1. Slide1
Abbildungsqualität nach inverser retropupillarer Implantation der Verisyse-LOL bei Aphakie

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**Indications:**

- Subluxated IOL: 8
- Decompensation of the Cornea with angle supported IOL: 1
- Aphakia: 1
- PEX with damaged Zonula: 5

- ICCE: 1
- ECCE: 2
- Phako: 2
What about the image quality after retropupillary fixation?
**Goal:**
To simulate the normal (anterior placed against iris) and reversed (posterior placed against iris)

MTF measurements were taken at 50 c/mm for pupil sizes 2, 3, 4 and 5 mm

**Pupil size** is simulated by a diafragm before the ACE cornea. The size of the diafragm is calculated to create the required pupil size on the IOL.

**Position A**
normal

**Position B**
reversed

The Verisyse lens was placed in a holder. Position „A” simulates the normal (anterior against iris) position and position „B” simulates the reversed (posterior against iris) position.
MTF at 50 c/mm

<table>
<thead>
<tr>
<th>Pupil (mm)</th>
<th>28D</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>-1%</td>
</tr>
<tr>
<td>3</td>
<td>-10%</td>
</tr>
<tr>
<td>4</td>
<td>-13%</td>
</tr>
<tr>
<td>5</td>
<td>-20%</td>
</tr>
</tbody>
</table>
Remark:

Also the influence of IOL position on effective pupil size is estimated.
This is about +1.5 MTF/ 0.1 mm pupil size reduction

The effective pupil size reduction depends on the distance from the pupil
diaphragm before the cornea:

±1mm shift (posteriorly) means 0.1 mm pupil size reduction
so: +1mm IOL shift means +1.5 MTF points

The measured shift of IOL focal point (normal - reversed) is maximal 0.3mm.
That means: resulting in maximal 0.5 MTF points

Conclusion:
Influence of IOL shift on MTF value is negligible for image quality.
• Patients: n=15
• Visit: 8 weeks after operation
• Lens Power: 19±1.5D
• Wavefront measurements
• Spherical aberration
• HOA and TA
Visual Outcome:

Amblyopia (1/15)
Glaucoma (3/15)
AMD (4/15)
Postoperative Astigmatism

Diopters (D)

amount of astigmatism

Diopters (D)
Astigmatism and coma

Pupil diameter (4mm)
Total Ocular Aberration and Higher Order Aberrations

1. Total Ocular Aberration

![Total Ocular Aberration Graph]

2. Higher Order Aberrations

![Higher Order Aberrations Graph]
After pupil dilatation...

4mm pupil size Verisyse: 0.06±0.08 vs. conventional IOL: 0.08±0.03
Conclusion

- Laboratory and clinical examinations did not reveal a severe increase of spherical aberration for the Verisyse –IOL in either position (pre- or retropupillary reverse).
- The main drawback was the postoperative astigmatism which may be reduced with a foldable model (VERIFLEX®).