Please send suggested books for review as well as reviews of books, articles of aeromedical interest, films, websites, etc. to Geff McCarthy, M.D., geffandjulie@comcast.net

Reviews

In this quarter's reviews from other sources, we present a list of *American Family Physician* articles of interest in 2014 from Lt. Col. Richard Sumrall, two further *AFP* articles from Dr. Russell Rayman, extracted recent papers from NASA from Dr. Dougal Watson, and a recommendation for an article in *Extreme Physiology and Medicine* from Dr. Geff McCarthy. We begin with the *AFP* list (articles less than 1 yr old require registration for electronic access):

Vanichkachorn G, Roy BA, Lopoz R, Sturdevant R. *Evaluation and treatment of the acutely injured worker.* Am Fam Physician. 2014; 89(1):17-24. Available at http://www.aafp.org/afp/2014/0101/p17. Overview of the occupational injury evaluation process.

Woodhall D, Jones JL, Cantey PT, Wilkins PP, Montgomery SP. *Neglected parasitic infections: what every family physician needs to know.* Am Fam Physician. 2014; 90(10):803-811. Available at http://www.aafp.org/afp/2014/0515/p803.html. Chagas disease, toxocariasis, cysticercosis, and toxoplasmosis.

Hartman-Adams H, Clark K, Juckett G. *Update on latent tuberculosis infection.* Am Fam Physician. 2014; 89(11):889-896. Available from http://www.aafp.org/afp/2014/0601/p889.html. Update risk factors, screening, testing, and treatment.

Prevention and treatment of motion sickness. Am Fam Physician. 2014; 90(1):Online. Available at http://www.aafp.org/afp/2014/0701/p41.html. Includes extensive list of behavioral prevention techniques.

Ellis R, Ellis C. *Dog and cat bites.* Am Fam Physician. 2014; 90(4):239-243. Available from http://www.aafp.org/afp/2014/0815/p239.html. Reviews wound treatment and closure, antibiotics, rabies, and prevention.

Groetsch SM, Needleman M. *Abnormal electrocardiogram findings during an occupational physical examination.* Am Fam Physician. 2014; 90(12):861-862. Available from http://www.aafp.org/afp/2014/1215/p861.html. AFP's Occupational Health article listing is at http://www.aafp.org/afp/topicModules/viewTopicModule.htm?topicModuleId=89. Hypertrophic cardiomyopathy on an occupational physical examination (firefighter) ECG.

Reviewed by
Richard Sumrall, M.D.

Short MW, Layton MC, Teer BN, et al. *Colorectal cancer screening and surveillance.* Am Fam Physician. 2015; 91(2):93-100. Screening for relatively common diseases is part of medical practice. The U.S. Preventive Services Task Force as well as professional societies and associations frequently publish guidelines for physicians. This article does so for colorectal cancer. The authors make clear recommendations regarding fecal occult blood testing, flexible sigmoidoscopy, colonoscopy, and fecal immunochemical testing. There are tables indicating at what age screening should begin and intervals. Further information is provided regarding follow-up screening for patients treated for polyps of varying histological type. This article is an excellent review of colorectal screening.

Saguil A, Kane S, Farnell E. *Multiple sclerosis: a primary care perspective.* Am Fam Physician. 2014; 90(9):644-652. This article is an excellent overview of multiple sclerosis (M.S.) and provides useful information to help formulate aeromedical disposition. Clinical presentation, diagnostic criteria, and treatment are well covered. Because M.S. is a disease of remissions and exacerbations, often taking years before subtle or overt disability develops, some aviators might be certified early on during the disease process.

Reviewed by
Russell Rayman, M.D.

NASA Spaceline* covers a huge swathe of material directly and indirectly relevant to aerospace medical practitioners. Each review should contain enough citation information for you to be able to find and obtain articles of particular interest to you.

Hromatka BS, Tung JY, Kiefer AK, Do CB, Hinds DA, Eriksson N. *Genetic variants associated with motion sickness point to roles for inner ear development, neurological processes, and glucose homeostasis.* Hum Mol Genet. 2015 Jan 26. Searching the genomes of 80,494 individuals, who were also surveyed concerning car sickness, revealed 35 single nucleotide polymorphisms that were associated with motion sickness at a genome-wide-significant level. The phenotypic and genotypic association with migraines,

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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."

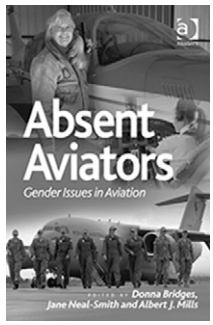
Zaar M, Fedyk CG, Pidcoke HF, Scherer MR, Ryan KL, et al. *Platelet activation after presyncope by lower body negative pressure in humans.* PLoS One. 2014; 9(12):e116174. Trauma can lead to blood loss. Central hypovolemia elevates a wide range of hemostatic activity which help to prevent further exsanguination. 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.extremephysiolmed.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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