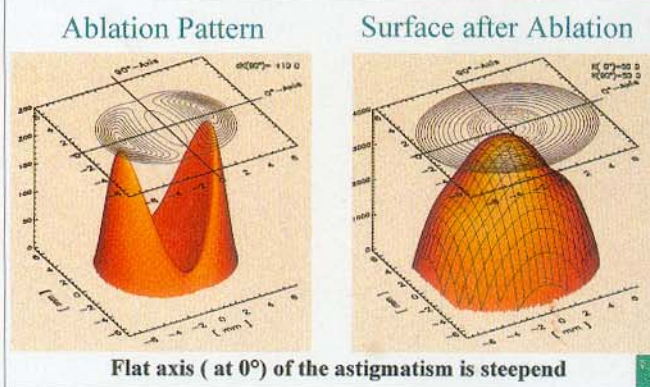


# Steepening the Flat Axis of the Cornea Useful Option to Correct Hyperopic Astigmatism

## Positive Astigmatism



By John F. Henahan

**M**UNICH - Steepening the flat axis of the cornea can be an effective procedure for correcting low to moderate hyperopic astigmatism, according to Gerold Fiedler, MD, in private practise here. However, the loss of best corrected visual acuity and regression are somewhat greater than would be expected for patients with low to moderate myopia who undergo PRK, he told the 2nd ESCRS Winter Refractive Surgery Symposium.

His conclusions were based on a study which included 100 patients, aged 20 - 64 years, with hyperopic astigmatism who underwent PRK with the Planoscan programme of the Keracor 116 excimer laser and who have been followed up for at least one year. Their mean pre-operative hyperopia was + 2.51 dioptres and their mean astigmatism before surgery was +1.71 D, Dr. Fiedler told *EuroTimes* in an interview.

"The procedure we used differs from the standard technique for correcting astigmatism with PRK, which involves flattening of the cornea. Then, if a general hyperopic correction is required, the optical zone has to be steepened again. As a result you lose a lot of cornea and the ablation can be quite deep. With the programme we used in this study, we steepened the flat axis first to equal the steeper axis and then we have steepened the flat axis to the same extent as the other axis. Therefore, it is possible to steepen the entire area and to correct the hyperopia itself. In so doing, we can minimise the depth of ablation and save corneal tissue," he said.

At the latest follow up, the mean post-operative hyperopia was reduced to +0.43 D and the astigmatism to +0.59 D. In addition, the mean postoperative best corrected visual acuity at the latest examination declined from the pre-operative value of 0.89 D to 0.71 D. However, none of the eyes lost more than two lines of BCVA and there was no severe post-operative haze (greater than grade 2). The mean regression in spherical equivalent was 0.37 D and in cylinder 0.49 D, Dr. Fiedler pointed out.

"We also found that the standard deviation in post-operative refraction was greater than it was for patients with myopia who underwent PRK. That is we had some patients who were over-corrected and remained so for a while and others who are under-corrected. At the same time, many of our patients who were in the presbyopic age range were happy that they no longer needed spectacles for far vision.

"Although PRK with this procedure seems to be quite effective for correcting hyperopic astigmatism less than 4.0 D, we need further follow up with more patients before we can make a final evaluation. We also believe that patients with a moderate degree of hyperopic astigmatism are perhaps better candidates for PRK than for LASIK, which has its own intraoperative complications, primarily involved with creating the flap. We also plan to compare the efficacy of PRK and LASIK for moderate hyperopic astigmatism to see which hyperopic patients would benefit most from which procedure," he concluded.

*Dr. Fiedler's co-authors were M. Pertsch and M. Utman.*

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