JUNE 1990

The impact of Crew Resource Management (Department of Psychology, University of Texas at Austin, TX): "The first data from the NASA/University of Texas Crew Performance project on the behavior of flightcrews with and without formal training in Cockpit Resource Management (CRM) is reported. Expert observers made detailed ratings of 15 components of crew behavior in both line operations and in full mission simulations. The results indicate that such training in crew coordination concepts increases the percentage of crews rated as above average in performance and decreases the percentage rated as below average."[4]

Controlling aircraft environmental tobacco smoke (Committee on Airliner Cabin Air Quality, National Research Council, Washington, DC): "In December 1987, 10 portable nicotine and respirable particle measuring instruments were employed on 4 Boeing 747 flights, placed in all passenger classes and zones, in randomly selected non-perimeter seats, to assess environmental tobacco smoke (ETS). Measurements integrated the nicotine particle concentrations over the duration of the 5-h Tokyo-Hong Kong-Tokyo flights and over each half of the 14-h New York City-Tokyo flights… Levels of ETS observed in these 747-100 and -200 flights (with all air conditioning packs operating) were lower than those observed in narrow body 727/737 aircraft, on short flights, in prior related tests. The 747's five air conditioning zones are reasonably effective in keeping ETS within the respective zones, and discharging it with relatively little entry into nonsmoking areas."[1]

JUNE 1965

Flight nursing role in aerospace medicine (Flight Nursing Branch, School of Aerospace Medicine, Brooks AFB, TX): "It is determined that Clinical Aerospace Nursing can be categorized into four general areas of endeavor:[1] preventive and occupational health nursing,[2] adaptation to the numerous elements of by-products from aerospace investigation (usually termed 'fall-out'),[3] care of the person of the astronaut before and after flight and[4] anticipation of nursing problems to be encountered in the 0-g atmosphere of the space cabin.

"In order to attain proficiency in the four broad areas cited the nurse must be knowledgeable, if not proficient, in many disciplines such as physics, electronics, engineering and mathematics. She must find her way into the research laboratory and become a part of the team doing the experimentation that is to determine man's ultimate capability in space."[5]

Pilots and altered states of awareness (Neuropsychiatry Department, School of Aerospace Medicine, Brooks AFB, TX): "Occasionally transient states of altered awareness which are not organic or physiological in origin are seen in flyers. These include lapses of attention, trance states, dream-like states and related subjective experiences. These are often minor disorders of the type which in a more severe form are known clinically as dissociative reactions. Various factors are implicated in their onset, including the monotonous aspects of the flying environment, anxiety, fatigue, sensory overload, narrowed attention and underlying psychopathology in the individual… While these conditions are not always a significant threat to flying safety it may be difficult to differentiate them from disorders which are."[2]

JUNE 1940

Attempts to reduce painful ear symptoms (Wright Field, Dayton, OH): "The inhalation of a helium-oxygen mixture (80-20 per cent) fails to prevent the painful ear symptoms associated with relatively rapid changes of barometric pressure…

"Due to the additional weight involved in carrying of helium-oxygen cylinders for the use of pilots or passengers, and in view of the results presented here, the administration of such mixtures for the prevention of painful ear symptoms is not considered practical."[3]

Binocular versus monocular vision (College of Education, Ohio State University, Columbus, OH): "This experiment was set up to prevent the subjects from using any of the secondary factors of depth perception… it was found that:

"1. Binocular vision is superior in the perception of depth when the stimulus is in the vertical position or at an angular displacement from the vertical that is not greater than 60°… 2. When the visual stimulus is horizontal the error of perception is as great for binocular vision as for monocular vision… 3. When the visual stimulus is horizontal the variability of the error is as great for the binocular as for monocular vision… 4. Under ordinary visual conditions secondary depth perception factors such as relative size, interposition, and relative height above the line of vision apparently compensate to some extent for the lack of retinal disparity that is present when objects are in the horizontal."[6]

REFERENCES

1. Drake JW, Johnson DE. Measurements of certain environmental tobacco smoke, components on long-range flights. Aviat Space Environ Med. 1990; 61(6):531–542.
2. Flinn DE. Functional states of altered awareness during flight. Aerosp Med. 1965; 36(6):537–544.
3. Hall JF Jr. The use of helium-oxygen mixtures in aviation for the prevention of painful ear symptoms. J Aviat Med. 1940; 11(2):81–86.
4. Helmreich RL, Wilhelm JA, Gregorich SE, Chidester TR. Preliminary results from the evaluation of cockpit resource management training: performance ratings of flightcrews. Aviat Space Environ Med. 1990; 61(6):576–579.
5. Respini EM. Clinical aspects of aerospace nursing. Aerosp Med. 1965; 36(6):545–548.
6. Walker RY. The superiority of binocular over monocular vision in depth perception in respect to the vertical or horizontal position of the object. J Aviat Med. 1940; 11(2):87–95.

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