



**'Excellent' stability**

# All-laser LASIK proves worth

Large, single-center study provides visual results of **14,126 eyes with iLASIK**

**By Nancy Groves**

Reviewed by Jonathan D. Christenbury, MD

**Charlotte, NC**—iLASIK provided excellent visual acuity and patient satisfaction with 20/20 vision or better in 97% of patients at 6 months in a single-center study of more than 14,000 eyes. iLASIK is a term referring to flap creation with femtosecond laser technology (IntraLase, Abbott Medical Optics [AMO]) and custom wavefront excimer laser treatment (VISX CustomVue, AMO).

Jonathan D. Christenbury, MD, at Christenbury Eye Center in Charlotte, NC, performed all the procedures and follow-up visits and presented 1-month and 6-month visual results of 14,126 eyes that underwent iLASIK between 2003 and 2010. This may be the largest LASIK series reported from a single surgeon and single center in the United States and with 6-month results.



Dr. Christenbury

## Large series

"It's such a large series with 6-month follow-up that the data are really compelling," Dr. Christenbury said. "Many series presented at meetings may be a few hundred eyes and usually only 1 month follow-up."

In this study, uncorrected visual acuity at 1 month was 20/20 or better in 94.5% of patients, while at 6 months it improved to 97%.

"This indicates excellent stability of vision with the iLASIK—combining the IntraLase femtosecond laser for flap creation and the VISX CustomVue for excimer laser vision correction treatment," Dr. Christenbury said. "The all-laser technology I have seen developed over the past years has made LASIK safer. And a large series like this gives us confidence that all-laser, wavefront-directed custom treatments are both accurate and stable over time. The uncorrected visions actually improved from 1 to 6 months."

In the series, the mean patient age was 38 years, with a range of 18 to 64 years. Females composed 53% of the group and males 47%. The mean sphere was -3 D ( $\pm 2.5$  D), and the mean cylinder was -0.93 ( $\pm 0.87$  D).

All patients underwent WaveScan testing,

## Take-Home Message

iLASIK provided excellent visual acuity and patient satisfaction with 20/20 vision or better in 97% of patients at 6 months in a single-center study of more than 14,000 eyes. iLASIK is a term referring to flap creation with femtosecond laser technology (IntraLase, Abbott Medical Optics [AMO]) and custom wavefront excimer laser treatment (VISX CustomVue, AMO).

which generated a wavefront-guided custom treatment plan that was downloaded to the VISX laser. All patients received a 110- $\mu$ m thick and 8.7-mm diameter IntraLase flap. A 6.5-mm optical zone and 8.5-mm transition zone was utilized with the VISX CustomVue.

"These superior results are not only related to the wavefront custom treatment with the VISX excimer laser but also due to the more perfect laser-generated LASIK flaps," Dr. Chris-

tenbury said. In iris recognition, an iris "fingerprint" image is created and stored as a visual map to be compared with another image later. Iris registration is an automated method of addressing cyclotorsional misalignment so that both astigmatism and wavefront corrections are aligned at the appropriate axis.

"Because the VISX laser measures and compensates for cyclorotation, under- and overcorrection of astigmatism is uncommon," he said.

Dr. Christenbury said he has also compared results of the iLASIK series with outcomes of earlier procedures performed with various other platforms.

## Combination a plus

"All the modern LASIK platforms were effective in treating myopia and astigmatism," Dr. Christenbury said. "But in my experience, the combination of lasers used in iLASIK is the most accurate and provides the highest per-

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Jonathan D. Christenbury, MD

tenbury said. "We no longer have variation of vision results due to imperfect mechanical keratome-created flaps and their healing response. The IntraLase flap doesn't add or subtract from the vision correction treatment; it just makes the procedure safer and allows more consistent vision results.

"Since I have used several excimer laser platforms with the IntraLase for flap creation, the largest reason for the super vision results is the accuracy of the wavefront-directed VISX custom treatment," he added.

## Iris-related features

The iris recognition and registration features of the VISX laser also played a role in the suc-

centage of patients with 20/20 uncorrected visual acuity at 6 months.

"It's important that the general public know that all-laser LASIK is safe and that vision is stable over time," he concluded. "Night vision is good, and most people [see] 20/20; only a very few percent of patients who undergo wavefront custom treatment might need a touch-up." **OT**

**fyi**

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Dr. Christenbury has no financial interest in the subject matter.

Marriage of technology

# Advanced LASIK 1-month data 'impressive,' surgeon says

Treatment combines flap-creation technology with laser vision correction platform

By Lynda Charters

Reviewed by Jonathan Christenbury, MD

**Charlotte, NC**—An advanced LASIK procedure (CustomVue iLASIK, Abbott Medical Optics [AMO]) provides excellent visual outcomes, night vision, and overall quality of vision, said

**'These 1-month data are impressive, since patient satisfaction and patient referrals all depend on visual outcomes.'**

Jonathan Christenbury, MD

## Take-Home Message

An advanced LASIK procedure (CustomVue iLASIK, Abbott Medical Optics) provides excellent visual outcomes, night vision, and overall quality of vision, according to one ophthalmologist familiar with the platform.

Jonathan Christenbury, MD, medical director of the Christenbury Eye Center, Charlotte, NC.

"It is my LASIK procedure of choice for the past few years," said Dr. Christenbury, who said he has used a number of excimer laser platforms either in investigational clinical trials or as FDA-approved lasers in his practice.

This marriage of flap-creation technology with laser treatment provides precise, safe, and effective vision correction. In addition, this combination of technologies is used for military pilots and astronauts, who demand the clearest, most precise vision possible.

"It is so rare now to have a patient com-

ment about any night vision complaint, even patients who drive or fly at night for a living," Dr. Christenbury said.

Dr. Christenbury conducted a retrospective LASIK study using the proprietary procedure (iLASIK) in 2009 with 1,065 consecutive eyes. The patients (50% male/female) were a mean age of 29.8 years. The preoperative refractive error was  $-6$  D or less of myopia and cylinder of 3 D or less. Wavefront-guided laser treatment (VISX Advanced CustomVue, AMO) technology was used with a femtosecond laser (IntraLase, AMO) utilizing a 110- $\mu$ m flap.

"In this whole series I used a 6.5-mm optical zone and an 8.5-mm transition zone, and the results were excellent," he said.

Uncorrected visual acuity at 1 month was 20/20 or better in 98.1% of patients and 20/15 or better in 50.3% of patients, he said. All patients (100%) had visual acuity of 20/40 or better.

Regarding the best-corrected visual acuity, there was no change in 70.2% of patients, 19% had an improvement of one line or more of vision, and no patients lost lines of best-corrected vision.

"These 1-month data are impressive, since patient satisfaction and patient referrals all depend on visual outcomes," he said. "Patients want to be 20/20 and quickly."

"In my experience, the quality of vision improves up to 6 months after [treatment]," Dr. Christenbury concluded. "I have not found any other excimer laser platform to provide a higher incidence of 20/20 or 20/15 vision at 1 month, so during the LASIK consultation it provides the patients a lot of assurance that they will be happy with their vision correction when we share these data." **OT**

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