

MARCH 2000

Melanoma in aviators (U.S. Air Force School of Aerospace Medicine, Brooks AFB, TX): "The specific aeromedical concern for an aviator with malignant melanoma is the risk of an in-flight incapacitating event. Recurrence within 2 yr of surgical treatment for AJCC Stage I and II melanomas can be as low as 2% for minimal Stage I disease and up to 70% or more for thicker Stage II tumors. Of those with recurrent disease, approximately 20% will present with metastasis to the brain, and of those approximately 57% will experience a seizure, or other incapacitating neurological event, as the presenting symptom. Based on these data, the guidelines presented [in this article] should allow more rapid return of low-risk aviators to the cockpit, while preventing aircraft mishaps through longer observation periods for those in high-risk categories."¹

Speaking of cancer (Istituto Superiore di Sanità, Rome, Italy): "We performed an exhaustive search for published and unpublished cohort studies of flight personnel from 1986–98 ... SES-adjusted combined RRs were elevated (>1.2) among male pilots for mortality from melanoma [1.97 (95% CI: 1.02-3.82)] and brain cancer [1.49 (0.89-2.20)], and for cancer incidence of the prostate [1.65 (1.19- 2.29)] and the brain [1.74 (0.87-3.30)]. Among female flight attendants, increases were seen for incidence of all cancers [1.29 (0.98-1.70)], melanoma [1.54 (0.83-2.87)], and breast cancer [1.35 (1.00-1.83)] ... Flight personnel appear to be at increased risk for several types of cancer. Both occupational exposures and well-established non-occupational risk factors may contribute to this increased risk."²

MARCH 1975

Drugs in simulator versus aircraft (Aerospace Medical Research Laboratory, Wright-Patterson AFB, OH): "Five highly experienced professional pilots performed instrument landing system approaches under simulated instrument flight conditions in a Cessna 172 airplane and in a Link-Singer GAT-1 simulator while under the influence of orally administered secobarbital ... Error and RMS variability were about half as large in the simulator as in the airplane. The observed data were more strongly associated with the drug level in the simulator than in the airplane. Further, the drug-related effects were more consistent in the simulator. Improvement in performance suggestive of learning effects were seen in the simulator, but not in actual flight. It is concluded that the GAT-1 simulator is a useful and sensitive device for studies of the effects of mild stress on pilot performance, but extrapolation of simulator data to the flight environment must be approached with considerable caution."³

Prevalence of human error (Directorate of Aerospace Safety, Air Force Inspection and Safety Center, Norton AFB, CA): "Advances have been made in the design and reliability of Air Force aircraft ... The design of man has not changed, although training programs have been improved to reduce accidents caused by human error ... A review of 545 aircraft accidents revealed that over 50% were caused by human error. These errors involved supervision, limited experience, and errors in judgment. Since materiel factors

in accidents have remained relatively constant, more emphasis must be placed on training and selection of our aircrews and supervisors."⁴

MARCH 1950

Aircraft performance (Naval Medical Field Research Laboratory, Camp Lejeune, NC): "New design in commercial aircraft is slowly pushing commercial flying higher and faster. It is to be expected that high altitude-high velocity flying in commercial aviation will be here in the not too distant future. The phrase 'high altitude-high velocity flying' does not, of course, connote any sharp line of demarcation between what might be called normal flying, but in general, for physiological purposes at this time, high altitude-high velocity flying may be taken to mean altitudes over 30,000 feet and velocities over 400 miles per hour."⁵

Make them cry! (Commander, U.S. Navy): "The disease entity, aero-otitis media, is well known to flight surgeons and to physicians generally. An increasingly large segment of the lay population has become acquainted ...

*"Whether or not infants are less liable to develop aero-otitis media under similar circumstances than adults, standard prophylaxis measures should be instituted in their cases. They can be awakened from sleep during descent, given a bottle to nurse, or food to eat. Finally, were they made to cry during descent there would be little or no tendency for them to develop aero-otitis media."*⁶

Aircraft noise (Central Air Medical Board, Ypenburg, Holland): "The analysis of aircraft noise as a cause of aviation noise deafness is important in various respects. The sound pressure of the higher frequencies is responsible for the damage done to the hearing function. The intelligibility of speech and intercommunication depend largely on the amount of high frequencies.

*"Passengers comfort is equally affected by noise. A low noise level combined with very few high frequencies are preferable. It seems likely that the left human ear is more susceptible to noise damage than the right ear. Fatigue tests to check this susceptibility have to be applied with different frequencies and with great care."*⁷

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This column is prepared each month by Walter Dalitsch III, M.D., M.P.H. Most of the articles mentioned here were printed over the years in the official journal of the Aerospace Medical Association. These and other articles are available for download through the link found on <https://www.asma.org/journal/read-the-journal>.

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