MAY 1997

Sports drinks for military use (U.S. Army Research Institute of Environmental Medicine, Natick MA, and GEO-Centers, Inc., Natick, MA): "Some 27 volunteers… were randomly assigned to one of three groups: CHO-E, placebo, or water. Fluid intake was ad libitum. The volunteers completed 3 d of field training in hot humid conditions (30°C, 60% rh). Training days 1 and 2 each included a 16-21 km march over hilly terrain, marksmanship training, and 2 h of rock climbing. Day 3 included a 14.5 km march followed by marksmanship tests, a timed rock climb and a 0.7 km uphill (21% grade) run… The CHO-E beverage provided an additional ~2800 kcal ($p<0.05$) for the 3 d of training. There were no differences (ANOVA, $p>0.05$) between the groups' absolute or changes from pre-training values for fluid intake, body weight, climb time, run time, marksmanship, or mood. Those drinking CHO-E were, however, more likely to maintain uphill run performance after training ($\chi^2 = 7.2$; $p<0.05$) and more likely to maintain both uphill run and marksmanship ability ($\chi^2 = 17.2$; $p<0.05$). There was also an inverse relationship between caloric intake and deterioration of uphill run performance ($r = -0.75$; $p<0.05$)… Persons drinking CHO-E or practicing good food discipline are more likely to sustain physical performance than those eating only a portion of their food. CHO-E provides an accessible source of calories which can be advantageous when limited food is available or inadequate foodconsumption is likely."[2]

MAY 1972

Cold survival (Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, OH): "Two prototype three-man life rafts were evaluated during the winter months in Arctic waters off Kodiak Island, Alaska, to assess potential survival problems and determine tolerance limits… Each subject wore a different clothing assembly: a full pressure suit, light flight clothing, and the ventile anti-exposure suit…

"The physiologic data and subjective judgments provided valuable insights into the thermal characteristics of a life raft and personal clothing required to ensure long term survival in Arctic waters. These data clearly demonstrated the superior thermal characteristics of one raft construction over another. This study also showed that none of the three clothing assemblies is optimal. The NASA flight clothing is completely inadequate, the NASA FPS marginal at best, and the optimal anti-exposure suit assembly acceptable with many reservations."[3]

MAY 1947

Is the spine affected by acceleration? (Mayo Clinic, Rochester, MN): "This investigation was undertaken to determine whether or not significant changes occur in the lumbar portion of the spinal columns of human beings during exposure to positive acceleration…

"Four normal subjects ranging in age from twenty-six to thirty-three years were used in this investigation… Positive acceleration was applied to the subjects by a human centrifuge… The x-ray table with the tube above it was mounted at one end of the centrifuge…

"The center of the table is approximately 16 feet (4.9 meters) from the axis of the centrifuge… [see **Fig. 1** for positions].

"Anteroposterior and lateral roentgenograms were made of the lower part of the spinal columns of four subjects before and during positive accelerations of 2 to 6 g…

"No significant changes in these measurements were observed."[1]

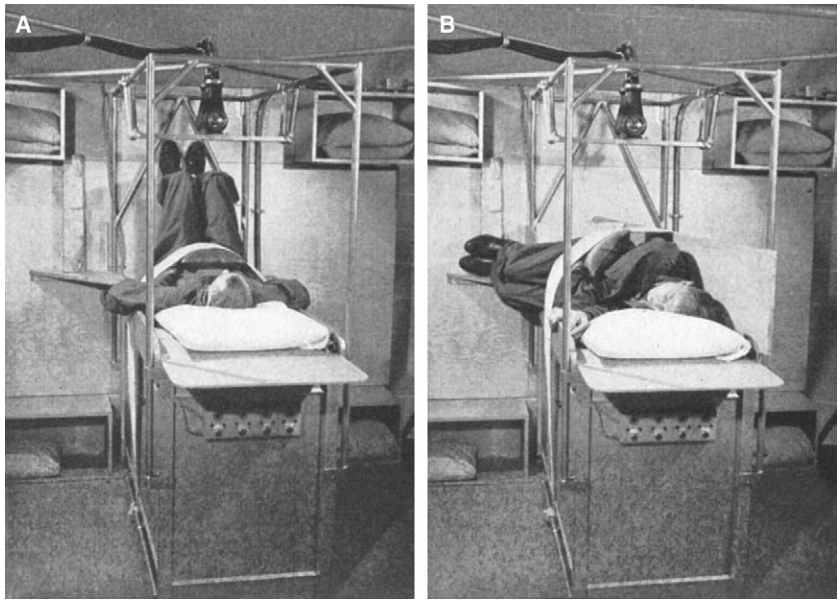

Fig. 1. A) anteroposterior x-ray position; B) lateral x-ray position.

REFERENCES

1. Code CF, Williams MMD, Baldes DJ, Ghormley RK. Are the intervertebral disks displaced during positive acceleration? J Aviat Med. 1947; 18(3):231–236, 296.
2. Montain SJ, Shippee RL, Tharion WJ. Carbohydrate-electrolyte solution effects on physical performance of military tasks. Aviat Space Environ Med. 1997; 68(5):384–391.
3. Veghte JH. Cold sea survival. Aerosp Med. 1972; 43(5):506–511.

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