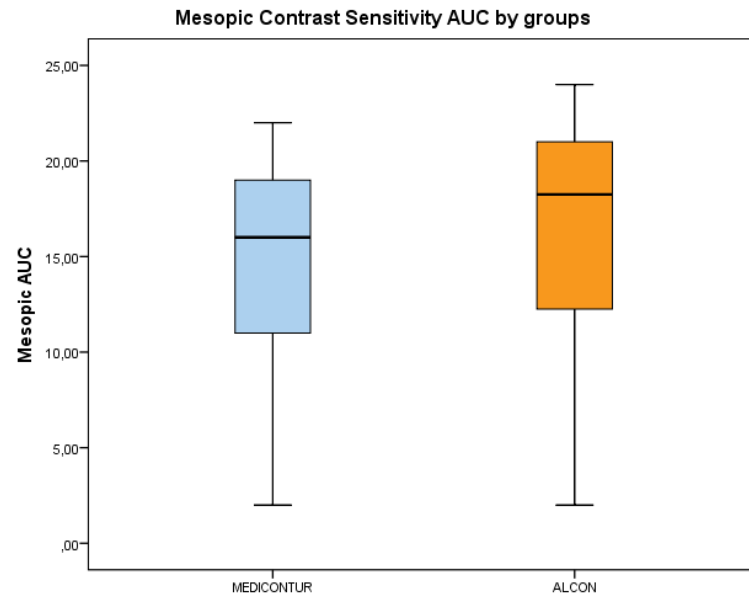


CDVA

- 860FAB → 0.08 (± 0.14) logMAR ~ 0.91 decimal
- SN60WF → 0.02 (± 0.06) logMAR ~ 0.96 decimal
Mann-Whitney U teszt (U=248.500, p=0.052)
- 3 eyes in the Medicontur group → moderate to severe amblyopia



CONTRAST SENSITIVITY CSV-1000 SYSTEM



Mann-Whitney U test

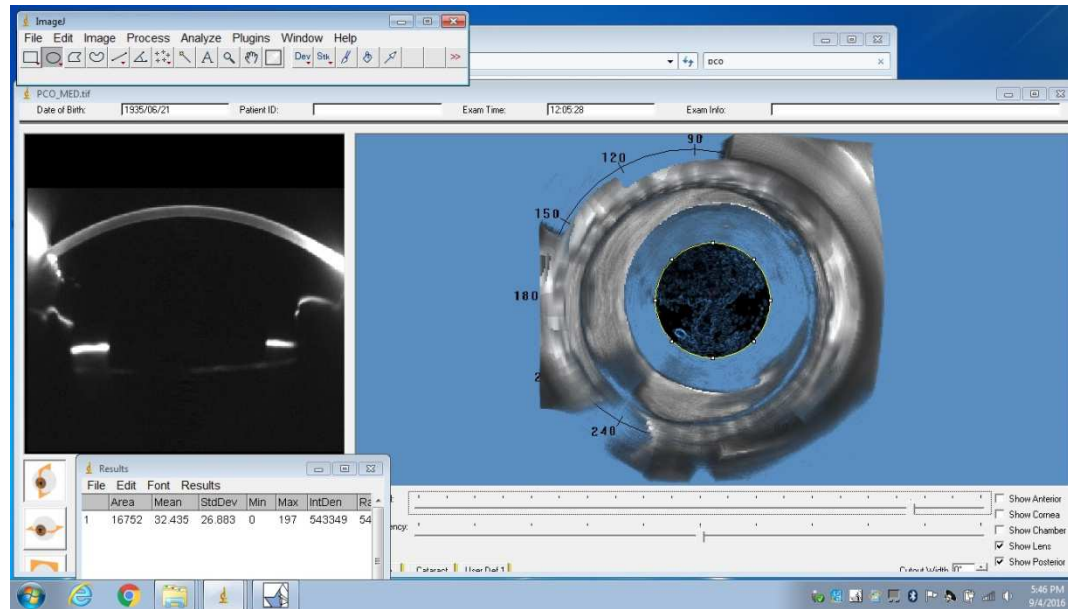
(U=272.00 p=0.425)

(U=236.00 p=0.139)

No difference in the average CS , or at any spatial frequencies



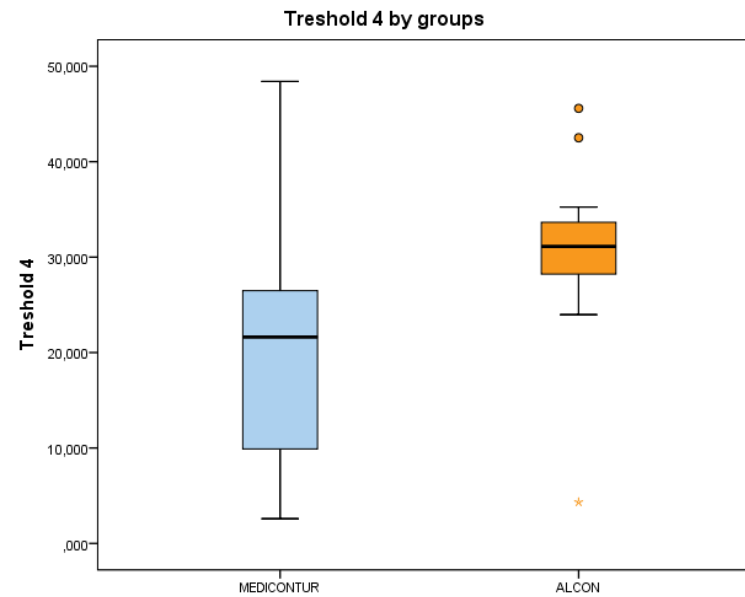
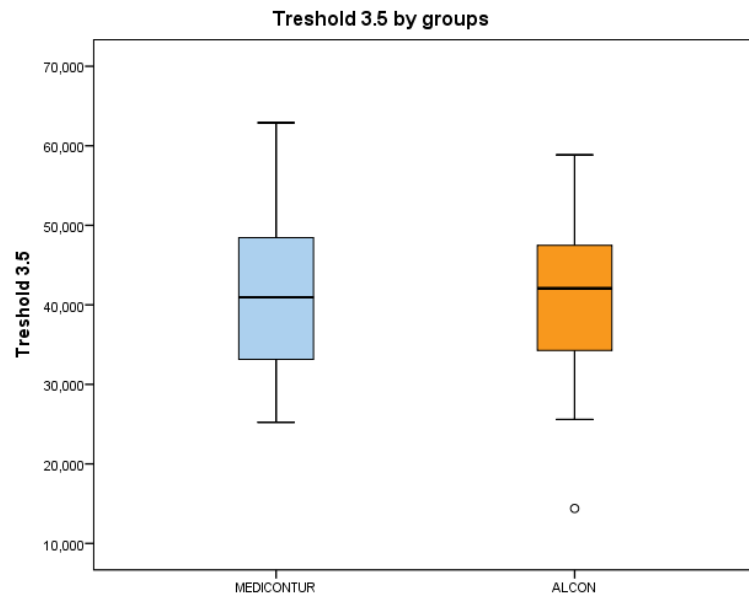
PCO, OBJECTIVE MEASURING



- Rotating Scheimpflug camera (Pentacam HR, Oculus)
- Density value of PCO on Scheimpflug slit image → Pixel intensity using ImageJ64 medical imaging software
- Area inside the capsulorhexis
- Area densitometry → light intensity of each pixel was analyzed automatically between 0 (white) and 255 (black)

Hirschall N et al. Comparison of methods to quantify posterior capsule opacification using forward and backward light scattering. J Cataract Refract Surg 40:728-735 (2014)

PCO, OBJECTIVE MEASURING



Levene test

860FAB 40.7 (± 10.7)
SN60WF 41.4 (± 10.1)

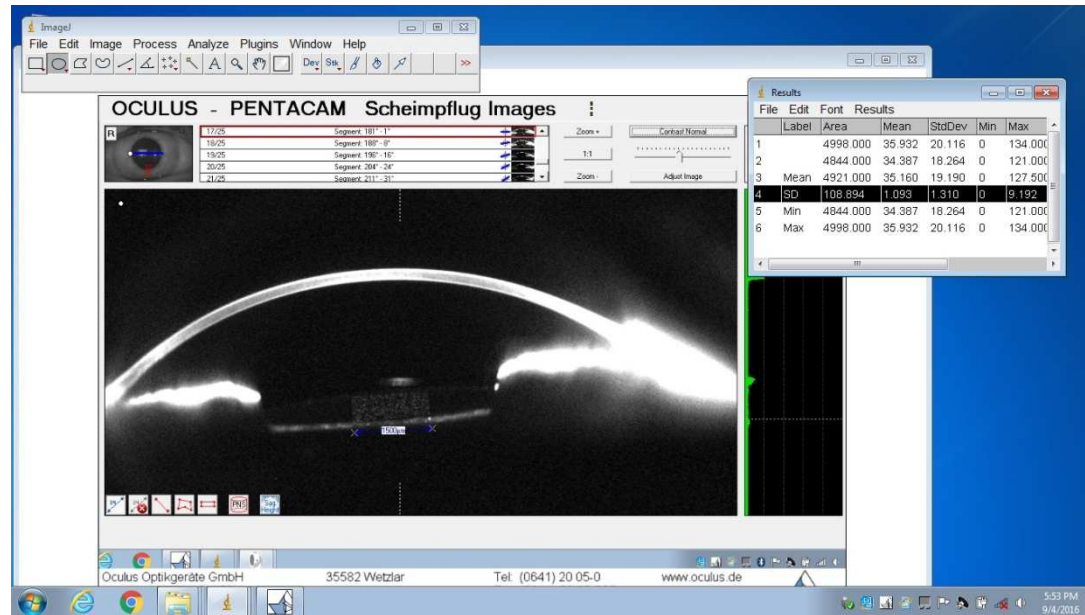
$p=0.82$

20.2 (11.7)
30.5 (7.3)

$p<0.001$



GLISTENINGS, OBJECTIVE MEASURING



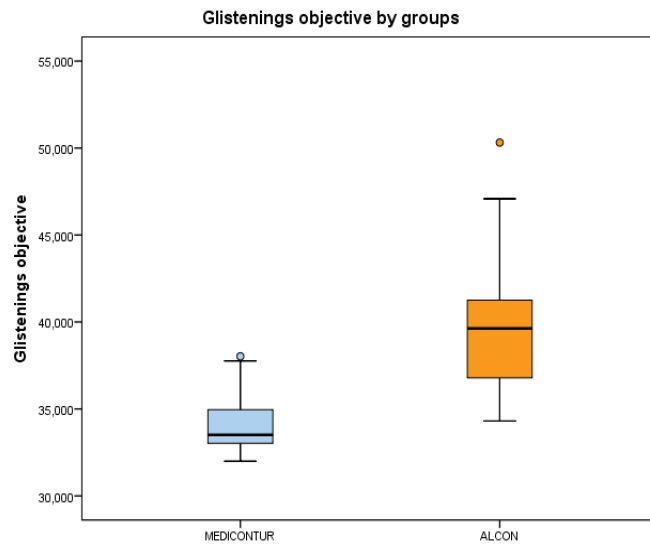
- Glistenings consist of multiple microvacuoles in IOLs that cause retinal stray light and may affect quality of vision
- Scheimpflug photography (Pentacam HR) and subsequent digital image analysis by ImageJ program
- Full thickness and deep glistenings

Behndig A, Mönestam E: Quantification of glistenings in intraocular lenses using Scheimpflug photography. J Cataract Refract Surg 35:14-17 (2009)

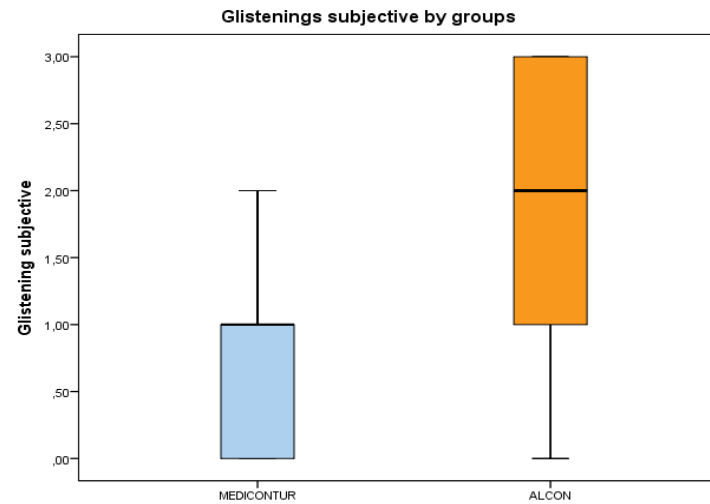


GLISTENINGS

OBJECTIVE AND SUBJECTIVE MEASURING



Mann-Whitney U test
34.1 (± 1.6) 39.7 (± 3.7)
 $p < 0.0001$



Mann-Whitney U test
0.58 (± 0.6) 1.82 (± 0.9)
 $p < 0.0001$

objective and subjective measurement
strength of association: $r = 0.446$



GLISTENINGS

DOES IT MATTER?

Last 20 years

~ 8000 foldable MediconTur IOLs

- no explantation because of a problem of lens material

~ 4000 foldable Alcon IOLs

- 2 explantations because of glistenings

- Diminished CS, MTF, color vision

Oshika T et al. Influence of glistenings on the optical quality of acrylic foldable intraocular lens. Br J Ophthalmol 85:1034-1037(2001)



67 years old woman, 10 years postop.
AcrySof MA60AC



CLEAR OR YELLOW-TINTED?

- „Yellow tint or clear in your eye?”

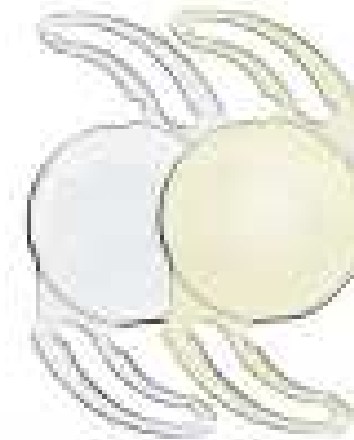
Clear 86%

Yellow 14%

Gossman M: What intraocular lens would you want in your eyes?

EyeWorld 21(7): 34 (2016)

- No final certainty
- Sometimes yellow is favourable
- Exclusively yellow platform (Alcon)
- Exclusively clear platform (AMO)
- Medicontur has both



CONCLUSIONS

- Medicontur hydrophobic IOLs have unique material and lens design, which provide the good visual performance of these lenses
- Against other hydrophobic materials these IOLs are less sticky, very flexible and easy to implant
- Medicontur hydrophobic IOLs are **firm competitors** on the hydrophobic market

