

Intensity: Vision Redefined

A polyfocal IOL designed with Dynamic Light Utilization.

A new generation of multifocal IOLs is emerging, and among it is the Intensity (Hanita Lenses), an IOL with an unprecedented five foci. This polyfocal lens design maximizes light efficiency for crisp, clear, intensified vision across the entire range of functional vision. In early experience with the Intensity, patients have achieved excellent distance, intermediate, and near vision as well as excellent vision at every spot in between these ranges. This article details the lens design of the Intensity and reviews the results of the initial clinical evaluation.

DLU TECHNOLOGY

The Intensity lens employs Dynamic Light Utilization (DLU) technology, an optical configuration allowing exceptional light efficiency and high visual acuity at all distances and lighting conditions.

The lens profile consists of 12 smooth steps of different heights that create five foci symmetrically distributed around zero order at intermediate distance. In other words, the refractive focus goes to intermediate vision, as opposed to conventional trifocal lens designs. The lens profile of the Intensity is divided into three zones, each of which was optimized by the DLU algorithm, a proprietary iterative algorithm intended to achieve maximal light-utilization efficiency.

As a result of the features described above, loss of light with the Intensity is as low as 6.5%, compared to 12% with the AcrySof IQ PanOptix (Alcon) and 14% with the FineVision trifocal (PhysIOL) and AT LISA tri (Carl Zeiss Meditec) IOLs, which represents a decline of up to 40% in light loss (data on file with Hanita Lenses).

High light efficiency provides extra energy that, combined with the unique distribution of the five foci, flattens the defocus curve, reduces visual gaps present in other lenses, and enables vivid continuous vision in all distances and lighting conditions.

Early experience with the Intensity, described later, shows that the DLU technology provides patients with excellent vision at distance, intermediate, and near; high contrast sensitivity in photopic and mesopic conditions; and a high patient satisfaction rate.

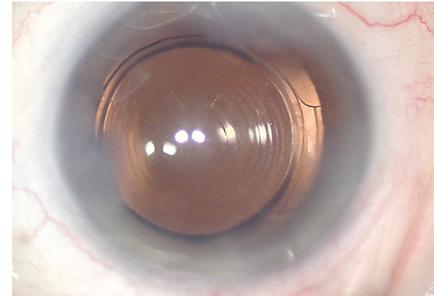


Figure 1. Implantation of the Intensity IOL.

A total of 40 eyes of 20 patients were enrolled in this prospective, single-arm, single-center, open label study. All patients, aged 45 to 75 years, had bilateral cataract, had no retinal or optic nerve abnormalities, and were motivated to receive multifocal IOLs. Regular corneal astigmatism did not exceed 0.75 D. Preoperatively, distance UCVA and BCVA were 0.41 and 0.11 logMAR, respectively. Patients received the Intensity in both eyes (Figure 1).

Can you share the results of the study?

Professor Assia: In this clinical study, patients experienced intensified vision at distance, intermediate, and near with no compromise in visual acuity from distance to 40 cm (Figure 2). The average visual acuity achieved by patients in this study was greater than 0.05 logMAR, and this result produced high patient satisfaction.

EFFICACY AND PATIENT EXPERIENCE WITH THE INTENSITY IOL

AN INTERVIEW WITH EHUD I. ASSIA, MD



Please describe the design of the initial clinical study of the Intensity IOL, which you recently conducted.

Ehud I. Assia, MD: The initial clinical study of the Intensity IOL was designed to determine the safety and efficacy of the lens. Distance, intermediate, and near vision monocular and binocular visual acuity were evaluated, as were the defocus curve and patient satisfaction.

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Intensity Surgery



VIDEO 1

Intensity Movie



VIDEO 2

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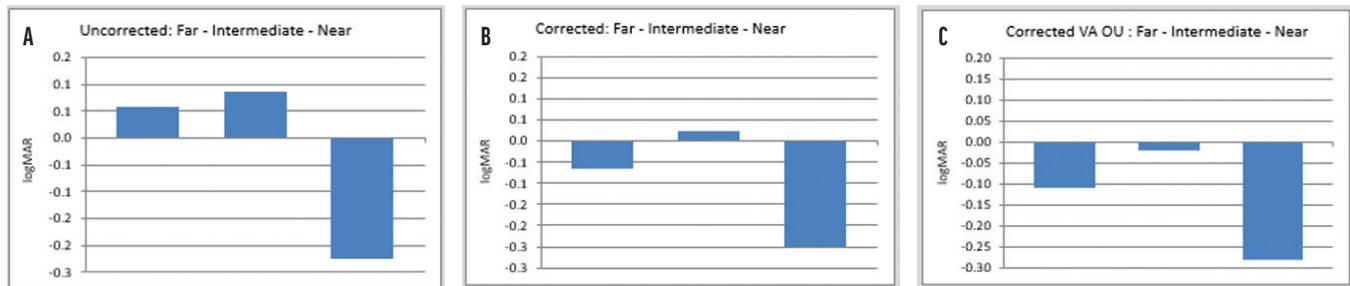


Figure 2. Uncorrected (A), corrected (B), and binocular corrected visual acuity (C) with the Intensity lens at 3 months postoperative.

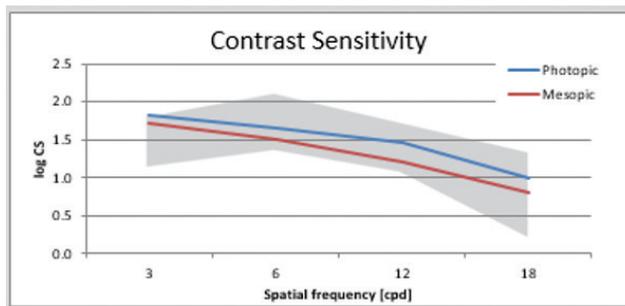


Figure 3. Contrast sensitivity in photopic and mesopic conditions.

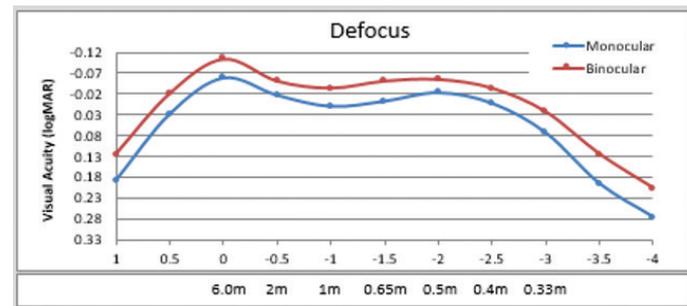


Figure 4. The monocular and binocular defocus curves of the Intensity.

That brings us to the next question. What was patient satisfaction like with the Intensity IOL?

Professor Assia: Patients reported being able to perform a full range of daily activities including driving during the day and night, watching television, cooking, playing sports and other games, writing checks, handy work such as knitting and sewing, reading traffic signs, seeing steps, recognizing faces, and reading (large and small print) with slight or no difficulty and little loss of contrast sensitivity (Figure 3). According to patients' responses on the subjective questionnaire, 82% were satisfied with their treatment results at 3 months. Also at 3 months postoperative, all 20 patients responded that they did not use glasses for near, intermediate, or distance vision and also that they would select the Intensity IOL again.

What was the defocus curve with the Intensity IOL?

Professor Assia: The monocular

and binocular defocus curve is flat (Figure 4), meaning that patients can see well from far to near without compromising far vision and while increasing the depth of focus. This confirms the principle that the Intensity lens provides excellent functional vision at every range, from near to infinity.

What is the take-home message from your initial clinical study with the Intensity IOL?

Professor Assia: The results of the study described here substantiate that the Intensity is a promising lens design that provides patients with a good range of focus and spectacle independence at all distances. Many patients with multifocal IOLs still complain of limited ability to read without glasses, and I feel that the near vision using the Intensity is exceptionally good. This may be related to the novel lens design and light energy distribution of the Intensity, a clear advantage of this specific lens.

What is your premium IOL conversion rate, and where do you see the Intensity IOL fitting into your armamentarium of lens designs?

Professor Assia: I currently use premium IOLs in about 15% to 20% of my patients, but I foresee that this percentage will continue to grow now with the Intensity lens. This lens provides a full range of functional vision with the least compromise in near vision. I am convinced that the Intensity IOL will be an excellent option to provide patients with maximal outcomes after refractive cataract surgery for many years to come. ■

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