

AS SEEN IN

www.eyeworld.org

EyeWorld

The News Magazine of the American Society of Cataract and Refractive Surgery

REPRINTED FROM IOL SUPPLEMENT

AUGUST 2005

A Surgeon's Viewpoint – Additional information on refractive IOL technology

Need for intermediate vision should factor into IOL selection

by David R. Hardten, M.D.

In ophthalmology with refractive and cataract surgery, we typically talk about providing patients with good distance vision and (maybe) good near vision for reading. But, generally we have ignored intermediate vision.

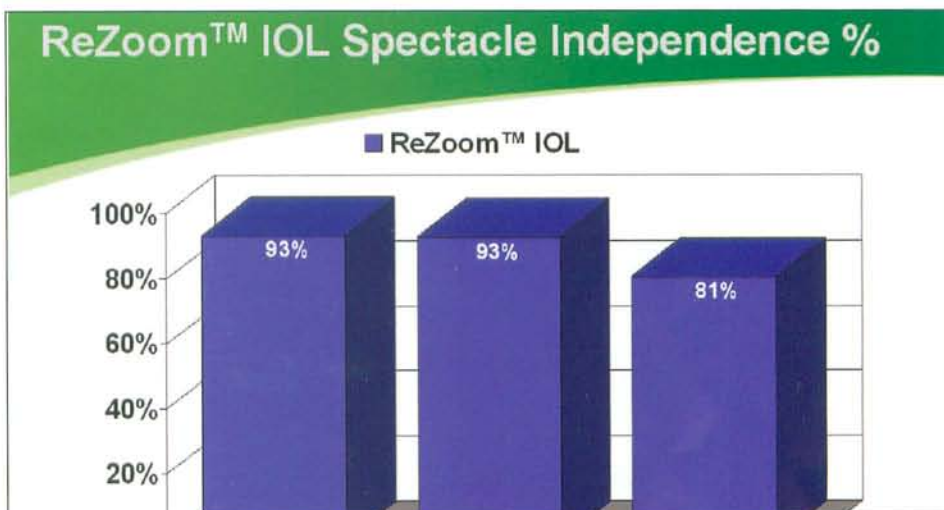
Certainly, we rarely perform Snellen acuity testing at intermediate distances. In a world in which we were mostly "correcting" presbyopia with spectacles, that made sense. But as the availability of bifocal, multifocal, and accommodating IOLs grows, I suspect we will find that we are measuring acuity at more distances and asking more targeted questions of our patients about their specific visual needs.

Intermediate vision has become increasingly important as more and more people depend on computers in their professional and personal lives.

Additionally, many active seniors want to have good vision without spectacles for "walking around" tasks such as shopping and cooking.

As they approach the point of needing cataract surgery, many patients already take multifocal vision for granted because they've been wearing transitional or variable-add bifocals for years.

These patients tend to assume that cataract surgery will "take care of" their vision at all distances. They



Post-operatively, 93% of patients are spectacle independent for intermediate and distance visions, and 81% are spectacle independent at near.

are likely to be unpleasantly surprised if it doesn't and they suddenly have to start taking glasses on and off for different tasks.

The active visual tasks that take place at 18-30 inches, or approximately arms' length, can pose the greatest hassle for patients if intermediate vision is ignored in the selection of an intraocular lens.

For this reason, it's important that ophthalmologists begin to look at the properties of the new presbyopic IOLs that are available in order to make lens choices that fit our patients' needs.

The optics of the new ReZoom IOL (AMO), for example, have been specifically adapted to use 100% of the transmitted light. Depending on the pupil size, between 10% and 17% of the light is directed toward intermediate vision.

In clinical studies, 93% of ReZoom patients have achieved spectacle independence for intermediate visual tasks. There are several other good options in the presbyopic IOL category, but not all of them can meet intermediate visual needs to this extent.

Need for intermediate vision should factor into IOL selection

Case Study

A 55-year-old female recently presented, to Dr. **Con Moshegov (M.D.)**, Perfect Vision Eye Surgery, Hornby, Australia, for consideration of refractive surgery and a specific interest in presbyopia correction. She was found to have dry eyes and was unsure about the thought of monovision. It was decided that a refractive lens exchange and implantation of a multifocal IOL would be more suitable.

Pre-operatively, her refraction was +3.00 -0.50 x 75 and +2.75 -0.50 x 105 in the right and left eyes respectively. Her uncorrected visual acuity in each eye was 20/120, with best-corrected vision of 20/20. She wore progressive lens spectacles and was completely dependent on glasses for distance, intermediate, and near vision.

An Array was implanted in her left eye and a ReZoom in her right eye. Post-operatively, her uncorrected distance vision improved to 20/25 in the left eye and 20/20 in the right eye.

The patient's near UCVA was N5 (around J2 or J3) in each eye with the optimal near acuity ('near point') at 35 and 40cm in the left (Array) and right (ReZoom) eyes respectively.

She also had excellent intermediate vision. In other words, the patient's near vision is excellent and her intermediate vision is not compromised. She is totally independent of glasses. She can drive, use a computer, and read a novel without glasses for the first time in many years.

Customizing the IOL to the patient

Of course, not every patient needs strong intermediate vision without spectacles. When I talk to patients about presbyopic corrections I always look at their glasses first to give me clues about their visual needs and expectations, and to set the stage for a meaningful discussion.

If I see a 70-year-old patient who is wearing a lined bifocal with no trifocal component, I know that intermediate vision is probably not very important to that patient — unless the patient is very dissatisfied with their current vision.

When I see a younger patient who has chosen lined bifocals or trifocals over transitional bifocals, that tells me they may have a specific high-demand near or intermediate task that can't be ignored.

For example, a 55-year-old stockbroker who spends most of his day at the computer may have a very specific intermediate vision need. In other cases, a heavy reader may have tried variable-add lenses and not liked the fact that the entire page wasn't in focus.

Multifocal IOLs with intermediate vision capability are ideal for patients who are in transitional lenses or long-term trifocal wearers. These patients, as I noted earlier, assume intermediate vision will be taken care of, and they tend to adapt easily to multifocal implants.

I am much more cautious about a multifocal implant for a patient who went to a lined bifocal for a specific reason. That tells me the patient wants really sharp vision at a specific distance and is willing to sacrifice depth of field and multifocality to have particular types of images in focus over a large area.

A vision for the future

The ideal intraocular lens would be able to provide flawless, continuous vision from the far distance to three inches away — much like the vision we had as children or young adults. Although we haven't yet reached that ideal, we are getting very close to it with today's multifocal IOL options.

It's a very good thing that we have diverse approaches to multifocality for cataract and clear lens exchange patients, but ophthalmologists must appreciate the differences among these lens options and begin to think about which types of patients each will best serve.

I believe that in order to accurately assess a patient's satisfaction with their vision, or delve into specific complaints with glasses or IOLs, we're going to need to test intermediate vision and ask patients more often about intermediate visual tasks.

Doing so will allow us to tailor IOL choices for individual patients based on the tasks they most want to be able to do without correction.



Dr. Hardten is director of refractive surgery at Minnesota Eye Consultants in Minneapolis. Contact him at (612) 813-3632, or drhardten@mneye.com.