

Nº 8

Boletín LADEP

Boletín Nº8 - 3^{er} Trimestre 2010

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Boletín Nº8 - 3^{er} Trimestre 2010 (Julio - Septiembre)

Boletín Editado por: Juan Luis Cabanillas Moruno

REVISTAS INTERNACIONALES CONSULTADAS

- AMERICAN JOURNAL OF INDUSTRIAL MEDICINE
- JOURNAL OF OCCUPATIONAL MEDICINE AND TOXICOLOGY
- INTERNATIONAL JOURNAL OF HYGIENE AND ENVIRONMENTAL HEALTH
- OCCUPATIONAL AND ENVIRONMENTAL MEDICINE
- OCCUPATIONAL MEDICINE
- SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT & HEALTH

REVISTAS NACIONALES CONSULTADAS

- ARCHIVOS DE PREVENCIÓN DE RIESGOS LABORALES
- MEDICINA Y SEGURIDAD DEL TRABAJO
- REVISTA DE LA SOCIEDAD ESPAÑOLA DE MEDICINA Y SEGURIDAD DEL TRABAJO

Artículo Nº1

Revista: AMERICAN JOURNAL OF INDUSTRIAL MEDICINE - 53:768-779, 2010

Título*Occupation and multiple myeloma: An occupation and industry analysis (Trabajo y mieloma múltiple: un análisis del trabajo y de la industria)***Autores**

Laura S. Gold, Kevin Milliken, Patricia Stewart, Mark Purdue, Richard Severson, Noah Seixas, Aaron Blair, Scott Davis, Patricia Hartge, Anneclaire J. De Roos D

Métodos

Methods. MM cases (n = 180) were identified through cancer registries in the Seattle-Puget Sound area and Detroit. Population-based controls (n = 481) were identified using random digit dialing and Medicare and Medicaid Services files. In-person interviews were conducted to ascertain occupational histories. Standard occupational classification (SOC) and standard industrial classification (SIC) codes were assigned to each job held by each participant. Unconditional logistic regression was used to generate odds ratios (ORs) and 95% confidence intervals (CIs) for associations between MM and having ever worked in each occupation/industry and according to duration of employment in an occupation/industry.

Resultados

Results. The risk of MM was associated with several manufacturing occupations and industries, including machine operators and tenders, not elsewhere classified (SOC 76) (OR = 1.8, CI = 1.0-3.3); textile, apparel, and furnishing machine operators and tenders (SOC 765) (OR = 6.0, CI = 1.7-21); and machinery manufacturing, except electrical (SIC 35) (OR = 3.3, CI = 1.7-6.7). Several service occupations and industries, such as food and beverage preparation (SOC 521) (OR = 2.0, CI = 1.1-3.8), were also associated with MM. One occupation that has been associated with MM in several previous studies, painters, paperhangers, and plasterers (SOC 644) was associated with a non-significantly elevated risk (OR = 3.6, CI = 0.7-19).

Conclusiones

Conclusions. We found associations between the risk of MM and employment in several manufacturing and service-related occupations and industries.

Palabras Claves

Key terms. multiple myeloma, lymphoma, machinery operators, occupation, painters, service occupations

Artículo Nº2

Revista: AMERICAN JOURNAL OF INDUSTRIAL MEDICINE - 53:842-853, 2010

Título*Heat exposure in the Canadian workplace (Exposición al calor en el puesto de trabajo en Canadá)***Autores**

Ollie J, Glen PK

Resumen

Abstract. Exposure to excessive heat is a physical hazard that threatens Canadian workers. As patterns of global climate change suggest an increased frequency of heat waves, the potential impact of these extreme climate events on the health and well-being of the Canadian workforce is a new and growing challenge. Increasingly, industries rely on available technology and information to ensure the safety of their workers. Current Canadian labor codes in all provinces employ the guidelines recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) that are Threshold Limit Values (TLVs) based upon Wet Bulb Globe Temperature (WBGT). The TLVs are set so that core body temperature of the workers supposedly does not exceed 38.0°C. Legislation in most Canadian provinces also requires employers to install engineering and administrative controls to reduce the heat stress risk of their working environment should it exceed the levels permissible under the WBGT system. There are however severe limitations using the WBGT system because it only directly evaluates the environmental parameters and merely incorporates personal factors such as clothing insulation and metabolic heat production through simple correction factors for broadly generalized groups. An improved awareness of the strengths and limitations of TLVs and the WBGT index can minimize preventable measurement errors and improve their utilization in workplaces. Work is on-going, particularly in the European Union to develop an improved individualized heat stress risk assessment tool. More work is required to improve the predictive capacity of these indices.

Palabras Claves**Key terms.** heat illness, heat management, worker health.

Artículo Nº3

Revista: AMERICAN JOURNAL OF INDUSTRIAL MEDICINE - 53:857-865, 2010

Título

Industry-wide medical surveillance of California flavor manufacturing workers: Cross-sectional results (*Vigilancia médica en trabajadores manuales de la industria de condimentos: un análisis transversal*)

Autores

Kim J, Materna B, Prudhomme J, Fedan K, Enright P, Sahakian N, Windham G, Kreiss K

Fondo

Background. Two cases of bronchiolitis obliterans in flavor manufacturing workers prompted California health and labor agencies to initiate industry-wide surveillance.

Métodos

Methods. Companies' physicians submitted cross-sectional questionnaire and spirometry data for 467 workers in 16 workplaces. We compared prevalence ratios of respiratory symptoms, diagnoses, and abnormal spirometry to a general population sample. We calculated odds ratios for risk factors for spirometric obstructive abnormality.

Resultados

Results. Flavoring workers were 2.7 times more likely than the general population to have severe airways obstruction. Risk factors identified for 18 cases with obstruction from six companies included younger age, Hispanic ethnicity, liquid and powder production work, greater company diacetyl usage, and having a coworker with obstruction. Severity of obstruction was related to tenure. At least 12 workers had probable occupational fixed airways obstruction.

Conclusiones

Conclusions. The flavoring industry risk of severe lung disease justifies lowering flavoring exposures and medical screening for secondary prevention until worker safety is demonstrated.

Palabras Claves

Key terms. Flavoring, diacetyl, bronchiolitis obliterans, surveillance, occupational lung disease, spirometry.

Artículo Nº4

Revista: JOURNAL OF OCCUPATIONAL MEDICINE AND TOXICOLOGY - 2010, 1745-6673-5-21

Título*Nerve conduction in relation to vibration exposure - a non-positive cohort study (Conducción nerviosa con relación a la exposición a vibraciones: un estudio de cohortes no positivo)***Autores**

Sandén H, Jonsson A, Gunnar B, Burström L, Lundström R, Nilsson T, Hagberg M

Fondo

Background. Peripheral neuropathy is one of the principal clinical disorders in workers with hand-arm vibration syndrome. Electrophysiological studies aimed at defining the nature of the injury have provided conflicting results. One reason for this lack of consistency might be the sparsity of published longitudinal etiological studies with both good assessment of exposure and a well-defined measure of disease. Against this background we measured conduction velocities in the hand after having assessed vibration exposure over 21 years in a cohort of manual workers.

Métodos

Methods. The study group consisted of 155 male office and manual workers at an engineering plant that manufactured pulp and paper machinery. The study has a longitudinal design regarding exposure assessment and a cross-sectional design regarding the outcome of nerve conduction. Hand-arm vibration dose was calculated as the product of self-reported occupational exposure, collected by questionnaire and interviews, and the measured or estimated hand-arm vibration exposure in 1987, 1992, 1997, 2002, and 2008. Distal motor latencies in median and ulnar nerves and sensory nerve conduction over the carpal tunnel and the finger-palm segments in the median nerve were measured in 2008. Before the nerve conduction measurement, the subjects were systemically warmed by a bicycle ergometer test.

Resultados

Results. There were no differences in distal latencies between subjects exposed to hand-arm vibration and unexposed subjects, neither in the sensory conduction latencies of the median nerve, nor in the motor conduction latencies of the median and ulnar nerves. Seven subjects (9%) in the exposed group and three subjects (12%) in the unexposed group had both pathological sensory nerve conduction at the wrist and symptoms suggestive of carpal tunnel syndrome.

Conclusiones

Conclusions. Nerve conduction measurements of peripheral hand nerves revealed no exposure-response association between hand-arm vibration exposure and distal neuropathy of the large myelinated fibers in a cohort of male office and manual workers.

Artículo Nº5

Revista: JOURNAL OF OCCUPATIONAL MEDICINE AND TOXICOLOGY - 2010, 1745-6673-5-24

Título

Fertility disorders and pregnancy complications in hairdressers - a systematic review
(Alteraciones de la fertilidad y complicaciones del embarazo en peluqueras: una revisión sistemática)

Autores

Peters C, Harling M, Dulon M, Schablon A, Torres J, Nienhaus

Fondo

Background. Hairdressers often come into contact with various chemical substances which can be found in hair care products for washing, dyeing, bleaching, styling, spraying and perming. This exposure can impair health and may be present as skin and respiratory diseases. Effects on reproduction have long been discussed in the literature.

Métodos

Methods. A systematic review has been prepared in which publications from 1990 to 2010 were considered in order to specifically investigate the effects on fertility and pregnancy. The results of the studies were summarised separately in accordance with the type of study and the examined events.

Resultados

Results. A total of 2 reviews and 26 original studies on fertility disorders and pregnancy complications in hairdressers were found in the relevant databases, as well as through hand searches of reference lists. Nineteen different outcomes concerning fertility and pregnancy are analysed in the 26 original studies. Most studies looked into malformation (n = 7), particularly orofacial cleft. Two of them found statistically significant increased risks compared to five that did not. Small for gestational age (SGA), low birth weight (LBW) and spontaneous abortions were frequently investigated but found different results. Taken together the studies are inconsistent, so that no clear statements on an association between the exposure as a hairdresser and the effect on reproduction are possible. The different authors describe increased risks of infertility, congenital malformations, SGA, LBW, cancer in childhood, as well as effects from single substances.

Conclusiones

Conclusions. On the basis of the identified epidemiological studies, fertility disorders and pregnancy complications in hairdressers cannot be excluded. Although the evidence for these risks is low, further studies on reproductive risks in hairdressers should be performed as there is a high public health interest.

Artículo Nº6

Revista: JOURNAL OF OCCUPATIONAL MEDICINE AND TOXICOLOGY - 2010, 1745-6673-5-26

Título

Uniform comparison of several drugs which provide protection from noise induced hearing loss (Comparación uniforme de varios fármacos protectores frente a la pérdida auditiva inducida por el ruido)

Autores

Tamir S, Adelman C, Weinberger J, Sohmer H

Fondo

Background. The ability of drugs to reduce noise induced hearing loss (NIHL) has been evaluated in diverse experimental conditions (animal species, noise intensities, durations, assessment techniques, etc), making it difficult to assess their relative efficacy. The present study was designed to provide more uniform comparisons and to allow to a better understanding of the mechanism of the NIHL. **Methods:** The drugs studied included furosemide (loop diuretic) and the antioxidants N Acetyl-L-Cysteine, vitamins A, C, E with the vasodilator magnesium. Mice were exposed to a continuous broadband noise (113 dB SPL for 3.5 hours) and the NIHL was assessed in all animals before noise exposure and 1 week after with auditory nerve brainstem evoked responses (ABR) to broadband clicks and to 8 kHz tone bursts.

Resultados

Results. Each of the drugs alone and in combination led to similar reductions in NIHL.

Conclusiones

Conclusions. The loop diuretic furosemide, by reducing the magnitude of the endocochlear potential in scala media, probably depressed active vibrations of the outer hair cells and basilar membrane, resulting in reduction of free radical formation during the noise exposure. The antioxidants N Acetyl-L-Cysteine and vitamins A, C, E with the vasodilator magnesium presumably counteract the free radicals. Thus, the administration of the antioxidants to animals in which free radical formation had already been reduced by previous injection of furosemide did not have an additional protective effect on the NIHL.

Artículo Nº7

Revista: OCCUPATIONAL AND ENVIRONMENTAL MEDICINE - 2010;67:323-329

Título

Musculoskeletal pain at multiple sites and its effects on work ability in a general working population (*Dolor osteomuscular en localizaciones múltiples y su efecto en la capacidad laboral de población general*)

Autores

Miranda H, Kaila-Kangas L.

Objetivos

Objectives. Musculoskeletal pain often occurs at multiple sites concurrently. The aim of this study was to examine the associations between multi-site pain and self-rated work ability and retirement plans among actively working people.

Métodos

Methods. The Health 2000 Survey was carried among a representative sample of Finnish adults. Musculoskeletal pain during the preceding month in the lower back, neck or shoulders, upper extremities, hips and lower extremities, and work ability and intentions to retire early were assessed. Subjects were also clinically examined. Analyses were restricted to 30-64-year-old subjects actively working during the preceding 12 months who provided information on work ability outcomes (population-weighted number of subjects=4087). Log-binomial regression was used to estimate prevalence ratios of reduced work ability.

Resultados

Results. Single-site pain was reported by 33% of subjects, 20%, 9% and 4% reported pain in two, three and four sites, respectively, and 8%-15% reported poor work ability. Every fifth person had thought about retiring early. Age- and gender-adjusted risks of poor physical work ability and own prognosis of poor future work ability increased from 2 for single-site pain to 8 for pain at four sites. Risks remained considerably elevated after adjustment for various covariates, including clinical musculoskeletal disorders and functional capacity. Poor current work ability was most affected by multi-site pain at older age (50-64 years) and intentions to retire early at age 40-49 years.

Conclusiones

Conclusions. Co-occurring pain is a considerable threat to work ability. Workers with multi-site pain may benefit from targeted preventive measures to sustain their work ability. Future studies should also consider multi-site pain as an important risk factor for reduced work ability.

Artículo Nº8

Revista: OCCUPATIONAL AND ENVIRONMENTAL MEDICINE - 2010;67:375-386

Título*Bladder cancer risk in painters: a meta-analysis (Riesgo de cáncer hematológico en pintores: un meta-análisis)***Autores**

Guha N, SteenInd N, Merletti F, Altierri A, Cogliano V, Straif K.

Resumen

Abstract. The International Agency for Research on Cancer has classified occupational exposure as a painter as 'carcinogenic to humans', largely based on increased risks of bladder and lung cancer. A meta-analysis, including more than 2900 incident cases or deaths from bladder cancer among painters reported in 41 cohort (n=2), record linkage (n=9) and case-control (n=30) studies, was conducted to quantitatively compare the results of the different study designs and the potential confounding effect of smoking as well as other occupational exposures. The summary relative risk (meta-RR, random effects) for bladder cancer in painters was 1.25 (95% CI 1.16 to 1.34; 41 studies) overall and 1.28 (95% CI 1.15 to 1.43; 27 studies) when including only smoking adjusted risk estimates. The elevated risk persisted when restricted to studies that adjusted for other occupational exposures (meta-RR 1.27; 95% CI 0.99 to 1.63; 4 studies). The results remained robust when stratified by study design, gender and study location. Furthermore, exposure-response analyses suggested that the risk increased with duration of employment. There was no evidence of publication bias. Taken together, these results support the conclusion that occupational exposures in painters are causally associated with the risk of bladder cancer.

Artículo Nº9

Revista: SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT & HEALTH - 2010;36(4):299-304

Título

Modeling the cost-benefit of nerve conduction studies in pre-employment screening for carpal tunnel syndrome (Modelo de análisis coste-beneficio de estudios de conducción nerviosa en cribaje pre-empleo del síndrome del túnel carpiano)

Autores

Evanoff B, Kymes S

Objetivos

Objective. The aim of this study was to evaluate the costs associated with pre-employment nerve conduction testing as a screening tool for carpal tunnel syndrome (CTS) in the workplace.

Métodos

Methods. We used a Markov decision analysis model to compare the costs associated with a strategy of screening all prospective employees for CTS and not hiring those with abnormal nerve conduction, versus a strategy of not screening for CTS. The variables included in our model included employee turnover rate, the incidence of CTS, the prevalence of median nerve conduction abnormalities, the relative risk of developing CTS conferred by abnormal nerve conduction screening, the costs of pre-employment screening, and the worker's compensation costs to the employer for each case of CTS.

Resultados

Results. In our base case, total employer costs for CTS from the perspective of the employer (cost of screening plus costs for workers' compensation associated with CTS) were higher when screening was used. Median costs per employee position over five years were US\$503 for the screening strategy versus US\$200 for a no-screening strategy. A sensitivity analysis showed that a strategy of screening was cost-beneficial from the perspective of the employer only under a few circumstances. Using Monte Carlo simulation varying all parameters, we found a 30% probability that screening would be cost-beneficial.

Conclusiones

Conclusion. A strategy of pre-employment screening for CTS should be carefully evaluated for yield and social consequences before being implemented. Our model suggests such screening is not appropriate for most employers.

Palabras Claves y Referencias

Key terms. carpal tunnel syndrome, cost benefit, cost-benefit analysis, CTS, economic evaluation, electrodiagnostic study, modeling, MSD, musculoskeletal disorder, nerve conduction, nerve conduction study, post-offer pre-placement screening, pre-employment screening.

Refers to the following text of the Journal: 1991;17(6):392-397

Artículo Nº10

Revista: SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT & HEALTH - 2010;36(4):339-348

Título*Trends and priorities in occupational health research and knowledge transfer in Italy
(Tendencias y prioridades en investigación y transferencia del conocimiento en salud laboral)***Autores**

Rondinone BM, Boccuni F, Iavicoli S.

Objetivos

Objective. In 2000-2001, the Italian National Institute for Occupational Safety and Prevention (ISPESL) carried out a survey to identify the research priorities in the field of occupational safety and health (OSH). The present study, carried out in 2007-2008, was a follow-up designed to (i) review the themes identified earlier, (ii) detect emerging issues linked to new risks and forms of work, and (iii) look for any shifts in focus. The survey was extended to cover not only research but also the concept of knowledge transfer.

Métodos

Methods. In the first round, ISPESL distributed questionnaires to the heads of both university occupational medicine departments and prevention departments in local national health units (known as ASL in Italy) asking respondents to identify OSH priority themes. In the latest survey covering both research and the need for knowledge transfer, the same experts were asked to rank the importance of the earlier-identified topics and list any emerging issues in the OSH field.

Resultados

Results. The two most important themes identified were “work accidents” and “occupational carcinogenesis”. In the overall sample and among ASL experts, they received the 1st and 2nd highest mean scores. The university respondents also prioritized them but in reverse order. Some of the new priority topics included: risks associated with nanotechnologies; assessment of psychosocial and organizational risks; migration and work; and cost-benefit analysis of prevention.

Conclusiones

Conclusion. In light of the findings, efforts are urgently needed to identify research and knowledge transfer priorities related to workers’ health and safety on an international scale using a standardized method in order to obtain comparable results, avoid wasteful duplication of resources, and reduce occupational accidents and illness.

Palabras Claves

Key terms. Consensus, Delphi technique, health research, Italy, knowledge transfer, occupational health research, occupational safety and health, OSH, priority, research priority, stakeholder, trend.

Artículo Nº11

Revista: SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT & HEALTH - 2010;36(4):339-348

Título

Physical demands at work, physical fitness, and 30-year ischaemic heart disease and all-cause mortality in the Copenhagen Male Study (Requerimientos físicos en el trabajo, forma física, y enfermedad isquémica del corazón y mortalidad por todas las causas en el estudio de Copenhague de seguimiento durante 30 años de varones)

Autores

Holtermann A, Mortensen OS, Burr H, Søgaard K, Gyntelberg F, Suadicani P.

Objetivos

Objective. No previous long-term prospective studies have examined if workers with low cardiorespiratory fitness have an increased risk of cardiovascular mortality due to high physical work demands. We tested this hypothesis.

Métodos

Methods. We carried out a 30-year follow-up of the Copenhagen Male Study of 5249 employed men aged 40-59 years. We excluded from follow-up 274 men with a history of myocardial infarction, prevalent symptoms of angina pectoris, or intermittent claudication. We estimated physical fitness [maximal oxygen consumption (VO2Max)] using the Åstrand cycling test and determined physical work demands with two self-reported questions.

Resultados

Results. In the Copenhagen Male Study, 587 men (11.9%) died due to ischaemic heart disease (IHD). Using men with low physical work demands as the reference group, Cox analyses - adjusted for age, blood pressure, smoking, alcohol consumption, body mass index, diabetes, and hypertension - showed that high physical work demands were associated with an increased risk of IHD mortality in the least fit [VO2Max range 15-26, N=892, hazard ratio (HR) 2.04, 95% confidence interval (95% CI) 1.20-3.49] and moderately fit (VO2Max range 27-38, N=3037, HR 1.75, 95% CI 1.24-2.46), but not among the most fit men (VO2Max range 39-78, N=1014, HR 1.08, 95% CI 0.52-2.17). We found a similar, although slightly weaker, relationship with respect to all-cause mortality.

Conclusiones

Conclusion. The hypothesis was supported. Men with low and medium physical fitness have an increased risk of cardiovascular and all-cause mortality if exposed to high physical work demands. Ours observations suggest that, among men with high physical work demands, being physically fit protects against adverse cardiovascular effects.

Palabras Claves

Key terms. all-cause mortality, cardiovascular health, Copenhagen Male Study, health, ischaemic heart disease, occupational health, occupational physical activity, physical activity, physical demands, physical fitness, work.

Artículo Nº12

Revista: SCANDINAVIAN JOURNAL OF WORK ENVIRONMENT & HEALTH - 2010;36(4):339-348

Título

Gender differences in sickness absence - the contribution of occupation and workplace
(Diferencias de género en absentismo por enfermedad: la aportación del puesto y del lugar de trabajo)

Autores

Laaksonen M, Mastekaasa A, Martikainen P, Rahkonen O, Piha K, Lahelma E.

Objetivos

Objective. The aim of this study was to examine whether differences in male and female occupations and workplaces explain gender differences in self-certified (1-3 days) and medically confirmed sickness absence episodes of various lengths (≥ 4 days, >2 weeks, >60 days). Analyses in the main ICD-10 diagnostic groups were conducted for absence episodes of >2 weeks. Furthermore, we examined whether the contribution of occupation is related to different distributions of female and male jobs across the social class hierarchy.

Métodos

Methods. All municipal employees of the City of Helsinki at the beginning of 2004 (N=36 395) were followed-up until the end of 2007. Conditional fixed-effects Poisson regression was used to control for differences between occupations and workplaces.

Resultados

Results. Controlling for occupation accounted for half of the female excess in self-certified and medically confirmed episodes lasting >60 days. In the intermediate categories, this explained about one third of the female excess. The effect of workplace was similar but weaker. Occupational and workplace differences explained the female excess in sickness absence due to mental and behavioral disorders, musculoskeletal diseases, and respiratory diseases. The effect of occupation was clearly stronger than that of social class in self-certified absence episodes, whereas in medically confirmed sickness absence episodes gender differences were to a large extent related to social class differences between occupations.

Conclusiones

Conclusion. Differences between occupations held by women and men explain a substantial part of the female excess in sickness absence. Mental and behavioral disorders and musculoskeletal diseases substantially contribute to this explanation.

Palabras Claves y Referencias

Key terms. Fixed effect, gender, gender difference, man, men, occupation, occupational social class, sickness absence, woman, women, working conditions, workplace.

Refers to the following text of the Journal: 2008;34(4):260-266