

Author Info:**Allen Boghossian, D.O.**

Durrie Vision

Overland Park, KS USA

Comparison of Retinal Image Quality between LASIK and PRK**Co-Authors:** Dan S. Durrie, M.D.**Purpose:**

To compare optical quality and intraocular scatter using double-pass (DP) technique following LASIK in one eye and PRK in the fellow eye

Methods:

The DP analysis was performed using the Optical Quality Analysis System [OQAS] (Visiometrics SL, Tarrasa, Spain) on 25 patients who underwent Intralase (Irvine, California) assisted Laser in-situ Keratomileusis (LASIK) in one eye and photorefractive keratectomy (PRK) in the fellow eye. Each eye was analyzed for intraocular scatter at pre-op, 1 month, 3 months, and 6 months. The double-pass technique is based on recording images from a point source after reflection in the retina and double pass through ocular media. From the double-pass analysis, the ocular modulation transfer function (MTF), which is an assessment of overall optical performance and scatter of the eye, and OQAS value, which is a numerical translation of the optical quality and contrast sensitivity, was obtained.

Results:

The MTF and OQAS values between LASIK and PRK eyes were compared before and after surgery. At preoperative examination, the average MTF value was 30.22 ± 7.45 for LASIK and 29.68 ± 8.63 for PRK and the average OQAS value was 1.04 ± 0.25 for LASIK and 1.03 ± 0.29 for PRK. At 1 month examination, the average MTF value decreased 25.12% for PRK eyes and decreased 1.02% for LASIK eye compared to pre-op. At 3 months, the average MTF value decreased 0.68% for PRK eyes and decreased 5.78% for LASIK eyes compared to pre-op. At 1 month examination, average OQAS value decreased by 23.82% for PRK eyes and gained 1.24% for LASIK eyes compared to pre-op. At 3 months, the average OQAS value increased 1.30% for PRK eyes and decreased 6.61% for LASIK eyes compared to pre-op. (6 month data will be available by the meeting and will be presented)

Conclusion:

Natural healing process and recovery of vision is longer following PRK compared to LASIK. Visual acuity measured with Snellen letters does not determine the overall image quality. We used the double pass technique to measure quality of vision following PRK and LASIK in the same patient. The data will help compare the difference in image quality between the two refractive procedures and help determine the duration of time needed for PRK eyes to reach the same quality of vision as LASIK eyes. Our 1 month result show that the retinal image quality decreased significantly in PRK eyes compared to LASIK eyes. At 3 month examination, retinal image quality improved in PRK eyes and measured higher average MTF and OQAS values than LASIK eyes. (6 month data will be available by the meeting and will be presented)