

## **Blood Sugar Issues in the Cockpit**

by Richard A. Hansen, M.D., AME

My patient Fred had logged many hours in command of his plane. He had passed his flight physicals with flying colors. But now, with the sixth decade catching up on him, he was showing sugar in the urine. And his blood sugars were high as well. As the weight had gradually crept up on him, Fred just thought of it as his “middle aged spread.” However, now the doctor called it diabetes. “Unbelievable! I just couldn’t have that sugar problem, Doc,” Fred retorted. “After all, I don’t eat that much sugar. And, there are pilots much heavier than I am.”

Patiently, I tried to explain to Fred the issues, both as far as his health was concerned, and those factors that could affect his flying. When the blood sugar goes up, it normally triggers a release of insulin, and this hormone levels the sugar, with a gradual descent toward normal. In adult forms of diabetes, there is often an insulin resistance, more commonly seen in conjunction with obesity. That means that the blood sugar stays high. And, as everyone knows--including teachers, preachers, parents and pilots--the behavior, the alertness, and the emotions can be rapidly affected. Alertness is gone, feathered like a propeller on a dead engine. Response time and reflexes are slowed, as if there is profound fatigue or a state of depression. And if not resisted, sleep ensues, which can be fatal if the plane stalls or goes into a descending spiral.

It was not only a prescription Fred needed, but a new lifestyle, a new way of thinking. Many doctors glibly declare, “once a diabetic, always a diabetic. So, get used to the idea. Quit asking questions and take your medicine.” That is partly right, only if you keep doing what caused the disease in the first place. But the good news is this. Diabetes can be reversed! Here’s how.

First, the diet must be overhauled. Take the appetite into the shop, for a newly calibrated “appetstat.” Instead of a Big Mac with large order of French fries, a tall Pepsi, or other forms of fast food, take time to eat a real meal, with veggies, baked potato, whole grain bread, and salad. Cut back on the high fat delicacies, especially the deep fried items, and the marbled steaks. Never depend on high protein or high fat diets for weight reduction. The pounds will come off when your food comes from the garden, like it was originally intended. Just as an overloaded plane cannot fly fast or high, so an overloaded aviator does not have the efficiency to think optimally. The liver does not work as well, nor the pancreas, and especially the brain.

Exercise is vital to control of diabetes. After each meal try to take a brisk walk. You don’t need to work up a sweat, just get the heart rate up a little. This will help the sugar get from the blood to the cells, where it is quickly burned for energy. Diabetes acts like a clogged fuel line, with the motor eager to turn, but no gas to provide the power. In diabetes, the metabolic rate is slowed, and regular activity stimulates not only the muscles to grow, but speeds up the thyroid, the digestion, and many other essential systems.

Fortunately for Fred, he was eager to make the changes. In just a few days, he noticed his blood sugar coming down. Testing before breakfast with the AccuCheck (one of several glucose

testing meters--such as the Glucometer, OneTouch, etc.) He found his glucose getting closer to the normal levels (70-110 mg/dL in American units). While previously the glucose was over 200, it was now nearly back where it should be. And thus the prescription would be unnecessary, and Fred would not have to worry about ever needing insulin. Better than that, he felt better. His wife noticed it, too. With spring in his step, clearer vision, more restful sleep at night, and better position sense in his feet, Fred was now on the way to reversing his diabetes. What had at first seemed like a hammer blow to his flying career, had now become a stepping stone to better health all over.

With control of blood sugar and weight reduction comes a host of fringe benefits. There is less risk of coronary heart disease, kidney disease, cataracts, and numbness in the legs. All four of these common complications, seen in almost all diabetes patients after they have had the disease for ten or more years, are serious risks for the pilot-in-command. Vision is key to aviation skill, as all pilots and student pilots know. More subtle changes such as color perception, depth perception, and vision in dim lighting conditions are also affected by uncontrolled blood sugar. If the feet go numb, a complication called diabetic neuropathy, the pilot can't feel the pedals well, and his rudder control and braking ability on the taxiway will suffer. Heart disease or angina are more final determinants in passing the flight physical. But, even these can be helped, with appropriate lifestyle changes, and should not be considered the terminal end of aviation enjoyment. This good news we'll save for another day. For Fred, and you if diabetes is jeopardizing your flight plan, there is hope, for reversal, and healing. It's worth going after. Don't delay.

*[Doctor Hansen, author of the popular book on home health care, **Get Well At Home**, currently serves as medical director of the **Emerald Valley Wellness Clinic**, and its **Live-for-Health Seminars** in Creswell, Oregon. Pilots who for health reason are having trouble passing their medical should contact us. For further information or inquiries, contact: **clinic1@emeraldwellness.com**]*