Flight surgeons fly periodically for two reasons: to experience the pilot’s world and to avoid looking like the enemy.

The Docs and the Jocks

By Frank Oliveri, Associate Editor

The Air Force maintains about 4,000 doctors on active duty. Some 800—approximately twenty percent—are flight surgeons. Though few in number, flight surgeons perform one of the Air Force’s most critical support functions.

It might not always seem that way. For the pilot, the flight surgeon may well represent his worst nightmare. “The Doc” passes judgment on who is and who is not physically fit to fly in Air Force aircraft, and, as such, he has the power to utter the unloveliest of phrases: “You’re grounded.”

For that reason, if no other, the relationship between aircrews and their flight surgeons could not be more delicate and potentially explosive. However, there is more. A flight surgeon also has the power to say to a grounded pilot, “Go fly again.”

Take the case of a forty-year-old C-5 pilot, a lieutenant colonel, who recently came to his flight surgeon with chest pains. It was not typical heart pain, but it sounded close enough to the real thing to cause concern. The flight surgeon was sufficiently troubled to question the pilot’s fitness to fly.

The flight surgeon conducted several sophisticated evaluations, which revealed moderate coronary artery disease—forty percent narrowing of one artery. He then consulted Air Force medical records compiled over many years into a single data bank. The records indicated that, for a person of the pilot’s type, the artery problem increased the chance of a heart attack by only 0.5 percent per year for the next ten years.

The evaluation convinced the Air Force to let the pilot return to flight status. He would be tested annually and would repeat a special cardiac test every three years, but he would be flying an airplane rather than a desk.

Every pilot piles accolades on his maintenance crew or fellow pilots, but he makes no mention of the person...
in charge of his health and safety—the flight surgeon. Lt. Col. (Dr.) Chris Heinrichs is the director of the Aerospace Medicine Primary Course at the US Air Force School of Aerospace Medicine (USAFSAM) at Brooks AFB, Tex. He tried to explain the pilot’s unease.

"The aircrew wants to fly," said Colonel Heinrichs. "When they come into your office, they’re on flying status. So the best they can do is leave the way they came in. You can only hurt them. You can’t make them better."

This situation is faced by every flight surgeon at every Air Force base. It transcends differences in fighter, bomber, and transport pilots’ personalities. In this respect, if in no other, they are identical.

"Pilots tend to avoid telling us what is wrong," Colonel Heinrichs said. "As a general rule, they tend to minimize. They are generally healthy to start with. They want to be healthy, and they demand of themselves that they are healthy."

This dynamic was recognized as far back as 1922, when the Army founded the School of Aviation Medicine, later renamed the US Air Force School of Aerospace Medicine. USAFSAM is the Air Force’s sole training institution for aerospace medicine, with a program that includes flight medicine, aerospace physiology, military public health, bioenvironmental engineering, and aerospace nursing.

Into the Cockpit

The strength of the relationship between pilot and flight surgeon is nearly as important as the medical knowledge the physician possesses. How well the relationship functions directly affects readiness, and the Air Force felt it had to bridge the gap. One way to do this was to have the two work together, permitting them to form a bond. Putting flight surgeons in the cockpit was the logical answer.

Today, therefore, every flight surgeon must periodically go aloft, for two basic reasons: to experience the pilot’s world and to avoid looking like the enemy.

"You could tell this person, ‘You can’t fly,’" said Colonel Heinrichs. "but if you don’t fly and experience the environment, whether it’s the change in altitude and Gs for the small aircraft or time zone problems, it’s hard to make an evaluation of his medical condition."

As for the second reason, Colonel Heinrichs emphasized its indispensability.

“When you see them at the squadron or at a safety meeting or a Friday beer call, you get an awful lot of ‘Oh, by the way,’ and things come out,” said the Colonel. “If you were in the office and they had to come over to see you, they never would. By integrating into the squadron, you get that [contact]. Rapport is tremendously important to doing the job.”

To stay current, flight surgeons must fly a minimum of four hours a month. That is only about one-fifth of the regular minimum requirement for flight crews, but enough for surgeons to function in the back seat on a fighter or a crew station on a bomber or transport.

No Joyrides

These are, to say the least, not joyrides. Flight surgeons fly on actual training missions, including night flying.

Some flight surgeons fly in units where they drop bombs, but that takes more training. Capt. (Dr.) Matthew Ricks of the 335th Fighter Squadron, 4th Wing, Seymour Johnson AFB, N. C., is a typical example.

“We get eight to twelve flying hours a month,” said Captain Ricks. “We become fairly closely tied with the
operational side of the house. The F-15E flight surgeons are actually being sent out to Luke [AFB, Ariz.] for three weeks for academics in the back seat of the F-15E, and then they send us through a mini-checkout program, basically making us mission support-type personnel.

Flight surgeons associated with KC-10 aircraft located at Seymour Johnson go through an executive checkout program. They learn about flying the KC-10 and get a fair amount of flight hours in the seat behind the pilot. “A lot of them are pretty good at it,” Colonel Heinrichs said, “and they’re pretty proud of that.” However, there is a line beyond which the flight surgeon should not go, he said. “That’s not why you are there.”

As an example, Colonel Heinrichs noted that he flew in F-4s for a number of years, flying at night but not at low level at night. “The F-4 flew very low and fast, so you often flew in a valley where the terrain is higher on both sides,” he said. “Well, that’s fine during the day, but, at night, the skill to avoid the mountains depends on the skill to read the radar in the back seat. So I could fly night missions, but not night at low level. That made sense to me. I was never going to get good enough to do that.”

How serious does all this get?

In February, an F-16D from the 18th Fighter Squadron at Eielson AFB, Alaska, was part of a four-ship fighter formation practicing close air support operations in a joint air attack training mission. The two-seat F-16D crashed, killing the pilot and the flight surgeon who was riding in the back seat.

Captain Ricks reported that some 4th Wing flight surgeons flew F-15E combat sorties during the Persian Gulf War. As Weapon System Officers, the flight surgeons helped destroy Iraqi targets on the ground and were prepared to switch over to air-to-air configuration for combat if necessary.

Captain Ricks has racked up one combat sortie, patrolling the no-fly zone over Iraq earlier this year. “When I was there in January to March of this year, the general who was the wing commander did not want us flying combat sorties,” Captain Ricks said. “Right at the end of our tour we got a new general, and he said, ‘You can go up.’... I think it was a bigger deal for the squadron than it was for me.”

Captain Ricks has about 100 hours in the F-15E and more than 100 hours in the F-16D. “Flying is the best part of my job,” he said. “I get a kick out of taking care of patients, but not every doc is getting to go up and fly in the Air Force’s premier jet.”

One might wonder about the rationale for putting a flight surgeon in a combat situation. The reason for this, said Captain Ricks, is “understanding what they’re going through, what they’re thinking when people are shooting... AAA or surface-to-air missiles at [them]. Just the adrenaline rush.”

The Right Stuff

What does it take to become a flight surgeon?

First, the individual must become a medical doctor. Then the physician is sent off to USAFSAM, where he or she undergoes seven weeks of training in flight, acceleration, and altitude physiology, among other things. Doctors learn how the normal body reacts in an abnormal environment. Courses cover such maladies as air embolism and spatial disorientation, human factors in aircraft accidents, medications and the pilot, emergency escape, parachuting, and “communicating with the breed—flight surgeon aircrew briefings.”

There are four basic requirements: pass the academic course, experience the altitude chamber, undergo survival training, and achieve medical qualification. Colonel Heinrichs acknowledged that there is a lot to learn in a seven-week course.

Theoretically, the student becomes a flight surgeon upon completion of the course. “In reality, the course rates you as a flight surgeon,” said Colonel Heinrichs, “but... you’re not a real flight surgeon until six to twelve months later, after you’ve been doing it a while.”

Col. (Dr.) Kenneth R. Hart, commander and dean of USAFSAM, said that flight surgeons are the general practitioners of a base and practice preventive medicine, an area with broad implications for force readiness. They
examine the people on the flight line annually and supplement these exams with flight physicals.

"We do cholesterol screenings," said Captain Ricks. "We do history inventories so that people use the type of equipment they should be using to prevent long-term damage to the liver, kidney, lungs, and hearing."

The pilots "live in an environment that is very hazardous," said Colonel Hart, himself a pilot. "We have to be very careful not to create a problem that's going to destroy everything we have done, so we've gotten involved in preventive medicine."

Flight surgeons must treat pilots differently from other patients, Colonel Hart said. For example, various types of medicine normally taken for certain illnesses might well interfere with the talents and skills developed by a pilot. While a regular person can work with a cold, a pilot would be grounded.

And Only Three

The Air Force is quite strict about this. It has determined that its flyers may, without seeing a flight surgeon, remain on flying status while taking only three medications—aspirin, Tylenol, or Afrin. "If they self-medicate on top of that, they have to come in and see us to make sure they are able to fly," stated Captain Ricks. "If they've taken an over-the-counter cold medication, we won't let them fly for twenty-four hours."

Some medications may be taken to treat long-term medical problems, such as acne. The flight surgeon typically will put a pilot on the medication and ground him or her for two weeks to a month to see how he or she responds to the medication. If the pilot does well, then he or she can get a waiver from higher headquarters and continue to fly while taking the medication.

Aeromedical services encompass flight medicine, bioenvironmental engineering, and military public health.

"The bioenvironmental engineers actually go out and survey shops, find out what kinds of chemicals people might be exposed to or noise hazards," said Captain Ricks, "and then they pass that information on to the military public health people."

Those professionals then decide whether workers are receiving unacceptably large doses of toxins, develop ways to track their exposure, and measure the results.

Flight surgeons also assist in accident investigations to ascertain the human factors responsible. They test the pilot to make sure no medication or alcohol was in his or her system.

Most accidents are caused by human factors—defined as a pilot's mistake in the cockpit. It could be entering incorrect information into a computer, misperceiving an event, or developing bad flying habits.

Some of the most highly qualified flight surgeons work in the Clinical Sciences Division (CSD) of the Armstrong Laboratory Aerospace Medicine Directorate of USAFSAM. Col. (Dr.) William Wolfe explained that CSD takes charge of the cases of pilots or other flyers who, like the C-5 pilot with the artery problem, have been prohibited from flying for medical reasons.

"They come here and get evaluated," said Colonel Wolfe. "About seventy-five percent are returned to the force. They are observed closely, but they return to the flying force. It saves the Air Force millions of dollars a year."

The CSD has two main thrusts. One entails the hands-on evaluation of aviators to determine their fitness for flying. If aviators show signs of a serious medical problem—chest pain, light-headedness, or visual problems—they are closely evaluated. In the second CSD responsibility, the flight surgeon makes recommendations to the surgeon general regarding flight restrictions—if appropriate—follow-up treatment, and what type of follow-up evaluation is needed.

Both USAFSAM and Armstrong Lab are part of the Human Systems Center at Brooks AFB. HSC is the Air Force advocate for integrating and maintaining the human side of Air Force systems and operations.

Having a centralized area for this type of research creates a huge database. For aerospace medicine, there is no comparable resource in the world. The range of conditions on which data have been collected is broad. Lt. Col. (Dr.) Gerald Saboe, chief of Professional Services at CSD, said neuropsychiatric, ophthalmologic, cardiovascular, and vestibular conditions, among others, are dealt with regularly.

"We don't see sick people here," said Colonel Saboe. Rather, he said, the unit tries to establish and measure the residual effects, if any, of a health problem. This search focuses on any problem that might increase flying risk.

The Air Force spends millions to train the typical aircrew member. About 900 aviators—mostly majors and lieutenant colonels—go through CSD every year. With a return rate of seventy-five percent, the Air Force recovers the skills of close to 700 pilots and navigators per year.

"That's an important result from the research that we do on an ongoing basis," Colonel Saboe said. "As we study these individuals, we can break out different subclassifications of the disease to say, 'Yes, originally we thought this was dangerous, but we have studied it long enough, and we realize that we can let them back to fly.' "

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