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Laser gives mids vision to fly

Academy: Thanks to eye surgery, more qualify to be Navy pilots.

By **Ariel Sabar**
Sun Staff

Originally published February 27, 2003

BETHESDA -- Midshipman Graham MacDonald zips around in a sports car. He plunges down mountains on a snowboard. And he surfs monster waves after hurricanes.

But because his vision was too lousy to make out even the big "E" on an eye chart, the Naval Academy junior resigned himself to a job aboard surface ships, plodding vessels that offer as much driving excitement as the Goodyear blimp.

Then MacDonald's career prospects took a hairpin turn. At the National Naval Medical Center here one recent Thursday, a doctor fired a laser beam into his eyes and then said words that were like a purring jet engine to his ears: "You have pilot's vision now."

Laser eye surgery, still a niche procedure in the civilian world, is reshaping futures across the military academies. For generations, aspiring pilots born with anything less than perfect sight were shunted into non-aviation fields or, at best, careers as "backseaters," working behind the pilot.

Now, the eyesight needed for lightning-quick maneuvering in a cockpit can be acquired, at taxpayers' expense, in 15 minutes at a doctor's office.

About 275 members of MacDonald's class -- nearly 80 percent of those who entered [Annapolis](#) with less than 20/20 vision -- will leave with surgically perfected eyes. That's up from 50 students in the Class of 2001, the first offered the procedure.

At the Air Force Academy, 31 cadets have chosen to go under the laser since the start of its program last fall. The U.S. Military Academy, in West Point, N.Y., sent its first cadet for eye surgery this month.

If the country goes to war with Iraq, some fighter jets prowling above the Persian Gulf will likely have surgically sharpened eyes in the cockpit.

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The academies' laser surgery programs are an expansion, in scope and purpose, of those available to active-duty troops. The Navy started its program in 1997, and the Army and Air Force followed in 2000 and 2001. The goal was to hone the performance of troops in key combat jobs.

Soon, the academies wanted in. Military officials believed the surgery would stiffen competition for prestigious jobs as pilots and special warfare officers.

They also want to protect the country's investment in academy students, who cost \$250,000 each to educate. Military officials hope the procedure will open career doors that keep graduates in the military beyond the required five years.

Surgery recipients are already edging out rivals who might have made the cut for pilot jobs in years past. This year, 327 members of the Naval Academy's senior class competed for the 267 pilot slots for [Annapolis](#) grads. Of those picked, 57 had undergone the eye surgery.

Forty-five seniors competed for 16 academy slots with the SEALs, the Navy's special warfare arm. Four of those picked had undergone the surgery.

One academy junior, Kris E. Von Krueger, said he chose the academy over a college with a Naval Reserve Officer Training Corps program because of the surgery's availability.

"I bet on the fact that I could get this surgery to fly," said Von Krueger. "If I was going to subject myself to the extra rules and regiment of the academy, I wanted to get a reward that was proportional."

MacDonald now has his eyes on the F/A-18 Super Hornet fighter plane. "I'm always pushing the limit," he said. "It's kind of hard to do that on a ship that goes 28 knots."

Laser eye surgery is still in the study stage in the military. About 1 percent of the patients wind up with worse vision; up to 5 percent have reported decreased night vision, haze, halos around lights and difficulty distinguishing objects in low-contrast settings such as snowy mountains or deserts.

How the reshaped eyes hold up under extreme gravitational forces is another concern. And a study is under way comparing the performance of pilots born with perfect vision with that of surgery recipients.

So, the academies are moving with caution. Of the 500 Air Force cadets picked for pilot slots each year, no more than 50 can have had the surgery.

In the Navy, students must wait three months and have doctors confirm that their eyes have healed before they are deemed eligible to fly.

Still, so many of the Naval Academy's top students now have the eyesight to fly that some specialties are failing to draw the interest they once did. Last year, for the first time, the academy sent fewer than its quota of 140 graduates to submarine jobs, a field that has tended to attract those with good grades but less-than-perfect eyesight. It missed its quota again this year.

Navy personnel officials say they do not view the eye surgery as a significant factor in the academy's failure to produce more submarine officers.

The Navy was the first military branch to embrace the surgery. In 1993, growing concerns about the use of glasses and contact lenses in cockpits and in special warfare led Navy doctors to study procedures gaining credibility in medical circles.

Glasses can fog over from fumes in a cockpit, for instance, and dust kicked up by a helicopter can coat contact lenses and irritate eyes. Glasses can also fall off, get dirty or disrupt the fit of a headset. Though people with thick glasses cannot become military pilots, pilots whose perfect vision has faltered over the years may wear glasses.

Military medical officials say they are encouraged by early studies of pilots' performance after the surgery.

"The most striking result we're seeing so far is that something like 85 percent of pilots who land on aircraft carriers since the procedure say that the procedure helped significantly," said Cmdr. Edmond F. Feeks, acting director of aerospace medicine at the Navy Bureau of Medicine and Surgery.

A study of how the Naval Academy's surgery recipients fare in flight school is months from yielding results, but officials say no signs of serious problems exist.

The military's preferred procedure -- PRK, or photorefractive keratectomy -- is not popular among civilians. It involves grinding away the surface cells of the eye, and then using an ultraviolet laser to reshape the cornea so that light focuses more sharply on the retina.

Outside the military, 95 percent of laser eye surgeries are LASIK, or laser in-situ keratomileusis. LASIK is less painful and heals faster than PRK procedures. But LASIK involves cutting a flap in the surface of the cornea rather than grinding it away. Military doctors worry that the extreme forces encountered in combat could wrench the flap loose.

Overcoming genetics

Authorities on military aviation say the surgery is unlikely to alter the image of the swaggering ace portrayed in such movies as *Top Gun*. The surgery, they say, is more a validation of existing physical standards than a dilution.

"Hell," says Robert L. Gandt, a Navy pilot in Vietnam and author, "if a guy can see 20/20, who cares if he was born with it, or if he bought it?"

Gandt says the procedure will take away the biggest hurdle to the cockpit -- one that is more an accident of genetics than a yardstick of what one expert called the "heart" to fly.

The surgery, of course, is no guarantee of acceptance to flight school. Candidates are graded on a host of physical, academic and psychological measures. And there are far more applicants than openings.

Still, many academy students are grateful for the chance to compete -- and for the procedure's more pedestrian benefits.

"Hey, if I'm not pilot-qualified, I can at least roll over and see my alarm clock in the morning," said Michelle J. Hogue, a junior at the Air Force Academy who got

the surgery in the fall.

Academy students are screened for the procedure during a junior-year physical that measures their fitness for commissioning as an officer.

Most students can see fine; by Naval Academy regulation, no more than 35 percent of the entering class can be admitted with less than 20/20 vision.

But among the bespectacled, the procedure is so popular that students bring it up before doctors have a chance. "Oftentimes," said Cmdr. Matthew E. Newton, the Naval Academy's chief optometrist, "they'll just come in the door and say, 'Is this where I ask about PRK?'"

Before Newton can officially recommend a student for the procedure, he has to make sure the student's eyesight is bad enough to qualify -- roughly 20/40 or worse. Newton also checks that the student's vision isn't deteriorating.

Still, Naval Academy students receive the procedure in far greater proportion than the rest of the country. Just 3 percent of eligible Americans get the procedure -- not least because insurance companies do not typically cover its cost, about \$1,600 per eye. (The military says its cost is \$500 to \$800 per eye.)

Risk, pain, success

Every Thursday, a dozen or so midshipmen take an hourlong bus ride to the National Naval Medical Center in Bethesda for their turn under the laser.

On one recent day, 14 midshipmen sat stiffly around a conference table as a Navy ophthalmologist, Cmdr. Joseph F. Pasternak, outlined benefits and risks. At least 95 percent come out with 20/40 vision or better, at least 80 percent with 20/20 or better, he said.

But there is a chance of permanent damage. "You might lose the ability to become a pilot," Pasternak warned.

And then there is the pain. "It feels like you took off your contact lens, rolled it in sawdust and put it back on," the doctor said, to nervous laughter, and then left for the operating room.

The mids drank juice and watched *A Few Good Men* on video as they waited their turn.

MacDonald, the thrill seeker, was one of the first in line. Pasternak slid clamps over his eyelids to keep him from blinking and dribbled numbing drops onto his emerald-green eyes. The doctor then reached for a scrubber resembling an electric toothbrush and grated away the surface cells of MacDonald's cornea. A laser pulsed for 45 seconds with a click-click that sounded like an oven sparker.


Minutes later, MacDonald stepped into a darkened examining room. Without glasses or contacts, he called out not just the big E but a much smaller row of letters: F Z B D.

His eyes were bloodshot and teary, but they bore an unmistakable glimmer.

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