

AUGUST 1998

Booze in aviation (Johns Hopkins University, Baltimore, MD; Office of the Chief Medical Examiner, Chapel Hill, NC; University of North Carolina School of Public Health, Chapel Hill, NC): "This study examines the magnitude of and factors related to alcohol involvement in both pilot and non-pilot aviation fatalities. ... We analyzed medical examiner data on all victims who died in civilian aircraft crashes in North Carolina during 1985-94, complemented by crash investigation data from the National Transportation Safety Board. ... During the 10 yr study period, the North Carolina Medical Examiner Information System recorded 337 aviation-related fatalities including 111 pilots. Alcohol testing was performed on 91% of the pilots and 72% of the non-pilot occupants. Of the victims who were tested for alcohol, 12% (7% of the pilots and 15% of non-pilot occupants) had positive blood alcohol concentrations (BACs), ranging from 0.02 to 0.14%. All four victims with BACs greater than 0.10% were pilots aged 20-29yr who were fatally injured in nighttime general aviation crashes. In crashes of commercial flights, none of the pilots tested positive for alcohol, whereas 20% of the non-pilot occupants had positive BACs. ... Intoxicated flying, particularly among young general aviation pilots, is still a valid concern. The aviation safety implications of alcohol use by passengers of commercial flights should be further examined."³

AUGUST 1973

The break-off phenomenon (Royal Air Force Institute of Aviation Medicine, Farnborough, Hants, England): "Out of 78 aircrew referred for clinical assessment because of disorientation in flight, 29 pilots described incidents in which they experienced feelings of unreality and detachment. These commonly occurred during monotonous phases of flight in conditions where external visual orientation cues were restricted. In 22 pilots of fixed-wing aircraft the perceptual disturbances characteristic of the 'break-off' phenomenon occurred when flying at altitudes in excess of 30,000 ft, but seven helicopter pilots had comparable sensory disturbances at 500-10,000 ft. In all but three pilots the dissociative sensations were coupled with illusory perceptions of aircraft attitude and motion, though only in eight pilots was there a qualitatively false perception of aircraft orientation. ... The high incidence of anxiety reactions supports the view that in susceptible individuals 'break-off' can be both a precipitant and a manifestation of anxiety neurosis."¹

AUGUST 1948

How to safely crash your aircraft (Laboratory of Experimental Ontology, University of California Medical School,

San Francisco, CA; National Cancer Institute, National Institute of Health, United States Public Health Service, Bethesda, MD): "Three pilots who are experienced in intentionally crashing aircraft for the motion picture industry were interviewed. The advice of these men for surviving aircraft crashes is as follows: 1. Never give up. Maintain control as long as possible even if the speed at impact is greater. 2. Attempt to hit at the slowest speed possible. 3. Never hit any obstacle head on. If possible, strike with a wing, a wheel, or the fuselage first, to roll, ground-loop, or cartwheel on the ground. Attempt to maintain the plane in a horizontal attitude during the crash. 4. In spins at low altitudes, maneuvers to flatten and tighten the spin may increase the chances of survival if one cannot parachute. 5. Remove goggles prior to a crash to avoid injury to the eyes. Keep your eyes open. One can avoid injury by moving. 6. Protect the neck and eyes by the forearm across the face at the moment of impact and press the head back firmly. 7. Padding or removal of all sharp projections in the cockpit within a 90-degree arc forward of the pilot will materially reduce injuries during crashes. 8. Seat belt and shoulder harness should be attached to the strongest members of the plane structure and not to the seat. Uniform deceleration for all parts of the body must, if possible, be maintained. 9. Safety belt and shoulder straps should pull downward as well as backward. This is controversial, since vertebral compression fractures may occur if downward component of the force is too great. 10. A quick release mechanism will permit rapid escape of the pilot in case of fire or water landings. 11. Keep the pockets of the flying suits free of sharp and hard objects. 12. Empty the bladder prior to a crash or keep it relatively empty during flight. 13. A definite plan of escape for each occupant should be formulated before the take-off in each type of aircraft."²

REFERENCES

1. Benson AJ. Spatial disorientation and the "break-off" phenomenon. *Aerosp Med.* 1973; 44(8):944-952.
2. Bierman HR. A study of methods of intentionally crashing aircraft with purpose toward the survival of personnel. *J Aviat Med.* 1948; 19(4):238-252.
3. Li G, Hooten EG, Baker SP, Butts JD. Alcohol in aviation-related fatalities: North Carolina, 1985-1994. *Aviat Space Environ Med.* 1998; 69(8):755-760.

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