

CORNEA: PHOTOREFRACTIVE SURGERY B

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THE EXCENTRIC ASTIGMATISM PRK, A PHOTOREFRACTIVE METHOD TO CORRECT CORNEAL ASTIGMATISM USING THE 193-NM EXCIMERLASER

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Purpose: The Excentric Astigmatism PRK is a method to correct corneal astigmatism with two peripheral ablations which are performed outside an untreated central zone.**Methods:** Two peripheral ablations of 3.4 mm diameter are performed outside an untreated central zone 3.0 mm in size in the flatter meridian of the cornea following the usual algorithm of the myopia PRK. The amount of the correcting minus cylinder determines the height of the excentric ablations. A total of 17 patients were operated on from October 1993 to November 1994 using this method.**Results:** In the first group of 5 patients, the astigmatism was reduced by an average of 3.5 dpt (1.75 dpt to 5.0 dpt) to a residual astigmatism of 0.48 dpt, i.e. by 86%. In the second group of 12 patients, a correction of the myopia was carried out with a central 6.0 mm PRK at the same time as the correction of astigmatism. In this group, the astigmatism could be reduced from an average of 2.92 dpt (1.25 dpt to 5.0 dpt) to a remaining astigmatism of 0.36 dpt, i.e. by 88%. In the patients with follow-up observation for eight to 13 months, regression could not be observed in the specified period.**Conclusions:** The Excentric Astigmatism PRK creates a new external radius in the flatter meridian of the cornea. The advantage of this method is, that there is no risk of corneal haze in the optical zone.

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Arcuate astigmatism keratotomy combined with Excimer laser (PRK) to treat astigmatism and myopia.

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Coimbra, Portugal.**Purpose:** The goal of this study was to evaluate the refractive results of arcuate astigmatism keratotomy and PRK to treat astigmatism and myopia.**Methods:** 83 eyes have been treated with arcuate astigmatism keratotomy followed 8 weeks later by PRK (Summit Technology). Follow-up ranged from 3 to 15 months.**Results:** Astigmatism ranged from 1.25 to 4.00 D before surgery and 0 to 1.25 D after surgery. Myopia ranged from 0.75 to 7.25 D before surgery and 0 to 0.50 D after surgery. There were no significant complications. All the patients had an uncorrected visual acuity of 20/40 or better and their best corrected visual acuity was within one line of their pre-op. best corrected visual acuity.**Conclusions:** We may conclude that the combined arcuate incisions with PRK is a safe and relatively accurate procedure to correct myopia associated with astigmatism.

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RETREATMENT OF PATIENTS AFTER REGRESSION FOLLOWING EXCIMER LASER P.R.K.SHAH S¹, DOYLE SJ¹, CHATERJEE A², GOODALL K¹, NAROO S², CORY C²

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Purpose To evaluate the results of retreatment of eyes that had regressed following previous excimer laser P.R.K.**Methods** Observational study of 271 patients who underwent retreatment and had a minimum of 6 months follow-up. Parameters analysed: best corrected and uncorrected visual acuity, haze, stable refraction and satisfaction.**Results** There was a reasonable reduction of myopia in the majority of cases. However, the range of correction achieved was very variable. A comparison of results of retreatments on the Summit and Nidek lasers is presented.**Conclusion** Although retreatment produces a marked reduction of myopia and good satisfaction in the majority of cases, the present nomograms are likely to need altering for this procedure.

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OPTICAL ZONE CENTRATION OF EXCIMER LASER PHOTOREFRACTIVE KERATECTOMY FOR MYOPIA RELATIVE TO THE PUPIL WITH AND WITHOUT THE USE OF AN ACTIVE EYE TRACKING SYSTEMSachs H., Lohmann C.P., and Gabel V-P.
University Eye Clinic Regensburg, Germany**Purpose:** The accurate centration of the ablation zone during PRK is crucial to a successful result of the procedure. Past studies have shown that decentration of the ablation zone can lead to decreased visual acuity, reduced contrast sensitivity, astigmatism, monocular diplopia or ghost images. The results of a standard surgical PRK procedure were compared with the results using the eye tracker.**Methods:** Corneal topography (1 month postoperative) was used to determine the centration of the ablation zone relative to the center of the pupil. Excimer laser PRK was performed on 20 consecutive myopic eyes with a Chiron Technolas excimer laser. Ten patients were treated with the use of the active eye tracking system and ten were treated with a standard surgical procedure. The eye tracking system was based on TV monitoring of the pupils position. The scanning potential of the eye tracking system was 5,000 mm/s. A reaction time of 40 ms was reached. For the one month postoperative corneal topography a Visioptic EH270 was used. The video image was processed using the pupil finding software. The geometric center of the ablation zone was determined. The distance of the pupillary center to the geometric center was recorded.**Results:** With the use of the active eye tracking system the ablation zone was well centered over the center of the entrance pupil. Decentration was within 0.2 mm (mean 0.15mm). Without the use of the eye tracking system decentration up to 1.0 mm was found (mean 0.45).**Conclusion:** The active eye tracking system seems to be an effective implementation for the centration of the ablation zone.