

**NOVEMBER 1993**

*Rat hairs in space (KRUG Life Sciences and NASA/Johnson Space Center, Houston, TX):* "Degradation of air quality in the Space Shuttle environment through chemical contamination and high solid-particulate levels may affect crew performance and health. A comprehensive study of the Shuttle atmosphere was undertaken... to determine the effectiveness of contaminant control procedures by measuring concentrations of volatile organic compounds and analyzing particulate matter trapped on air filters. Analysis of volatile contaminants showed that the air was toxicologically safe to breathe... with the exception of one period during STS-40 when the Orbiter Refrigerator/Freezer was releasing noxious gases into the middeck. Chemical analyses of selected particles collected on air filters facilitated their positive identification. Trace amounts of rat hair and food particles were found... a trace amount of soilless plant-growth media was detected... The low levels of particles released from these Spacelab experiments indicate that containment measures were effective."<sup>3</sup>

*Aircrew contact lenses (Armstrong Laboratory, Brooks AFB, TX):* "The USAF, when it approved soft contact lens (SCL) wear for aircrew in June 1989, chose a conservative approach that authorizes only daily-wear of extended-wear SCLs. The aircrew SCL program has been perceived as a success, and follow-up data are no longer being collected... Only two instances of ulcerative keratitis were reported. The most severe inflight problem reported was the dry cockpit environment. CSI-T (Pilkington Barnes-Hind) was the most frequently used spherical lens and the Hydrasoft Toric XW (CoastVision) was the most used toric lens."<sup>1</sup>

**NOVEMBER 1968**

*Alcohol and flight (Federal Aviation Administration, National Transportation Safety Board, and Armed Forces Institute of Pathology, Washington, DC):* "A progressive increase in toxicological examinations of fatal general aviation accidents has occurred, from 29 percent in 1963 to 74 percent in 1967. In 1967, 23 percent of the accidents investigated toxicologically presented blood alcohols in excess of 150 mg%, obviously indicating that continued airman education and other preventive programs are desirable. To minimize laboratory errors, it is recommended that samples from a given accident be split between two laboratories, at least one being experienced in forensic pathology (for example, the Armed Forces Institute of Pathology)."<sup>4</sup>

*Risk among pilot-physicians (Ohio State University, Columbus, OH):* "The active U.S. physician pilots sampled fly an average of 134.0 hours each year. Their consequent risk exposure is several times higher than that of the average pilot who flies for pleasure. This activity level does not entirely eliminate the problem of recency of experience because this places the average physician pilot at about the midpoint of the accident rate recent experience curve. It

does appear, however, that if this sample is representative, physicians may well have less accidents based on time at risk than several other segments of the general aviation community...

"It appears that as with flying hours, physicians make many more takeoffs and landings than do groups of general aviation pilots, and consequently place themselves at risk more frequently than these other groups."<sup>5</sup>

**NOVEMBER 1943**

*Process improvement in pilot selection (Cadet Classification Officer, U.S. Army Air Corps):* "In our anxiety to provide the tools of aviation medicine, and psychology for the measurement, selection, and classification of men for the various air crew duties, it is natural that we should often lose sight of certain important perspectives. We should question ourselves when we set out to build our tools of measurement, whether these tools will measure qualities that are worth being measured in so far as their relationship to flying ability is concerned, whether these qualities will actually be measured by the device, and whether this device is being employed in its proper place and relationship to the large task..."

"Our whole training program has been based on theory. We believe that certain types of men, put through certain phases of training will result in a fine type of pilot. This theory has been justified to a large extent. However, now is the time to examine the finished product in action and see what improvements should be made... Theories must be flexible and adaptable to change dependent upon the needs of a changing situation. These needs can be determined best by study in the field."<sup>2</sup>

**REFERENCES**

1. Dennis RJ, Apsley DA, Ivan DJ. Aircrew soft contact lens wear: a survey of USAF eyecare professionals. *Aviat Space Environ Med.* 1993; 64(11):1044-1047.
2. Kaufman B. Notes on classification, selection and training. *J Aviat Med.* 1943; 14(6):383-385.
3. Matney ML, Boyd JF, Covington PA, Leano HJ, Limero TF, James JT. Air quality assessments for two recent Space Shuttle flights. *Aviat Space Environ Med.* 1993; 64(11):992-999.
4. Mohler SR, Berner WH, Goldbaum LR. Alcohol question in aircraft accident investigation. *Aerosp Med.* 1968; 39(11):1228-1230.
5. Wick RL Jr. Study of U.S. physician-pilot flying habits. *Aerosp Med.* 1968; 39(11):1225-1228.

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 from Mira LibrarySmart via <https://submissions.mirasmart.com/asmaarchive/Login.aspx>.

Reprint & Copyright © by the Aerospace Medical Association, Alexandria, VA.

DOI: <https://doi.org/10.3357/AMHP.5257.2018>