O-402 DOES HEAVY PHYSICAL WORKLOAD OR LOW DECISION AUTHORITY AGGRAVATE THE EFFECT OF MUSCULOSKELETAL PAIN ON THE RISK OF POOR SELF-REPORTED PHYSICAL WORKABILITY? A COHORT STUDY OF SWEDISH MEN AND WOMEN

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Introduction Musculoskeletal pain (MSP) can affect the functional capacity of workers and engender reduced work ability (WA). The effect of MSP on WA may differ between workers with and without heavy physical workload/low decision authority. Although MSP is widespread in the workforce, only a few studies have explored this hypothesis.
Objectives To investigate the separate and combined effects of MSP and heavy physical workload/low decision authority on poor self-reported physical WA.
Methods This study uses baseline data from the 2010 Stockholm Public Health Cohort (SPHC) questionnaire. The sample included 9419 workers with good baseline physical WA. Exposure to heavy physical workload and low decision authority were estimated using sex-specific job exposure matrices. The mean values for each exposure were dichotomised at the median (high/low) then combined with the presence of MSP. Follow-up data on poor self-reported physical WA were taken from the 2014 SPHC questionnaire. Logistic regression was performed adjusting for age, education, smoking, BMI, health conditions, psychological distress, and leisure-time physical activity. Additive interaction was estimated using the synergy index (SI).
Results MSP, heavy physical workload and low decision authority were separately associated with poor WA. MSP was associated with higher odds of poor WA than heavy physical workload/low decision authority for women, the opposite was observed for men. Combined exposure to MSP and heavy physical workload/low decision authority was associated with the highest odds of poor WA (e.g, MSP and heavy physical workload men: AOR: 4.04, 95%CI: 2.00–8.15; women: AOR: 3.25 95%CI: 1.81–5.83). However, the SI was non-statistically significant for both sexes.
Conclusion Combined exposure to MSP and heavy physical workload/low decision authority was associated with higher odds of poor WA than exposure to each factor separately. However, heavy physical workload/low decision authority did not statistically significantly aggravate the effect of MSP on the risk of poor WA.

O-474 PREVALENCE AND RISK FACTORS FOR WORK-RELATED NECK PAIN IN CIVIL SERVANTS: A SYSTEMATIC REVIEW

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Introduction Neck pain is a common work-related musculoskeletal outcome. To summarize its occurrence and risk factors may help to guide occupational interventions, minimizing the problem.
Objective To verify the prevalence and risk factors associated with occupational neck pain in employees.
Method This is a systematic review, with a search performed in two databases (PubMed/Medline and BIREME). Publications that estimated the prevalence of occupational neck pain and associated factors among employees were included in the review. Two independent reviewers searched, selected and evaluated all articles based on the PRISMA protocol.
Results 1830 articles were identified, and 48 which met the inclusion criteria were analyzed. Number of participants ranged from 15 to 134754 individuals among the studies; 28 studies (56%) were cross-sectional, and 23 (44%) were cohort studies; 74% came from Asia, Europe and Oceania, 8% from America, and 6% from Africa. Most studies analyzed musculoskeletal disorders in general, and neck pain was the second most prevalent complaint. The highest prevalence of neck pain was 71%, and the outcome was more frequent in women. The main risk factors described were ergonomic, psychological and social aspects.
Conclusions Neck pain is the second most prevalent musculoskeletal disorder in civil servants, particularly in office workers using computers. The most common associated individual risk factors were female gender, age, body mass index, and previous history of neck pain. Ergonomic risk factors were time and frequency of use of the mouse and keyboard, the position and height of the monitor, the temperature in the work environment, the posture adopted in the chair, as well as the simultaneous use of the telephone and computer.

O-484 OCCUPATIONAL LIFTING, PUSHING AND RISK OF SUBACROMIAL IMPINGEMENT SYNDROME SURGERY: A QUANTITATIVE RISK ASSESSMENT

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Objective The aim was to examine exposure-response relations between intensities of pushing/pulling, lifting/carrying loads and surgery for subacromial impingement syndrome (SIS) during a 10-year period.
Methods We conducted a register-based cohort study (2003–2008), comprising all persons born in Denmark (1933–1977) with at least 5 years of work experience (N=2 374 403). Information on SIS surgery was retrieved from the Danish National Patient Register (N=14 188). Occupational mechanical exposures comprising lifting or carrying loads $\geq$10 kg and pushing or pulling loads $\geq$50 kg were assessed by combining individual job codes with our expert-based Shoulder job exposure matrix. We created 3 intensity-specific exposure duration variables by dividing the intensity for lifting/carrying and pushing/pulling into categories (low, medium, and high), and summed up the number of years in each exposure category for a 10-year time window. The association was analyzed using logistic regression as survival analysis.
Results The adjusted odds ratio (ORadj) increased with both exposure duration and intensity of lifting/carrying and pushing/pulling. ORadj reached a maximum of 1.78 (95% CI 1.66–1.89), 2.52 (95% CI 2.32–2.74), and 2.96 (95% CI 2.53–3.47) after 10 years of exposures for the three exposure intensities. For pushing/pulling, maximum ORadj was 1.44 (95% CI 1.31–1.58), 1.68 (95% CI 1.58–1.79), and 1.72 (95% CI 1.50–2.00), respectively.
Conclusion We found exposure-response relations for both lifting/carrying and pushing/pulling across the 10-year time

window. The risk was especially pronounced for lifting/carrying compared to pushing/pulling. We did not find indications of safe exposure intensities.

Pesticides

O-111 TRANSLATING OBSERVATIONAL RESEARCH INTO REGULATORY SCIENCE: THE ROLE OF U.S. EPA'S OFFICE OF PESTICIDE PROGRAMS IN EVALUATING EPIDEMIOLOGIC EVIDENCE

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Introduction The U.S. Environmental Protection Agency's Office of Pesticide Programs (OPP) is a licensing program that regulates pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA). As part of this program, OPP has a regulatory mandate to evaluate research on the health effects of pesticides and plays a critical role in translating epidemiologic research into regulatory science and policy.
Objectives OPP has developed a framework to ensure that pesticide risk assessments include systematic evaluation of epidemiologic research on the potential adverse effects of pesticide exposure. The objective of the presentation is to raise awareness about how epidemiologic research on pesticides can inform risk assessment and occupational health policy by: (1) Providing background on OPP's risk assessment process, (2) Describing how OPP evaluates epidemiologic research using an approach that is scientifically robust and transparent; and (3) Highlighting opportunities for collaboration between researchers and risk assessors on the translation of epidemiologic research into risk assessment.
Methods OPP has extensive experience evaluating epidemiology studies on pesticides and is required to review all registered pesticides according to a 15-year registration review schedule. Building off of this experience, OPP will provide a survey of its evaluation approach and explore challenges that may be promising areas for future collaboration between researchers and risk assessors.
Results and Conclusions EPA/OPP routinely evaluates epidemiology research on pesticides and is guided by a systematic review framework that is scientifically robust and transparent. While epidemiologic research increasingly plays important role in the risk assessment process, there are important regulatory challenges that often limit the ability of OPP to translate research findings into policy. Therefore, there is a critical need to strengthen collaboration between researchers and risk assessors to better understand the scientific capabilities and data needs across occupational health disciplines.

O-188 PESTICIDE EXPOSURE DURING APPLICATION WITH BACKPACK SPRAYERS IN GREENSPACES: A FIELD STUDY ON GLYPHOSATE APPLICATION

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Introduction Data on pesticide exposure during occupational knapsack spraying is scarce.
Objective This field study assessed its levels and determinants.
Methods Private landscapers/gardeners and municipal workers in the Normandy region, France, were enrolled between March and May 2011. They were equipped with cotton undergarments and gloves to assess actual dermal exposure to glyphosate, and with cotton coveralls separately for each phase to assess the contribution of mixing/loading and spraying and the distribution on 11 body areas. A field monitor observed the whole workshift and filled in a standardized observation grid. Respiratory samplings were also systematically performed, and additional surface wipes obtained from various equipment.
Results Twenty-four workers were included, all men, with a median age of 40 years old, and a median experience in pesticide use of 14.5 years. The total work time varied between 110 and 360 min (median 210), and the number of mixing/loading-spraying cycles ranged from 1 to 8 (median 2). Spraying was more exposing than mixing/loading for all body parts except hands. Hands contributed to nearly 90% of body exposure during mixing/loading, and 30% during spraying, followed by back for spraying (14%). The median actual body contamination was 5,256 µg, with a median of 4,620 µg for hands. Dermal PPE use was associated with a decreased actual dermal exposure (estimate -0.81, $p=0.001$), and the number of mixing/spraying cycles with an increased exposure (more or less than 2 cycles: estimate 0.85, $p=0.0006$).
Conclusion Given their large contribution to overall dermal exposure, caution should be paid to handwashing and common hygiene rules during knapsack spraying. To our knowledge, our study is the first to report a high contamination of the back during spraying.

O-283 RECALL ABILITY OF PESTICIDE USERS IN UGANDA AND THE UK: RESULTS FROM THE IMPRESS STUDY

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Introduction Epidemiological studies on occupational exposure to pesticides commonly use self-reported questionnaire or interview data, so insight into recall accuracy is crucial to understand study findings.
Objectives To evaluate farmers' and farmworkers' recall of occupational exposure to pesticides and other exposure determinants, and to estimate the size of any recall bias.
Methods We used data from the IMPRESS project (www.impress-project.org), which includes three occupational cohorts of farmers' and farmworkers' exposure to pesticides in the UK and one in Uganda. Participants were surveyed at baseline to ascertain the frequency of their pesticide use, personal protective equipment (PPE) practices, and other information that may affect their exposure to pesticides; re-assessment occurred 2–14 years later, depending on the cohort. To assess recall, we examined the percentage of overall agreement, sensitivity, specificity, and any trends by demographic characteristics using regression analysis.
Results Across the four cohorts, 899 participants provided responses at two time-points. Preliminary analysis identified