



**WORLD  
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CONGRESS**

**SAN DIEGO**  
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## Topography Guided PRK and Crosslinking in Eyes With Keratokonus and Post-LASIK Ectasia

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The author has no financial interest to disclose

# Introduction and Purpose

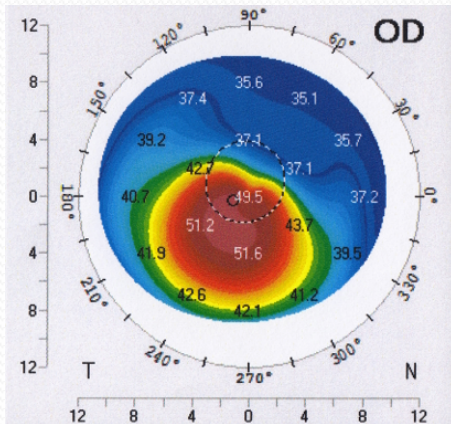
- Corneal collagen crosslinking (CXL) has been shown to halt progression of keratokonus<sup>1</sup>
- Current excimer laser platforms are able to deliver topography guided treatment in order to regularize irregular corneas
- Combining these two procedures can potentially improve the topography and stabilize progression
- The aim of this study is to report 1 year results of topography guided PRK and crosslinking in eyes with Keratokonus and Postlasik-Ectasia

1. Raiskup-Wolf F, et al. Collagen crosslinking with riboflavin and ultraviolet-A light in keratoconus. J Cataract Refract Surg, 34 (2008), pp. 796–801

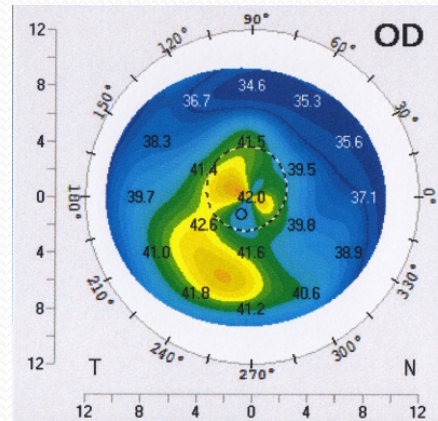
# Methods

- The Schwind Amaris Excimer platform with the ORK-CAM software was used to calculate treatment profiles
- The TransPRK protocol was used to deliver the treatment
- A standard crosslinking protocol was used immediately after the Excimer treatment
- Retrospective case analysis of pre- and postoperative data were performed
- Parameters recorded were: Kmax, Kmean, simK's, Pachymetrie, Sphere, Cylinder, HOA RMS, Coma and Spherical aberration, UCVA and BCVA
- Pre- and Postoperative data were collected at 3, 6 and 12 months

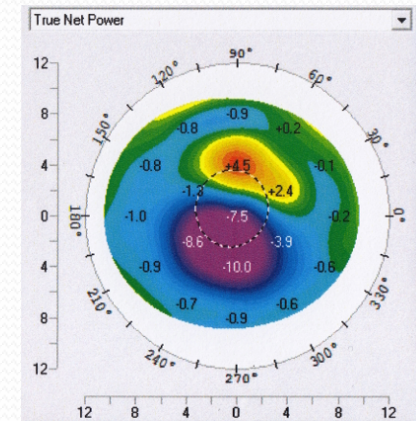
# Results nice Topo and Refraction (1 year, Pentacam-Comparison)



Pre-Treatment



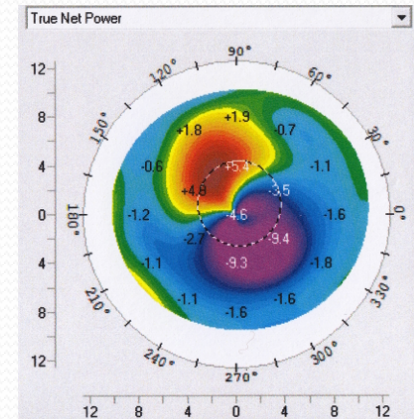
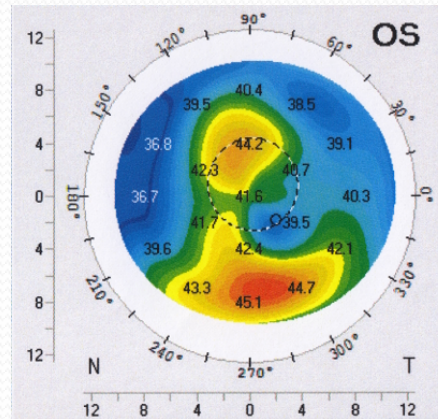
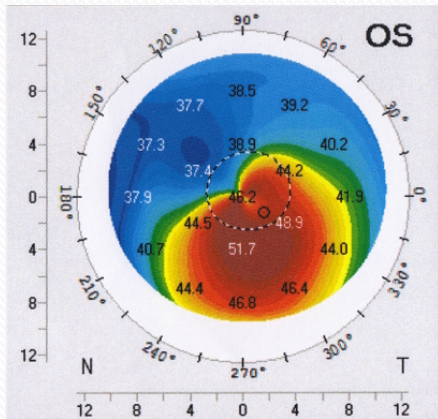
Post-Treatment



Difference Map

UCVA	0.3p	0.9
BCVA	0.3p	1.25
Refraction	-2.0=-2.25/70°	-0.75

# Results nice Topo, res. Refraction (1 year, Pentacam-Comparison)



Pre-Treatment

Post-Treatment

Difference Map

UCVA

0.3

0.4

BCVA

0.6

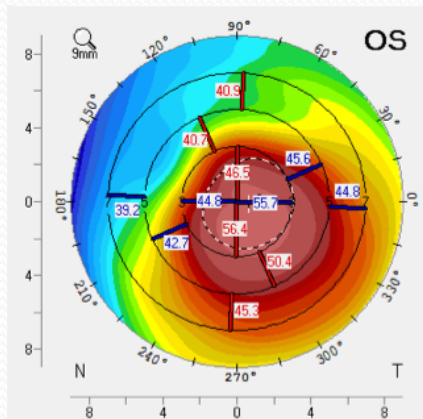
0.8

Refraction

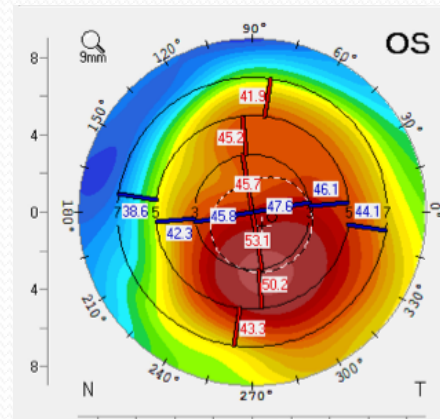
+3.25=-6.0/152°

-3.0=-1.0/176°

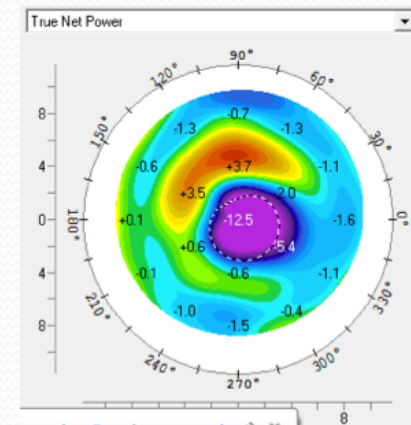
# Results Undercorrection (1 year, Pentacam-Comparison)



Pre-Treatment



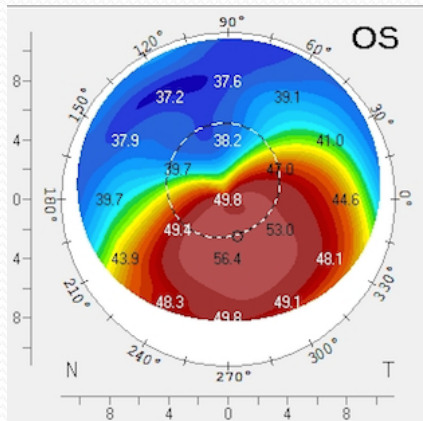
Post-Treatment



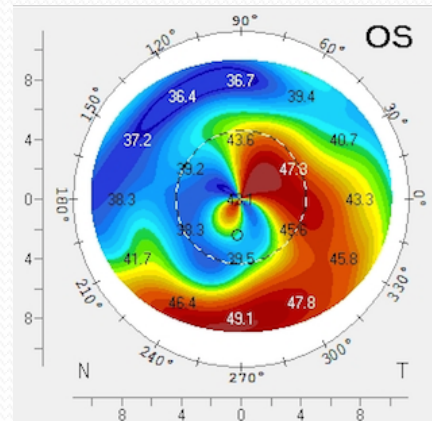
Difference Map

UCVA	0.05	0.2
BCVA	0.16	0.8
Refraction	-4.50=-1.5/6°	-1.5=-2.25/15°

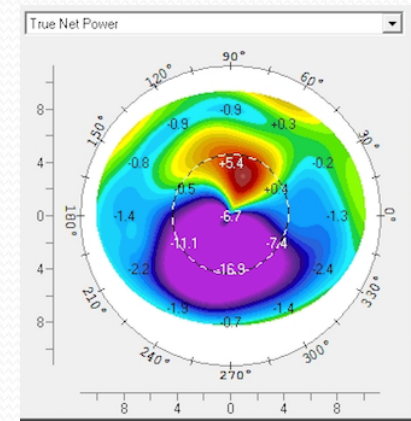
# Results Overcorrection (1 year, Pentacam-Comparison)



Pre-Treatment



Post-Treatment



Difference Map

UCVA	0.05	0.16
BCVA	0.5	0.5
Refraction	-4.75=-1.75/103°	-6.0=-0.75/86°

# Results

- 9 eyes of 9 patients with keratokonus and post-LASIK ectasia were included
- 8 of 9 eyes showed improved topography at 3, 6 and 12 months after the procedure (mean reduction in Kmax 6.01 diopters, range 1.5 to 12.5 diopters)
- 7 of 9 eyes showed improved UCVA (mean decimal 0.19, range 0.06 to 0.6) and 7 of 9 eyes improved BCVA (mean 0.37, range 0.1 to 0.95)
- Total HOA were reduced in all eyes (mean 1.56, range 0.49 to 2.27)
- Vertical Coma was reduced significantly in all eyes (mean 1.71, range 0.62 to 4.02)
- All treated eyes showed stable topography in the first 12 months after treatment



# Results

- Mean Cylinder was reduced by 2.58 diopters (range 0.75 to 6.75 diopters)
- Mean spherical equivalent was reduced by 0.3 diopters (range +2.6 to - 3.75)
- 2 eyes showed delayed epithelialization

# Conclusions

- Topography-guided PRK can regularize and stabilize corneas with keratoconus and postlasik-ectasia
- Most of the corneas improved in topography, HOA, UCVA and BCVA
- Despite these results, regularizing topography and refraction at the same time remains a challenge



Lange  Cornea  
Swiss Quality