FEBRUARY 1991

Uncorrected visual acuity and student pilot performance (Naval Aerospace Medical Institute, Naval Air Station, Pensacola, FL): "Performance was studied for student naval aviators with waivers for defective uncorrected distance visual acuity who underwent primary flight training at NAS Whiting Field, FL, for fiscal year 1987 (cases = 45). Outcome variables were completion rate, primary flight training grades and flight hours. Controls for completion rate were all other students during that period (N = 1443). For training grades and hours, controls were selected who completed the same training squadron within 1 month of the case. Two controls were selected who progressed to the jet pipeline, with two additional controls selected who progressed to the same pipeline as the cases, either maritime/patrol or helicopter (controls = 180). Results demonstrated the cases were significantly more likely to complete training ($p = 0.029$), but not significantly different in primary flight grades or hours. These results suggest student naval aviators on vision waivers were competitive with their contemporaries."[2]

FEBRUARY 1966

Impact of spatial disorientation in helicopter pilots (U.S. Army Board for Aviation Accident Research and Aeromedical Research Unit, Fort Rucker, AL): "Disorientation occurred in only 3.4 per cent of major accidents yet 30.7 per cent of the fatalities are in this group. Forty-three persons (38.5 per cent) died in these accidents. Most of the aviators in these accidents had low levels of experience, and only 13 per cent had instrument training.

"Of 350 aviators interviewed and/or completing a questionnaire, two-thirds had experienced disorientation an average of two and one-half times during their careers. Most of these occurred at night or in adverse weather conditions. To avert accidents, they were able to give the aircraft control to another pilot, rely on their instruments until the feeling passed, or else regained visual contact with the ground before completely losing control of the aircraft.

"Present instruments are unsatisfactory in aircraft with multidirectional capabilities, such as helicopters. Therefore, more training is necessary and instruments designed to meet the special characteristics of rotary wing aircraft must be developed."[3]

FEBRUARY 1941

An improved oxygen mask (College of Physicians and Surgeons, Columbia University, and Presbyterian Hospital, New York City): "An oxygen mask apparatus is described [**Fig. 1**] in which an air injector is utilized to provide known and accurately controlled percentages of oxygen in the inspired air, from that set on the dial of the apparatus.

"The oxygen percentage in the inspired air is generally within a range of ±1.5 per cent from 40 to 97 per cent. It may be used for clinical oxygen therapy, and also in commercial and military aviation, at altitudes between 10,000 and 33,000 feet.

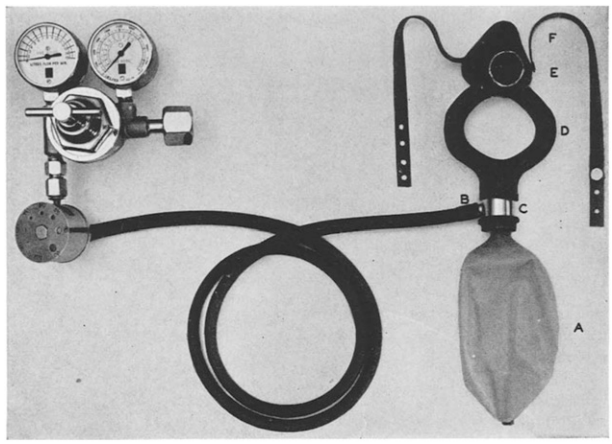

Fig. 1. Injector attached to oxygen regulator and nasal mask.

"By means of an expiratory valve on the nasal mask and an inspiratory valve at the entrance to the collecting bag, rebreathing is eliminated except for the dead space in the mask itself. The carbon dioxide percentage of the inspired air at oxygen flows from 2 to 12 liters per minute is generally 0.2 per cent…

"In other types of mask apparatus, which utilize a rebreathing bag, the carbon dioxide concentration of the inspired air is considerably higher, especially when small oxygen flows are used, and the oxygen percentage of the inspired air fluctuates at a constant liter flow of oxygen depending on the pulmonary ventilation."[1]

REFERENCES

1. Barach AL, Eckman M. A mask apparatus which provides high oxygen concentrations with accurate control of the percentage of oxygen in the inspired air and without accumulation of carbon dioxide. J Aviat Med. 1941; 12(1):39–52.
2. Bohnker B, Anzalone F, Mittelman M, Markovits A. Primary flight training performance of student naval aviators with vision waivers. Aviat Space Environ Med. 1991; 62(2):162–164.
3. Ogden FW, Jones QW, Chappel HR. Disorientation experiences of Army helicopter pilots. J Aerosp Med. 1966; 37(2):140–143.

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