

**APRIL 1991**

*Earliest effects of subclinical mountain sickness (University Hospital, Department of Medicine, Zurich, and the Inselspital Bern, Department of Medicine, Bern, Switzerland):* “We report the cognitive functions of 17 non-acclimatized mountaineers who ascended from low lands to an altitude of 4,559 m in 24 h and were studied there within 6 h. We found that this rapid ascent to high altitude had small, but differential effects upon cognitive performance depending upon the later development of acute mountain sickness (AMS). Subjects who developed AMS within a 24- – 48-h stay at high altitude were mildly impaired in short term memory, but improved in conceptual tasks, while subjects who remained healthy had a better short term memory performance but no improvement in cognitive flexibility....

“Exposure to extreme altitude is known to cause transient impairment of cognitive functions. In climbers exposed repeatedly and for lengthy periods to altitudes above 8,000 m, mild cognitive impairments may even persist. The effects of exposure to less extreme altitudes upon cognitive functions are still controversial. They could be either a direct consequence of hypoxia or caused by hypoxia-triggered secondary events, such as alterations of cerebral blood flow or subclinical cerebral edema, occurring in association with acute mountain sickness (AMS)....

“The most sensitive indicator of AMS is short-term memory. The subclinical development of AMS appears to be heralded by a decrement in the ability to retrieve new information.”<sup>3</sup>

**APRIL 1966**

*Psychopathology of fear of flying (School of Aerospace Medicine, Brooks Air Force Base, TX):* “Air Force fliers who become afraid to fly often share similar patterns of unrecognized psychopathology. Case studies reveal a sequence of childhood fears more intense and protracted than usual, counter-phobic fearlessness in teenage and adult years as a defensive mode of life, and finally reversal of the intense need to fly into an equally strong fear of flying.

“Overt phobias in fliers are precipitated by stresses similar to those predisposing to other neurotic illnesses. If a career in aviation was chosen primarily for counter-phobic reasons the susceptibility to neurosis under these stresses is greatly augmented. Treatment is difficult and ‘cure’ may comprise no more than a return to the previous counter-phobic adjustment.

“When the history of an applicant for flying training suggests severe childhood phobias or persistent participation in dangerous work or recreation, a psychiatric consultation is needed. If the consultant confirms the presence of repetitive counter-phobic traits the applicant should be disqualified.”<sup>2</sup>

**APRIL 1941**

*Preventing hypoxia in high altitude bail-out (Mayo Clinic, Rochester, MN):* “Boothby, Benson and Lovelace recently described a small emergency oxygen unit for use in parachute escape and presented experiments demonstrating that simulated parachute ‘jumps’ in the low pressure chamber could be made safely from altitudes between 35,000 and 40,000 feet (11 to 12 kilometers) provided the first procedures that the aviator made were those necessary to establish the emergency oxygen supply. After the oxygen supply was established, the other preparations for bailing out could be made....

“An aviator became unconscious in a low pressure chamber at a barometric pressure corresponding to 35,000 feet (11 kilometers) within thirty-five to forty seconds after his oxygen supply was stopped while he was simulating preparations to bail out. His last act before becoming unconscious was to start the emergency oxygen supply; this he did too late, as he immediately ‘passed out’ and the mouthpiece fell out of his mouth.

“At altitudes in excess of 25,000 feet (7.6 kilometers) the aviator has no time to lose and must start his emergency oxygen supply immediately. If he does not do this first, it will be too late. All other procedures for bailing out must be deferred until after oxygen is started. The emergency parachute oxygen apparatus must, therefore, be in place for instant use whenever a high altitude flight is undertaken”<sup>1</sup>

**REFERENCES**

1. Boothby WM, Lovelace WR, Burchell HB. Necessity of emergency oxygen unit for use in parachute escapes at high altitudes. *J Aviat Med.* 1941; 12(2):126–130.
2. Morgenstern AL. Fear of flying and the counter-phobic personality. *Aerosp Med.* 1966; 37(4):404–407.
3. Regard M, Landis T, Casey J, Maggiorini M, Bärtsch P, Oelz O. Cognitive changes at high altitude in healthy climbers and in climbers developing acute mountain sickness. *Aviat Space Environ Med.* 1991; 62(4):291–295.

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.miracd.com/asmaarchive/Login.aspx>.

Reprint & Copyright © by the Aerospace Medical Association, Alexandria, VA.  
DOI: 10.3357/AMHP:4527.2016