

**Objective** Shift work and risk of cardiovascular diseases (CVD) have been investigated during many decades. The evidence is, however, still conflicting. This study aims to examine whether shift work among Danish female nurses is associated with the risk of CVD.

**Methods** 28 731 women from the Danish Nurse cohort (>44 years old at recruitment in 1993 or 1999), who reported information on shift work (day, evening, night or rotating), were linked to the Danish National Patient Register, to obtain information on CVD (ICD-10: I00-99; ICD-8: 390–458) hospital contacts (emergency, in- or outpatient) from 1978 until August 2015. We used Cox regression models to examine the association between shift work and the incidence of CVD, defined as the first-ever hospital contact for CVD after cohort baseline, adjusting for the most important risk factors.

**Results** Of 16 086 nurses without previous CVD events at baseline, 5504 developed CVD during a mean follow-up of 16 years, with an incidence rate of 21.4 cases per 1000 person-years. 63.4% of the nurses reported day work as their primary work schedule, while 10.0%, 5.3% and 21.6% worked in evening, night and rotating shifts, respectively. We found no associations between shift work and the risk of CVD when compared to day workers, with hazard ratio of 0.99 (95% confidence interval 0.91–1.09) for evening, 1.01 (0.90–1.13) for night and 1.03 (0.96–1.10) for rotating shifts, in the fully adjusted model.

**Conclusion** We found no evidence of an increased risk of CVD among female shift workers.

## Oral Presentation

### Musculoskeletal

#### 0248 REVERSIBLE MEDIAN NERVE IMPAIRMENT AFTER THREE WEEKS OF REPETITIVE WORK

<sup>1</sup>Sorosh Tabatabaieifar\*, <sup>2</sup>Susanne Wulff Svendsen, <sup>3</sup>Birger Johnsen, <sup>4,5</sup>Gert-Åke Hansson, <sup>3</sup>Anders Fuglsang-Frederiksen, <sup>1</sup>Poul Frost. <sup>1</sup>Danish Ramazzini Centre, Department of Occupational Medicine, Aarhus University Hospital, Aarhus C, Denmark; <sup>2</sup>Danish Ramazzini Centre, Department of Occupational Medicine, Regional Hospital West Jutland – University Research Clinic, Herning, Denmark; <sup>3</sup>Department of Clinical Neurophysiology, Aarhus University Hospital, Aarhus C, Denmark; <sup>4</sup>Occupational and Environmental Medicine, University and Regional Laboratories Region Scania, Lund, Sweden; <sup>5</sup>Division of Occupational and Environmental Medicine, Lund University, Lund, Sweden

10.1136/oemed-2017-104636.199

**Objectives** To evaluate the development of median nerve affection in relation to hand-intensive seasonal work. We hypothesised that at end-season, median nerve conduction would be impaired and then recover within weeks.

**Methods** Using nerve conduction studies (NCS), we examined median nerve affection before, during, and after engaging in 22 days of mink skinning. We used technical measurements (goniometry and surface electromyography) to characterise occupational mechanical exposures and obtained questionnaire information on symptoms, disability, and lifestyle factors.

**Results** 11 male mink skinners without median nerve affection at pre-season were included (mean age: 35.7, mean number of seasons with skinning: 8.9). Mink skinning was characterised by a median angle of wrist flexion/extension of 16° extension, a median velocity of wrist flexion/extension of 22 %/s, and force exertions of 11% of maximal voluntary electrical

activity. At end-season, mean distal motor latency (DML) had increased 0.41 ms ( $p<0.001$ ), mean sensory nerve conduction velocity (SNCV) digit 2 had decreased 6.3 m/s ( $p=0.004$ ), and mean SNCV digit 3 had decreased 6.2 m/s ( $p=0.01$ ); 9 had decreases in nerve conduction, 5 fulfilled electrodiagnostic criteria, and 4 fulfilled electrodiagnostic and clinical criteria (a positive Katz hand diagram) for carpal tunnel syndrome (CTS). Three to six weeks post-season, the changes had reverted to normal. Symptom and disability scores showed corresponding changes.

**Conclusions** In this natural experiment, impaired median nerve conduction developed during 22 days of repetitive industrial work with moderate wrist postures and limited force exertion. Recovery occurred within 3–6 weeks post-season.

## Poster Presentation

### Exposure Assessment

#### 0249 JOB-EXPOSURE MATRIX FOR HISTORICAL EXPOSURE TO RUBBER DUST, RUBBER FUMES, AND N-NITROSAMINES IN THE BRITISH RUBBER INDUSTRY

<sup>1</sup>Mira Hidajat\*, <sup>2</sup>Damien McElvenny, <sup>2</sup>Will Mueller, <sup>2</sup>Peter Ritchie, <sup>2,3</sup>John Cherie, <sup>4</sup>Andrew Darnton, <sup>5</sup>Raymond Agius, <sup>1</sup>Frank de Vocht. <sup>1</sup>University of Bristol, Bristol, UK; <sup>2</sup>Institute of Medicine, Edinburgh, UK; <sup>3</sup>Heriot Watt University, Edinburgh, UK; <sup>4</sup>Health and Safety Executive, Bootle, UK; <sup>5</sup>The University of Manchester, Manchester, UK

10.1136/oemed-2017-104636.200

In 1982 IARC concluded that there was sufficient evidence for a causal association between occupational exposures in the rubber manufacturing industry and urinary bladder cancer and leukaemia. To enable evaluations of exposure-response associations in a cohort of men age 35+ employed in the British rubber industry in 1967 with a 49 year mortality followup ( $n=40,867$ ), we created a quantitative historical job-exposure matrix (JEM) covering the period 1915–2000 based on personal and area measurements previously collated within the EU-EXASRUB project for rubber dust ( $n=4,187$ ), rubber fumes ( $n=3,852$ ), and n-Nitrosamines ( $n=10,215$ ). These data were modelled by job function using linear mixed-effects models with sample year and industry sector as explanatory factors and a random factory intercept.

Variations in exposure levels over time between compounds and department were observed. For example, rubber dust exposures ranged from  $-8.8\%/yr$  (crude materials and mixing,  $p<0.001$ ) to  $+0.5\%/yr$  (curing,  $p=0.01$ ) while rubber fumes exposures declined between  $-8.3\%/yr$  (crude materials and mixing,  $p<0.001$ ) and  $-0.2\%/yr$  (finishing, assembly, and miscellaneous,  $p=0.218$ ).

JEM-estimates were linked to all cohort members for each year worked to calculate average annual and lifetime cumulative exposures (AAE, LCE), thereby allowing quantitative evaluation of exposure-response associations between 50 year occupational exposure and cancer mortality. AAE rubber dust exposures ranged between 0.3 mg/m<sup>3</sup> (curing) and 36.3 mg/m<sup>3</sup> (crude materials and mixing). Rubber fumes exposures range between 0.3 mg/m<sup>3</sup> (finishing, assembly, and miscellaneous) and 5.4 mg/m<sup>3</sup> (crude materials and mixing). LCE trends mirrored AAE results.

JEM-estimates will allow for quantitative exposure-response association assessments between long-term occupational exposure and cancer mortality.

## Poster Presentation

### Occupational Medicine (SCOM/Modernet)

0250

#### NECK AND UPPER LIMB COMPLAINTS IN HEALTH WORKERS: A WARNING OF MENTAL STRAIN, OR JUST A MECHANICAL PROBLEM?

<sup>1</sup>Silvia Santo Domingo, <sup>2,3</sup>Rebeca Marinas\*, <sup>2</sup>Yolanda Casaldó, <sup>2</sup>Miguel Bolea, <sup>2</sup>Begoña Martínez. <sup>1</sup>Servicio Riojano de Salud. Servicio de Prevención de Riesgos Laborales., Logroño, La Rioja, Spain; <sup>2</sup>Grupo Consolidado de Investigación GII5063 de Medicina del Trabajo del Instituto de Investigación Sanitaria de Aragón and Grupo Consolidado B44. School of Occupational Medicine, University of Zaragoza., Zaragoza, Aragón, Spain; <sup>3</sup>Servicio de Medicina Interna. Hospital Clínico Universitario "Lozano Blesa", Zaragoza, Aragón, Spain

10.1136/oemed-2017-104636.201

**Background** MSDs are the most prevalent work-related diseases in the European Union (EU). Developmental pathways of these health problems are known to be related to physical and psychosocial working conditions

**Objectives and Methods** This study aimed to describe physical and psychological risk factors involved in the appearance of neck and upper limb MSDs in workers.

A survey was conducted in health workers of the La Rioja Regional Department of Health (Spain) (n=3939) using an observational design. Over a 12 month period, all health workers from this Department who used the Occupational Medicine Service for neck and upper limb pain and discomfort were invited to participate. Finally, a total of 707 health workers were recruited for the survey. Information on workplace exposure to physical and psychological risks was collected using three different tools: the Standardised Nordic Musculoskeletal questionnaire, the Siegrist's and a self-reporting questionnaire (drafted ad hoc and validated prior to administration) to gather socio-demographic and occupational variables.

**Results and conclusions** A high prevalence of neck and upper extremity symptoms has been found among our sample (73.55%). The most common location was neck (65.77%). Being a female worker with high physical workload, low career progress and over-involvement at work was configured as a risk profile. The studied symptoms were highly predicted by the existence of work stress and effort-reward imbalance. Therefore, medical doctors should be aware of what may be behind of these complaints, as they could be a warning of underlying mental strain and potential exposure to psychosocial risks.

## Poster Presentation

### Musculoskeletal

0251

#### A TWENTY-TWO YEAR LONGITUDINAL STUDY OF WORKERS EXPOSED TO HAND-HELD VIBRATING TOOLS

Rita Bast-Pettersen\*, Karl-Christian Nordby, Inger Helene Gudding, Elin Einarsdottir Thomér, Lisa Aarhus. National Institute of Occupational Health, Oslo, Norway

10.1136/oemed-2017-104636.202

**Background** Excessive use of hand-held vibrating tools can lead to hand-arm vibration syndrome (HAVS), which is composed of vascular, neurological and muscular components. Typical symptoms are vasospasm of the fingers induced by cold, loss of sensitivity, tingling and paresthesia, and impaired hand function.

Moderate exposure may lead to less serious vascular and neurological symptoms.

**Objectives** The objectives were to evaluate different aspects of hand function in workers with current and previous exposure to vibrating hand tools, taking into account the possible effects from life-style habits such as tobacco and alcohol consumption.

**Subjects and Methods** Forty workers who had been employed in a specialised engineering and construction company, were tested with a test-battery together with a clinical examination in 1994. The company was shut down in 1999. The workers were retested in 2016/2017, more than 22 years after the first/baseline testing. Age at last examination was 60.7 years (44.6 to 77.8 years). They were examined with a test-battery comprising Vibrometer, Water plethysmograph, Tremor Pen from CATSYS, Grooved Pegboard, Finger Tapping Test, Hand Dynamometer and Pinch Grip.

The workers were interviewed about their work history, health complaints and life-style factors like alcohol consumption and smoking habits. Their exposure history was assessed as acceleration x lifetime exposure.

Biological samples (Carbohydrate-deficient transferrin (CDT), glycated haemoglobin (HbA1c), cotinine, nicotine) were collected on the day of examination.

**Results** The data collection was finished by ultimo March 23rd 2017. Data analysis has started, and results from the project will be presented.

## Oral Presentation

### Other

0252

#### THE LEGACY OF *IN SITU* ASBESTOS CEMENT ROOFS IN SOUTH AFRICA

<sup>1,2</sup>David Rees\*, <sup>1,3</sup>James Ian Phillips. <sup>1</sup>National Institute for Occupational Health, National Health Laboratory Service, Johannesburg, South Africa; <sup>2</sup>School of Public Health, University of the Witwatersrand, Johannesburg, South Africa; <sup>3</sup>Faculty of Health Sciences, Department of Biomedical Technology, University of Johannesburg, Johannesburg, South Africa

10.1136/oemed-2017-104636.203