

postoperative nausea and vomiting, morning sickness, and vertigo is also of interest. Another step along the path toward improved risk factor identification and treatments.

**Barger LK, Rajaratnam SM, Wang W, O'Brien CS, Sullivan JP, et al. Common sleep disorders increase risk of motor vehicle crashes and adverse health outcomes in firefighters.** *J Clin Sleep Med.* 2015 Jan 12. Over 1/3 of almost 7000 firefighters surveyed screened positive for a sleep disorder. Compared to those who did not screen positive, those with a sleep disorder were more likely to report: involvement in a motor vehicle collision (adjusted odds ratio 2,  $P = 0.0021$ ); falling asleep while driving (2.41,  $P < 0.0001$ ); cardiovascular disease; diabetes; depression; anxiety; and reported poorer health status. No surprises here, but very relevant to the health and safety of aviation and space personnel.

**Cotler HB. A NASA discovery has current applications in orthopedics.** *Curr Orthop Pract.* 2015; 26(1):72-74. While it is tempting to dismiss such an article as public relations grandstanding, it does serve as a reminder of the flow-on benefits, often long delayed, from the sort of research funded and undertaken by agencies such as NASA. The wound healing and inflammation reduction effects of low level laser therapy have been in use for several decades now, to the benefit of many orthopedic and other patients. This review article covers the basic physics and physiology, and some of the history of this therapeutic modality and ... of course ... NASA's role in development and characterization of the LEDs used.

**American Journal of Life Sciences (January 2015).** This issue is dedicated to "Space Flight Factors: From Cell to Body," contains eight articles, and is available online free-of-charge.

**Chang AM, Aeschbach D, Duffy JF, Czeisler CA. Evening use of light-emitting eReaders negatively affects sleep, circadian timing, and next-morning alertness.** *Proc Natl Acad Sci U S A.* 2015; 112(4): 1232-1237. The author and his Kindle light-emitting eReader has a personal interest in this work. "These results demonstrate that evening exposure to an LE-eBook phase-delays the circadian clock, acutely suppresses melatonin, and has important implications for understanding the impact of such technologies on sleep, performance, health, and safety."

**Zaar M, Fedyk CG, Pidcoke HF, Scherer MR, Ryan KL, et al. Platelet activation after presyncope by lower body negative pressure in humans.** *PLoS One.* 2014; 9(12):e116174. Trauma can lead to blood loss. Central hypovolemia elevates a wide range of hemostatic activity which help to prevent further exsanguination. This paper describes platelet activation in response to LBNP-induced presyncope and claims that this has not been previously described.

**Ahmadi G, Schnabel R, Jokuszies A, Vogt PM, Zier U, Mirastschijski U. [Impact of Martian and Lunar dust simulants on cellular inflammation in human skin wounds ex vivo.]** *Handchir Mikrochir Plast Chir.* 2014; 46(6):361-368. The article is in German, but title and abstract, in English, showcase the level of detail going into the long term preparation for crewed missions to Mars. Martian dust is highly oxidative and

so, as is the case with wound contamination with Earth dust, "surgical wound debridement should be performed to ensure uncompromised wound healing."

Reviewed by  
Dougal Watson, M.B.B.S.

Finally, readers may wish to review fluid balance via *Extreme Physiology and Medicine*, an online journal: **Edwards MR, Mythen MG. Fluid therapy in critical illness.** *Extrem Physiol Med.* 2014; 3:16. Available from <http://www.extremephysiol-med.com/content/3/1/16>.

Reviewed by  
Geoffrey McCarthy, M.D.

**Bridges D, Neal-Smith J, Mills AJ. Absent Aviators, Gender Issues in Aviation.** Ashgate Publishing, Farnham, Surrey, UK, 2014. 341 pp, £75, ISBN 9781472433381.

This is a collection of 13 review and research papers largely related to the psychosocial aspects of the training and career paths of female pilots in military and civilian aviation. The authors and editors are men and women of several nations, with U.S. contributions in the minority. A refreshing sense of humor lightens several of the articles, including those that acknowledge a feminist viewpoint.

Cockpits today are evolving to better accommodate women's smaller body size and limited strength. However, as is pointed out in the excellent introduction to the volume, the working environment is rarely welcoming and female pilots find themselves in highly gendered, male-dominated organizations that have changed very little since the fly-boys came home from WWII.

The book is divided into four sections: gender issues, barriers to entry and retention, technology (glass cockpit), and management interventions. Most of the work is based on surveys or interviews. Given that women constitute only 5–6% of pilots worldwide, the numbers of subjects are unavoidably small, but appropriate statistical analyses are used and the limitations of each study are clearly articulated, perhaps at the insistence of the editors, who hold academic credentials in sociology and management. Each chapter is supported by a good set of references and there is an excellent 28-page index at the back of the book.

Only one experimental study is included, addressing performance of male and female pilots in a simulated glass cockpit. Aeromedical issues for women in fast jet aircraft are summarized in a single article; not only does the topic seem out of place here, but the material dates to the 1990s, so might better have been left out.



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The book presents some fascinating insights into what motivates women to become pilots and how they handle the stresses of high professional visibility, loneliness, adaptation to a masculine culture, and career issues related to family and childbearing.

An especially interesting paper is Deanne Gibbon's description of "Leaving Gender In," an Australian program to attract, train, and support female military pilots based on the need for a larger national pool of talent. As she points out, it is not enough to "treat everyone the same" if that means treating the

women like men. As with some physical changes to cockpits, greater flexibility in career paths may benefit some men as well as women. In addition, many of the innovations described for aviation could be adapted to other programs to promote diversity in a workforce.

This book should be read by anyone interested in the historical and current issues for women in aviation.

**Reviewed by**  
**Sarah Nunneley, M.D.**