JUNE 1997

Blood alcohol limits in pilots (Cranfield University, Cranfield, Bedfordshire, UK): "The U.K. Civil Aviation Authority is currently proposing that a maximum BAC (Blood Alcohol Concentration) limit of just 0.02% should be imposed on United Kingdom pilots. In this survey of 477 pilots, it was found that a large proportion could not determine when their BAC was likely to fall below this level after drinking alcohol and could, therefore, potentially inadvertently infringe the proposed regulation. Another large proportion of pilots felt that they were safe to fly before their BAC had dropped below 0.02%, which may be indicative of a willingness to infringe the regulations. Estimates of when it was safe to fly also became more inaccurate as the amount drunk increased and varied with the type of alcoholic beverage consumed."[4]

G-induced neck injury (RAAF Base Williamtown, NSW, Australia): "$+G_z$-induced neck injuries are a relatively common occurrence in pilots of high performance fighter aircraft. We surveyed 52 fighter pilots from the Royal Australian Air Force Base at Williamtown via an anonymous questionnaire in order to determine the prevalence and operational significance of these injuries. The pilots flew either the F/A-18 Hornet or the MB326H Macchi. Of the respondents, 44 reported having had a neck injury under $+G_z$. A higher rate was reported in pilots of the F/A-18. Most of these injuries were simple muscle sprains. There were 20 pilots who reported their neck injury as having interfered with mission completion. Only 12 pilots reported doing any regular neck strengthening exercises, while 33 pilots reported doing preflight neck stretches immediately prior to high $+G_z$ exposure. There were 14 pilots who sought medical attention for their injury, with 9 being taken off flight status for an average of 2 weeks. Air combat maneuvering sorties and the 'check six' head position were identified as causal factors by most pilots."[2]

JUNE 1972

Pilot incapacitation (*International Federation of Airline Pilots' Associations, London, UK):* "Following a review of the reported cases of pilot incapacitation in flight, the operational aspects are discussed and suggestions made for reducing the incidence and for dealing with it. The suggested program involves airline management and flight crews in the prevention, detection and dealing with the event, as well as aircraft manufacturers in human engineering factors…

"Once detected, incapacitation in a crew member must first be contained and dealt with by reallocation of duties and changes in the flight plan to terminate the flight safely, with full account taken of the reduced crew complement and consequent increased responsibilities and workload. If the event occurs at a period of low workload, is passive and is not accompanied by other adverse factors, it should be well within the capacity of the crew either to complete the flight as planned or to divert it to an earlier landing. In these circumstances the diversion would be dictated by considerations of securing medical attention for the afflicted pilot, provided the aircraft is not thereby endangered.

"As the incidence of incapacitation is so very low and is not known to crews in general, some training in dealing with the event is called for, if only to create a general awareness of the potential, and to provide some general guidelines for a crew's course of actions. This training should at least include the salient points of action written into the Operations Manual, not so much for reference in the event itself but rather for recollection. Training is probably best accomplished in the Flight Simulator during periods of refresher training, when it can both be discussed and practiced."[1]

JUNE 1947

Physiology of round-the-world flight (U.S. Army): "Daily observations of physiological and psychological responses were made in eight subjects who completed a circuit of the world by air in one hundred and forty-nine hours and thirty-eight minutes. One hundred and twenty hours and ten minutes were spent at altitudes principally of 9,000 to 14,000 feet.

"No significant objective changes resulting from the cumulative hypoxia experienced at 9,000 feet were observed in the tests conducted. Subjectively, headaches and fatigue were noted.

"Adequate sleep in a comfortable position relieved fatigue…

"Normal individuals can be exposed as passengers to long flights in modern passenger aircraft flying at altitudes of 9,000 feet without deleterious results from a cumulative hypoxia

"To prevent any ill effects on long flights, it is desirable for transport aircraft to be provided with pressurized cabins and sleeping accommodations for all passengers."[3]

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