

# South American Perspective on Mixing Multifocal IOLs

One surgeon shares his experience with three lenses and their combination.

BY LEONARDO AKAISHI, MD

**W**orldwide experience with multifocal IOLs has demonstrated that overall visual performance and, in particular, quality vision at intermediate distance are important to patients' ability to execute the tasks of daily living. None of the available multifocal and accommodating IOLs can meet everyone's expectations, and refractive lens exchange is not a suitable form of presbyopic correction for all patients. At present, however, I believe that multifocal IOLs are the best means for freeing presbyopes from their dependence on spectacles, but their use should be customized to the patient.<sup>1</sup>

## ASSESSING PATIENTS

Pedro Paulo Fabri, MD, an expert on quality of vision from Cascavel, Brazil, maintains that a patient's preoperative modulation transfer function is a reliable indicator of optical quality and a patient's candidacy for refractive lens exchange. The optical quality of a youthful, healthy crystalline lens is better than that of a monofocal IOL, which, in turn, is superior to that of a multifocal IOL. Eyes with a high modulation transfer function, therefore, are not guaranteed a successful outcome with multifocal IOLs.

To satisfy patients' visual needs with multifocal IOLs, surgeons must talk with them about their habits and lifestyle. A thorough preoperative evaluation includes assessing patients' contrast sensitivity, higher-order aberrations, and accommodative miosis. Surgeons must also take into account ocular anatomy, anterior chamber depth, and pupillary size. Finally, they must counsel patients to have realistic expectations for the procedure.

## PERSONAL EXPERIENCE

### Background

During the last 4 years, my colleagues and I have implanted more than 1,000 AcrySof Restor lenses (Alcon Laboratories, Inc., Fort Worth, TX), 1,200 Tecnis Multifocal IOLs (not available in the US; Advanced Medical Optics, Inc., Santa Ana, CA), and 250 ReZoom IOLs (Advanced Medical Optics, Inc.). Table 1 summarizes my own experience.

### Distance Vision

We found that the AcrySof Restor IOL provides the highest-quality vision at distance, probably due to its refractive (monofocal) power in the periphery.<sup>2</sup> Other researchers have achieved similar outcomes in their studies.<sup>3,4</sup>

In our experience, the Tecnis Multifocal IOL is very sensitive to small myopic errors. For example, 0.50 D of myopia produced worse vision at distance with this lens compared with the other two IOLs.

### Intermediate Vision

The ReZoom IOL performed the best of the three multifocal lenses at intermediate distance.<sup>5</sup> Provided their pupils were larger than 3.5 mm, most of our patients achieved J3 vision with this lens. When patients who received the Tecnis Multifocal lens had a slightly hyperopic refraction (+0.50 D), their intermediate vision was quite similar to that of subjects in the ReZoom group with little compromise of their distance vision. I now regularly target this result when implanting the Tecnis Multifocal lens.

### Near Vision

For near visual acuity, the Tecnis Multifocal IOL proved the best. Our patients found their reading dis-

**TABLE 1. THE AUTHOR'S EXPERIENCE WITH THREE MULTIFOCAL IOLS**

	Distance Vision	Intermediate Vision	Near Vision	Halos	Pupillary Size	Lighting Level
AcrySof Restor	++++ +	+	++++	+	+ +	+++
ReZoom*	++++ +	++	++	++	+++	-
Tecnis Multifocal	++++	+	+++++	++	-	-

\*The ReZoom IOL has a better modulation transfer function in the author's experience.

tance to be most comfortable with this lens, and they were easily able to read a restaurant's menu under mesopic conditions.

In contrast, recipients of the AcrySof Restor lens require bright light for reading.<sup>4</sup> Although patients with the ReZoom IOL are able to read J1 to J2, most of them need reading glasses. Moreover, the clarity of these patients' reading vision and their reading speed are low.<sup>6</sup>

**Halos**

All multifocal IOLs are associated with halos. We heard the fewest complaints about this phenomenon from patients who had received the AcrySof Restor IOL and the most from those who had received the ReZoom lens.

“We select the implant for the patient's first eye according to an assessment of that person's particular needs.”

**Pupillary Size**

Visual performance with both the ReZoom lens and the AcrySof Restor IOL depends on the pupil's size. We found that patients who received the ReZoom lens and had pupils smaller than 3.5 mm were dissatisfied with their vision at near and at intermediate distance. We also noticed that patients with multifocal IOLs who had pupils larger than 4.5 mm had better intermediate vision than individuals with smaller pupils. Alfonso et al reported similar results.<sup>7</sup>

**MIXING IOLS**

**Basic Approach**

Recognizing that each of the multifocal IOLs has limitations, my colleagues and I now approach the implantation of these lenses in the following manner. We select

the implant for the patient's first eye according to an assessment of that person's particular needs (eg, occupation, hobbies, reading patterns, computer use, nighttime driving). Seven to 15 days postoperatively, we choose the second IOL based on the patient's level of satisfaction with the first implant. We always advise patients not to compare the vision of their eyes and explain to them how neuroadaptation occurs with time.

If patients are satisfied with the vision in their first eye, we will implant the same IOL in their second eye.

**Example No. 1**

Patients who read a lot and use computers a fair amount receive a Tecnis Multifocal IOL in their first eye. If they complain about their distance vision postoperatively, we select an AcrySof Restor lens for their fellow eye. If they complain about their intermediate vision, we place a ReZoom lens in their second eye, provided their pupil is larger than 3.5 mm. Another option for improving their intermediate vision is to implant a second Tecnis Multifocal IOL with a targeted refraction of +0.50 D. We choose this option for individuals who desire perfect vision at near as well or who have pupils smaller than 3.5 mm.

**Example No. 2**

For patients who value distance vision and drive at night, we implant an AcrySof Restor IOL in their first eye. If they feel that their near reading point is too close postoperatively (a particular problem, we have found, with tall patients, who have long arms), we choose either a Tecnis Multifocal or a ReZoom lens for their second eye, as described in the previous example.

Patients who complain about needing bright light to read or not being able to see the menu in a restaurant receive a Tecnis Multifocal lens in their second eye, because it functions independently of pupillary size. Some patients—particularly those with long arms and pupils smaller than 3 mm—will require glasses for activities such as using the computer and should be fully informed of this possibility preoperatively.

### Example No. 3

For individuals who rely heavily on their intermediate vision (eg, cooks, pianists, frequent users of a computer), we choose a ReZoom IOL for their first eye. If they complain about poor near vision postoperatively, we select a diffractive multifocal IOL for their second eye.

### CONCLUSION

None of the patients in whom we have mixed multifocal IOL designs has required an explantation thus far. We have found that, 3 months postoperatively, some of our patients cannot distinguish which IOL is implanted in their right versus left eye. Currently, we recommend mixing IOLs if the first implant is a diffractive multifocal lens and the outcome is worse than J5. ■

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