

ESCRS
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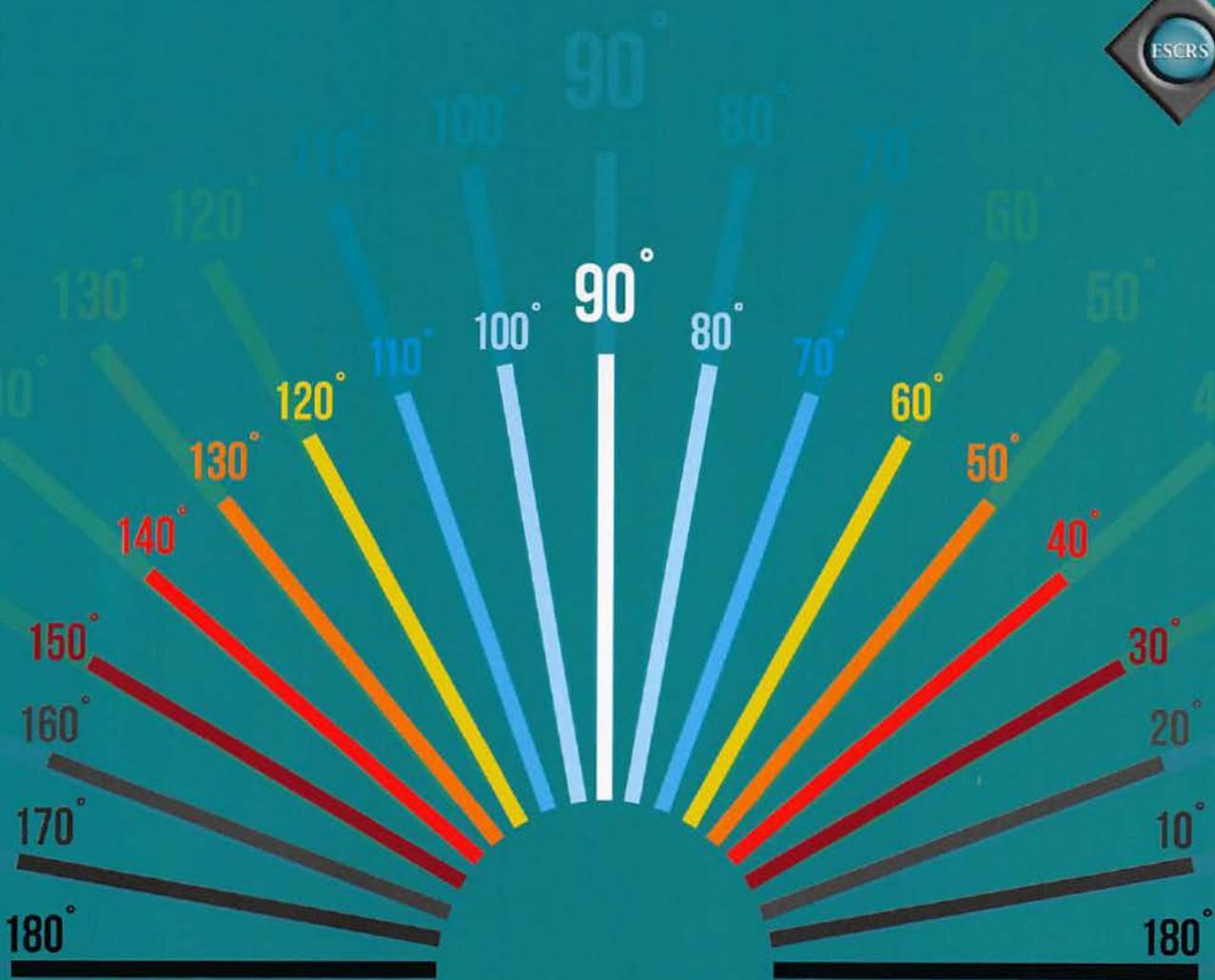
SPECIAL FOCUS
CATARACT & REFRACTIVE

CORNEA

PATIENT RECRUITMENT BEGINS IN
MAJOR NEW CORNEAL GRAFT STUDY

RETINA

ORAL RETINOID THERAPY – ENCOURAGING
RESULTS FOR TREATING DEGENERATIVE DISEASE



MEASURING ASTIGMATISM

DMEK

THE INNOVATIVE
SYSTEM FOR TREATING
ENDOTHELIAL
CORNEAL DISEASES



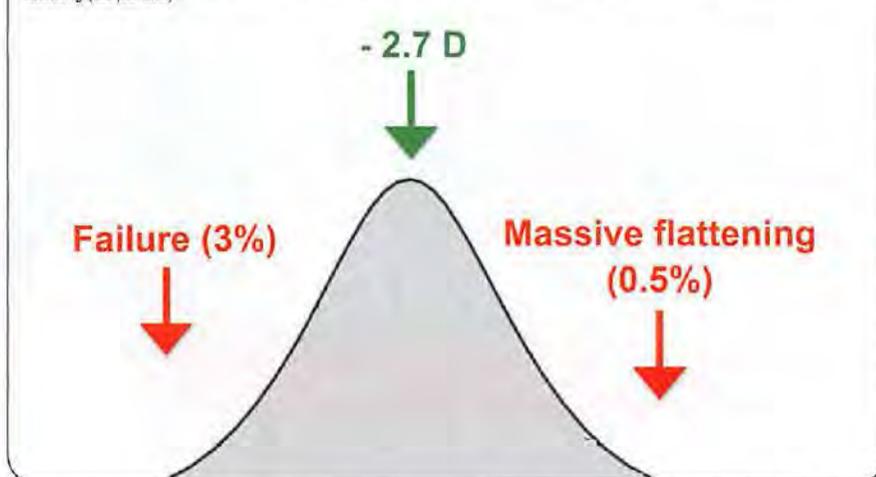
- **No touch:** Safe and easy intake of the graft into the cartridge
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The flattening of the anterior corneal curvature after a crosslinking procedure follows a Gaussian distribution curve. Whereas most patients show an average flattening, the extremes may lead to treatment failure (three per cent of cases) or extreme flattening (0.5 per cent)



Courtesy of Farhad Hafezi MD, PhD

CXL & SURGERY

Sequence of treatment helps ensure stability of visual outcome. *Roibeard O'hEineachain reports*

Crosslinking combined with therapeutic refractive laser surgery in eyes with keratoconus should be performed sequentially, with crosslinking first, instead of simultaneously, in order to ensure the stability of the visual outcome, said Farhad Hafezi MD, PhD, ELZA Institute, Switzerland, and Department of Ophthalmology, USC, Los Angeles, USA.

"It's all about the sequence of treatment. If I had a patient in whom I wanted to combine refractive laser surgery with crosslinking, I would first stabilise the disease and then wait a year to see if progression has truly stopped and then look after the visual aspects," Prof Hafezi told the 19th ESCRS Winter Meeting in Istanbul.

Performing crosslinking previous to, rather than simultaneously with, therapeutic refractive laser surgery makes sense on a number of grounds, he said.

Crosslinking itself reduces the anterior corneal curvature by an average of about 2.7D in the first year. In addition, the flattening can continue several more years after the crosslinking procedure.

If a patient were treated with a simultaneous approach, this average flattening might be taken into consideration to calculate the final postoperative refraction. "If I assume that I have an average patient, it doesn't really matter that much to me if I do it simultaneously or sequentially because I can depend on a two-dioptre change. But it's not about the average patient, it's about the outliers," he said.

Even when using the widely recognised epithelium-off Dresden protocol,

crosslinking procedures may produce two extreme results: no effect = treatment failure, or too much effect = massive flattening.

- **Treatment failure:** In about three per cent of patients the initial treatment fails, indicating that these corneas may show a very particular biomechanical behaviour. Is it really wise to ablate additional tissue using an excimer laser in such a biomechanically altered cornea?
- **Too much effect:** In 0.5 per cent of cases, there will be an extreme flattening of the cornea of up to 11D.

In the view of these extremes, it is better to follow a patient for 12 months after a crosslinking procedure, and assess whether the corneal reaction is average, extreme or absent. Then, the appropriate measures might be taken.

In addition, when performing PRK, the ablation rate must be adjusted to compensate for the reduced amount of tissue ablated per laser pulse after crosslinking.

Prof Hafezi cited research carried out by Prof Theo Seiler's group and by his own group, both in Switzerland, involving two different excimer laser platforms – which showed that, at any given ablation rate, the lasers achieved nine per cent to 12 per cent less tissue ablation in crosslinked corneas than in virgin cornea.

Future excimer laser software will implement these findings to generate nomograms that allow for greater accuracy when treating keratoconus patients that had undergone previous crosslinking.

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* References available on request