

# Corneal molding in keratoconus: a new prospect

## Corneal molding in keratoconus: a new prospect?

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## Orthokeratology

- Everybody knows we can successful reshape the cornea of normal eyes to correct myopia, and sometime hyperopia and astigmatism
- Our question is if it may be possible to mold keratoconic cornea as well

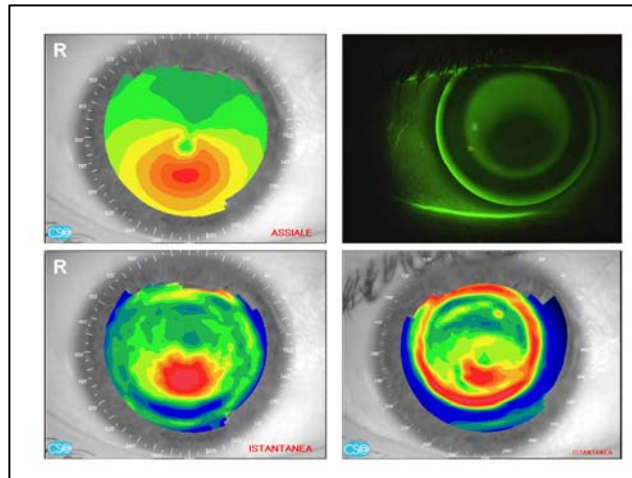
Let me show you a case...

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# Corneal molding in keratoconus: a new prospect



	<ul style="list-style-type: none"> <li>• <b>Pre CL</b> <ul style="list-style-type: none"> <li>– UCVA 20/50</li> <li>– BSCVA 20/20</li> <li>    cyl +2.50 x 180</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• <b>7 months after</b> <ul style="list-style-type: none"> <li>– 15' without CL</li> <li>– UCVA 20/20</li> <li>– BSCVA 20/20</li> <li>    sph +0.50</li> </ul> </li> </ul>

This effect persists only little time

**A prospective study was designed to answer two questions**

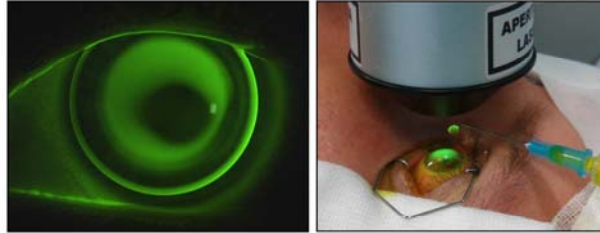
- Is it possible to improve the quality of vision of keratoconus patients with overnight orthokeratology?
- Is it possible to stabilize the effect of corneal reshaping through collagen cross-linking?

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## Procedure

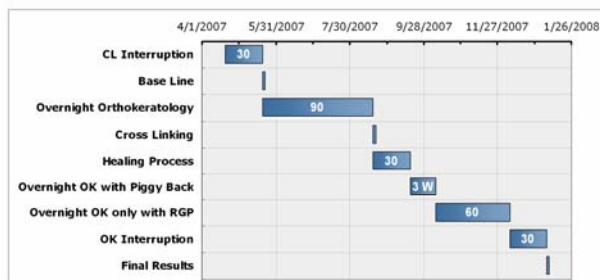


- We developed a molding contact lens, specifically designed to be used together with the cross-linking treatment
- Collagen cross-linking was performed with riboflavin + UVA following the Siena group procedure (Caporossi et al. J Cataract Refract Surg. 2006)

## Pilot group

- 5 eyes of 4 patients (3 females, 1 male)
- Age from 22 to 43 years
- Diagnosis of keratoconus based on corneal topography and clinical signs
- Suffering from visual symptoms
- Intolerant to conventional CL
- Pachimetry > 400 micron

## Timeline of the Study



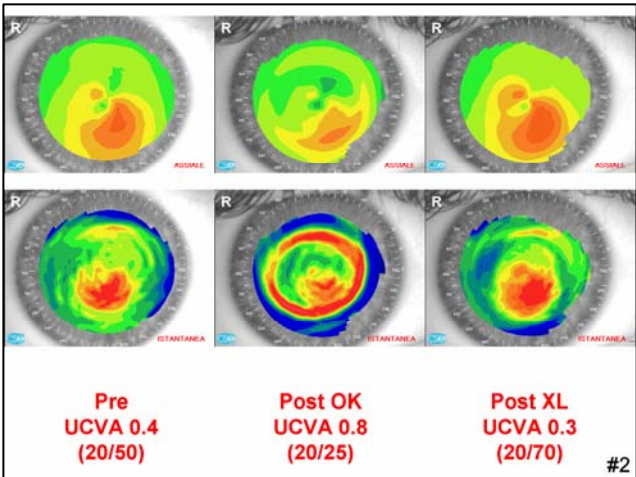
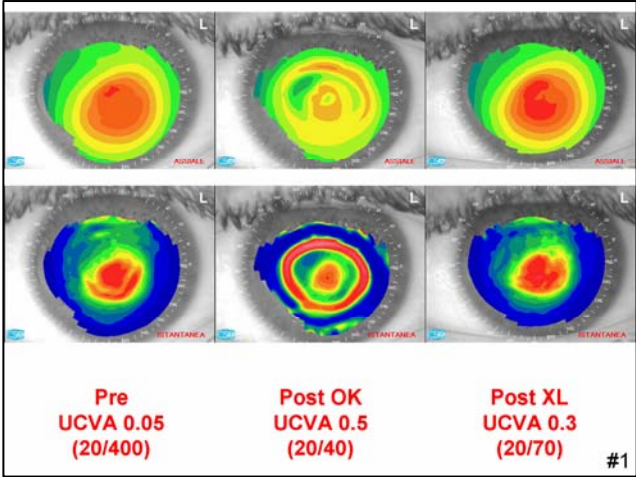
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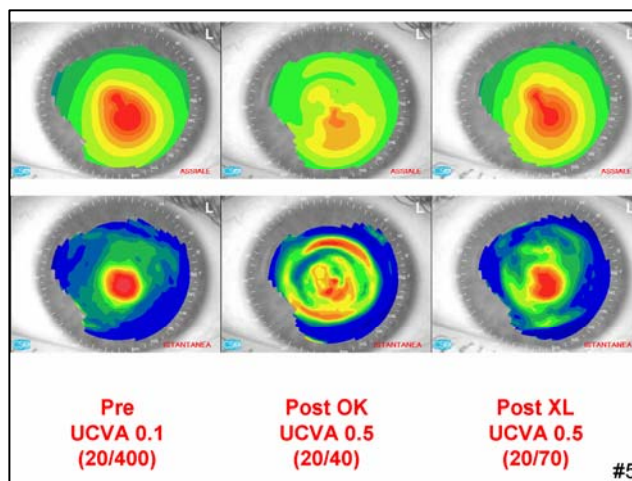
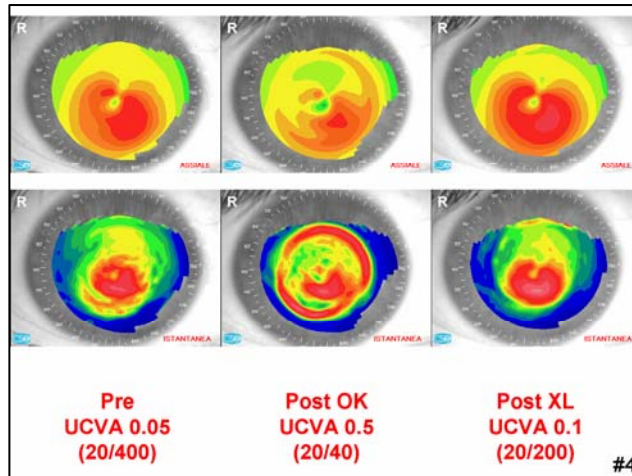
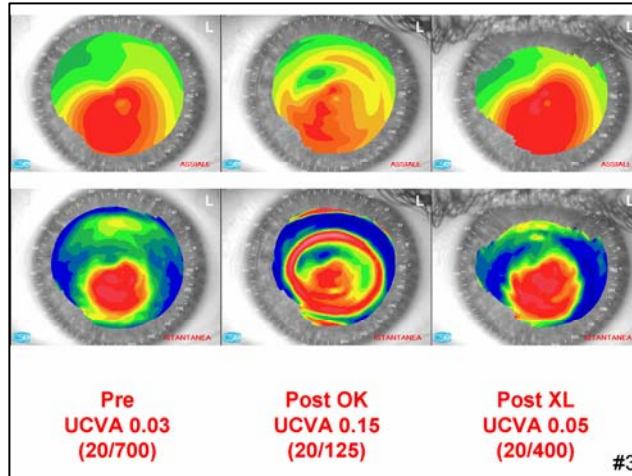
## Corneal Topography ...



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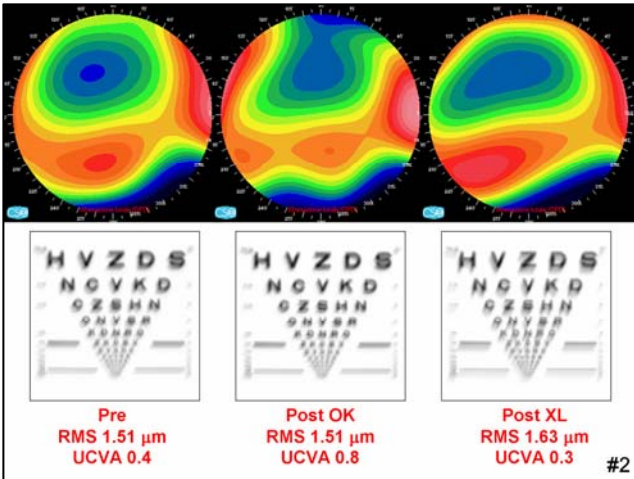
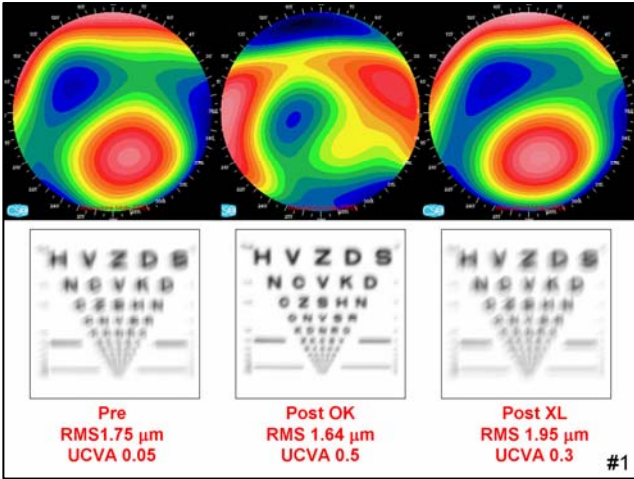


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## Corneal Aberrometry ...

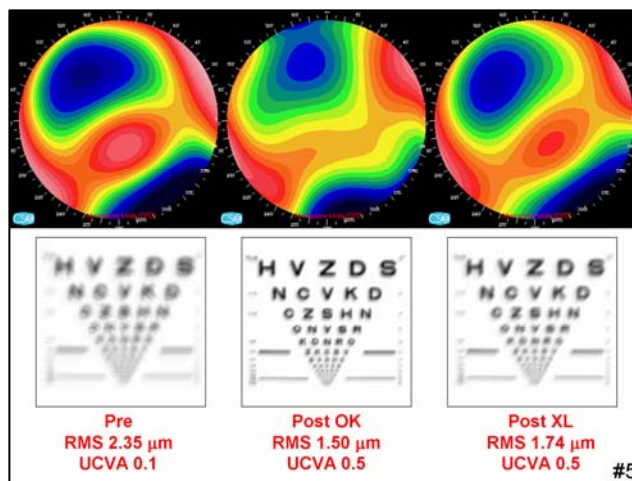
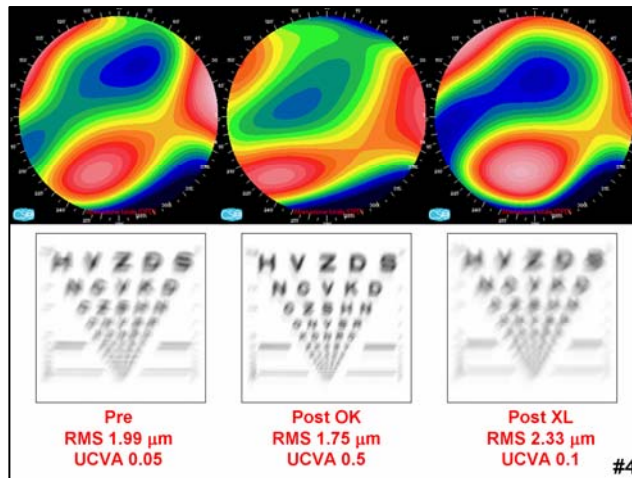
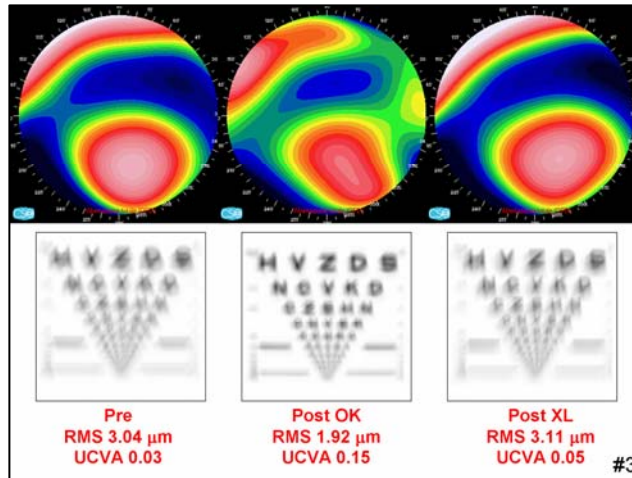


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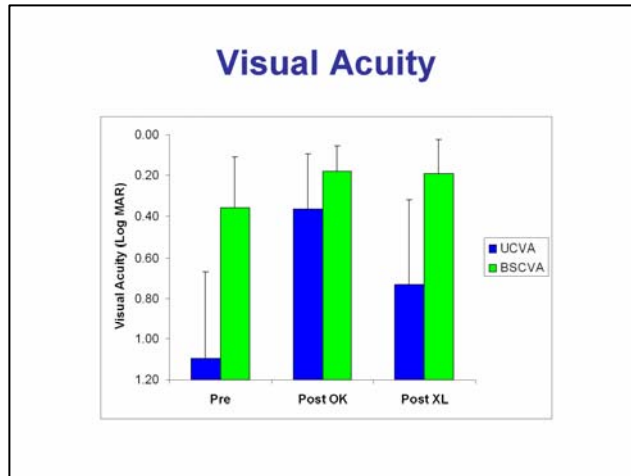
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## Complications

- No adverse reactions were observed during the three months of OK
- After cross-linking, one eye showed an epithelial defect with asymptomatic iritis reaction
- This complication resolved after one month following corticosteroid therapy, and the treatment continued
- One patient was intolerant to bandage Si-Hy CL
- No relevant signs were observed 4 months after cross-linking

## Conclusions

- Overnight orthokeratology may reshape the keratoconic cornea without significant adverse reactions
- Riboflavin-UVA corneal collagen cross-linking is quite safe, but it is not able to stabilize the OK molding effect
- Nevertheless, UCVA and BSCVA did not go back at the preop level
- At the present time, we are not able to explain this discrepancy

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## **This pilot study is a part of a larger clinical trial**

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– Ferdinando Romano, MD
- Clinica Oftalmologica Cadarso (Vigo, Spain)  
– Luis Cadarso, MD
- Istituto Clinico Humanitas (Milan, Italy)  
– Paolo Vinciguerra, MD

## **More data are coming**

- The collection of the data is still in course
- When we'll have the results of a larger sample, we should be able to answer if corneal molding may really be a new prospect for keratoconus

