

## **Selección de Artículos de Alto Impacto en el Campo de la Salud Ocupacional.**

Augusto Valderrama-Aguirre<sup>1</sup>

Estimados lectores,

En consonancia con nuestro propósito de fortalecer la producción intelectual en las diferentes áreas de la Salud Ocupacional, presentamos a ustedes una selección de los artículos científicos originales más recientes y de mayor impacto. El criterio de selección ha sido bastante simple, pues para esta selección, nos basamos en las recomendaciones que brinda el servicio *online* de *Faculty of 1000 Medicine* (<http://f1000medicine.com>).

*Faculty of 1000 Medicine* es un servicio *online* único que ayuda a la comunidad científica y profesional de la salud a estar informado acerca de los artículos científicos originales de mayor impacto y permite ver las opiniones de miles de expertos, líderes mundiales en cada campo, acerca de cada artículo.

En nuestros días, con la cantidad de información que constantemente se publica, mantenerse informado y actualizado en los últimos desarrollos y avances se vuelve una tarea difícil y que consume mucho tiempo. La **Revista Colombiana de Salud Ocupacional**, con ayuda del servicio *online* de *Faculty of 1000 Medicine* le ayudará a mantenerse actualizado y ahorrar tiempo, identificando los artículos de mayor impacto en la Salud Ocupacional.

De esta manera, presentamos ustedes nuestra primera serie de siete artículos recomendados:

1. Clin Psychol Rev. 2009 Dec;29(8):685-94. Epub 2009 Aug 24. **A new generation of women veterans: stressors faced by women deployed to Iraq and Afghanistan.** Street AE, Vogt D, Dutra L. National Center for Posttraumatic Stress Disorder, VA Boston Healthcare System, Boston, MA, United States. [amy.street@va.gov](mailto:amy.street@va.gov).

The extent of female service members' involvement in Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), in terms of both the number of women deployed and the scope of their involvement, is unprecedented. While many of the mental health readjustment issues of female service members are likely to mirror those of the majority male Veteran population, this newest generation of women Veterans may also face unique threats to their mental health. The goal of this review is to highlight emerging issues relevant to the

development of posttraumatic stress disorder (PTSD) among women deployed to Iraq and Afghanistan by reviewing the existing literature on gender-relevant issues among this cohort, as well as raising theoretically important issues that are worthy of further empirical investigation. Topics addressed include gender differences in combat experiences and in PTSD following combat exposure; sexual assault, sexual harassment and other interpersonal stressors experienced during deployment; women Veterans' experiences of premilitary trauma exposure; and unique stressors faced by women Veterans during the homecoming readjustment period. Given that most models of the impact of war zone deployment on PTSD are predicated on the experiences of male service members, women's expanding role in combat operations presents both an opportunity and a challenge to adapt these models to more effectively capture the experiences of female service members. PMID: 19766368 [PubMed - indexed for MEDLINE].

2. J Occup Environ Med. 2009 Oct;51(10):1202-11. **Peripheral and central auditory dysfunction induced by occupational exposure to organic solvents.** Fuente A, Slade MD, Taylor T, Morata TC, Keith RW, Sparer J, Rabinowitz PM. School of Speech and Hearing Sciences, Medical Faculty, Universidad de Chile, Santiago, Chile. [afuente@med.uchile.cl](mailto:afuente@med.uchile.cl).

OBJECTIVE: To examine the effects of solvent exposure on hearing function, through an audiological test battery, in a population not occupationally exposed to high levels of noise. METHODS: One hundred ten workers from a coating factory were studied. Jobs at the factory were divided into three different levels of solvent exposure. Hearing status was assessed with a test battery including pure-tone hearing thresholds (0.5-8 kHz), high-frequency hearing thresholds (12 and 16 kHz), and dichotic listening measured through dichotic digits test. Multiple linear regression models were created to explore possible association between solvent exposure and each of the hearing outcomes. RESULTS: Significant associations between solvent exposure and the three hearing outcomes were found. Covariates such as age, gender, race, and ethnicity were also significantly associated with the studied hearing outcomes. CONCLUSIONS: Occupational exposure to solvents may induce both peripheral and central auditory dysfunction. The dichotic digits test seems as a sensible tool to detect central auditory dysfunction associated with solvent exposure. Hearing loss prevention programs may use this tool to monitor hearing in solvent-exposed workers. PMID: 19786896 [PubMed - indexed for MEDLINE].

<sup>1</sup> Bacteriólogo y Laboratorista Clínico, MSc. Ciencias Biomédicas (Inmunología y Biología Molecular), Candidato a PhD. Ciencias Biomédicas (Inmunología y Biología Molecular) de la Universidad del Valle. Docente Asistente Programa Medicina, Director Grupo Investigación Instituto Investigaciones Biomédicas, Editor en Jefe Revista Colombiana de Salud Ocupacional, Postgrado Salud Ocupacional, Universidad Libre-Seccional Cali. [avalderr@hotmail.com](mailto:avalderr@hotmail.com).

3. Eur Respir J. 2009 Nov 19. [Epub ahead of print]. **Parental occupation is a risk factor for childhood wheeze and asthma.** Tagiyeva N, Devereux G, Semple S, Sherriff A, Henderson J, Elias P, Ayres JG. University of Aberdeen, Aberdeen, AB252ZP, UK.

This birth-cohort study investigated whether childhood wheeze and asthma is associated with parental exposure to occupational sensitizers that cause asthma. Parental occupation from the Avon Longitudinal Study of Parents and Children was related to wheeze, asthma, ventilatory function, airway responsiveness and atopic sensitisation in children aged 0-102 months. Occupation was recorded for 11,193 mothers and 9,473 fathers antenatally, and for 4,631 mothers and 5,315 fathers post-natally. Childhood respiratory outcomes were not associated with parental occupational exposure to diisocyanates, glues/resins, dyes, animal dust, solder, enzymes, and wood-dust. Maternal post-natal occupational exposure to latex and/or biocide/fungicides increased the likelihood of childhood wheeze and asthma. High levels of latex or biocide/fungicide exposure were associated with odds ratios of 1.26 [1.07-1.50] and 1.22 [1.02-2.05] respectively for wheezing up to 81 months. Combined maternal latex and biocide/fungicide exposures increased the likelihood of childhood wheeze (OR 1.22 [1.03-1.43]) and asthma. High paternal occupational flour dust exposure was associated with an increased likelihood of wheeze after 30 months (OR 2.31 [1.05-5.10]) and asthma by 91-months (OR 3.23 [1.34-7.79]). Maternal occupational exposure to latex and/or biocides and paternal exposure to flour dust increases the risk of childhood asthma. Further studies in this area are justified. PMID: 19926750 [PubMed - as supplied by publisher].

4. J Cell Physiol. 2010 Feb;222(2):320-7. **TNF-alpha-mediated reduction in PGC-1alpha may impair skeletal muscle function after cigarette smoke exposure.** Tang K, Wagner PD, Breen EC. Division of Physiology, Department of Medicine, University of California, San Diego, La Jolla, California 92093-0623, USA. [ktang@ucsd.edu](mailto:ktang@ucsd.edu).

Skeletal muscle dysfunction contributes to exercise limitation in COPD. In this study cigarette smoke exposure was hypothesized to increase expression of the inflammatory cytokine, TNF-alpha, thereby suppressing PGC-1alpha, and hence affecting downstream molecules that regulate oxygen transport and muscle function. Furthermore, we hypothesized that highly vascularized oxidative skeletal muscle would be more susceptible to cigarette smoke than less well-vascularized glycolytic

muscle. To test these hypotheses, mice were exposed to cigarette smoke daily for 8 or 16 weeks, resulting in 157% (8 weeks) and 174% (16 weeks) increases in serum TNF-alpha. Separately, TNF-alpha administered to C2C12 myoblasts was found to dose-dependently reduce PGC-1alpha mRNA. In the smoke-exposed mice, PGC-1alpha mRNA was decreased, by 48% in soleus and 23% in EDL. The vascular PGC-1alpha target molecule, VEGF, was also down-regulated, but only in the soleus, which exhibited capillary regression and an oxidative to glycolytic fiber type transition. The apoptosis PGC-1alpha target genes, atrogen-1 and MuRF1, were up-regulated, and to a greater extent in the soleus than EDL. Citrate synthase (soleus-19%, EDL-17%) and beta-hydroxyacyl CoA dehydrogenase (beta-HAD) (soleus-22%, EDL-19%) decreased similarly in both muscle types. There was loss of body and gastrocnemius complex mass, with rapid soleus but not EDL fatigue and diminished exercise endurance. These data suggest that in response to smoke exposure, TNF-alpha-mediated down-regulation of PGC-1alpha may be a key step leading to vascular and myocyte dysfunction, effects that are more evident in oxidative than glycolytic skeletal muscles. (c) 2009 Wiley-Liss, Inc. PMID: 19859910 [PubMed - indexed for MEDLINE].

5. J Pediatr. 2010 Feb;156(2):221-5. Epub 2009 Nov 5. **Phthalate exposure and precocious puberty in females.** Lomenick JP, Calafat AM, Melguizo Castro MS, Mier R, Stenger P, Foster MB, Wintergerst KA. Department of Pediatrics, University of Kentucky College of Medicine, Lexington, KY, USA. [jefferson.lomenick@vanderbilt.edu](mailto:jefferson.lomenick@vanderbilt.edu).

OBJECTIVE: To determine whether phthalate exposure is associated with precocious puberty in girls. STUDY DESIGN: This was a multicenter cross-sectional study in which 28 girls with central precocious puberty (CPP) and 28 age- and race-matched prepubertal females were enrolled. Nine phthalate metabolites and creatinine were measured in spot urine samples from these 56 children. RESULTS: Levels of 8 of the 9 phthalate metabolites were above the limit of detection (LOD) in all 56 subjects. Mono (2-ethylhexyl) phthalate (MEHP) was below the LOD in 25/56 samples (14 subjects with precocious puberty and 11 controls). No significant differences between the children with CPP and the controls in either absolute or creatinine-normalized concentrations of any of the 9 phthalate metabolites were measured. CONCLUSIONS: Although phthalates may be associated with certain other toxicities in humans, our study suggests that their exposure is not associated with precocious puberty in female children. Copyright 2010 Mosby, Inc. All rights reserved. PMID: 19892364 [PubMed - in process].

6. Soc Sci Med. 2009 Jul;69(2):160-4. Epub 2009 May 23. **Time to retire--time to die? A prospective cohort study of the effects of early retirement on long-term survival.** Brockmann H, Müller R, Helmert U. School of Social Sciences and Humanities, Jacobs University, Campus Ring 1, 28758 Bremen, Germany. [h.brockmann@jacobs-university.de](mailto:h.brockmann@jacobs-university.de).

In a long-term prospective cohort study we try to assess selective and protective impacts of early retirement on life expectancy. The results are based on the members of a compulsory German health insurance fund (Gmünder Ersatzkasse). We analyzed 88,399 men and 41,276 women who retired between the ages of 50 and 65 from January 1990 to December 2004. Our main outcome measures are hazard ratios for death adjusted for age, sex, marital and socioeconomic status, year of observation, age at retirement, hospitalization, and form of retirement scheme. We found a significantly higher mortality risk among pensioners with reduced earning capacities than among old-age pensioners who either left the labor market between the ages of 56 and 60 or between 61 and 65. The youngest male and female pensioners who left the labor market between the ages of 51 and 55 because of their reduced earning capacity faced the highest mortality risk. But healthy people who retire early do not experience shorter long-term survival than those who retire late. On the contrary, if we take into consideration the amount of days spent in hospital during the last 2 years prior to retirement, early retirement in fact lowers mortality risks significantly by 12% for men and by 23% for women. Thus with respect to mortality, early retirement reflects both selective and protective processes. First of all, individuals with poor health and lower survival chances are filtered out of the labor market. However, healthy pensioners may be protected during retirement. For the former, early retirement is a necessity, for the latter it is an asset. Pension reformers should take health differentials into consideration when cutting back pension programs and increasing retirement age. PMID: 19467567 [PubMed - indexed for MEDLINE].

7. Eur Respir J. 2009 Oct;34(4):825-33. Epub 2009 May 14. **Determinants of asthma phenotypes in supermarket bakery workers.** Baatjies R, Lopata AL, Sander I, Raulf-Heimsoth M, Bateman ED, Meijster T, Heederik D, Robins TG, Jeebhay MF. Centre for Occupational and Environmental Health Research Unit, School of Public Health and Family Medicine, University of Cape Town, Cape Town, South Africa.

While baker's asthma has been well described, various asthma phenotypes in bakery workers have yet to be characterised. Our study aims to describe the asthma phenotypes in supermarket bakery

workers in relation to host risk factors and self-reported exposure to flour dust. A cross-sectional study of 517 supermarket bakery workers in 31 bakeries used a questionnaire, skin prick tests, and specific immunoglobulin E to wheat, rye and fungal alpha-amylase and methacholine challenge testing. The prevalence of probable occupational asthma (OA, 13%) was higher than atopic (6%), nonatopic (6%) and work-aggravated asthma (WAA, 3%) phenotypes. Previous episodes of high exposure to dusts, fumes and vapours causing asthma symptoms were more strongly associated with WAA (OR 5.8, 95% CI 1.7-19.2) than OA (2.8, 1.4-5.5). Work-related ocular-nasal symptoms were significantly associated with WAA (4.3, 1.3-13.8) and OA (3.1, 1.8-5.5). Bakers with OA had an increased odds ratio of reporting adverse reactions to ingested grain products (6.4, 2.0-19.8). OA is the most common phenotype among supermarket bakery workers. Analysis of risk factors contributes to defining clinical phenotypes, which will guide ongoing medical surveillance and clinical management of bakery workers. PMID: 19443530 [PubMed - indexed for MEDLINE].

Editor en Jefe  
*Revista Colombiana de Salud Ocupacional.*