registered in the Danish Hip or the Danish Knee Arthroplasty Registers (DHA/DKA) with a diagnosis of primary OA were sent a detailed questionnaire regarding previous occupation, related exposures and complementary environmental factors. The analyses included cumulated exposures, McNemar’s χ² tests, and conditional logistic regression including gene-exposure-interaction variables.

Results 1181 twins responded (rate 58.9%). Responder analyses did not display any significant difference between responders with respect to diagnosis, zygosity and sex. We found a gene-exposure effect modification in hip OA-lifting and lifting-walking with OR’s 17.7 (1.1–280.2) and 10.4 (1.00–107.1), respectively, and a clear dose-response relationship between hip OA and prolonged standing-walking. Significant occupational risk factor in knee OA was kneeling, but no gene-kneeling interaction was detectable.

Conclusion Gene-exposure effect modification may be important in the development of hip OA in particular exposures to lifting and lifting-walking, but not in knee OA.

A COMPARATIVE STUDY OF MUSCULOSKELETAL SYMPTOMS AND WORK-OR STUDY-RELATED IMPACT FOR PROFESSIONAL AND PRE-PROFESSIONAL MUSICIANS

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Introduction Musculoskeletal symptoms are common in musicians, but little is known of the work- or study-related impacts, nor how they compare with other groups. The aim of this study was to compare professional musicians and pre-professional musicians (university music students), with a reference group, regarding the prevalence of musculoskeletal symptoms and their impact.

Methods A questionnaire survey was distributed to university music students and professional musicians, as well as non-music university staff and students (the reference group). Ache, pain and discomfort in the previous 12 months were determined using a modified Nordic Musculoskeletal Questionnaire, as well as the work- and study-related impact of these symptoms. Descriptive statistics were reported, and comparisons were made adjusted for age and gender. A 5% level of significance was used. Results Symptom prevalence was high in both groups (86% for musicians and 91% for the reference group), principally in the neck, shoulder and lower back regions. After adjusting for age and gender, symptoms in the wrist/hand region were more common for musicians (OR 1.55, 95% CI: 1.12 to 2.15), and less common in the lower back (OR 0.69, 95% CI: 0.50 to 0.95), hip/thigh (OR 0.45, 95% CI: 0.31 to 0.68), knee (OR 0.45, 95% CI: 0.31 to 0.66), and ankle/foot (OR 0.40, 95% CI: 0.27 to 0.58) when compared with the reference group.

Musicians were more likely to make changes to their work or study (OR 2.08, 95% CI: 1.27 to 3.39), or take leave from work or study (OR 1.71, 95% CI: 1.12 to 2.60) because of their musculoskeletal symptoms, when compared with the reference group.

Discussion Musculoskeletal symptoms were common in both groups, with musicians more likely to experience wrist/hand symptoms. Musicians were more likely to experience an impact from musculoskeletal symptoms on their work or study. Implications will be discussed.
**Introduction** Musculoskeletal disorders (MSD) represent a significant occupational problem in intensive care unit (ICU) workers. This study aimed to determine ergonomic risk factors and the musculoskeletal symptoms in ICU workers in university hospital.

**Methods** Ergo team was created by the occupational health department in the hospital. The socio demographic data were obtained by a questionnaire. The clinical assessments were performed by a physician. Cornell Musculoskeletal Discomfort Questionnaire was used for musculoskeletal symptoms assessment. Walk-through survey performed to determine main jobs and tasks in ICUs. The Rapid Entire Body Assessment (REBA) scale was used to assess the ergonomics risks for the nurses.

**Results** There were 30 patients bed in both intensive care units. Twelve doctors (10.7%), sixty four nurses (62.7%) and twenty seven staff members (26.2%) worked in two ICUs included in the study. Each nurse was responsible for two patients while the doctors and staff members were responsible for entire units. 102 workers of those 56 from internal medicine ICU (IMICU) (56%) and 46 from anaesthesia ICU (AIICU) (46%) workers were participated to the study. 60.7% of the study group was female and the mean age was 32.2±6.4 in IMICU and 33.1±5.7 in AIICU (p=0.3). According to the Cornell scale, 52 (50.9%) had neck pain, 58 (56.8%) had back pain and 25 (24.5%) had wrist pain. Two ergonomically high risk tasks (patient positioning and working with monitor) were identified. The nurses’ mean REBA score was 9.7±1.6 in anaesthesia ICU and 8.7±2.0 in internal medicine ICU (p=0.8) for patient position tasks. The mean REBA scores for anaesthesia ICU were 6.1±1.6 and 4.8±1.4 (p=0.07) respectively.

**Conclusion** More than half of ICU workers had neck, back and wrist pain. ICU nurses had higher ergonomics risks. In these units, ‘ergonomic risk prevention programmes’ should be implemented by occupational health teams.

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**REDUCTION OF MUSCULOSKELETAL PAIN AMONG PROFESSIONAL MUSICIANS BY INTRODUCING RESISTANCE BAND TRAINING AT WORK**

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**Introduction** Several studies have shown that professional symphony orchestra musicians have a higher prevalence of musculoskeletal complaints (MSC), compared to other work groups. MSC have a great impact on the musicians’ workability and life quality, emphasizing the importance of finding preventive measures.

**Methods** A cross-sectional study, based on questionnaires before and after an intervention of resistance band training, among 350 musicians and administrative workers from 5 symphony orchestras in Denmark. The participant rated their degree of pain on a VAS scale from 0 to 10 and overall reduction of MSC. The changes from baseline to follow-up for each separate body region were evaluated using a linear mixed model.

**Result** MSC was most common in shoulders, neck, and lower back. Female musicians had a significantly higher prevalence of MSC than men. Low string group had the lowest prevalence of MSC, while high string, brass-winds and woodwind groups had a relative high prevalence of MSC. Resistance band training showed a positive significant effect with a mean reduction of VAS-scores in shoulders at −0.88 and neck at −0.52, 45% of the participants experienced an overall reduction in musculoskeletal pain.

**Discussion** In compliance with the purpose, MSC before and after the intervention were assessed, showing a positive effect with regards to MSC in shoulders and neck. Future research should explore how realistic implementing resistance band training is as a steady regime among professional symphony orchestra musicians, likewise assuring a long lasting positive effect.