

## **ESCRS 2008**

### **Refractive Surgery New Techniques/Complications - 6 Minutes**

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Venue:Hall 14/2



#### **One year results with CustomVis solid state laser supported by histology, HO aberration study, and endothelial cell density**

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**PURPOSE:** To report the experimental histological findings and the clinical outcomes after myopic refractive surgery using CustomVis Pulzar Z1 quintupled Nd:YAG Solid State laser at 213 nm.

**SETTING:** University of Crete, Institute of Vision and Optics, Greece.

**METHODS:** 20 rabbit eyes underwent myopic 6D PRK. Rabbits sacrificed immediately after ablation, and at 7 days, 1, 3 and 12 months after surgery. Corneal tissue was preserved for Light and Transmission microscopy. Clinical study conducted on 195 eyes (33 eyes LASIK and 162 PRK). LASIK group with mean sphere:  $-5.08 \pm 1.28D$  and mean cylinder:  $-0.62 \pm 0.63D$ . PRK group with mean sphere:  $-3.94 \pm 1.84D$  and a mean cylinder  $-0.78 \pm 0.68D$ . Postop evaluation established at 12 months with cyclo refraction. 40 eyes operated with PRK and were evaluated with the WaveLight Allegro analyzer. 30 eyes operated with PRK underwent endothelial cell density analysis by confocal microscopy. **RESULTS:** Experimental study: At 1, 3 and 12 months postoperatively, there was tissue appearance, typical for post-PRK samples, on all corneal layers. Clinical study: For the LASIK group (12m) mean UCVA was  $-0.01$  logMAR or 20/21. 64% of eyes gained or had no loss of lines. For the PRK group (12m) mean UCVA was  $-0.04$  logMAR or 20/22. 76% of eyes gained or had no loss of lines. Measured endothelial cell count per  $1.0\text{mm}^2$  did not significantly change up to 1 year postoperatively ( $p < .05$ ). Spherical and total HO aberrations were increased at 4% and 8% in respect to postop aberration.

**CONCLUSIONS:** Photorefractive keratectomy in rabbits with ultraviolet solid state and excimer laser revealed similar histopathologic findings up to one year postoperatively. PRK and LASIK in humans were both effective and safe in the correction of myopic astigmatism revealing normal endothelium.