

Wavelight® EX500 Excimer Laser utilizing Wavefront Optimized® LASIK and the FEMTO LDV Femtosecond Surgical Laser: LASIK visual outcome results from 20/20 Institute for the year 2022.

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Abstract

Purpose: To present the visual acuity outcome results of all the patients that underwent corrective laser in situ keratomileusis (LASIK) procedures at 20/20 Institute in Denver, Colorado in 2022 utilizing the Ziemer FEMTO LDV femtosecond surgical laser and the Alcon Wavelight® EX500 excimer laser. We report the patients' uncorrected distance visual acuity both binocularly and monocularly. In addition to the accuracy of post operative prescriptions for all patients including those that chose a near vision outcome (monovision solution) for one of their eyes.

Location: 20/20 Institute, Denver, Colorado, U.S.A.

Methods: This is a summary of outcome results for all eyes undergoing LASIK in 2022 at 20/20 Institute Denver. The preoperative prescriptions include all myopic, hyperopic and mixed astigmatism prescriptions that received LASIK treatment using the FEMTO LDV femtosecond surgical laser and the Wavelight® EX500 Excimer Laser utilizing Wavefront Optimized® LASIK. Post surgical visual acuities were obtained using a standard Snellen visual acuity chart. Post-operative refractions were evaluated for up to a year following the procedure. The patients' best uncorrected distance visual acuity and refraction within the first year of follow up care were used for this report. Visual acuity "achieved" is defined as a patient correctly identifying the majority of the letters on any given line of the Snellen visual acuity chart.

Results: Seven hundred and ninety-three patients (1542 eyes total) underwent LASIK surgery. Mean age at time of procedure was **33** years (range: **18-62**). The mean pre-op spherical equivalent (SE) for myopic patients was **-3.49** diopters (D) \pm **1.75D** (range: **-8.38 to -0.50**) while the postoperative spherical equivalents decreased to **0.06 \pm 0.32D** (range: **-0.88 to +1.50**). Mean pre-op spherical equivalent for hyperopic patients was **+1.68** diopters (D) \pm **0.54D** (range: **+0.88 to +2.50**) while the postoperative spherical equivalents decreased to **-0.18 \pm 0.27D** (range: **-0.13 to +0.13**). Mean pre-op spherical equivalent for mixed astigmatism patients was -

0.39 diopters (D) \pm **0.65D** (range: **-2.13 to +1.13**) while the postoperative spherical equivalents decreased to **-0.09 \pm 0.21D** (range: **-0.38 to +0.50**). During the 1-year follow-up period, **99.67%** of patients correcting for a plano distance vision target achieved monocular uncorrected distance visual acuity of 20/20 with **92.02%** achieving 20/15 distance vision. For patients choosing a monovision target ranging from **-1.00 to -2.00D** spherical equivalent, **94.00%** of patients reached the intended refractive outcome within $\pm 0.5D$. Of the 1542 eyes, sixteen (16) eyes or 1.04% had a refinement within the first year of care to achieve the intended refractive outcome. Eight (8) LASIK patients were excluded from the 2022 data results due to insufficient post operative follow up care. **One Hundred Percent (100%) of 20/20 Institute LASIK patients (including the monovision patients) in 2022 achieved an uncorrected binocular distance vision of 20/20 or better within one year of their procedure(s).**

Conclusion: The LASIK procedures performed at 20/20 Institute in 2022 resulted in very effective and predictable uncorrected distance and near visual acuity results for myopic, hyperopic, and mixed astigmatism prescriptions.