



Development and fitting of toric Ortho-K contact lenses

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Commercial Relationship : P





Literature research

For toric Ortho-K contact lenses:

- PubMed: No articles
- CL Spectrum: No articles
- CL Today: No articles
- German Publications: No articles
- British Ortho-K Society: No articles
- Italian Publications: No articles
- Swiss University Libraries: No articles





No need for toric Ortho-k lenses ?

- Approximately 20 % of our plano or nearsighted population is suffering from astigmatism between 1.0 – 4.0 diopters.





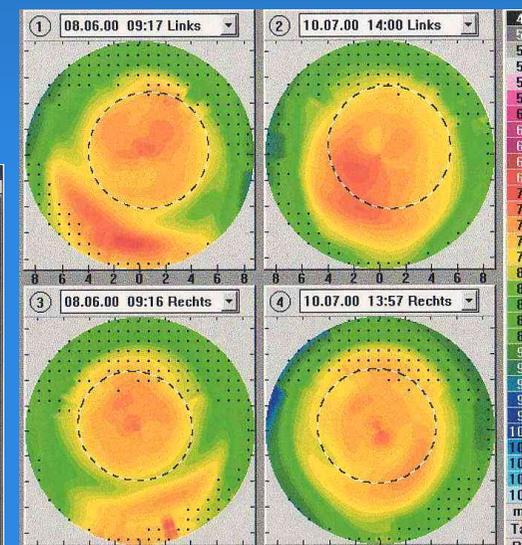
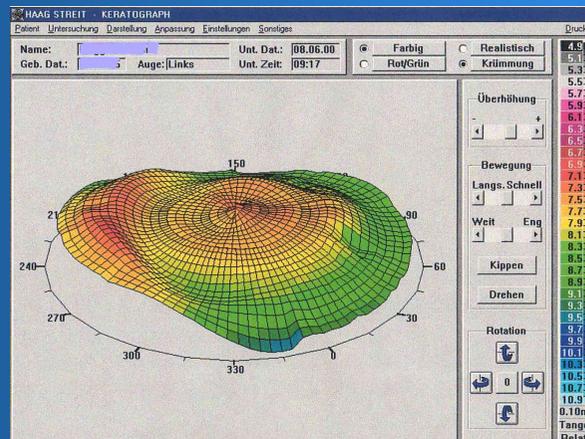
Contraindication 1

- **Spherical** Ortho-k contact lenses tend to end with a residual astigmatism of $\frac{1}{4}$ to $\frac{1}{2}$ of the initial corneal astigmatism. (DreimLens®)



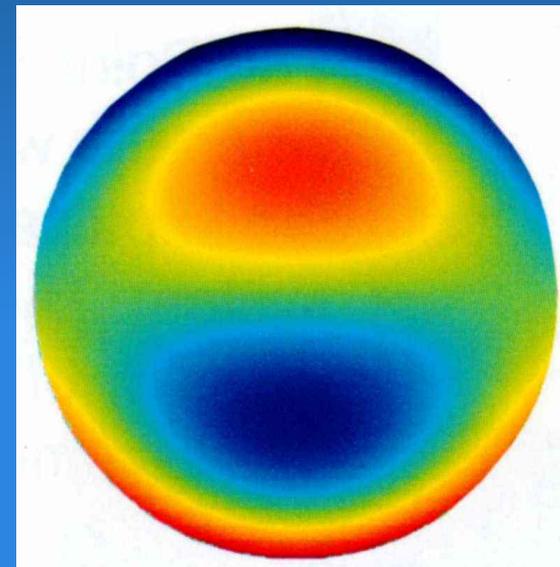
Contraindication 2

- „Spherical“ Ortho-k contact lenses tend to decenter easily and produce tilted and irregular post ortho-k corneas



Contraindication 2

- **Spherical** Ortho-k contact lenses tend to decenter easily and produce tilted and irregular post ortho-k corneas and therefore Abberations higher order centrally (eg. Coma) are the result !





Aim of the Research

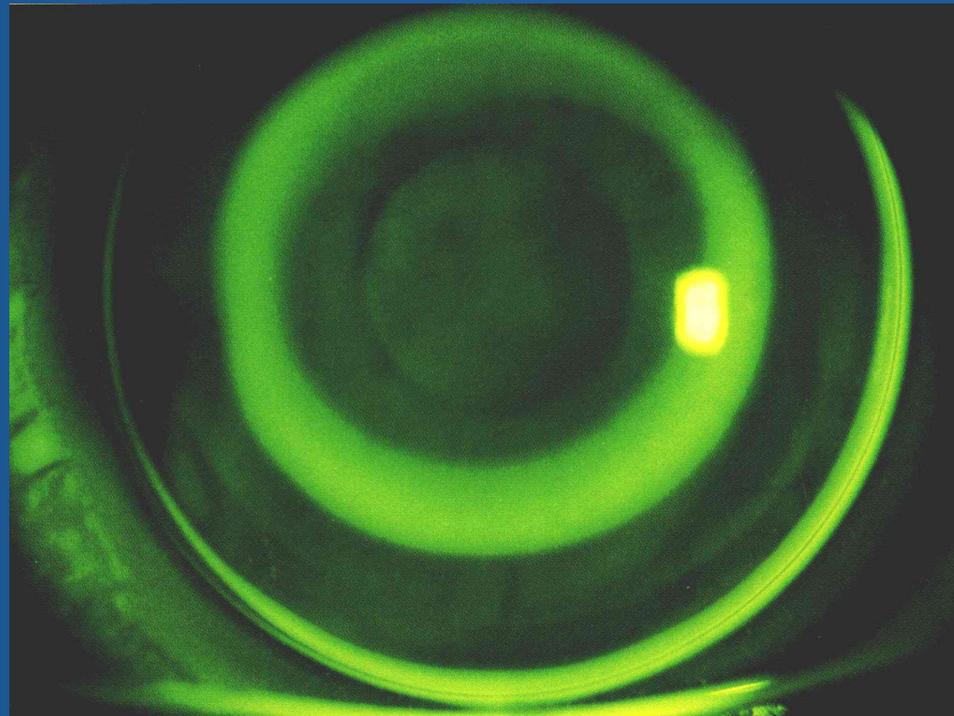
- Better and more stable centration, adequate prognosis of optical results and less burdening of the cornea.

Severe health problems (Stroke) prevented the start of the study. I will therefore present actual results of our clinical development and research stage.





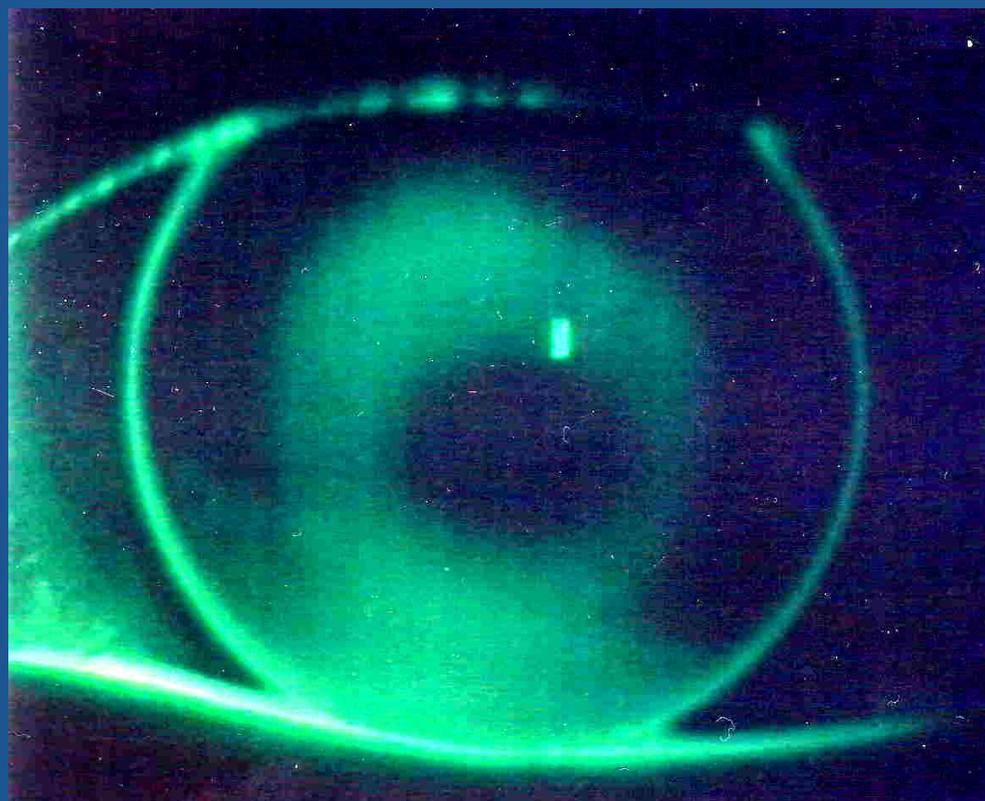
Lens design „reverse spheric“



Reverse geometry design on a spheric cornea



Lens design „reverse spheric“

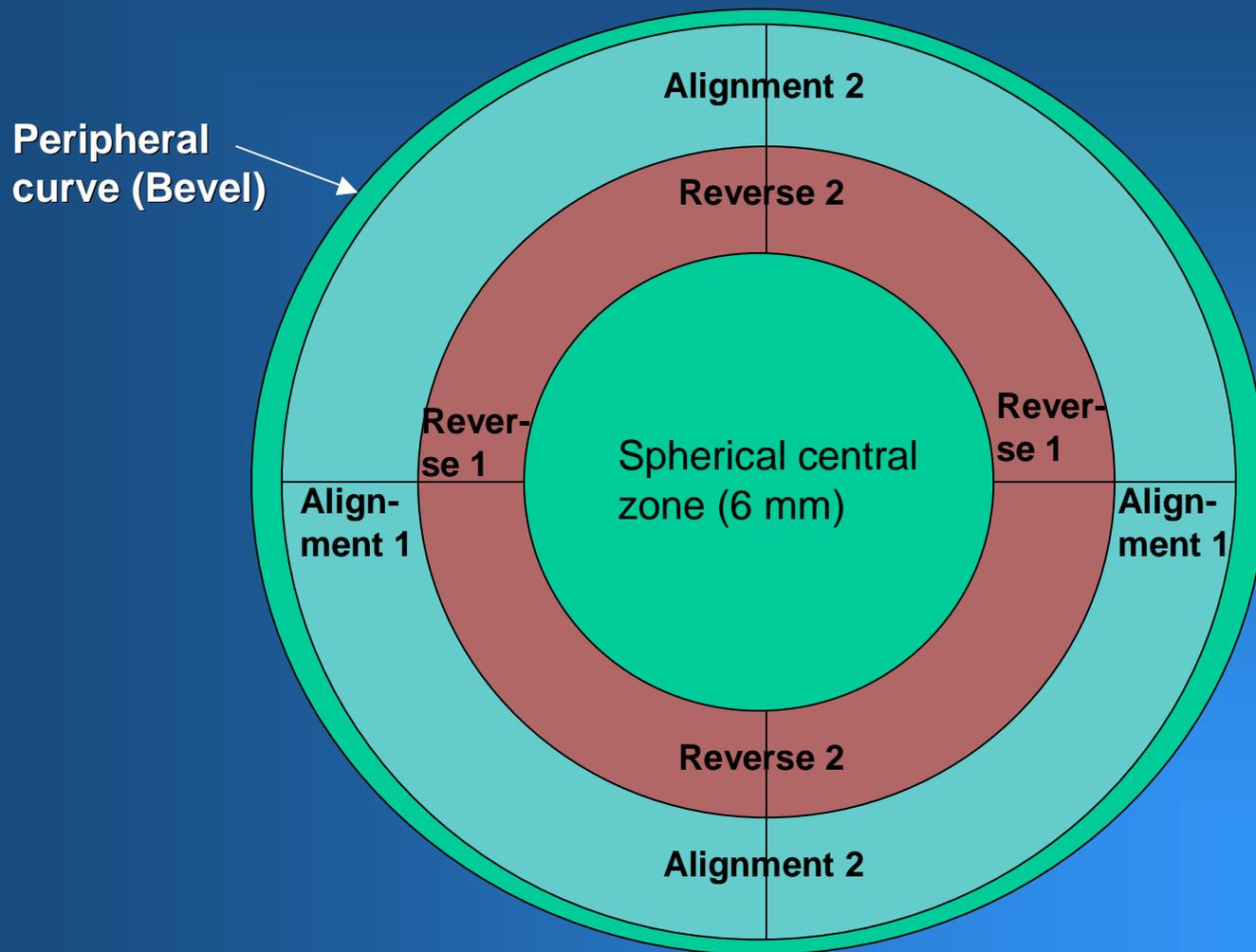


Reverse geometry design on an astigmatic cornea





Lens design



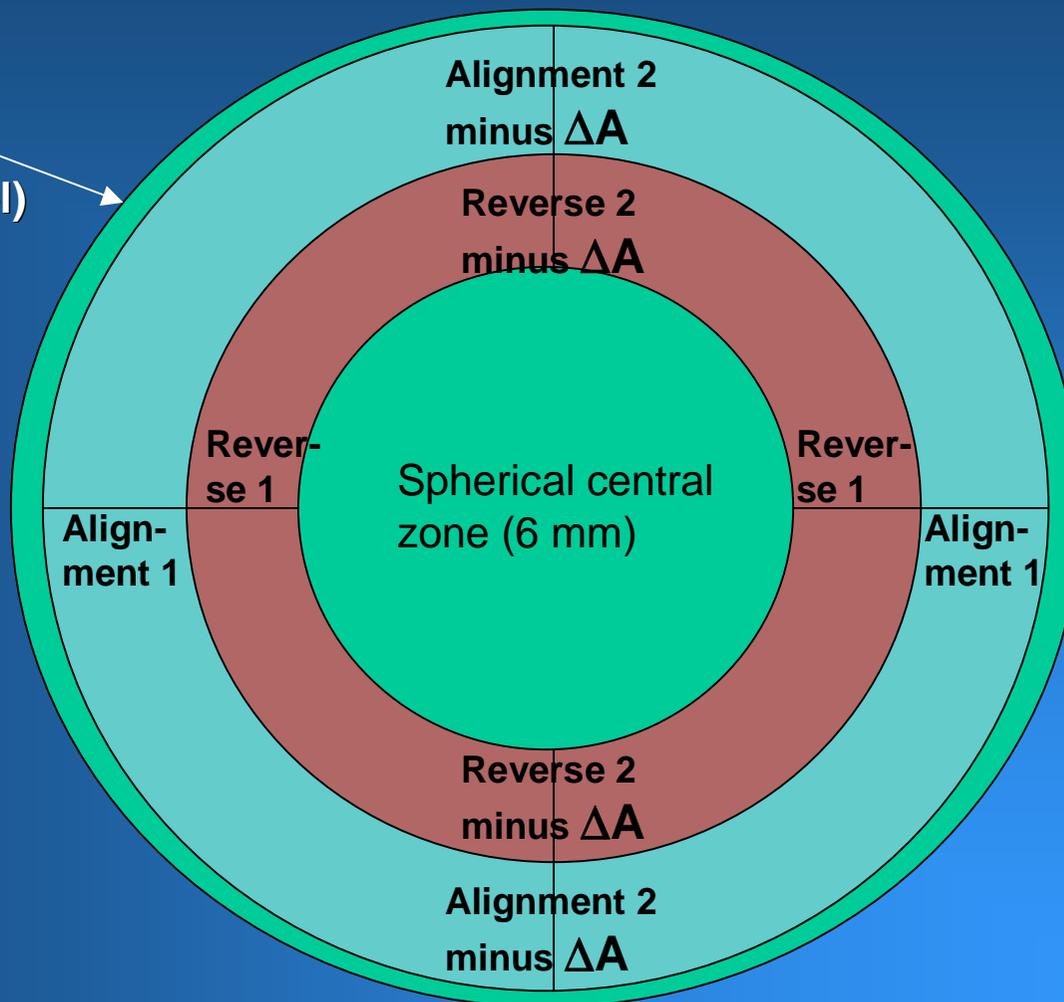
Reverse-spheric geometry design





Lens design

Peripheral curve (Bevel) →



Reverse-toric geometry design





Results

Example

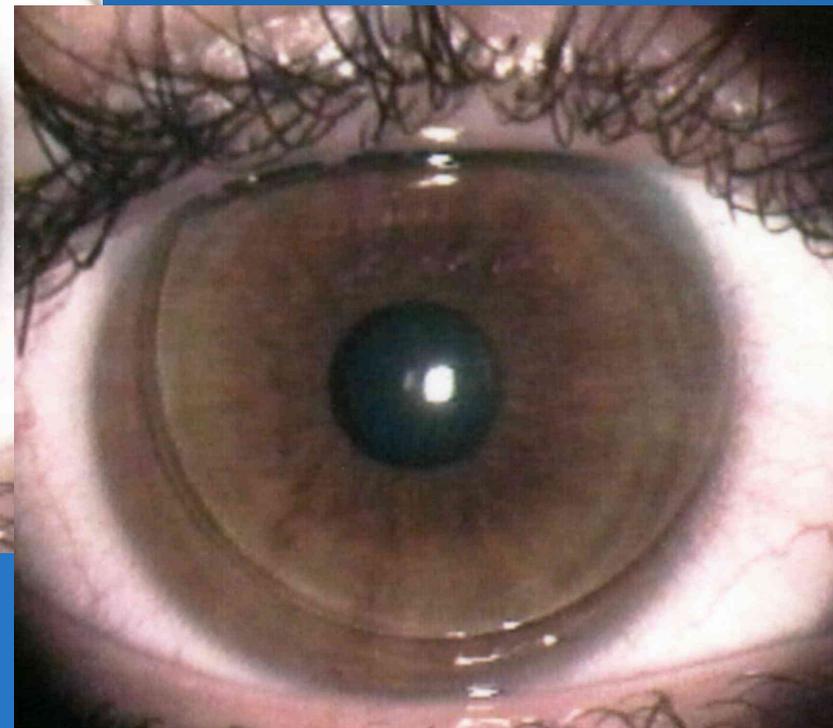
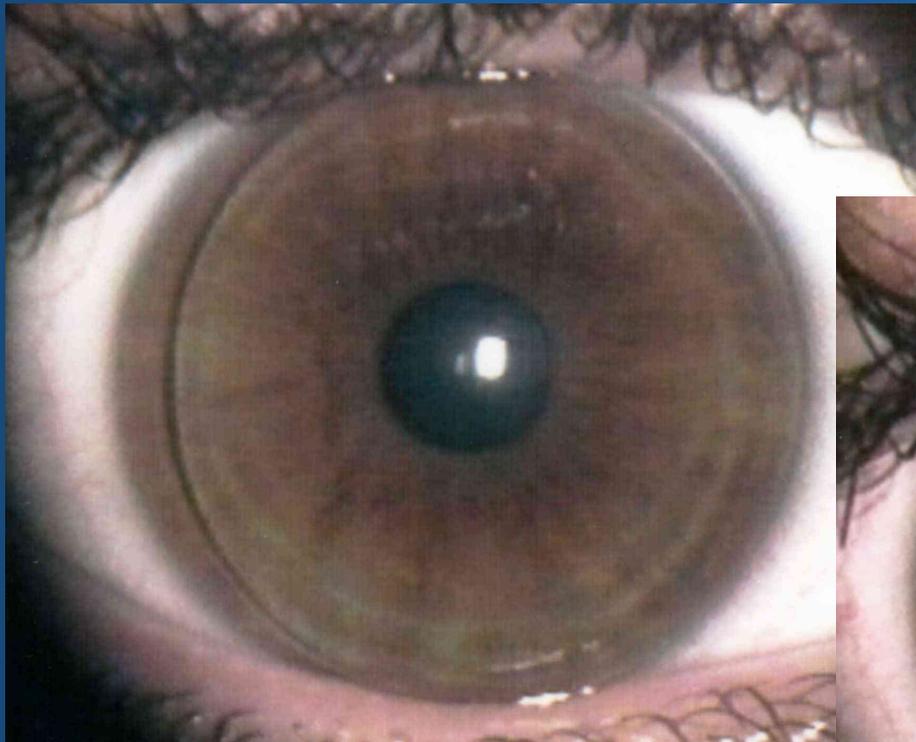
- 24 years old w/caucasian
- OD plano = -3,75 13° Vcc 20/28
- OS plano = -4,00 175° Vcc 20/25





Results

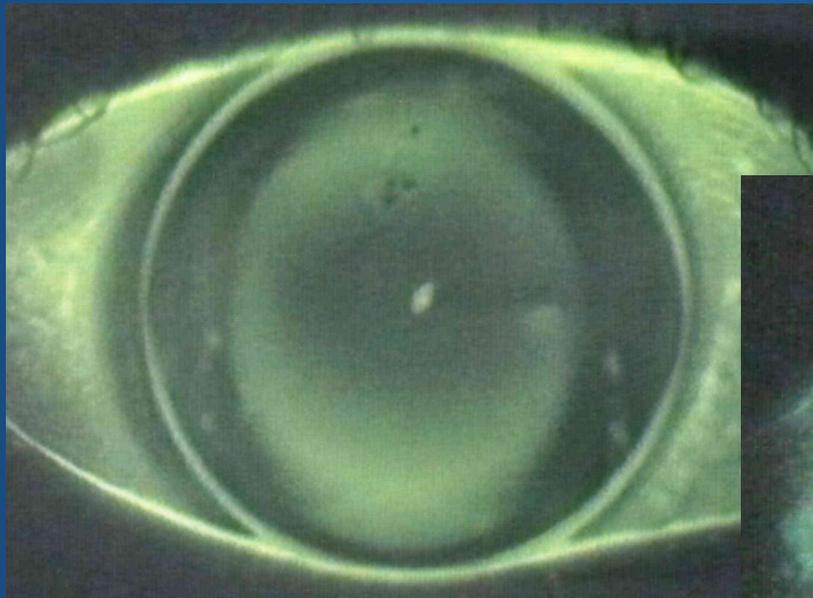
Example - CL Centration





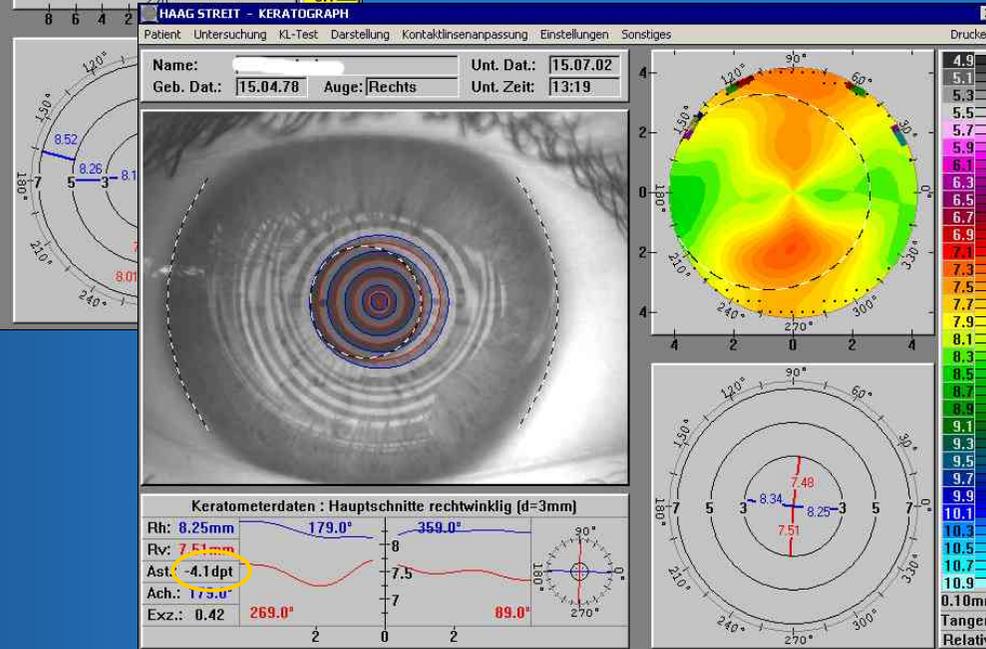
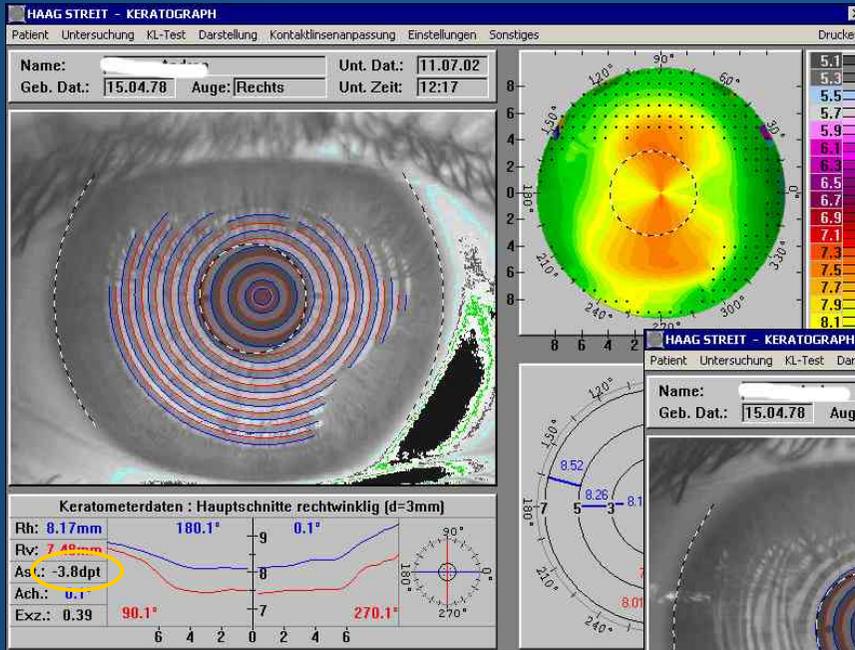
Results

Example - Fluo pattern



Results

Example - Topography





Discussion

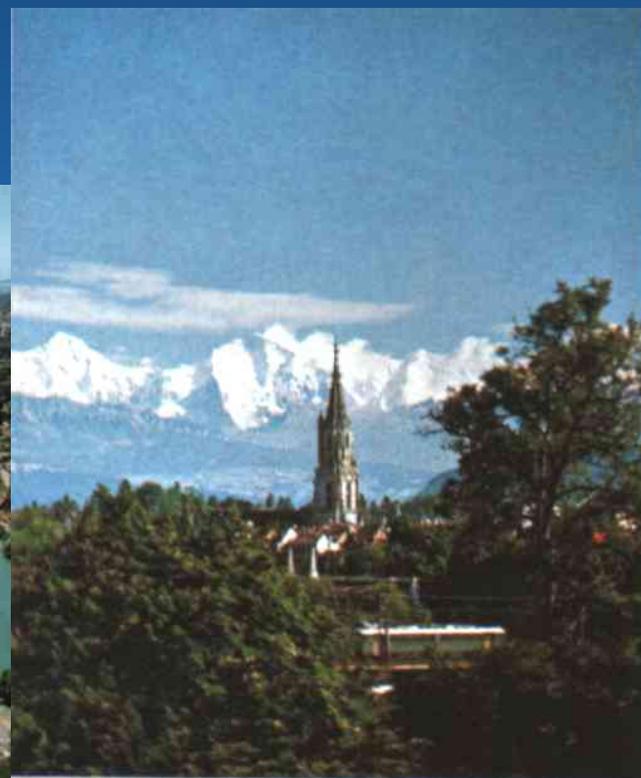
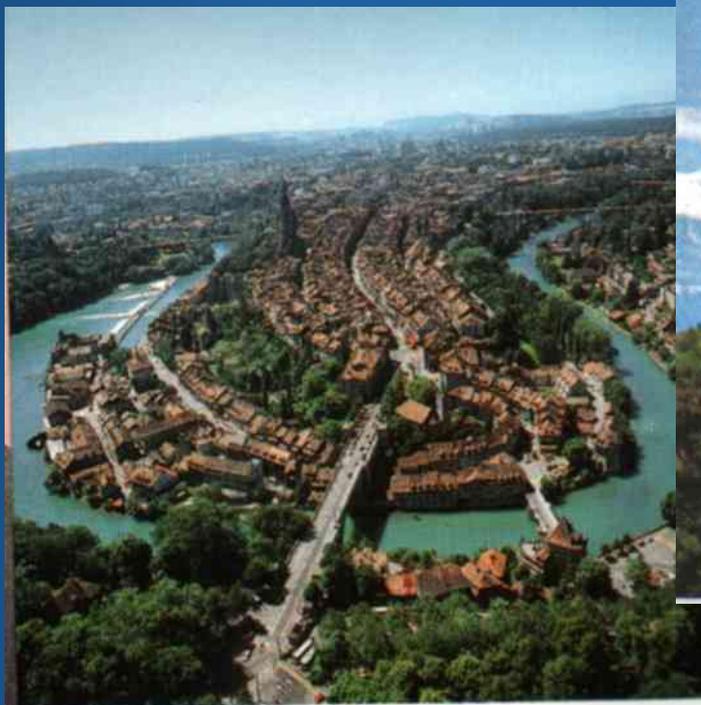
- We reached two goals
 - better and more stable centration
 - less burdening of the cornea
- We did not reach
 - adequate prognosis of optical results

⇒ **still a lot research work to do !!**





Thank you !





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