

Experience with the AMO ReZoom™ Multifocal IOL

Tony Hampton

Part of a growing wave of multifocal solutions for presbyopes and cataract patients, the ReZoom™ lens expands the range of options for ophthalmic surgeons.

The ReZoom™ multifocal acrylic intraocular lens (IOL) from Advanced Medical Optics (AMO) promises to further enliven what is quickly becoming a very exciting area of cataract and refractive surgery. The second refractive IOL from AMO, the ReZoom lens advances the refractive optics platform pioneered by the company's Array® multifocal IOL (Figure 1).

According to the manufacturer,

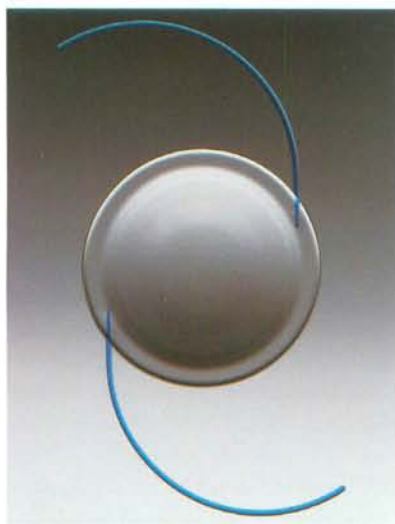


FIGURE 1 The ReZoom™ multifocal lens distributes light over five optical zones.

ReZoom differs from the Array lens in two significant ways: optical design and lens material. In terms of material, where the Array lens is made from silicone, the ReZoom lens is manufactured from hydrophobic acrylic with polymethylmethacrylate (PMMA) haptics.

New Optical Design

The ReZoom lens uses a second-generation optical design that builds on AMO's multifocal experience and takes direct aim at deficiencies in the Array lens. According to Ron Bache, AMO's vice president of global refractive marketing, both lenses employ a five-zone multifocal design. Although the Array lens provides good visual acuity at all distances, some patients report problems with glare and halos at night. While these are an issue in all multifocal lenses, it appears that in the Array lens the problems are exacerbated by the relatively large size of the fourth zone. Because the fourth zone is a near vision area, when pupils are dilated a significant proportion of light from distant sources is focused at near, creating a visual disturbance (ie, glare and halos) that is bothersome for some patients. The ReZoom lens reduces the fourth zone so that more light passes through distance correction, which significantly reduces nighttime halos and glare.

In addition, the ReZoom lens features the AMO OptiEdge™ triple-edge design: a square posterior edge that provides 360-degree contact with the capsule; a sloping side edge for glare reduction; and a rounded anterior edge to minimize internal reflections.

A Multiplicity of Presbyopic Options

Although it will not be the case, at least at the outset, in the USA, the ReZoom lens is indicated for presbyopia correction in Europe. In addition, the AMO Tecnis® diffractive multifocal IOL is available to European physicians. Without specifying a time frame, AMO's Bache says that the company is planning to eventually introduce the Tecnis diffractive multifocal IOL to the US market, as well.

Furthermore, AMO is known to be

working on an accommodating IOL; and AMO has just merged with Visx, which has been investigating multifocal ablation for presbyopia correction. The multiplicity of options augers

REZOOM MULTIFOCAL ACRYLIC IOL SPECIFICATIONS	
✓	Hydrophobic acrylic optic with PMMA haptics
✓	Index of refraction: 1.47
✓	Size: 13 mm
✓	Add power:
	— 3.5 D at IOL plane
	— 2.8 D at corneal plane
✓	OptiEdge design
	— Square posterior edge for 360-degree capsule contact
	— Sloping side edge for minimal edge glare
	— Rounded anterior edge for reduced internal reflection

well for a healthy selection of presbyopia correction choices in the future.

The Range of Options in the USA

There are now three multifocal IOLs approved for the US market: Array, ReZoom, and the recently approved AcrySof® ReSTOR® apodized diffractive IOL (Alcon). The latter uses a hybrid diffractive/refractive optical design. When it becomes available, the Tecnis multifocal will be a pure diffractive design, in which diffractive rings cover the entire posterior surface of the lens (rather than just the center as in the ReSTOR lens), and will feature a prolate anterior surface to reduce spherical aberration and improve image quality.

According to Bache, the current crop of multifocal IOLs advances the options for patients who want to reduce spectacle dependence. Whether they are used for post-cataract correction or to deal with presbyopia, these lenses increase surgeons' ability to meet patients' lifestyle needs. By significantly reducing glare and halos, the new IOLs will allow more cataract and refractive surgeons to participate comfortably in multifocal correction.

Australian Experience with ReZoom

Con Moshegov, MD, a refractive and cataract surgeon from Sydney, Australia, has implanted 18 ReZoom lenses to date. At the outset, he chose to limit the patient population to hyperopes with relatively little astigmatism. All have achieved 20/25 or better UCVA, and 78% are J4 or better (uncorrected). The optimal point of near focus in these patients is 36 cm (14 inches) with good near vision depth of field.

While Moshegov did not measure contrast sensitivity in these patients, he has had no complaints of difficulty seeing at night. When questioned, his ReZoom lens patients did report experiencing halos and glare, but none complained spontaneously. Moshegov credits this, in part, to the fact that patients are counseled about and prepared for these optical effects in advance, so they did not come as a surprise.

Moshegov's patients reported excellent distance and intermediate vision, which he confirmed by testing. Near vision was excellent in the majority of patients. Two patients, however, both of whom had small pupils, could not read fine print without glasses.

When asked to compare the ReZoom to the Array lens, of which Moshegov has implanted several hundred, he notes that the ReZoom lens appears to have fewer glare and halo problems. Moshegov also uses the Alcon ReSTOR lens and has, in fact, implanted three ReZoom lenses in patients who have a ReSTOR lens in the fellow eye. The results are essentially comparable. One patient gets better reading vision in the ReZoom eye, and one patient in the ReSTOR eye. The cohort, notes Moshegov, is too small for definitive comparison.

A Known Lens

Moshegov notes that the ReZoom lens has a long history of safety in its monofocal form, and he expects that

IN PRACTICE

Fitting Multifocal IOLs

Patient selection is key to success with multifocal IOLs. Patients have to be motivated. The patient who is altogether happy with bifocals or progressive lenses or reading glasses doesn't need and probably won't appreciate a multifocal IOL.

Good lens centration remains very important for all current multifocal IOLs. If there is some kind of anatomical issue in the patient that makes good centration problematic, the patient is probably a poor candidate. When fully diffractive multifocal lenses become available, centration may recede somewhat in importance.

in clinical practice the ReZoom will be at least as good as the Array lens but with fewer night vision problems.

Moshegov plans to use the ReZoom lens primarily for presbyopic hyperopes who want to significantly reduce their dependence on spectacles. He notes that multifocal IOLs provide superior quality of vision compared to excimer procedures, and multifocal IOLs avoid the need for monovision.

Moshegov suggests that surgeons will achieve best results if the lens is used primarily with patients who have only mild or moderate astigmatism (preferably 0.75 D or less) and who are not easily irritated by halos and glare. His advice to surgeons in the USA is: "If you have experience with the Array lens and like it, you'll love the ReZoom. If the issue of glare and halos has been a problem with the Array, you will probably be . . . pleasantly surprised with the ReZoom."

European Experience

Ana Martínez Palmer, MD, of the Hospital de la Esperanza, Hospital del Mar, Memorial Cristóbal Garrigosa, and Universidad Autónoma de Barcelona, Spain, has conducted a prospective randomized clinical trial comparing a monofocal IOL (the Tecnis Z9000), ReZoom, a diffractive IOL (the Tecnis ZM900), and an asymmetric diffractive lens (Acri.Tec's Acri.Twin). For this study, ReZoom was implanted in 64 eyes (32 patients). Martínez Palmer found that patients with diffractive

IOLs had diminished best corrected visual acuity compared to ReZoom and monofocal lens patients.

In terms of contrast sensitivity, she found that ReZoom was superior to the diffractive IOLs. She concludes, "I like the ReZoom lens because it gives me an IOL with optical performance similar to a monofocal IOL but with greater depth of focus."

In terms of glare and halos, Dr. Martínez Palmer

notes that 14% of her patients reported dysphotopsias at 1 month. In terms of acuity, patients are satisfied with near, distance, and intermediate vision; however, some prefer reading glasses if they are to be reading small print for more than an hour. The happiest patients in her group were younger cataract patients (under age 70) and hyperopes. She, too, cautions about patients with very small pupils, noting that patients with less than 2.5-mm pupils won't be able to read. Going forward, she plans to use the lens for bilateral cataract patients with less than 2.00 D of preoperative astigmatism, juvenile unilateral cataract patients, and for refractive lens exchange, particularly in hyperopes.

THE BOTTOM LINE

The ReZoom multifocal IOL adds another option for cataract and refractive lens exchange surgeons. A five-zone, three-piece (hydrophobic acrylic with PMMA haptics) multifocal IOL, the optical design of the ReZoom lens aims to cure the halos and glare that some found problematic in the AMO Array multifocal IOL. With the advent of additional multifocal and accommodating IOLs, as well as multifocal excimer laser ablations, the possibilities for spectacle-free vision will be greatly enlarged.

Tony Hampton is a freelance medical writer.