

APRIL 1992

Which is the best ejection method? (Naval Safety Center, Norfolk, VA): "Two methods of ejection from tactical aircraft are commonly used: jettisoning the canopy prior to seat travel, and ejecting through a closed canopy. This report compares the ejection injury experience of Naval Aviation in each mode during January 1977-August 1990. During that period, 336 through-canopy and 580 canopy-jettison ejections were accomplished. The former group sustained 10.7% fatal injuries, and only 17.0% egressed injury-free. By comparison, the latter cohort incurred only 4.7% fatalities and fully 31.9% egressed without injury. Analysis of patterns of injuries confirms higher G-forces in through-canopy ejections, resulting in not only more injuries, but more severe injuries..."

"In spite of these findings, there are compelling tactical and financial reasons to consider through-the-canopy systems. The most important tactical reason... is the time factor, especially in ground attack aircraft. Ejecting through the canopy saves time and that may save lives. In addition, the through-the-canopy systems are, as a rule, considerably less expensive than the more complex jettison versions... Although decisions that affect safety should be made in as unbiased an environment as can be achieved, it is obvious that cost-effectiveness will most always be a consideration."³

APRIL 1967

Flashblindness recovery time (Aerospace Medical Research Laboratory, U.S. Naval Air Development Center, Johnsville, Warminster, PA): "A question of considerable operational importance is the extent to which the blinding effect of a flash from a nuclear weapon will vary with the ambient light level. Under conditions of darkness, the size of the pupil and the sensitivity of the eye are maximized. With an increase in the ambient light level both the sensitivity of the eye and the pupil size decrease..."

"It can be concluded from the results of this study that the blinding effect of a nuclear weapon flash will increase with the pupillary area. Thus, the larger pupillary area which normally accompanies low ambient illumination will increase significantly the flashblindness recovery times to all except very highly-illuminated displays [Fig. 1]. Within the limitations of this study, it also may be concluded that the preflash adaptation level is of little consequence in the problem of flashblindness except when a highly light-adapted observer must resolve a dimly-illuminated display following exposure to a nuclear weapon flash."¹

APRIL 1942

Findings during "healthy" aviation physicals (Mayo Clinic, Rochester, MN): "The importance of pilots' health has long been recognized. That of all pilots the transport pilot should be in good health is generally accepted. There are several reasons for this. First, there is the importance to the pilot himself... Second is the economic importance of the pilot's health... Third is the physical and emotional strain to which the pilot is subjected, greater than that to which men in other occupations are exposed... Fourth is the increasing age of the members of the transport pilot group as a whole, and with this factor are associated the physical conditions attendant on increase in age... Fifth, and most important, is the pilot's and the airline's responsibility to their passengers..."

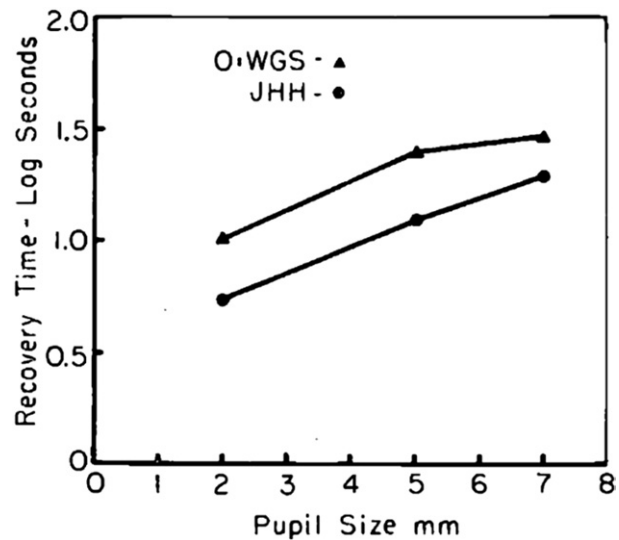


Fig. 1. "Flashblindness recovery time as a function of pupil size."

"One hundred and three regular pilots, including captains and first officers, were examined. It should be emphasized that all these men were flying regularly, had complained of nothing sufficiently serious to send them to a physician, considered themselves to be in good health, and that their examination was a routine procedure..."

"Results of these examinations were surprising. Fifty-two of the 103 pilots had evidence of foci of infection. Thirty-four had grossly infected tonsils. Twenty-six had abscessed teeth and sixteen of the twenty-six had more than one abscessed tooth. It is true that these conditions are comparatively mild, yet they might very easily lead to serious illness, such as arthritis or iritis, which would incapacitate the pilot. In addition, because of instrument flying, good hearing is of more importance to a pilot than to others and the presence of an active focus of infection, such as infected tonsils, in the upper respiratory passages, is an added threat to hearing..."

"We found that forty-one aviators had some slight impairment of hearing. One pilot had active pansinusitis. Five had an active duodenal ulcer, only one of which had been diagnosed previously."²

REFERENCES

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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: <https://doi.org/10.3357/AMHP.4829.2017>