

Beyond Lasik

New advances have increased the number of surgical options for patients who want to get rid of their eyeglasses. Here's a rundown of the most popular.



Al Behrman / AP

An ophthalmologist prepares a patient's eyes for laser surgery—one of several techniques for improving vision

WEB EXCLUSIVE

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June 7 - Martha Hamilton recently learned the very sad truth that, like death and taxes, reading glasses are unavoidable. Hamilton, 51, had near perfect vision until her early 40s when she joined the ranks of baby boomers struggling with presbyopia, an age-related condition in which the lens on the inside of the eye begins to stiffen and loses flexibility, resulting in an inability to see fine print. The solution: a trip to the drug store to purchase reading glasses, the ubiquitous badge of aging. But Hamilton, whose home, office, car and purse were soon littered with the half-moon spectacles, didn't want to remain part of the granny-glasses brigade and decided to undergo a newly approved vision procedure called conductive keratoplasty.

Using radio waves to steepen the cornea to its pre-middle-age shape, the procedure allows presbyopics like Hamilton to toss their spectacles. Almost immediately after the three-minute procedure,

which she had last month, Hamilton was reading fine print without glasses. "It was absolutely amazing," she says. "I'm finally free."

Many people who endure the daily hassle of glasses or contacts want to be able to cry "Freedom!" Until recently, one of the few surgical choices for the vision challenged has been Laser-Assisted In Situ Keratomileusis (Lasik). During the 60-second surgery doctors use laser beams to reshape the surface of the cornea to treat nearsightedness (myopia), farsightedness (hyperopia) and astigmatism (in which the cornea is asymmetrically curved, causing out-of-focus vision). But the procedure isn't for everyone. Thin corneas, large pupils, severe vision problems or a condition called "dry eye" generally preclude people from surgery. And, though rare, there are risks, such as developing halos, glare or double vision.

Now, driven as much by consumer demand to find more alternatives as well as a desire to push that corneal envelope, doctors are offering an array of treatments to reduce, or completely eliminate, patients' dependence on glasses or contacts. These new techniques not only enhance procedures like Lasik, but also provide choices for patients for whom Lasik was never an option.

One of them is conductive keratoplasty (CK), the procedure that Hamilton underwent. First approved in 2002 to treat farsightedness, the procedure was granted approval by the Food and Drug Administration (FDA) last year to treat presbyopia, or "aging" eyes. So far, more than 100,000 procedures have been done, the majority for presbyopia. The procedure, which requires only a local eyedrop anesthetic, uses a monovision technique: the nondominant eye is surgically corrected for near vision while the dominant eye is left alone so that distance vision is not affected. The FDA based approval for presbyopia on clinical trial data collected at the 12-month follow-up visit in which technology called NearVision CK showed 98 percent of patients could see newspaper-size print after treatment and 87 percent could read the smaller type of phone-book size print without their spectacles. Another plus for patients is the extremely high safety profile of the procedure. The best candidates for the surgery are people 40 and older with good distance vision who "hate their reading glasses," says Dr. Marguerite McDonald, clinical professor of ophthalmology at Tulane University School of Medicine and director of the Southern Vision Institute in New Orleans.

The procedure isn't a permanent fix, though. Presbyopia is a progressive condition, and the lens will continue to lose flexibility and

cloud as a person ages--even after CK surgery. The procedure costs about \$1,500. But for many boomers, it's not about money. "In a world where 50 is supposed to be the new 30, the last thing a lot of boomers want is a pair of reading glasses," says McDonald.

Lasik itself is also getting an extreme makeover. Though most Lasik procedures are customized, based on the degree of refractive error (a measure of how well your eye processes light), Lasik was given a booster shot a few years ago with the approval of technology called Wavefront. That allows doctors to make a more detailed map of the eye, reshaping the cornea to more exact specifications. Despite Lasik's high-tech approach, the majority of doctors use a handheld blade called the microkeratome to make the corneal flap, the first step of the procedure. But now some doctors are using a newly approved laser technology called IntraLase, which can improve contrast sensitivity and produce superior vision. More than 400,000 laser-guided flap procedures have been performed in the last three years--75,000 of which were done in the first three months of this year alone.

The laser is a bit more expensive than a traditional approach, adding about \$300 to an \$1,800-per-eye Lasik price tag. But results from a 200-person U.S. Navy study shows that military personnel who underwent Lasik with laser-guided corneal flaps had a quicker visual recovery, better contrast sensitivity and visual acuity--even at night--compared to those who underwent the more traditional handheld microkeratome approach. "There was a lot of healthy skepticism in the field as to whether this approach would pan out," says Dr. Steve Schallhorn, director of cornea services at Naval Medical Center in San Diego. "I'm not here to blow smoke or paint too rosy a picture, but overall we're pretty happy."

So is Matt Stout, a 24-year-old aeronautics engineer whose vision was so poor he couldn't see his bedside clock without his contacts. Stout, who admits to being a "tech geek," had considered Lasik surgery in the past but was concerned about the handheld cut. When the laser option was approved, he decided to undergo the procedure two months ago. "The laser is a natural progression of the technology," says Stout, who now sports 20/15 vision. "For me, it's opened up a whole new world."

Meanwhile, Barbara Gilbert was afraid of losing her ability to see the world. The 62-year-old retired nurse from Ocala, Fla., got her first pair of glasses when she was 8 years old. For more than five decades she's struggled with ever-worsening vision. In her late 50s, Gilbert started

to develop cataracts, an age-related clouding of the eye's natural lens. Because her eyes could no longer focus light properly, Gilbert's world became "fuzzy, drab, miserable," she says. Treatment usually involves removing the lens and replacing it with an artificial lens. But even with the lens replacement, patients in the past didn't have a full range of vision, and generally had to wear contacts or glasses for near- and middle-range vision. "The goal was always to try to mimic the eye's natural ability to move and to focus," says Dr. Roger Steinert, president of the American Society of Cataract and Refractive Surgery and professor of ophthalmology and biomedical engineering at the University of California, Irvine. "Traditional replacements fell a little short."

But recently improved implantable lenses (IOLs) come as close to Mother Nature as possible, allowing for distance-, middle- and near-vision problems. One such product is the Crystalens, which is made of flexible silicone and was approved in November 2003. Tiny hinges allow the lens to move with the muscle of the eyes. The new lens, which costs about \$4,500 per eye, takes only about 30 minutes to insert and involves only topical anesthetic. Vision continues to improve over a period of several months. Gilbert opted for the lens replacement earlier this year and now has 20/15 vision. "I call myself the bionic woman," she says. "I can finally see just how good looking my husband is."

The Centers for Medicare and Medicaid Services (CMS) has just ruled that Medicare beneficiaries can choose one of several multifocal IOLs for an additional fee as part of their Medicare-covered cataract surgery. Prior to the May ruling, Medicare patients had to opt for the traditional distance-vision IOLs. "That's a big step forward for patients because they have access to the best technology possible," says Tulane's McDonald.

Kelly Wagner opted for another type of implantable lens last year called a phakic IOL. Without contacts, Wagner, 37, could only see about six inches from the tip of her nose. She wasn't a Lasik candidate because her cornea was too thin, and she was convinced that surgery was never going to be an option for her. Contacts were also a major hassle for the sports enthusiast who enjoys jet and water skiing. Now, with her new implantable contact lenses, Wagner, a marina manager, says she is "totally enjoying life."

The FDA has so far approved one model called Verisyse, in September of last year. But other types are sure to follow. The procedure only

takes about five minutes, but costs about \$3,500 per eye. Doctors make a tiny slit in the cornea and inject a lens, which unfolds in front of or behind the iris, depending on the brand being tested. An FDA study of the Verisyse lens, which is placed behind the cornea, found that some 92 percent of more than 600 patients had 20/40 or better vision and 44 percent now have 20/20 or better vision. The lenses are only approved for the most severe cases of myopia, explains Dr. Stephen Slade, a fellow of the American Academy of Ophthalmology and American College of Surgeons. "The real question is just how low we can go," he says, adding that these lenses might also make sense for those that suffer from moderate nearsightedness.

With so many choices now available, many experts believe that patients will choose a continuum of care, in which procedures are used progressively as eyesight deteriorates with age, or opt for combination procedures, such as a phakic lens implant followed by a Lasik procedure. As technology continues to advance, the real art will be in matching up a patient's expectations about various procedures with the treatment that is most suited for their visual needs. Despite recent advances, it's important to remember that not every procedure is "absolutely perfect for every patient that walks through the door," says Slade. But, at least now, millions of patients have a chance to better see that door.

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