

# FLYING TIRED

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

It was a long flight home, and my friend Dave, was flying his twin Cessna, accompanied by his wife and a friend. They had a short but well-maintained grass landing strip on their farm, and he had landed many times without a mishap. But it had been raining for days that week, and David's father got on the radio as he heard the familiar drone overhead, letting his experienced pilot-son know that the grass was wet, and the ground much softer than usual. Homecomings are special, though, and they were all tired from a long journey, eager to stretch their legs and enjoy Mother's long-awaited home cooking.

After an initial pass to check the wind sock and set up their approach, Dave came in for the touchdown. The Cessna landed smoothly, but the grass was slick as ice, and the brakes proved ineffective. Sliding too fast along the landing strip for a stop at the end, Dave veered into the adjacent field to miss some buildings, dipped one wing, slid sideways, and stopped abruptly in the soft plowed ground, with a bent wing, prop strike, damaged engine, and ruined landing gear.

Hind sight always provides the best vision. Though experienced in all forms of bush piloting and with complex and high-performance ratings, a tired pilot may at times make a judgment call that is long regretted. Fortunately, this time, no one was injured. But the plane is beyond repair. Diverting to an asphalt runway in the nearby town would have saved the day, with minimal inconvenience and better results for the twin Cessna as well as the memories of an instructor-pilot who heretofore had an unblemished flying record.

Fatigue isn't talked about very much in aviation circles. On most accident reports it simply hides under the broader category "pilot error." And, it is true, that often a pilot has to take responsibility for the mistake in skill or judgment, whenever an accident occurs. But, we must remember how terribly fatiguing flying really is, both in longer flights, and especially when learning. Feeling tired is not the only form of fatigue. Precisely defined, fatigue is a sensation of weariness, tiredness, exhaustion, and loss of energy that is characterized by a desire to rest. Sleepiness, on the other hand, is a state of decreased ability to maintain wakefulness or an increased propensity to fall asleep. In other words, sleep is to sleepiness as food is to hunger. In contrast, excessive sleepiness is a symptom of difficulty in maintaining wakefulness, in parallel with an increased propensity to fall asleep, even in inappropriate circumstances and in situations that interfere with activities of daily living.

Fatigue has been blamed in numerous aviation accidents, and continues to be a problem for pilots and crews flying every known size of aircraft. In fact, human factors contribute to over 70 percent of aircraft accidents and incidents. The most common of these is fatigue. And the most frequent cause of fatigue is a lack of restful sleep. Its quantity is just as important as the quality.

Most people need eight hours of sleep at night. If you get less, there is a deficit, called sleep debt. And when this accumulates over days serious symptoms develop: increased reaction time, fixation, short-term memory loss, impaired judgment, and poor decisions. A pilot may be more easily distracted. His visual perception may decrease. The flying becomes sloppy, and important details are overlooked. Air speed, flap setting, or proper trim may be neglected, more serious on a short final. Failure to notice the wind sock may lead a tired pilot to chose the wrong approach on a short runway, landing on a tail wind with excessive speed or similar judgment errors. Chronic fatigue may also result in personality changes, irritability, short tempers, and ultimately to depression.

Our bodies try to make up the deficit, with such signs as yawning, urges to take a nap, or the ultra short ones called “micro sleep.” In the latter situation, the pilot has no awareness that he is asleep, though for several seconds performance and alertness are gone, and small errors and mistakes are multiplied. Flying into terrain, missed approaches, and runway incursions are often related to pilot fatigue. Alcohol and many sedating medicines can impair alertness. Eating too much food, excessive sugar consumption, and caffeine can also contribute to micro sleep episodes. Highway crashes (4% of road fatalities) as well as plane accidents are often caused by sleepiness. There must be some way we can know ourselves well enough to assess the danger and avoid these episodes.

Here are some warning signals that should alert a pilot (or motorist) of a potentially dangerous situation. Eyes going in and out of focus; head bobbing involuntarily; persistent yawning; wandering or poorly organized thoughts; spotty short term memory; missed or erroneous performance of routine procedures; degradation of control accuracy.

Research has shown that these countermeasures for fatigue are effective for improved alertness and performance. Long naps, 3-4 hours in length, can restore alertness for up to 12 or more hours. Power naps of 10-30 minutes can help restore alertness for 3-4 hours. But the napper should allow 15 minutes after awakening to become fully alert before assuming aircrew duties. Other countermeasures include: avoiding rich foods or eating too much; drinking plenty of fluids, especially water.

As the above described true aircraft incident indicates, the cost of prevention is much less than the cost of an accident. There is just no substitute for a good night’s sleep. Keeping awake on caffeine is so common it is considered normal behavior. However, coffee does not prevent “micro sleep” episodes, which can be perilous on a short final, and are most common after long flights, even in the elegant cockpit of a 747. One study of pilots has demonstrated clearly that a short 15-25 minute nap during one of those long haul flights gives a great advantage in the alertness of cockpit crew during their descent, approach, and landings. Numerous runway incursions and taxiway collisions have been reported after long fatiguing flights when the unrested aviator tries to make normal decisions, but without his brain alert to the multitudinous details of pre-flight preparation.

One cross-country private pilot even fell asleep (on auto-pilot) some years ago in his cockpit over Kentucky, and ended up wet in the gulf of Mexico, having to ditch due to fuel exhaustion, after sleeping through Tennessee (his destination), Georgia and Florida’s panhandle. Fortunately for him, the Coast Guard responded promptly to his “Mayday” call, and fished the no-longer-sleepy floating pilot out of the salty waters, possibly salted extra by his tears. Yes, falling asleep behind the yoke can be just as perilous as falling asleep behind the wheel. Tired pilots, even those of us who are skilled at rationalization and denial, should get to bed early before a long flight. We need sleep to recharge the brain, and rest to renew the other body functions. Someone has defined REST as “Renewing Energy Silently Transpired.” Even the Good Book recommended rest for the weary, and one day’s rest in seven, all based on physiology and hormones – good advice for travelers, priceless for pilots. Now for a little shut-eye. It’s time for my daily nap. Zzzzzzz. . .

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*[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](mailto:clinic1@emeraldwellness.com)]*