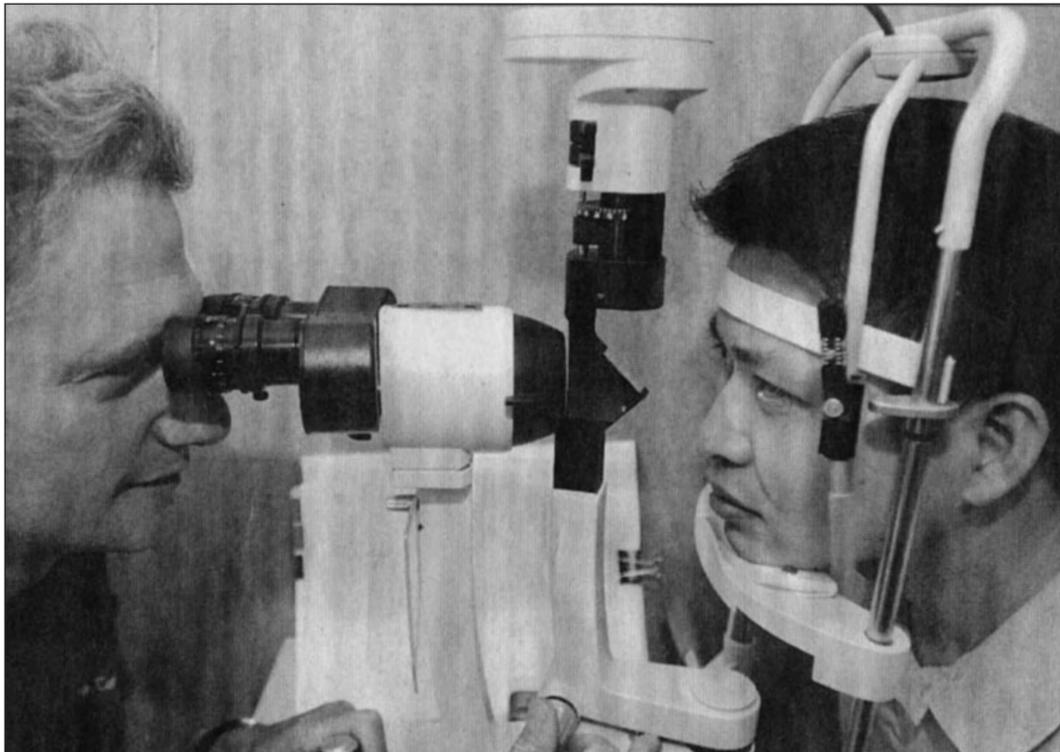




# Lasik 'breakthrough' rides a wave of light



**More precise than conventional:** Andrew Caster examines Lewis Lee, 34, after Lee's surgery. The wavefront technology maps corneal irregularities before surgery and applies as many as 200 prescriptions for each eye.

By Arianne Aryanpur,  
USA TODAY

Neither eyeglasses nor contacts worked for Kim Fonseca, 39, of Los Angeles, a mother of two. She struggled with contacts and hated the glare on her glasses so much that she wore sunglasses, even at night.

Her problem, says Los Angeles-based ophthalmologist Andrew Caster, was irregularities in her eyes that couldn't be addressed totally by conventional eyewear. But those irregularities made her a good candidate for a procedure called wavefront Lasik surgery.

The new technology that helped Fonseca also might boost the flagging Lasik industry, which has seen a 30% drop in business over three years, market analysts say. "This is a major breakthrough in the field,"

says Caster, who has performed hundreds of wavefront surgeries, including Fonseca's procedure.

Doctors say wavefront-guided technology is more precise than conventional procedures because it maps corneal irregularities before surgery. While people with glasses or contacts get one prescription for each eye, wavefront applies as many as 200 prescriptions for each eye, Caster says. In a pre-surgery screening, doctors shine a light beam into the eye to scan for abnormalities. A computer analyzes the data, and a three-dimensional imprint of the eye is entered into the reshaping laser. The procedure is called wavefront because a wave of light is used in the diagnosis.

"People are getting crisper vision. Now some are seeing as good as 20/10 or 20/15," says Robert Cykiert, a New York ophthalmologist.

Fonseca's procedure took about 10 minutes. Half an hour later, she went home. Months later, Fonseca has 20/20 vision. She can go grocery shopping without squinting at the aisle signs. She can watch her daughter's ballet recitals from the back row.

Every year, nearly 1.5 million Americans have Lasik, the most common corrective eye surgery. Doctors use a laser to sculpt the cornea.

In conventional Lasik, the eye is evaluated with the same measurements doctors use when prescribing glasses. And like glasses, Lasik provides one overall prescription per eye, Caster says. It may still be the best option for people who have what are called lower-order aberrations, refractive errors like nearsightedness, farsightedness and astigmatism.

Wavefront expands this repertoire to include higher-order aberrations, a range of irregularities that can cause problems with night vision, glare and shadows.

Two companies — VISX and Alcon — have approval from the Food and Drug Administration to use the new technology. Caster, who performs more than 100 Lasik procedures a month, says two-thirds of his patients are treated with wavefront.

Still, that doesn't mean it's a good idea for everyone, says Ron Link, founder of Surgical Eyes Foundation, a non-profit patients' rights group. "Unless doctors properly screen patients, it doesn't matter that wavefront is slightly better than conventional technology."

David Dutton, a teacher from British Columbia, found that out the hard way. His story and those of other unhappy customers are posted on Link's Web site, [www.surgicaleyes.org](http://www.surgicaleyes.org).

Dutton had wavefront last November to correct nearsightedness. The results, he says, were less than ideal. Now he suffers from dry eyes, halos, glare and vision that worsens at night. He believes his corneas might have been too thin to have had surgery.

Dutton paid \$2,000 for the surgery but says, "I'd pay my doctor \$10,000 tomorrow if I could get my old corneas back."

Wavefront is more expensive than conventional Lasik. Fonseca says the \$5,000 procedure was "worth every single dime. You can't put a price on the sort of vision I have now." Many people, though, aren't as ready to dish out the dough — especially since wavefront costs \$300 to \$700 more per eye than regular Lasik and neither form of Lasik is covered by health insurance.

The FDA is concerned about the people drawn in by disreputable ads that promise perfect vision at bargain prices. "What we worry about is the physician who gets on the radio advertising that with wavefront you can get eagle vision," says Everette Beers, chief of diagnostic and surgical devices in the FDA's ophthalmology division.

False advertising caught the attention of the Federal Trade Commission, which this year sent cautionary letters to doctors. Ads promising "super vision" and "buy one eye get the other eye free" left many unhappy customers in their wake. Industry experts say erosion in consumer confidence is partly responsible for the downturn in Lasik procedures.

Today, analysts say consumer interest and confidence has stabilized. "Lasik is a little bit like vacations and new cars," says Dave Harmon, president of Market Scope, a Missouri-based market research firm. "You do it when you feel good about things."

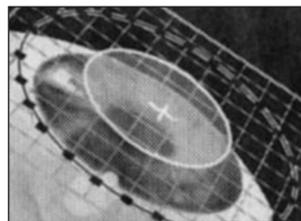
## How wavefront Lasik eye surgery works

**1** A beam of light is projected into the eye. The beam is reflected off the back of the eye, exits through the pupil and enters an analyzing device.



**2** If the eye has no irregularities, the rays come out of the eye in a straight plane. If there are irregularities, the rays exit in a shape that is used to create a three dimensional map of the eye.

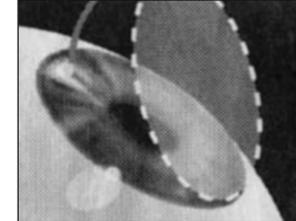
**3** This diagnostic information is electronically transferred to the laser system. The surgeon matches the map with the eye.



**4** Anesthetic drops are placed in the eye. An eyelid holder keeps the eye open throughout the procedure.



**5** The surgeon uses a microsurgical instrument to create a flap in the cornea, which is folded back.



**6** A beam of laser light is used to shape the inner layers of the cornea to duplicate the effects of the patient's prescription for contacts or glasses and to repair other irregularities



## Wavefront vs. conventional, eye to eye

### Procedure

**Conventional Lasik**

### Wavefront Lasik

### Best candidates

Patients with lower aberrations, problems that are usually fixed with glasses, such as nearsightedness, farsightedness and astigmatism

Patients with higher-order aberrations, a range of irregularities that affect the quality of vision and cause such problems as impaired night vision, glare, shadows and halos.

### Worst candidates

People who have a lot of higher-order aberrations will not be helped by conventional Lasik.

The procedure cannot correct farsightedness. Otherwise, general restrictions for all Lasik procedures apply.

### Approximate cost

\$1,000 to \$2,750 an eye. Not covered by insurance

About \$500 extra per eye. Also not covered by insurance.