SEPTEMBER 1990

Pregnancy risks of flight attendants (Occupational Medicine Program and the Department of Epidemiology, University of Washington, Seattle, WA, and the Harry Van Arsdale Jr. School of Labor Studies, Empire State College, State University of New York, New York, NY): "Flight attendants have been reported to be at increased risk for menstrual abnormalities and for spontaneous fetal loss. This study examined Washington State birth certificates for associations between adverse pregnancy outcomes and maternal employment as a flight attendant. Current pregnancy outcomes (low birthweight, prematurity, low Apgar scores, and abnormal sex ratio) were not significantly related to occupation. Flight attendants reported their preceding pregnancy resulted in a spontaneous fetal loss nearly twice as often as other women (relative risk = 1.9, 95% confidence interval = 1.3-2.7). However, when comparison was restricted to other employed women, the risk was lower (RR = 1.3, 95% CI = 0.9-1.9). A clinically significant pregnancy risk among flight attendants cannot be excluded on the basis of this study, but the apparent excess risk of spontaneous fetal loss in this and particularly in a previous study could be explained at least in part by methodologic limitations."[1]

SEPTEMBER 1965

Effect of noise on the body in spaceflight (partially supported by NASA; sponsored by Aerospace Medical Research Laboratories, Wright-Patterson Air Force Base, OH): "Future manned space systems, with larger payloads and more powerful boosters, will generate during launch operations noise environments with maximum energy in the 1-100 cps frequency range. In order to investigate human tolerance to such environments, five noise-experienced officers were exposed for two-minute periods to high intensity broad-band, narrow-band, and pure-tone low frequency noise. The effects of these exposures on cardiac rhythm, hearing threshold, visual acuity, fine motor control, spatial orientation, speech intelligibility and subjective tolerance were observed. Exposures up to 154 dB in the 1-100 cps range were achieved; the range of human exposure to infrasound was extended from 20 to 40 dB above prior documented experience. Both objective and subjective responses of the subjects demonstrated that short-duration exposure to low frequency noise up to 150 dB is well within human tolerance limits. Exposures above 150 dB elicited responses indicating the limiting range of subjective tolerance and reliable performance was being approached."[2]

SEPTEMBER 1940

Effect of noise on the body in flight (Department of Physiology, School of Medicine, West Virginia University, Morgantown, WV): "In order to procure indisputable objective evidence that noise may affect organic functions of the body, the effect of noise on gastric secretion on four dogs with Pavlov pouches was studied. The control experiments were performed on a background level of 30 decibels. The effect of 100 decibels of noise, which is the volume of noise found in the closed cockpit of an airplane, was then studied; two frequencies were used, first 600 cycles and later 2,000 cycles.

"One dog at a frequency of 600 cycles, showed a significant reduction in the volume of gastric juice secreted. None showed a significant reduction in the amount of acid secreted and neither volume nor acid in the average of the four dogs was significantly affected at this frequency. With a noise frequency of 2,000, two dogs showed a significant reduction in acid secretion, and the average of all four dogs showed a significant reduction in both volume and acid secretion at this frequency.

"Neither frequency used produced any significant change in the total chlorides secreted nor in the pH of the gastric juice.

"It was concluded (1) that dogs showed a noticeable individual variation in secretion of gastric juice in response to noise, and (2) that the higher pitch noises have a greater depressing effect on both volume and acid secretion of gastric juice than those of lower pitch."[3]

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3. Vaughan PE, Van Liere EJ. An experimental study on the effect of noise on gastric secretion in Pavlov dogs. J Aviat Med. 1940; 11(3): 102–107.

ERRATUM to "This Month in Aerospace Medicine History" for August 2015 (Aerosp Med Hum Perform. 2015; 86(8):760): The text for the 1990 and 1940 entries of this column were inadvertently switched. The references are correct. We apologize for this error.

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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