Millions of baby boomers have undergone LASIK and now require intraocular lenses. Many of these baby boomers have high refractive expectations and would like multifocal intraocular lenses (IOLs). Multifocal IOLs after myopic or hyperopic LASIK can be effective; however, the percentage of patients with less than ideal refractive error may be high. These patients may also require additional LASIK after presbyopia-correcting IOLs in order to achieve the desired refractive outcome.

Research published in 2010 by Muftuoglu et al. performed a retrospective review of 49 eyes (38 patients) with previous LASIK for myopia, and then required cataract surgery.¹

- Both Acrysof ReSTOR SA60D3 (Alcon Laboratories, Fort Worth, Texas, USA) (11 eyes) and ReSTOR SN60D3 (38 eyes) were used.
- One month after surgery, 65 percent of patients (32 eyes) had a spherical equivalent within ±0.50 D of emmetropia, and 84 percent (41 eyes) were within ±1.00 D.
- An additional laser enhancement was performed in 21 eyes (42.9 percent) of 17 patients.
  - An enhancement was performed if uncorrected distance visual acuity was 20/25 or worse, and the patient was not satisfied with the initial results.
  - Hyperopia was the most common enhancement (12 eyes), then myopia (six eyes), then mixed astigmatism (three eyes).
- After cataract surgery and an enhancement, 41 eyes (83.7 percent) were within ±0.50 D of emmetropia, and 46 eyes (93.9 percent) were within ±1.00 D.
- Uncorrected distance visual acuity was 20/25 or better in 71.4 percent of eyes without an enhancement and 76.2 percent of eyes with an enhancement.

This study demonstrates that many patients who have had LASIK with a multifocal IOL after LASIK were not thrilled with their initial result and required an enhancement. The end result after enhancement was favorable for a majority of patients (83.7 percent); however, an extraordinary amount of time was required to get to the end result. Determining the correct IOL for a patient is difficult enough, and a multifocal IOL after refractive surgery is one more variable that can complicate the outcome of the combined procedures.

A wide variety of corneal spherical aberrations are present in eyes after refractive surgery; current aspheric IOLs were only designed to correct the positive spherical aberrations of the average cornea.²³ In most instances, these IOLs will not have the power to compensate for the spherical aberrations induced after myopic LASIK.² The unpredictable interaction of higher-order corneal aberrations with spherical aberration can lead to either a better or a worse refractive outcome.⁴⁵

Other variables that need to be evaluated but have not been studied are the ability to be free from spectacles or patients’ satisfaction after multifocal implantation. From the patients’ point of view, these factors determine the success of the surgery.

References

Melissa Barnett, O.D., FAAO is a Principal Optometrist at the UC Davis Medical Center in Sacramento, where she performs primary and medical eye examinations and fits contact lenses, including specialty contact lenses, in addition to teaching optics and contact lenses to ophthalmology residents. She lectures and has been published on topics including dry eye, anterior segment disease, contact lenses, corneal collagen cross-linking and creating a healthy balance between work and home life for women in optometry. She is also a spokesperson for the California Optometric Association and has appeared on several television shows. In her spare time she enjoys cooking, yoga and spending time with her husband, Todd Erickson, also an optometrist, and two sons, Alex (7) and Drew (5).

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