

A Better Type of LASIK

'Knifeless' LASIK Surgery Improves Vision, Cuts Risk of Complication

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on Wednesday, April 23, 2003

WebMD Medical News

April 23, 2003 -- A new procedure appears to provide crisper vision and fewer complications than the traditional type of LASIK surgery performed on millions of Americans each year -- without the cutting-edge of a surgeon-held knife. That's because it uses a special type of laser to more accurately perform a crucial part of the procedure.

In LASIK, or laser-assisted in situ keratomileusis, the cornea is permanently reshaped to clear blurred vision and eliminate the need for glasses or contact lenses in those who are nearsighted, farsighted, or have astigmatism. The 15-minute procedure is usually done in two steps: A knife called a microkeratome is first used to cut a thin, circular flap in the cornea, which is then folded back to give the surgeon access to the cornea. Then, an excimer laser removes tiny bits of the cornea to reshape it. The flap is then laid back into place.

Though this procedure has proved to be among the most popular elective surgeries, about one in 20 patients experience side effects and complications during either step - including permanent vision loss resulting from errors done during this flap-cutting. Other potential side effects include poor night vision, seeing halos, continued blurring, or dry eyes that usually result from the excimer laser portion of LASIK surgery. Some of these effects can be corrected with additional surgery.

But according to a recent study, published in the *Journal of Refractive Surgery*, a new type LASIK surgery using the INTRALASE FS laser appears to provide better results and may make LASIK a safer procedure.

"What we're doing with INTRALASE is replacing the microkeratome device used to cut the corneal flap to do that step of LASIK with more precision and accuracy," says lead study author Ron Kurtz, MD, an ophthalmologist at the University of California, Irvine. "The microkeratome ... works very well, but since it is a mechanical device guided by the surgeon, it's limited in its flexibility and susceptible to complications."

In his study, none of 108 patients who underwent LASIK surgery with the "all-laser" procedure experienced any complications for six months following surgery -- the typical postoperative "watch" period. "Although complications typically range from 1% to 5% in traditional LASIK, we're talking about a procedure done on millions of people each year," he tells WebMD. "Even though the risk is low, would you take those odds when stepping on an airplane?"

In addition to reducing risk of problems, this "all-laser" procedure appears to give patients better vision from the initial procedure. Additional research presented just

last week at the annual meeting of the American Society of Cataract and Refractive Surgery -- whose members perform LASIK surgery and other ophthalmic procedures -- indicates that patients treated with INTRALASE require far fewer secondary procedures to correct vision or side effects than those getting with traditional LASIK.

"Patients want safety in capital letters, and I started using this procedure six months ago because I knew it was safer because it was computer-guided rather than relying on the surgeon," says ophthalmologist Daniel Durrie, MD, director of Refractive Surgery Services at the University of Kansas Medical Center and a spokesman for the American Academy of Ophthalmology. "But I'm finding that in addition to better safety, my patients are seeing better and need less secondary procedures. And every surgeon I've spoken with says that they reduced their rate of these secondary procedures anywhere from 4% to 50%."

The INTRALASE laser was developed at the University of Michigan originally for other scientific applications. But when Kurtz was doing his residency at its Kellogg Eye Center, he realized it could be used as a "high-precision corneal scalpel" to cut through transparent tissue and be focused to specific depths better than the microkeratome. He and other researchers at the University of Michigan later formed a company to develop and market the laser for ophthalmic surgery, and he now serves as its medical director. His company, IntraLase Corp., funded his study.

The laser was approved by the FDA in 2000 for LASIK surgery and been used on patients since 2001. Since then, some 50,000 procedures have been done at 50 refractive surgery clinics across the U.S.

"Because of the technology, INTRALASE costs about \$200 to \$300 more than a traditional LASIK procedure," Kurtz tells WebMD.