



A Personal Experience with LASIK

Much has been written, including previous articles here on AVweb, about LASIK surgery to correct vision deficiencies. Much of what you may have read involves what the surgery does, how it's performed and what the various considerations can be for pilots. However, few, if any, of those articles were written by a physician who had actually undergone the procedure. Until now. AVweb's aviation medicine editor, Dr. Brent Blue, recently went under the knife, err, laser, to have the procedure. Here's his report.

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Editor's Note:

Previous articles on LASIK have appeared here on AVweb. They include:

- [Pregnant Pilots And A Look At LASIK](#)
- [Vision Correction Surgery for Pilots \(Is LASIK the Holy Grail?\)](#)



I broke my glasses just before leaving for a two-week vacation in Italy. With no one-hour optical shops where I live in Jackson Hole, Wyo., I was in trouble. That experience, and having seen a friend with 20/20 vision the day after undergoing LASIK made up my mind -- I was going to have LASIK surgery on my eyes.

My friend's vision was so bad that she could not see the number three when it was blown up to TelePrompTer size. Since my

vision was not nearly that bad, making corrective lenses obsolete for distant vision made sense. I knew it would force me to use reading glasses but I already needed them most of the time, anyway. I also rationalized that when I ski, mountain bike, or engage in other vigorous activities, fogging of glasses can be a real pain and this would eliminate the problem.

Questions about surgically-corrected vision are frequent on *AVweb* and elsewhere on the Internet, so I decided to write about my experience going through the procedure.

I picked Dr. Gary Kawesch (pronounced "K-wish") to do my surgery. A fellow emergency physician in San Jose, Calif., referred me to him. Kawesch has done about 12,000 procedures. One thing is certain; if you are considering having this surgery, go to someone who does a lot of them. I made my appointment with the Laser Eye Center of Silicon Valley for 0815 with surgery scheduled for the same day at 1530. Although same-day surgery is not the norm, because I was from out of town, they consented.

Preparation And Exams



Dr. Gary Kawesch and author Brent Blue one day after the procedure.

I walked into the Center at the appointed time. As expected, it is a beautiful office with the requisite pictures of the doctor with movie and entertainment stars in the lobby (Danny DeVito, Robbie Krieger of the Doors, Nicole Murphy, among others). Soft music, a large, flat-screen TV with gentle videos playing, and a very friendly staff was in place to lead to calmness and confidence. (I found out later that Kawesch designed the building and his wife decorated it, including some phenomenal underwater photos on the wall that were taken by the Kawesches.) The LASIK equipment costs about \$550,000 -- that makes this a big business and the building reflected this fact.

At the appointed time, an ophthalmologic technician did a full screening exam on me. The Center is about as modern as possible: Even the eye chart was a computer CRT. The exam included computer screening of my visual acuity and infrared computer mapping of my cornea shape as well as precise measurements of my pupils.

Additionally, a medical history was taken and a detailed history about previous corrections, especially contact lens use, was reviewed. The testing was very complete and took about an hour. An additional test, corneal thickness measurement, was performed since this is critical for the procedure. Some people have corneas that are too thin for the procedure. Mine were OK at .571 and .522 mm.

My eyes were then dilated for the exam, a procedure that later had to be reversed with other drops in order to have the surgery performed on the same day (the pupils have to be normal size for the actual procedure). This medication was the only discomfort of the whole procedure since it made me feel somewhat nauseated, but a [ReliefBand](#) took care of that. After this examination, I watched an informed-consent video about the procedure followed up with a personal discussion and exam with Dr. Kawesch.

Dr. Kawesch was also very complete in his exam and explained the procedures and choices in having the surgery, not having the surgery and what type of correction to have. One big question was [monovision correction](#). This is where one eye is corrected for distance and the other is corrected for near vision. (See the [sidebar](#) for more on this subject.)

When corrected to 20/20 for distant vision and if you are over 40, most LASIK patients will require near-vision glasses. Since most of my outdoor activities like skiing, mountain biking and flying are more dependent on far vision, I elected to correct my distant vision and wear near-vision glasses that I have to do anyway. The biggest difference is that before the surgery, I could get by with reading books and viewing an aircraft's instrument panel without any glasses. But after the procedure, I required close-vision correction for both.

FAA

Although the FAA does not have specific rules, the agency has published some general recommendations. These state that an airman should be stable from the surgery and have a FAA form 8500-7 (Report of Eye Evaluation) filled out by the operating surgeon and sent to the FAA. Practically, most pilots do not do anything until their next AME exam and report the surgery at that time. Assuming they pass the eye testing, everything seems to be "copasetic" with the FAA, whether strictly by the book or not. I have never seen anyone get a letter from the FAA asking for an ophthalmology form to be filled out when they passed the vision requirement while reporting the surgery in the history area. Given the backlog at the FAA's OKC medical office, they probably do not want to deal with minor issues like this at this time.

The FAA approved monovision correction -- where one eye is corrected for distant vision and the other is not fully corrected, to maintain near vision -- only about six months before this article was written. In doing so, the FAA ruled that glasses which reverse the monovision must be worn during the first six months after the surgery, but only while flying. The rest of the time, glasses should not be worn so that the pilot can become accustomed to monovision.

Each airline may have different rules about the surgery but the U.S. military states that LASIK (or any other eye surgery) is an absolute no-no at this time. Interestingly, Kawesch reports that military doctors are now learning the procedure so this may change in the near future.

Different Needs, Different Procedures

On an average day, the Laser Eye Center preps about 25 people for procedures that include other cornea surgeries besides LASIK. There are about 50 people who work in the Laser Eye Center including eight techs, two eye doctors and two operating eye docs.

There are many kinds of surgical eye correction. The first to be generally used was radial keratotomy (RK) that changes the shape of your cornea by making radial slits in it. Another procedure is photorefractive keratectomy (PRK) that is another type of surgery. LASIK is laser-assisted *in-situ* keratotomy and, due to its dramatically short recovery time and low side-effect profile, LASIK is considered a major advance. The RK and PRK procedures are still performed but not in any significant numbers when compared to the popularity of LASIK.

Risks And Decisions

Side Effects...



Technicians do most of the preliminary evaluations.

The side effects of LASIK that should be of importance to pilots include halos around lights during night or low-light situations, glare, photophobia (light sensitivity), and blurring.

Halos are directly related to the size of the patient's pupils and their risk increases with pupil size. For example, the likelihood of halos occurring is due to the type of laser being used, since older ones suffer from limitations on how large a circle of correction can be made on the cornea. The larger the pupil, the more chance for a halo due to light entering outside of the correction area. In fact, an important factor in deciding on a

potential LASIK surgeon is the type of laser in use. The larger the area the laser can shape, the better. Some older equipment can only shape an area 6.0 or 6.5 mm in diameter while

the newer, better equipment ablates 7.5 mm or larger areas. Since the newer equipment can go to a larger diameter, it also can reduce the risk of halos.

Glare, photophobia (light sensitivity), and blurring can also be temporary problems. Night blurring sometimes occurs and lasts for a longer time but is usually correctable with some fine-tuning repeat surgery.

...Postoperative Problems...

The risks of the procedure include infection, adverse drug reactions and, in very rare cases, loss of the corneal flap that would require a transplant. Corneal loss only happens very rarely, especially if patients follow the postoperative instructions. Problems and side effects occur more frequently in people who need significant amounts of correction, have thin corneas and/or very large pupils.

The surgery does not alter the aging process and most people will need near-vision glasses if they are over 40 or when they reach 40. (Near-vision surgical correction is the "holy grail" of surgical correction and is expected to be perfected in five to seven years, according to Kawesch.)



This neat device maps the cornea digitally.

Long-term effects are not necessarily known but are predicted to be very rare. Most risks are associated with "destabilization" of the cornea due to the surgery being done on patients who have marginal safety limits such as a cornea thickness which is too thin. Obviously, a good surgeon will not do surgery on a candidate with risk. An inexperienced or marginal surgeon might.

...Making The LASIK Decision...

The surgery's success is based on several things. Among them are the amount of correction needed, pupil size, the type of LASIK equipment in use, the patient's ability to hold still and cooperate during the procedure and the surgeon's ability.

Kawesch reports that men are worse than women when it comes to cooperation and tend to need Valium more to ensure that they relax during the actual procedure. He also observes that, the bigger the man, the more difficult it is. He is the eye surgeon for a local professional football team and says the players are some of the most difficult to work on.

...And Choosing A Surgeon



This is what \$600K will buy you if you are in the LASIK business.

How do you choose a LASIK eye surgeon? The length of time the surgeon has been doing the procedure, the number performed and Board Certification are important questions. Also, what percentage of people have to come back for revisions is important. Kawesch states that there are 2,000 - 3,000 doctors doing LASIK in the world, but only considers about 200 to be "experts." He states that if everything goes right, the surgery

is very easy. It is when then is a problem that experience makes the big difference.

Kawesch suggest that a basic criteria for choosing a LASIK surgeon should be one that has done a minimum of 1,000 procedures and continues to do at least 100 a month. He also points out that the surgeon must be easygoing and personable since confidence in the surgeon helps the patient hold still and cooperate during the procedure which is critical to success.

LASIK is expensive. The basic charge is \$2,500 per eye with a \$300 discount given for cash or credit card. The cost has also dropped recently around the country due to competition.

The Cutting Edge?

Additional Preparation...

My surgery was scheduled for the same day at 1530. Since my pupils had been dilated during the exams and not enough time had elapsed for the pupils to return to normal, as noted earlier, I was given reversal drops. The reversal drops (Pilocarpine) adversely impact distant vision, so I was not able to drive myself back for the surgery. (Although I had a ride with a friend, I could have gotten transportation to and from the center in their stretch limousine. This is not a low-dollar operation.) Eating was encouraged before surgery as was arriving in comfortable clothing since patients do not change into gowns for the procedure.

When I arrived back for the procedure, I was given a series of xylocaine numbing drops. I also had some gauze pads taped in front of my ears! This is to stop any tears or drops used during the procedure from dripping into the ears. Apparently, patients have more than once reached up to wipe the fluid dripping into the ear. This promotes head movement during the procedure and is to be avoided.



You can ride to and from the center in a limo.

I also had to take Valium in spite of protesting that I did not need it and turned off my beeper so I was not tempted to reach down if paged during the procedure.

I was then escorted into the operating room. There were about five assistants and one machine that was actually much smaller than I expected. Contrary to standard general operating rooms, there was remarkable little other equipment or surgical tools laid out.

...And The Moment Of Truth



Blue ready for the procedure with gauze taped in front of the ears to prevent drops from dripping into the ear.

I laid down on the operating table and waited for Kawesch. When he arrived, he swung the LASIK machine over my right eye and we were off to the races. He had me focus on a red dot visible in the darkness of the machine and placed a ring on the cornea. The "U" channeled ring adheres to the cornea with a small amount of suction and a special scalpel cuts a circle in the cornea but leaves a piece intact. The cornea is then peeled back and the red light returns. All of this is barely perceptible. The laser is then activated. Focusing on the red dot (which is becomes blurry) is critical for 12 seconds. Even though a smoke vacuum is placed next to the laser contact, some smell of burning tissue is perceived. After the laser has done its computer-directed magic, Kawesch flipped the cornea

back in place and the procedure was duplicated on the left eye.

Total time in the operating room was about 10 minutes. After the procedure, I was escorted to the lobby to wait for my ride and slept in a Valium-induced dreamland with no discomfort at all. there was no need for a recovery room or other post-op holding area. My vision, although not tested immediately, was very good at a distance but my near vision had gotten perceptibly worse, as I had been told to expect

Aftermath

Three hours later, I was in a Japanese restaurant eating sushi with 20/20 distant vision. Other than wearing sunglasses indoors for the light sensitivity that lasted till the morning, there was some minimal discomfort, similar to having an eyelash stuck in the eye. The discomfort was controlled by anti-inflammatory drops and acetaminophen. I was given a prescription for a narcotic but the Center's staff said this was mostly given as a security blanket and I never felt like I needed it.

I flew back to Jackson with a check pilot the next morning. It was amazing to be able to use non-prescription sunglasses for the trip. I did, however, need some drugstore-purchased near-vision glasses to see the panel and charts clearly.

Would I do the procedure over again if I were facing the choice? Yes, but probably several years ago. There is something wonderful about being able to see the Grand Tetons without glasses-especially seeing with out glasses for the first time since I was in grade school.

-- Brent

About the author...

Brent Blue M.D. is a Senior Aviation Medical Examiner and was the physician for the U.S. Acrobatic Team at the World Competition in 1994. He has served as AVweb's aviation medicine editor for the past five years, and is also on the EAA Aeromedical Council. Dr. Blue owns and flies both a Cessna 340 and a Flaglor HighTow open-cockpit biplane. Brent operates Aeromedix.com, an e-business specializing in health- and safety-oriented products for pilots.



