Abstracts from the Literature

compiled by James Ross

Knapik JJ, Hamlet MP. Influence of boot-sock systems on frequency and severity of foot blisters. *Mil Med* 1996; 161(1):594-8

This study examined the influence of three types of boot-sock systems on incidence and severity of foot blisters. Participants were 357 men undergoing US Marine recruit training at Parris Island, South Carolina. Each participant was assigned to one of three treatment groups. The first group wore the standard military boot sock consisting of wool-cotton-nylon-spandex combination. The second group wore the standard military boot sock with a thin inner or liner sock consisting of polyester. The third group wore a very thick, dense, prototype outer sock consisting of wool-polypropylene combination over the same liner sock as the second group. Foot blister incidence was lower among participants who wore the prototype boot sock and liner than among those wearing the standard military sock (40% *vice* 69%, p<0.001) or among subjects wearing the standard military sock with liner (40% *vice* 77%, p<0.001). Foot blisters and cellulitis severe enough to require medical attention occurred with greater frequency in the standard military sock group compared to both the prototype boot-sock group (24% *vice* 11%, p<0.02) and the standard military sock with liner group (24% *vice* 9%, p<0.01); there was no difference between the latter two groups. Blister reduction was most apparent in the early weeks of recruit training. The standard military sock with a polyester lining reduced the incidence of severe blisters, but the dense sock with the polyester liner reduced the overall incidence of blisters as well as the incidence of severe blisters.

***Comment.*** *Refreshing to see a practical study asking sensible questions about everyday problems. Well designed, and with useful results. You may have noticed a negative edge to some of my commentary in recent times; this study reverses the trend.*

Shepherd SL, LaFleur BJ. The increased incidence on Mondays of work-related sprains and strains. *J Occ Environ Med* 1996; 38(7):681-688

Insurance-industry researchers have shown an increase on Mondays of lost-time sprains and strains said to be work-related, but thought to be fraudulent claims for off-the-job weekend injuries. We examine this issue among civilian employees of the Department of the Navy, using data from claims for injuries occurring between 1989 and 1994. We found that the rate of Monday sprain and that such claims were significantly more likely to be made by claimants who were craftsmen and mechanics, who reported an injury to the back or trunk, who were supervisors, or who did not have college degrees. We estimate that 22% of claims for Monday-occurring sprains and strains are possibly fraudulent and that their cost to the Department of the Navy during the six years studies was $38 million. For the entire Federal Government, costs for such claims during this period have exceeded $250 million.

***Comment.*** *Firstly, once again the tendency to assume that only people in the US are reading this, or that only the US is of relevance. It is expected for the United Kingdom not to put the country’s name on stamps. It should not be the case in journals supposedly with an international audience. Secondly, the presumptions in this report are horrible. It seems that the idea that there can be an excess of sprains and strains on a Monday because people come to work ‘tired and emotional’ after a weekend did not cross their minds. Then they go from a possibility of 22% fraudulent rate to costs for the Federal (read US) Government having exceeded $250 million. Very poor.*

Wilcox WD, Miller JJ. Inaccuracy of three-finger pinch method of determining salt content in homemade sugar salt solutions. *Wilderness Environ Med* 1996; 7(2):122-6

Oral rehydration therapy (ORT) has dramatically reduced the morbidity and mortality associated with acute infectious diarrhoea. Commercial oral rehydration salt (ORS) solutions with sodium concentrations of 30-90 mmol/l are ideal for both the prevention and treatment of dehydration. However, logistic issues impede their universal availability and homemade sugar salt (HSS) solutions are widely used in some areas of the world. The least accurate methods of preparing HSS solutions utilise a three-finger pinch of salt. The present study demonstrates the inconsistency and inaccuracy of this method among 15 health workers who participated in an ORT training seminar conducted in a situation that approximated field conditions. Similar studies with different subjects, instructions and milieu describe results similar to those we obtained. In all studies, including the present one, a substantial number of the solutions prepared by this method had dangerously high or low sodium concentrations. Health providers should consider the use of selected home-available fluids rather than HSS solutions for the prevention of dehydration in children with diarrhoea. However, ORS solutions should be used to correct established diarrhoea.

***Comment.*** *Humans are unreliable.*

Helmkamp JC, Kennedy RD. Causes of death among US Military Personnel: a 14-year summary 1980-1993. *Mil Med* 1996; 161(6):311-7

Data extracted from the Report of Casualty (DD Form 1300) of the Department of Defense’s Worldwide Casualty System were used to describe the 27 070 deaths among active duty personnel for the 14 year period 1980 through 1993. Ninety-five per cent of all military deaths occurred among males, and 84% among enlisted personnel. Unintentional injuries were the leading cause of death among both males (51%) and females (52%). Diseases accounted for about 20% of all deaths and represented the second most significant cause of death for both male and female service personnel. Suicide was the third leading major cause among males (13%), followed by homicide (5%); among females, this order was reversed, with homicide (14%) exceeding suicide (12%). About 2% of all deaths resulted from combat. The findings presented here are useful in identifying cause-specific high-risk groups in each of the four branches and directing appropriate prevention strategies.

***Comment.*** *After having just typed the above, I am amazed at how long winded even an abstract can be. Surely the information could have been put in three lines. Consistency with spelling out (percent) or using the symbol (%) would have been nice too. Fairly superficial look at the figures, and the clear area to focus on is accident prevention.*

Hammond L. The closure of Melbourne’s Fairfield Hospital. [Editorial] *Aust NZ J Pub Health* 1996; 20(3):230-1

***Comment.*** *A nostalgic but not-too-strong case for Fairfield. More a fond farewell than a call to arms. “Infectious diseases are being delivered into the brave new world of measured outcomes and evidence-based medicine”. It seems the writer accepts that Fairfield cannot be justified under such imperatives.*

Brodkin CA et al. AOEC position paper on the Organizational Code for Ethical Conduct. *J Occup Environ Med* 1996; 38(9):869-81

***Comment.*** *The Association of Occupational and Environmental Clinics position paper, which essentially endorses the ICOH International Code of Ethics of Occupational Health Professionals. Worthwhile reading for any health professional working in occupational settings, dealing with occupational illnesses or injuries, or who is employed by an organisation.*

Walford RE et al. ‘Biosphere Medicine’ as viewed from the two-year first closure of Biosphere 2. *Aviat Space Environ Med* 1996; 67(7):609-17

Biosphere 2 is a 3.16 acre, 7 million ft3 enclosed ecological space near Tuczon, AZ. It contains five wilderness and two domestic biomes (rain forest, savanna, desert, ocean, marsh; agricultural station, living quarters), an original introduction of 3,800 species (~20% extinctions have occurred), and a large basement ‘technosphere’. Sealed inside Biosphere 2 in September 1991, four women and four men, including two of the authors, maintained themselves and the various systems for 2 yr, the longest sustained ‘isolated confined environment’ period on record. MMPI psychological profile scores for Biosphere 2 crew members correlated closely with those reported for astronauts and shuttle applicants. Major medical problems encountered during the 2 yr included adaptation to a low-calorie (1 800-2 200 kcal/d/person) but otherwise nutritionally adequate diet, with substantial weight loss (18% for men, 10% for women), and a declining oxygen atmosphere (down to 14.2%). Life in a miniworld such as Biosphere 2 may differ substantially from life in a space station or temporary planetary base. These differences include multiple, shifting, sometimes opposing post-launch objectives; complete self-sustenance with recycling of virtually all materials within a highly complex biological system; retooling of some areas of practical medicine; an attention to ‘culture’ as a social dynamic and how that may influence crew and leadership selection in a societal rather than a quasi-military community. Assuming that long-term planetary colonies must be largely self-sustaining (due to costs of supply over great distances), they must of necessity approach the condition of biospheres. Subject to chaos dynamic (*nonlinear* dynamic) perturbations, the behaviour of complex biospheres will be inherently non-predictable - as opposed to the *linear* dynamic situation of most space missions - and will require of the inhabitants, including the medical team, a wide range of coping abilities. Under the circumstances, and while strong similarities exist, important differences serve to distinguish ‘biosphere medicine’ from ‘space medicine’.

***Comment.*** *Sounds like a miserable time was had by all. Loss of 33% of your oxygen in two years is not what I would call sustainable. Humans would have been soon to follow on that list of extinctions. If things are going to be so different (and much tougher) on a space station or planetary base, what was the point of this whole experiment? Still, a good read if you can get hold of the article.*

**Special Note.** The August 1996 issue of *Military Medicine* is one of the best and best focussed issues on operational issues for military medicine I have come across. Articles include ‘Combat care in 1995: Implications in a changing world’; ‘Triage: The past revisited’; ‘Orthopaedic surgery in the combat zone’; ‘Position of neurosurgery in deployment medicine’; ‘Sexual risk behaviour among female Army Recruits’; ‘Management of soft-tissue wounds, burns and hand injuries in the field setting’.