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 Using nerve conduction studies (NCS), we examined impaired and then recover within weeks. To evaluate the development of median nerve affection before, during, and after engaging in occupational mechanical exposures and obtained questionnaire information on symptoms, disability, and lifestyle factors. We hypothesised that at end-season, median 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

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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/m³ (curing) and 36.3 mg/ m³ (crude materials and mixing). Rubber fumes exposures range between 0.3 mg/m³ (finishing, assembly, and miscellaneous) and 5.4 mg/m³ (crude materials and mixing). LCE trends mirrored AAE results.