FREDERICK E. TILTON, M.D.
FEDERAL AIR SURGEON

Aeromedical Advisory

I Can See Clearly Now…

According to our records, about 55 percent of civilian pilots use some form of vision correction. While most of these pilots use glasses or contact lenses, a growing number are opting for laser eye surgery. In most cases these surgeries have good outcomes, but you should be aware that they can have side effects that could create a problem for your medical certification. As the technology improves, and with proper patient selection, potential side effects have decreased in severity and occurrence rate, but they still exist.

Advances in Laser Eye Surgery

There is no question that the technology for laser eye surgery has improved since it was first approved by the Food and Drug Administration (FDA) in 1995. The complication rate is less, and the resulting visual acuity is typically better than with earlier methods. The range of available procedures has also increased. However, they all include laser resurfacing procedures, which change the optics of the front of the eye, and the way light rays focus on the retina to form an image in the brain.

Some recent technical improvements include: faster lasers, better methods of application and eye tracking, laser flap incisions, and wavefront optimized procedures. Wavefront technology maps eye optics in three dimensions, which can reduce some of the downsides of laser refractive surgery, including contrast sensitivity loss, problems with night vision, and halos. Some patients can even achieve "super vision," i.e., better than 20/20 vision.

Patient selection is extremely important; some people's eyes are predisposed to problems that could impact which procedure, if any, is selected. Individuals at risk include those with thin corneas, dry eyes, inflammatory conditions, and glaucoma, among others.

Keep in mind that with laser eye surgery there are a number of possible complications and adverse effects, many of which are listed in our *Information for Pilots Considering Laser Eye Surgery* brochure www.faa.gov/pilots/safety/pilotsafetybrochures/media/LaserEye_II.pdf.

What About My Medical?

The FAA requires that civil airmen with refractive surgical procedures discontinue flying until their eye care specialist has determined that their vision is stable, and that there are no significant adverse effects or complications. The healing should be sufficient that frequent eye drops are no longer required and the quality of vision is good. The airman should submit one of two documents to the FAA: A report from the eye care specialist or FAA form 8500-7, *Report of Eye Evaluation*. (NOTE: The FAA would prefer FAA form 8500-7 because it indicates all the eye information we would need to process a physical examination.) These reports can be submitted directly to the Aerospace Medical Certification Division or your Regional Flight Surgeon office when you are released from care, or to the Aviation Medical Examiner during your next flight physical.

If you are a pilot contemplating refractive surgery, consult an eye care specialist to determine if you are a good candidate for laser refractive surgery. Although the FAA and most major air carriers allow laser refractive surgery, professional aviators should consider how it could affect their occupational and certification status. As with any invasive procedure, there are many variables that can influence the final outcome. You should understand all the risks as well as the benefits before electing to have a procedure performed that could compromise your visual performance in the cockpit.

Frederick E. Tilton, M.D., M.P.H., received both an M.S. and an M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas. During a 26-year career with the U.S. Air Force, Dr. Tilton logged more than 4,000 hours as a command pilot and senior flight surgeon flying a variety of aircraft. He currently flies the Cessna Citation 560 XL.