

OCTOBER 1998

Improved passenger crash position (University Hospital, Queens Medical Centre, Nottingham; RAF Institute of Aviation Medicine, Farnborough, Hampshire, UK): "In 1989, a Boeing 737-400 aircraft crashed at Kegworth, near Nottingham, England. The survivors suffered a large number of pelvic and lower limb injuries, and approximately one-third of the passengers died. Subsequent research has suggested that the 'brace-for-impact' position that passengers are advised to adopt prior to a crash landing might be modified in order to reduce the incidence of such injuries. ... Impact testing on forward-facing seats ... mounted on a sled, were propelled down a track to impact at -16 G_x. ... Four [test] dummy positions were investigated. ... Impact testing revealed that the risk of a head injury ... was greater in the upright position than in the braced forward position. ... Flailing did not occur when the dummy was placed in a braced, legs-back position. ... Such a recommendation should not obscure the fact that an occupant seated in a forward-facing aircraft seat, restrained only by a lap belt, is exposed to considerable forces during an impact ... capable of producing injuries in the femur, pelvis, and lumbar spine."¹ See Fig. 1.

OCTOBER 1973

Rewarming cold water subjects (Webb Associates, Yellow Springs, OH): "Rewarming was studied in three lightly clothed divers who had swum submerged in water of 5°, 10°, and 15°C for 45 to 60 minutes, reaching the limit of subjective tolerance to cold. Heat for rewarming the men after the dive came from warm water being circulated through a water cooling garment, plus their own metabolic heat. Both of these heat quantities were measured, and it was found that an average of 210 kcals (range 165-292 kcals) was needed to replace the heat lost during the dives. The completion of rewarming was signalled by: the release

of body heat when previously it had been conserved by the cold subject; a rise in heart rate and the return of cutaneous vasomotor control of body heat loss; and a restoration of the normal balance between heat produced and heat lost. Over-warming led to sweating. None of the following body temperatures reliably indicated completion of rewarming: rectal, ear canal, esophageal, skin (mean or any of 8 sites), calf or chest subcutaneous temperature, or calculated mean body temperature."³

OCTOBER 1948

Air travel and disease spread (Colonel, Medical Corps, U.S. Army): "One of the earliest recognized facts about communicable disease was that it followed lines of travel ... [T]he plague epidemic which struck Egypt in 542 A.D. ... at its height it killed from 5,000 to 10,000 persons a day and for fifteen years it raged over all Europe and then lay dormant for 800 years. In 1348, just 600 years ago, it broke out again. ... By Easter, 1,200,000 people gathered in Rome [for a Holy Year celebration] bringing plague with them, and over 1,000,000 of the travelers died of the disease.

"The centuries have not altered this property of epidemic diseases to move with people, and no later than February, 1947, we learn of smallpox coming to New York from Mexico City without the slightest trouble at the International Border. Last year, too, we saw the arrival of cholera in Egypt and witnessed the frantic efforts of nations, organizations, and individuals to contain this menace. At times, International Quarantine became international incidents with borders being closed and planes refused landings. ...

"It is believed that the proposed World Health Organization is the proper agency for establishing control of epidemic disease in air travel and that this organization should stress sanitary airports of international travel and host factors in passengers."²

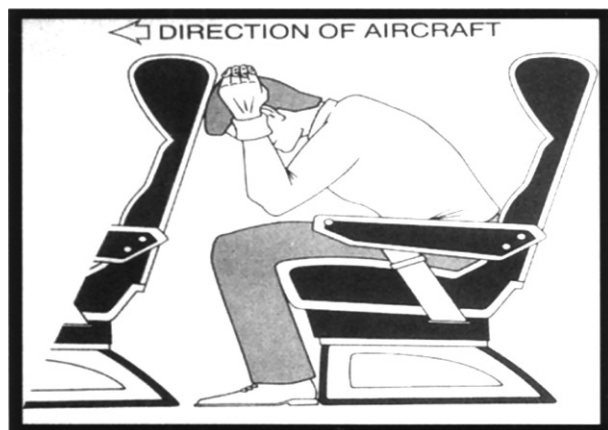


Fig. 1. Newly recommended improved brace position. Fig. 8 from Brownson et al.¹ with permission from the Aerospace Medical Association.

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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>.

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