



This Workplace Research Monthly includes the latest peer-reviewed articles, reports and evidence on a range of workplace health and safety, prevention, recovery at work and return to work topics that were published in March 2023 only.

## Contents

Description of Evidence Levels Definitions Used in this Review.....	2
Enabling Healthy and Safe Workplaces.....	3
Health and Wellbeing.....	3
Work Health and Safety .....	5
Risk Assessment.....	10
Chronic Health Issues.....	12
Occupational Exposure.....	13
Sedentary Practices .....	15
Physical Activity .....	16
Musculoskeletal Health.....	18
Guiding and Supporting Mental Health and Wellbeing.....	20
Mental Health.....	20
Bullying, Harassment and Workplace Violence.....	22
Psychosocial Issues .....	24
Fostering Work Participation.....	28
Return to Work .....	28
Presenteeism and Absenteeism .....	32
Workers compensation.....	32
Wellness Programs .....	33
Job Design.....	34
Shift Work .....	36
Work Ability.....	37
Adapting to the Future of Work.....	38
Aging Workforce.....	38
Work Environment.....	40

## Description of Evidence Levels Definitions Used in this Review

1. **Level of Evidence** – Certain study designs are scientifically stronger at answering a question. The scoring hierarchy we provided is presented below.

Level of Evidence	Description
Level 1	Evidence from a systematic review or meta-analysis of relevant studies.
Level 2	Evidence from a randomised controlled trial
Level 3	Evidence from a controlled intervention trial without randomisation (i.e. quasi-experimental).
Level 4	Evidence from a case-control or cohort study.
Level 5	Evidence from a single case study, a case series, or qualitative study.
Level 6	Evidence from opinion pieces, reports of expert committees and/or from literature reviews (scoping or narrative).

2. **Relevance** – Research carried out in Australia or similar countries is most relevant to Australian readers.

Level	Description
A	Study conducted in Australia or the study has been conducted outside Australia but confounders unlikely to affect relevance
B	Study conducted outside Australia and confounders likely to affect generalisability

## Know anyone who would like to subscribe?

Share this with colleagues and professional networks who are interested in receiving the latest WHS research from around the world delivered to their inbox monthly.

[Subscribe now >](#)

## Enabling Healthy and Safe Workplaces

### Health and Wellbeing

*This month we explore the effect of sleep on the association between work stress and incident dementia, the risk factors for computer vision syndrome and the use of health check-ups as interventions for work disability management. In Covid-19 related research we explore the risk factors for reinfection with SARS-CoV-2 Omicron variant and the association between fear of Covid-19 and chronic pain.*

#### **Sleep mediates the association between stress at work and incident dementia: Study from the survey of health, ageing and retirement in Europe**

**Background:** Both psychosocial stress at work and sleep disturbance may predispose impaired cognitive function and dementia in later life. However, whether sleep plays a mediating role for the link between stress at work and subsequent dementia has yet to be investigated. **Methods:** Data from the Survey of Health, Ageing and Retirement in Europe were used for the study. A cohort of 7 799 dementia-free individuals (aged  $71.1 \pm 0.2$  years) were followed up for a median of 4.1 years for incident dementia. Job demand and control were estimated using questions derived from the Karasek's Job Content Questionnaire. Sleep disturbance was ascertained by a question in the EURO-Depression scale. Cox proportional hazard models adjusted for age, sex, education, cognitive test score, and other potential covariates were used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) of dementia in relation to different job strain levels. **Results:** An interaction between job demand and sleep disturbance regarding the risk of dementia was detected. Data suggested a protective role of high-level job demand for dementia in individuals with sleep disturbance (HR [95% CI]: 0.69 [0.47, 1.00]) compared with low job demand. A 4-category job strain model based on the combination of job demand and job control levels suggested that among individuals with sleep disturbance, passive job (low demand, low control) was associated with a higher risk of dementia (1.54 [1.01, 2.34]), compared to active job (high demand, high control). **Conclusion:** The link between work-related stress and risk of dementia is limited to individuals suffering sleep disturbance.

**Tan et al. 2023.**

**The Journal of Gerontology, vol. 78, no. 3.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Dementia; psychosocial stress; sleep.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/biomedgerontology/article/78/3/447/6580564?login=true>

#### **Prevalence and risk factors of computer vision syndrome-assessed in office workers by a validated questionnaire**

**Background:** Computer vision syndrome (CVS) is a common occupational health problem, but its clinical definition, prevalence and risk factors are not well defined. In general, non-validated diagnostic instruments have been used to assess its prevalence. For this reason, the aim of this study is to estimate the prevalence and potential risk factors for CVS using a validated questionnaire. **Methods:** A cross-sectional study ( $n = 238$ ) was carried out in Italian office workers using digital devices. All participants responded to an anamnesis, a digital exposure questionnaire, and the validated Italian version of the Computer Vision Syndrome Questionnaire. A battery of 3 ocular surface and tear ophthalmic tests (break-up time, BUT), Schirmer II and corneal staining) was performed. **Results:** The mean age ( $\pm$ SD) was 45.55 (11.02) years, 64.3% were female. 71.4% wore glasses to work, whose design was monofocal (for distance) in 47.6%, monofocal (for near) in 26.5%, general progressive in 16.5% and occupational progressive in 8.8% of cases. 35.7% used digital devices >6 hours/day in the workplace. The prevalence of CVS was 67.2%. In the multivariate model, female sex (aOR: 3.17; 95% CI [1.75-5.73]), the use of digital devices >6 hours/day at workplace (aOR: 2.07; 95% CI [1.09-3.95]) and the use of optical correction at work (aOR: 2.69; 95% CI [1.43-5.08]) significantly increased the odds of CVS. Association was observed between presenting CVS and

having abnormal BUT ( $\chi^2 = 0.017$ ). **Conclusions:** The prevalence of CVS in Italian office workers, especially among females, was high. Intensive use of digital devices at work (>6 hours/day) and the use of optical correction at work significantly increased the odds of CVS. There is an association between poor tear stability and CVS. Further research is needed on the influence of wearing optical correction on CVS. The use of a validated questionnaire in health surveillance of digital workers is strongly recommended.

**Cantó-Sancho et al. 2023.**

**PeerJ, vol. 11.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Computer vision syndrome; digital devices; office workers; ophthalmic test; prevalence; validated questionnaire.

**Evidence Level:** 4B

**Link:** <https://peerj.com/articles/14937/>

### **Risk factors for reinfection with SARS-CoV-2 Omicron variant among previously infected frontline workers**

**Background and Methods:** In a cohort of essential workers in the United States previously infected with SARS-CoV-2, risk factors for reinfection included being unvaccinated, infrequent mask use, time since first infection, and being non-Hispanic Black. **Conclusion:** Protecting workers from reinfection requires a multipronged approach including up-to-date vaccination, mask use as recommended, and reduction in underlying health disparities.

**Ellingson et al. 2023.**

**Emerging Infectious Diseases, vol. 29, no. 3.**

**Keywords:** COVID-19; SARS-CoV-2; United States; coronaviruses; frontline workers; mRNA vaccines; omicron variant; reinfection; respiratory infection; risk factors; vaccine effectiveness; viruses; zoonoses.

**Evidence Level:** 6B

**Link:** [https://wwwnc.cdc.gov/eid/article/29/3/22-1314\\_article](https://wwwnc.cdc.gov/eid/article/29/3/22-1314_article)

### **Health check-ups as interventions for work disability management: supervisors and occupational healthcare follow the recommendations to a great extent**

**Background:** Work disability management is a problem globally. This study was designed to find out whether the initiation, process and outcome of health check-ups (HCUs) follow the national legislation and whether supervisors and occupational healthcare (OHC) units act according to the legislation-based recommendations. **Methods:** Data of 1092 employees with reduced work ability were collected during 2013-2018 in 15 OHC units across Finland. Nine reasons for HCUs, eight process activities and three recommendations were analysed. Cross-tabulation and multinomial logistic regression analysis were used in the analyses. **Results:** Employees themselves initiated an HCU for early support more often (OR with 95% CI 2.37; 1.04 to 5.40) compared with supervisors. Personnel in OHC units initiated an HCU in musculoskeletal disorders more often (OR 1.58; 95% CI 1.05 to 2.37) and in mental disorders less often (OR 0.52; 95% CI 0.35 to 0.76) compared with supervisors. These findings were reflected in the recommendations after the HCU, where rehabilitation was recommended for employees with musculoskeletal disorders more often than for employees with mental disorders (ORs 5.48; 95% CI 1.91 to 15.67 and 1.59; 95% CI 0.74 to 3.43, respectively). **Conclusion:** Supervisors and OHC units followed the recommendations for management of work disability to a great extent. Employees were active in looking for help early when they had problems with work ability. This positive finding should be promoted even more. OHC units did not initiate HCUs or recommend rehabilitation in mental disorders as actively as they did in musculoskeletal disorders. Support of employees with mental disorders should be improved and studied more. **Registration of the study** The study protocol was approved and registered on 22 September 2017 by the Doctoral Program of Health Sciences, Faculty of Medicine, University of Eastern Finland, registration no. 189067.

**Kuronen et al. 2023.**

**Occupational and Environment Medicine, vol. 80, no. 3.**

**User License:** *Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)* (<https://creativecommons.org/licenses/by-nc/4.0/>)

**Keywords:** Disabled persons; health services research; occupational health services; rehabilitation; retirement.

**Evidence Level:** 4B

**Link:** <https://oem.bmj.com/content/80/3/170.long>

### **Fear of COVID-19 among Japanese workers and exacerbation of chronic pain: A nationwide cross-sectional study**

**Background:** To evaluate the association between fear of the coronavirus disease 2019 (COVID-19) and exacerbated chronic pain among workers during the pandemic, as well as productivity loss. **Methods:** We collected data using Internet-based self-reported questionnaires, on fear of COVID-19, work productivity status, exacerbation of chronic pain during the pandemic, and several confounding factors. **Results:** The multivariate logistic regression analysis showed that a high level of fear of COVID-19 was associated with an increased exacerbation of chronic pain (adjusted odds ratio, 2.31; 95% confidence interval, 1.21-4.44). Meanwhile, the presence of fear of COVID-19 and exacerbated chronic pain were associated with productivity impairment (adjusted odds ratio, 2.03; 95% confidence interval, 1.44-2.85).

**Conclusions:** Our study shows that workers' fear of COVID-19 is correlated with exacerbated chronic pain and risk of presenteeism.

**Yoshida et al. 2023.**

**Journal of Occupational and Environmental Medicine, vol. 65, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** COVID-19; chronic pain; fear; productivity loss.

**Evidence Level:** 4B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/03000/Fear\\_of\\_COVID\\_19\\_Among\\_Japanese\\_Workers\\_and\\_18.aspx](https://journals.lww.com/joem/Fulltext/2023/03000/Fear_of_COVID_19_Among_Japanese_Workers_and_18.aspx)

## **Work Health and Safety**

*This month we explore the health and safety issues associated with lung function in firefighters, occupational risk factors for small cell lung cancer, the relationship between work injury risk and precipitation, the incidence and outcome of occupational motorcycle accidents and perceptions of the management of hand arm vibration. We also explore the benefits of a passive back-support exoskeleton for manual handling, ergonomic measures to reduce the risk of work-related lower back pain, lumbosacral radicular syndrome and knee osteoarthritis among floor layers and occupational biomechanical risk factors for subacromial impingement syndrome.*

### **Evaluation of the physiological benefits of a passive back-support exoskeleton during lifting and working in forward leaning postures**

**Background:** Musculoskeletal disorders affecting the back are highly prevalent in fields of occupation involving repetitive lifting and working in forward leaning postures. Back-support exoskeletons are developed to relieve workers in physically demanding occupations. **Methods:** This study investigates the physiological effects of a lightweight exoskeleton which provides support through textile springs worn on the back. We hypothesized that wearing such a passive back-support exoskeleton reduces muscle activity of the back and hip muscles, while not influencing abdominal muscle activity and movement kinematics during typical occupational tasks. We collected electromyography data from the main back and hip muscles as well as whole body kinematics data via optical motion tracking during a set of relevant weight lifting tasks corresponding to typical work conditions. **Results:** In our sample of 30 healthy volunteers, wearing the exoskeleton significantly reduced muscle activity, with reductions up to 25.59% during forward leaning and 20.52% during lifting in the main back and hip muscles (Erector Spinae at thoracic and lumbar level and Quadratus Lumborum). Simultaneously, no changes in knee and hip range of motion were observed. The stretch of the textile springs correlated with the body mass index and chest circumference of the wearer, and depended on posture, but not on the lifted load. **Conclusions:** The LiftSuit exoskeleton relieved back

and hip muscles during typically straining occupational tasks, while biomechanical parameters were preserved. This suggests that passive lift-support exoskeletons can be safely used to relieve workers during lifting and forward leaning tasks.

**van Sluijs et al. 2023.**

**Journal of Biomechanics, vol. 149.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Back support; lift support; motion capture; muscle activity; passive exoskeleton; surface electromyography; textile springs.

**Evidence Level:** 5B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0021929023000581?via%3Dihub>

### **Longitudinal lung function in urban firefighters: A group-based multi-trajectory modelling approach**

**Background and objective:** Urban firefighters are routinely exposed to both physical and chemical hazards that can negatively impact lung health, but it is unclear if firefighters experience accelerated decline in spirometry parameters due to chronic exposure and acute insults. This study aimed to describe sub-groups of firefighters with differing spirometry trajectories and examine the relationship between the identified trajectories and demographic, lifestyle and occupational characteristics. **Methods:** Data from six waves of the Respiratory Function Measurement and Surveillance for South Australian Metropolitan Fire Service Study (2007-2019) were used to identify spirometry parameter z-score trajectories, using group-based multi-trajectory modelling (GBMTM). Analysis of variance and chi-square statistics were used to assess trajectory group differences in baseline self-reported demographic, lifestyle and occupational characteristics. **Results:** In the 669 included firefighters, we identified five trajectories for the combination of Forced Expiratory Volume in the first second z-score ( $FEV_1 z$ ), Forced Vital Capacity z-score (FVCz) and the ratio of  $FEV_1$  and FVC z-score ( $FEV_1 / FVCz$ ). There were three stable trajectories of low, average and very high lung function and two declining trajectories of average and high lung function. Analysis of subgroup characteristics revealed no significant differences between expected and actual group proportions for the occupational characteristics of years of service and respiratory protection use. Significant differences were seen in respiratory health and body mass index. **Conclusion:** GBMTM defined distinct, plausible spirometry trajectory sub-groups. Firefighter longitudinal spirometry trajectory group membership was associated with BMI and respiratory disease or symptoms but not with self-reported smoking history or occupational factors.

**Pendergrast et al. 2023.**

**Respirology, vol. 28, no. 3.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Firefighter; group-based multi-trajectory modelling; longitudinal studies; occupational exposure; spirometry.

**Evidence Level:** 4A

**Link:** <https://onlinelibrary.wiley.com/doi/10.1111/resp.14382>

### **The risk of injuries during work and its association with precipitation: New insight from a sentinel-based surveillance and a case-crossover design**

**Background:** Injuries during work are often exogenous and can be easily influenced by environmental factors, especially weather conditions. Precipitation, a crucial weather factor, has been linked to unintentional injuries, yet evidence of its effect on work-related injuries is limited. Therefore, we aimed to clarify the impact of precipitation on injuries during work as well as its variation across numerous vulnerability features. **Methods:** Records on the work-related injury during 2016-2020 were obtained from four sentinel hospitals in Guangzhou, China, and were matched with the daily weather data during the same period. We applied a time-stratified case-crossover design followed by a conditional logistic regression to evaluate the association between precipitation and work-related injuries. Covariates included wind speed, sunlight, temperature, SO<sub>2</sub>, NO<sub>2</sub>, and PM<sub>2.5</sub>. Results were also stratified by multiple factors to identify the most vulnerable subgroups. **Results:** Daily precipitation was a positive predictor of work-related injuries, with each 10 mm increase in precipitation being associated with an increase of 1.57% in

the rate of injuries on the same day and 1.47-1.14% increase of injuries on subsequent 3 days. The results revealed that precipitation had a higher effect on work-related injuries in winter (4.92%; 95%CI: 1.77-8.17%). The elderly (2.07%; 95%CI: 0.64-3.51%), male (1.81%; 95%CI: 0.96-2.66%) workers or those with lower educational levels (2.58%; 95%CI: 1.59-3.54%) were more likely to suffer from injuries on rainy days. There was a higher risk for work-related injuries caused by falls (2.63%; 95%CI: 0.78-4.52%) or the use of glass products (1.75%; 95%CI: 0.49-3.02%) on rainy days. **Conclusions:** Precipitation was a prominent risk factor for work-related injury, and its adverse effect might endure for 3 days. Certain sub-groups of workers were more vulnerable to injuries in the rain.

**Tian et al. 2023.**

**Frontiers in Public Health, vol. 11.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Case-crossover; precipitation; sentinel-surveillance; susceptibility; work-related injury.

**Evidence Level:** 5B

**Link:** <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1117948/full>

### **Comparison of incidence and outcome between occupational and non-occupational motorcycle injuries in Korea: A 7-years observational study**

**Background:** Motorcycles are widely used in various workplaces. Motorcycle use for occupational purposes continues to increase owing to growing e-commerce. Here, we aimed to highlight the importance of occupational motorcycle injuries by analyzing their epidemiologic characteristics and outcomes. **Methods:** We analyzed retrospective data from the Emergency Department-based Injury In-depth Surveillance program from 2012 to 2018. Motor vehicle injuries involving riders aged  $\geq 16$  years were included. Patients were divided into occupational motorcycle and non-occupational motorcycle injury groups based on whether or not the injury occurred during work time. General characteristics, injury details, and clinical outcomes such as injury severity and in-hospital mortality were analyzed. **Results:** Of the 37,194 study patients, 24.2% (8,991) experienced occupational motorcycle injuries. The number of injuries in both groups increased yearly, as did the proportion of occupational injuries among total injuries. In both the groups, patients aged 20-29 years had the highest proportion of injuries. Regarding collision pattern and injury counterpart, side-to-side collisions and injuries involving small four-wheel vehicles were the most frequent. Alcohol intake was significantly lower, while helmet usage was higher in the occupational motorcycle injury group. Moreover, patients with occupational motorcycle injuries had lower injury severity, admission rate, and in-hospital mortality. On multivariable logistic regression analysis, increasing age, time of the injury, alcohol intake, not using a helmet, and collision with a human or animal were associated with higher odds of severe injury. **Conclusions:** Patients with occupational injuries had higher helmet usage, lower injury severity, lower mortality, and lower admission rate than did patients with non-occupational injuries. Injury severity was associated with the time of injury, collision with other living objects, alcohol consumption, and helmet usage.

**Moon et al. 2023.**

**PLoS One, vol. 18, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Occupation; motorcycle; motorcycle injuries; Korea.

**Evidence Level:** 4B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0283512>

### **Surgery for subacromial impingement syndrome and occupational biomechanical risk factors in a 16-year prospective study among male construction workers**

**Background:** The aim of this study was to assess the association between occupational biomechanical exposures and the occurrence of surgical treatment for subacromial impingement syndrome (SIS).

**Methods:** A cohort of 220 295 male constructions workers who participated in a national occupational health surveillance program (1971-1993) were examined prospectively over a 16-year follow-up period (2001-2016) for surgically treated SIS. Worker job title, smoking status, height, weight, and age were registered on health examination. Job titles were mapped to 21 occupational groups based on tasks and training. A job exposure matrix (JEM) was developed with exposure estimates for each occupational group.

Surgical cases were determined through linkage with the Swedish national in- and outpatient registers. Poisson regression was used to assess the relative risks (RR) for each biomechanical exposure. **Results:** The total incidence rate of surgically treated SIS over the 16-year observation period was 201.1 cases per 100 000 person-years. Increased risk was evident for workers exposed to upper-extremity loading (push/pull/lift) (RR 1.45-2.30), high hand grip force (RR 1.47-2.23), using handheld tools (RR 1.52-2.09), frequent work with hands above shoulders (RR 1.62-2.11), static work (RR 1.77-2.26), and hand-arm vibration (RR 1.78-2.13). There was an increased risk for SIS surgery for all occupational groups (construction trades) compared with white-collar workers (RR 1.56-2.61). **Conclusions:** Occupational upper-extremity load and posture exposures were associated with increased risk for surgical treatment of SIS, which underlines the need for reducing workplace exposures and early symptom detection in highly exposed occupational groups.

**Lewis et al. 2023.**

**Scandinavian Journal of Work, Environment and Health, vol. 49, no. 2.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Subacromial impingement syndrome; occupational biomechanical risk factors; construction.

**Evidence Level:** 4A

**Link:** <https://www.sjweh.fi/article/4075>

### **Occupation as a risk factor of small cell lung cancer**

**Background:** Small cell lung cancer (SCLC) comprises approximately 10% of all lung cancer cases. Tobacco is its main risk factor; however, occupation might play a role in this specific lung cancer subtype. The effect of occupation on SCLC risk has been hardly studied and therefore we aim to assess the role of occupation on the risk of SCLC. **Methods:** To do this, we designed a multicentric, hospital-based, case-control study. Cases consisted exclusively in SCLC patients and controls were recruited from patients having minor surgery at the participating hospitals. Face to face interviews emphasizing occupation and tobacco consumption were held and residential radon was also measured. Logistic regression models were adjusted with odds ratios with 95%CI as estimations of the effect. **Results:** 423 cases and 905 controls were included. Smoking prevalence was higher in cases compared to controls. Those who worked in known-risk occupations for lung cancer showed an OR of 2.17 (95%CI 1.33; 3.52), with a similar risk when men were analysed separately. The results were adjusted by age, sex, smoking and indoor radon exposure. Those who worked in known-risk occupations and were moderate or heavy smokers had a SCLC risk of 12.19 (95%CI 5.68-26.38) compared with never or moderate smokers who had not worked in such occupations. **Conclusions:** Occupation is a relevant risk factor of SCLC, and it seems that its effect is boosted when tobacco smoking is present.

**García et al. 2023.**

**Scientific Reports, vol. 13, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Occupation; small cell lung cancer; lung cancer.

**Evidence Level:** 4A

**Link:** <https://www.nature.com/articles/s41598-023-31991-0>

### **A health-impact assessment of an ergonomic measure to reduce the risk of work-related lower back pain, lumbosacral radicular syndrome and knee osteoarthritis among floor layers in the Netherlands**

**Background:** Sand-cement-bound screed floor layers are at risk of work-related lower back pain, lumbosacral radicular syndrome and knee osteoarthritis, given their working technique of levelling screed with their trunk bent while mainly supported by their hands and knees. To reduce the physical demands of bending of the trunk and kneeling, a manually movable screed-levelling machine was developed for floor layers in the Netherlands. **Methods:** The aim of this paper is to estimate the potential health gains of working with a manually movable screed-levelling machine on the risk of lower back pain (LBP), lumbosacral radicular syndrome (LRS) and knee osteoarthritis (KOA) compared to traditional working techniques. This potential health gain was assessed using the epidemiological population estimates of the Population Attributable Fraction (PAF) and the Potential Impact Fraction (PIF), combined with work-related risk estimates for these three disorders from systematic reviews. **Results:** The percentage of workers



exceeding these risk estimates was based on worksite observations among 28 floor layers. For LBP, 16/18 workers were at risk when using traditional working techniques, with a PAF = 38%, and for those using a manually movable screed-levelling machine, this was 6/10 with a PIF = 13%. For LRS, these data were 16/18 with a PAF = 55% and 14/18 with a PIF = 18%, and for KOA, 8/10 with a PAF = 35% and 2/10 with a PIF = 26%. **Conclusions:** A manually movable screed-levelling machine might have a significant impact on the prevention of LBP, LRS and KOA among floor layers in the Netherlands, and health-impact assessments are a feasible approach for assessing health gains in an efficient way.

**Kuijjer et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 5.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Construction industry; exposure; knee; lower back pain; musculoskeletal diseases; osteoarthritis; prevalence; prevention; risk factors; workplace.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/5/4672>

### **Safety incidents and obstructive sleep apnoea in railway workers**

**Background:** Current evidence is lacking to justify more stringent screening for obstructive sleep apnoea (OSA) in the rail industry. Population-based studies indicate a complex association between body mass index, age, apnoea-hypopnoea index and vehicle crash risk. **Aims:** To study the association between OSA severity and the occurrence of safety incidents in safety-critical rail workers with a confirmed diagnosis of OSA, and to identify if OSA treatment is associated with the occurrence of fewer safety incidents.

**Methods:** A retrospective medical file audit was conducted on railway workers attending health assessments between 2016 and 2018, who met the criteria to be referred for sleep studies. The association between OSA severity, treatment and the number of incidents in the 3 years before their health assessment appointment was explored using a Poisson log-linear regression. **Results:** A substantial proportion (44%, 274/630) of railway workers with confirmed OSA had at least one incident in the 3 years prior to appointment. The odds of an incident were significantly reduced in those with moderate OSA compared with severe OSA (odds ratio [OR] 0.79, 95% confidence interval [CI] 0.64-0.98), but not those with mild OSA (OR 0.97, 95% CI 0.76-1.24). There was a statistically significant relationship between combined OSA severity and treatment status, where the likelihood of an incident increased in those with severe untreated OSA compared with those receiving treatment (OR 1.75, 95% CI 1.16-2.64).

**Conclusions:** Our results suggest that more stringent screening to identify severe OSA early, and close surveillance of treatment of those with severe OSA, should be considered.

**Abeyaratne et al. 2023.**

**Occupational Medicine, vol. 73, no. 2.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Sleep apnoea; safety; rail industry.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/occmed/article/73/2/97/7055869?login=true>

### **Profiles of women who have suffered occupational accidents in cleaning: perceived health, psychosocial risks, and personality variables**

**Background:** The main goal was to identify the variables (sociodemographic, work, psychosocial, perceived health, and personality) associated with occupational accidents suffered in the past by women in the cleaning sector. **Methods:** A sample of 455 women was evaluated. **Results:** A total of 23.5% of the workers (n = 107) had suffered an occupational accident with medical leave. In general, women who had suffered some accident in their life had a worse situation in all areas evaluated. Two subsamples of women had a greater association with accidents. Specifically, the presence of work accidents was 15.9 times higher among those who presented a worse perception of their physical effort and a greater tendency towards risky behaviours and 13.5 times higher among those who had a moderate perception of physical exertion and a disability. **Conclusion:** In general, the characteristics of female workers were found to be associated with different accident rates. Preventive actions should be designed individually.

**Fernández-Suárez et al. 2023.**

**International Archives of Occupational and Environmental Health** , vol. 96, no. 2.

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Accident rate; health perception; psychosocial risk; risk behaviour; working women.

**Evidence Level:** 5B

**Link:** <https://link.springer.com/article/10.1007/s00420-022-01927-8>

### **Hand-arm vibration: Swedish carpenters' perceptions of health and safety management**

**Background:** Workers in the construction industry are highly exposed to vibration from handheld equipment, which can have negative effects on the nerves and blood vessels in the hands. Employers in this industry often fail to comply with legislation regarding vibration exposure. **Aims:** To assess carpenters' perceptions of proactive health and safety (H&S) management regarding hand-arm vibration exposure at construction sites in Sweden. **Methods:** The carpenters answered a questionnaire on their perception of the implementation of H&S management, on symptoms indicating injury and on the use of vibrating equipment. **Results:** One hundred and ninety-four carpenters from 4 construction companies and 18 construction sites completed the questionnaire. Attitudes to H&S management were generally positive. However, 36% of the carpenters reported that the H&S regulations and routines did not function in practice, and 40% claimed they did not receive necessary information on the exposure and effects of vibration. Most respondents (74%) perceived a high risk of injury in general in their work. Younger carpenters, carpenters employed at smaller companies and carpenters with symptoms indicating injury or with higher vibration exposure reported more negative perceptions. **Conclusions:** In general, the carpenters were positive about management's commitment to H&S management. However, the results indicate deficiencies in the way in which this commitment is applied in practice at the workplace. This highlights the importance of raising awareness concerning vibration exposure and possible injuries, and strengthening proactive H&S programmes, especially in smaller companies.

**Fisk et al. 2023.**

**Occupational Medicine**, vol. 73, no. 2.

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Vibration; hand-arm; health; safety management; construction.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/occmed/article/73/2/85/7028666?login=true>

## **Risk Assessment**

*This month we explore the use of incident reports to improve safety performance of construction workers, the effect of a digital self-management program for hip and knee osteoarthritis on work and activity impairments and OHS risks among environmental health officers in Australia and New Zealand.*

### **Improving safety performance of construction workers through learning from incidents**

**Background:** Learning from incidents (LFI) is a process to seek, analyse, and disseminate the severity and causes of incidents, and take corrective measures to prevent the recurrence of similar events. However, the effects of LFI on the learner's safety performance remain unexplored. This study aimed to identify the effects of the major LFI factors on the safety performance of workers. **Methods:** A questionnaire survey was administered among 210 construction workers in China. A factor analysis was conducted to reveal the underlying LFI factors. A stepwise multiple linear regression was performed to analyse the relationship between the underlying LFI factors and safety performance. A Bayesian Network (BN) was further modelled to identify the probabilistic relational network between the underlying LFI factors and safety performance. **Results:** The results of BN modelling showed that all the underlying factors were important to improve the safety performance of construction workers. Additionally, sensitivity analysis revealed that the two underlying factors-information sharing and utilization and management commitment-had the largest

effects on improving workers' safety performance. The proposed BN also helped find out the most efficient strategy to improve workers' safety performance. **Conclusions:** This research may serve as a useful guide for better implementation of LFI practices in the construction sector.

**Chan et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 5.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Bayesian network; construction industry; learning from incidents; safety learning; safety performance.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/5/4570>

### **Digital self-management of hip and knee osteoarthritis and trajectories of work and activity impairments**

**Background:** To investigate the trajectories of work and activity impairments among people participating in a digital self-management program for osteoarthritis (OA). **Methods:** We conducted an observational longitudinal study using data for baseline, 3, 6, 9 and 12 months follow ups from people participating in a digital OA treatment between June 2018 and September 2021. The Work Productivity and Activity Impairment-Osteoarthritis (WPAI-OA) questionnaire was used to measure work and activity impairments. We applied linear mixed models and group-based trajectory modelling (GBTM) to assess the trajectories of work and activity impairments and their variability. Dominance analysis was performed to explore the relative importance of baseline characteristics in predicting the trajectory subgroup membership.

**Results:** A total of 14,676 participants with mean ( $\pm$  standard deviation) age 64.0 ( $\pm$  9.1) years and 75.5% females were included. The adjusted mean improvements in work impairment from baseline were 5.8% (95% CI 5.3, 6.4) to 6.1% (95% CI 5.5, 6.8). The corresponding figures for activity impairment were 9.4% (95% CI 9.0, 9.7) to 11.3% (95% CI 10.8, 11.8). GBTM identified five (low baseline-declining, moderate baseline-declining, high baseline-declining, very high baseline-substantially declining, and very high baseline-persistent) and three (low baseline-declining, mild baseline-declining, high baseline-declining) subgroups with distinct trajectories of activity and work impairments. Dominance analysis showed that baseline pain was the most important predictor of membership in trajectory subgroups. **Conclusion:** While participation in a digital self-management program for OA was, on average, associated with improvements in work and activity impairments, there were substantial variations among the participants. Baseline pain may provide useful insights to predict trajectories of work and activity impairments.

**Kiadaliri et al. 2023.**

**BMC Musculoskeletal Disorders, vol. 24, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Activity impairment; digital therapy; longitudinal trajectory; osteoarthritis; self-management; sweden; work impairment.

**Evidence Level:** 4B

**Link:** <https://bmcmusculoskeletaldisord.biomedcentral.com/articles/10.1186/s12891-023-06322-z>

### **Identifying occupational health and safety risks among environmental health officers in Australia and New Zealand through an online survey**

**Background:** To identify the occupational health and safety (OHS) risks among environmental health officers (EHOs) in Australia and New Zealand. The objectives were to profile and compare OHS experiences from different countries and regions to gain a regional perspective on OHS hazards that impact EHOs.

**Methods:** An online hazard exposure survey was conducted among 339 EHOs (Australia: n = 301, 88.8%; New Zealand: n = 38, 11.2%). The Mann-Whitney U test was used to compare 2 ordinal data groups, the Kruskal-Wallis H test was used for more than 2 ordinal groups, and the independent samples t test was used to compare the means of 2 independent groups where the dependent variables were normally distributed. Multiple regression techniques were used to analyze workplace incidents and age groups.

**Results:** A high degree of similarity in the types of workplace exposures and risk perceptions as well as concerns with organizational OHS management commitment were observed among EHOs from the 2 countries. Workplace violence and physical and psychosocial demands were the most commonly reported OHS hazards. Employer type, sex, and age group were significantly related to workplace exposure and OHS

experience among EHOs in both countries. **Conclusions:** This study provides a profile of workplace exposure in the environmental health profession in the 2 countries and offers recommendations for the implementation of preventive action.

**Dine et al. 2023.**

**Medicine, vol. 102, no. 12.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Occupational health; safety; environmental health officers.

**Evidence Level:** 4A

**Link:** [https://journals.lww.com/md-journal/Fulltext/2023/03240/Identifying\\_occupational\\_health\\_and\\_safety\\_risks.69.aspx](https://journals.lww.com/md-journal/Fulltext/2023/03240/Identifying_occupational_health_and_safety_risks.69.aspx)

## Chronic Health Issues

*This month we explore issues associated with vitamin D deficiency and axial spondyloarthritis.*

### **Effect of vitamin D deficiency on metabolic syndrome among Korean shift workers**

**Background:** This study aimed to investigate the effect of vitamin D deficiency on metabolic syndrome among shift workers. **Methods:** This study included 207 756 workers who underwent a comprehensive health examination at a large South Korean university hospital between 2012 and 2018. We performed multivariate-adjusted logistic regression analysis and analyzed mediation and exposure-mediator interaction. **Results:** Overall, 5.5% of the participants had metabolic syndrome. Compared to day work, the odds ratios (OR) of metabolic syndrome and vitamin D deficiency (<12 ng/mL) for shift work were 1.14 [95% confidence interval (CI) 1.06-1.22] and 1.63 (95% CI 1.57-1.70), respectively. Among shift workers, the OR of metabolic syndrome for vitamin D levels of 12-20 and <12 ng/mL, compared with a level of  $\geq 20$  ng/mL, were 1.36 (95% CI 1.15-1.61) and 1.51 (95% CI 1.26-1.81), respectively. Shift work and vitamin D deficiency showed an additive interaction; the relative excess risks due to interaction, attributable proportion, and synergy index were 0.26 (95% CI 0.08-0.44), 0.17 (95% CI 0.07-0.28), and 2.09 (95% CI 1.23-3.55), respectively. When vitamin D deficiency was treated as a mediator, the direct and total effects of shift work on metabolic syndrome were 1.12 (95% CI 1.04-1.22) and 1.15 (95% CI 1.07-1.25), respectively. The indirect effect was 1.03 (95% CI 1.02-1.04) and accounted for 18% of the total effect. **Conclusion:** Vitamin D is a potential mediator of the impact of shift work on metabolic risk factors.

**Mun et al. 2023.**

**Scandinavian Journal of Work, Environment and Health, vol. 49, no. 2.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Vitamin D deficiency; metabolic syndrome; shift workers.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4072>

### **Work participation in patients with axial spondyloarthritis: High prevalence of negative workplace experiences and long-term work impairment**

**Background:** Axial spondylarthritis (axSpA) is a chronic inflammatory disease that typically affects people in their second and third decades of life, which are important years for establishing a professional career. We aim to study outcomes of work participation (WP) and their associations with demographic and clinical confounders, in addition to prevalence of negative workplace experiences in axSpA. **Methods:** In total, 770 patients with axSpA participated in the multicentre, observational ATTENTUS-axSpA survey in Germany. Demographic information, clinical parameters and patient-related outcomes (including disease activity and function) with a focus on WP were prospectively recorded. **Results:** A high prevalence of negative workplace experiences was reported among the 770 patients analysed. Overall, 23.4% of patients were not employed and 6.5% received disability pensions. Current work cessation was prevalent in 120 patients, and 28 of those were out of work for 10 years or longer. Of the 590 currently employed patients, 31.9% reported absenteeism and 35.9% reported presenteeism for >1 month within the past year. Multivariate logistic regression identified low disease activity (Bath Ankylosing Spondylitis Disease Activity Index), better

physical function (Bath Ankylosing Spondylitis Functional Index) and better global functioning (Assessment of Spondylarthritis International Society-Health Index) as the main predictors for unimpaired WP (n=242). Importantly, biological treatment, disease duration, age, sex, education level and body mass index were not reliable predictors. **Discussion:** Despite improvements in pharmacological treatment options, we still observed substantially impaired WP in patients with axSpA. These data emphasise the high unmet need for targeted strategies to provide improved medical and social care.

**Kiltz et al. 2023.**

**RMD Open, vol. 9, no. 1.**

**User License:** *Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)*  
(<https://creativecommons.org/licenses/by-nc/4.0/>)

**Keywords:** Immune system diseases; patient reported outcome measures; spondylitis, ankylosing.

**Evidence Level:** 4B

**Link:** <https://rmdopen.bmj.com/content/9/1/e002663.long>

## Occupational Exposure

*This month we explore the issues associated with occupational exposure to inhalable agents and rheumatoid arthritis, particle exposure and cardiovascular disease and noise/dust exposure and hypertension. In other studies we explore occupational hypersensitivity pneumonia and the use of systematic screening of occupational exposures in lung cancer patients.*

### **Occupational inhalable agents constitute major risk factors for rheumatoid arthritis, particularly in the context of genetic predisposition and smoking**

**Background:** To assess the effects of occupational inhalable exposures on rheumatoid arthritis (RA) development and their interactions with smoking and RA-risk genes, stratifying by presence of anticitrullinated protein antibodies (ACPA). **Methods:** Data came from the Swedish Epidemiological Investigation of RA, consisting of 4033 incident RA cases and 6485 matched controls. Occupational histories were retrieved, combining with a Swedish national job-exposure matrix, to estimate exposure to 32 inhalable agents. Genetic data were used to define Genetic Risk Score (GRS) or carrying any copy of human leucocyte antigen class II shared epitope (HLA-SE) alleles. Associations were identified with unconditional logistical regression models. Attributable proportion due to interaction was estimated to evaluate presence of interaction. **Results:** Exposure to any occupational inhalable agents was associated with increased risk for ACPA-positive RA (OR 1.25, 95% CI 1.12 to 1.38). The risk increased as number of exposed agents increased (Ptrend<0.001) or duration of exposure elongated (Ptrend<0.001). When jointly considering exposure to any occupational inhalable agents, smoking and high GRS, a markedly elevated risk for ACPA-positive RA was observed among the triple-exposed group compared with those not exposed to any (OR 18.22, 95% CI 11.77 to 28.19). Significant interactions were found between occupational inhalable agents and smoking/genetic factors (high GRS or HLA-SE) in ACPA-positive RA. **Conclusions:** Occupational inhalable agents could act as important environmental triggers in RA development and interact with smoking and RA-risk genes leading to excessive risk for ACPA-positive RA. Future studies are warranted to assess preventive strategies aimed at reducing occupational hazards and smoking, especially among those who are genetically vulnerable.

**Tang et al. 2023.**

**Annals of the Rheumatic Diseases, vol. 82, no. 3.**

**User License:** *Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)*  
(<https://creativecommons.org/licenses/by-nc/4.0/>)

**Keywords:** Anti-citrullinated protein antibodies; arthritis, rheumatoid; epidemiology; smoking.

**Evidence Level:** 4B

**Link:** <https://ard.bmj.com/content/82/3/316.long>

### **Occupational hypersensitivity pneumonia**

**Background:** Hypersensitivity pneumonitis (HP) is an immunological lung disease that affects individuals who are sensitive and susceptible to occupational and environmental exposures. While clinical and

radiological findings may resemble other interstitial lung diseases, identifying the causative agents can aid in the differential diagnosis. However, this can be challenging and may result in delayed diagnosis and poor prognosis. **Results:** A gold standard test for diagnosis is currently unavailable, and therefore, a multidisciplinary approach involving a clinician, radiologist, and pathologist is necessary. Avoiding exposure is the first step in treatment, with immunosuppressive therapeutics also being used. Antifibrotic agents show promise for future treatment approaches. Despite recent advancements in data and guidelines, knowledge about managing occupational HP remains limited. **Conclusions:** This review provides a summary of the epidemiological, clinical, and radiological findings, as well as diagnostic and treatment principles of occupational HP based on current literature.

**Akkale et al. 2023.**

**Journal of Tuberculosis and Thorax, vol. 71, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Hypersensitivity pneumonia; lung disease; occupational exposures; environmental exposures.

**Evidence Level:** 6A

**Link:** [https://tuberktoraks.org/managete/fu\\_folder/2023-01/2023-71-1-94-104.pdf](https://tuberktoraks.org/managete/fu_folder/2023-01/2023-71-1-94-104.pdf)

### **A multicenter study to assess a systematic screening of occupational exposures in lung cancer patients**

**Background:** Occupational lung cancer cases remain largely under-reported and under-compensated worldwide. In order to improve the detection and compensation of work-related lung cancers, we implemented a systematic screening of occupational exposures, combining a validated self-administered questionnaire to assess occupational exposures and a specialized occupational cancer consultation.

**Methods:** After a pilot study, the present prospective, open-label, scale-up study aimed to assess this systematic screening of occupational exposures in lung cancer patients in five sites in France by associating university hospitals with cancer centers. Patients with lung cancer were sent a self-administered questionnaire to collect their job history and potential exposure to lung carcinogens. The questionnaire was assessed by a physician to determine if a specialized occupational cancer consultation was required. During the consultation, a physician assessed if the lung cancer was occupation-related and, if it was, delivered a medical certificate to claim for compensation. Patients were offered help from a social worker for the administrative procedure. **Results:** Over 15 months, 1251 patients received the questionnaire and 462 returned it (37%). Among them, 176 patients (38.1%) were convened to the occupational cancer consultation and 150 patients attended the consultation. An exposure to occupational lung carcinogen was identified in 133 patients and a claim for compensation was judged possible for 90 patients. A medical certificate was delivered to 88 patients and 38 patients received compensation. **Conclusions:** Our national study demonstrated that a systematic screening of occupational exposures is feasible and will bring a significant contribution to improve the detection of occupational exposures in lung cancer patients.

**Pérol et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 6.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Compensation; lung cancer; occupational exposures; systematic screening.

**Evidence Level:** 3B

**Link:** <https://pubmed.ncbi.nlm.nih.gov/36981979/>

### **Short and long-term associations between serum proteins linked to cardiovascular disease and particle exposure among constructions workers**

**Background:** Construction workers are exposed to respirable dust, including respirable crystalline silica (RCS), which is a potential risk factor for cardiovascular disease (CVD). The aim of this study was to evaluate whether exposure to particles among construction workers is associated with short- and long-term alterations in CVD-related serum proteins. **Methods:** Using proximity extension assay, we measured 92 serum proteins linked to CVD among active male construction workers (N=65, non-smokers) sampled on two occasions: during work and after vacation. First, we used linear models to identify short-term changes in proteins associated with particle exposure (assessed as respirable dust and RCS) during work. Secondly, we used linear mixed models to evaluate whether these associations were long-term, ie, persistent after vacation. **Results:** The median exposure to respirable dust and RCS during work were 0.25 mg/m<sup>3</sup> and 0.01

mg/m<sup>3</sup>, respectively. Respirable dust was associated with short-term changes in six proteins (tissue factor, growth hormone, heme oxygenase-1, dickkopf-related protein-1, platelet-derived growth factor-B, stem cell factor); long-term associations were observed for the former three proteins. RCS was associated with short-term changes in five proteins (carcinoembryonic antigen-related cell adhesion molecule-8, hydroxyacid oxidase-1, tissue factor, carbonic anhydrase-5A, lectin-like oxidized LDL receptor-1); long-term associations were observed for the former four proteins. **Conclusions:** Moderate exposure to particles in the construction industry is associated with both short- and long-term changes in circulating CVD-related proteins. Further studies are needed to evaluate if these changes are predictors of occupationally induced clinical CVD.

**Gluga et al. 2023.**

**Scandinavian Journal of Work, Environment and Health, vol. 49, no. 2.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cardiovascular disease; particle exposure; construction; serum proteins.

**Evidence Level:** 5B

**Link:** <https://www.sjweh.fi/article/4071>

### **Long-term exposure to dust and noise can increase the risk of hypertension: A population based, cross-sectional study**

**Background:** The aim of the study is to assess whether occupational groups exposed to dust and noise increase their risk of developing hypertension and to identify associated risk factors. **Methods:** Logistic regression analysis was used to analyze the influence of exposure factors on the occurrence of hypertension, and confounding factors were adjusted to identify independent effects. Stratified analysis and smoothed curve fitting were used to explore the effects in different populations. **Results:** Combined dust + noise exposure significantly increased the risk of hypertension in workers (model 1: odds ratio [OR], 2.75; model 2: OR, 2.66; model 3: OR, 2.85). Further analysis showed that when exposed to dust and noise for more than 17 years, the risk of hypertension increased by 15%. **Conclusions:** The combined exposure of dust and noise significantly increases the risk of hypertension among occupational groups, especially among workers who have worked for more than 17 years.

**Guo et al. 2023.**

**Journal of Occupational and Environmental Medicine, vol. 65, no. 3.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Dust; noise; hypertension; exposure.

**Evidence Level:** 4B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/03000/Long\\_Term\\_Exposure\\_to\\_Dust\\_and\\_Noise\\_Can\\_Increase.17.aspx](https://journals.lww.com/joem/Fulltext/2023/03000/Long_Term_Exposure_to_Dust_and_Noise_Can_Increase.17.aspx)

## **Sedentary Practices**

### **Movement behavior and health outcomes among sedentary adults: A Cross-Sectional Study**

**Background:** Sedentary behavior, which is highly prevalent among office workers, is associated with multiple health disorders, including those of the musculoskeletal and cardiometabolic systems. Although prior studies looked at postures or physical activity during work or leisure time, few analyzed both posture and movement throughout the entire day. **Objective:** This cross-sectional pilot study examined the movement behavior of sedentary office workers during both work and leisure time to explore its association with musculoskeletal discomfort (MSD) and cardiometabolic health indicators.

**Methods:** Twenty-six participants completed a survey and wore a thigh-based inertial measuring unit (IMU) to quantify the time spent in different postures, the number of transitions between postures, and the step count during work and leisure time. A heart rate monitor and ambulatory blood pressure cuff were worn to quantify cardiometabolic measures. The associations between movement behavior, MSD, and cardiometabolic health indicators were evaluated. **Results:** The number of transitions differed significantly

between those with and without MSD. Correlations were found between MSD, time spent sitting, and posture transitions. Posture transitions had negative correlations with body mass index and heart rate. **Conclusions:** Although no single behavior was highly correlated with health outcomes, these correlations suggest that a combination of increasing standing time, walking time, and the number of transitions between postures during both work and leisure time was associated with positive musculoskeletal and cardiometabolic health indicators among sedentary office workers and should be considered in future research.

**Arippa et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 5.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cardiometabolic health indicators; movement behavior; musculoskeletal discomfort; office workers; sedentary workers.

**Evidence Level:** 4A

**Link:** <https://www.mdpi.com/1660-4601/20/5/4668>

## Physical Activity

*This month we explore the associations between occupational physical activity and cardiometabolic risk factors and health costs, and the effect of promoting physical activity-related health competence on leisure-time physical activity and health-related quality of life.*

### **Occupational physical activity and cardiometabolic risk factors: A cross-sectional study**

**Background:** Contradictory data exist on the impact of occupational physical activity (OPA) on cardiovascular health. We aimed to evaluate the association between OPA and cardiometabolic risk factors.

**Methods:** A cross-sectional study was performed in an environmental services company in 2017 (Spain). OPA was classified by work categories as being low ( $\leq 3$  METs) or moderate-high ( $> 3$  METs). Multiple linear and logistic binary regression models were used to assess the associations between OPA and cardiometabolic risk factors related to obesity, blood pressure, blood lipids, and associated medical conditions, adjusted by age, sex, alcohol consumption, and global physical activity. **Results:** In total, 751 employees were included (547 males and 204 females), and 55.5% ( $n = 417$ ) had moderate-high OPA. Significant inverse associations were observed between OPA and weight, body mass index, waist circumference, waist-hip ratio, and total cholesterol both overall and in males. OPA was significantly inversely related to dyslipidemia overall and in both sexes, while the overweight plus obesity rate was inversely related only in the total and male populations. OPA was associated with a better cardiometabolic risk factor profile, particularly in males. **Conclusions:** The fact that our models were also adjusted by global physical activity highlights the associations obtained as being independent of leisure time physical activity effects.

**Gómez-Recasens et al. 2023.**

**Nutrients, vol. 15, no. 6.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cardiometabolic risk factors; cross-sectional; occupational physical activity; workplace.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/2072-6643/15/6/1421>

### **The association between health costs and physical inactivity: Analysis from the Physical Activity at Work study in Thailand**

**Background:** Physical inactivity increases the risks of several common yet serious non-communicable diseases, costing a tremendous amount of health expenditure globally. This study aimed to estimate the association between health costs and physical inactivity in Thailand. **Methods:** Data from the Physical Activity at Work cluster randomized controlled trial participants with valid objective physical activity data were extracted. Health costs were collected using the Health and Welfare Survey and the Work Productivity and Activity Impairment Questionnaire and were categorized into past-month outpatient illness, past-year inpatient illness, and past-week presenteeism and absenteeism. Time spent in moderate-



to-vigorous physical activity was used to determine the activity level according to the current guideline (i.e.,  $\geq 150$  minutes moderate-intensity or  $\geq 75$  minutes vigorous-intensity equivalent physical activity per week). The primary analysis evaluated the association between direct cost (treatment and travel costs) and societal cost (direct cost plus absenteeism due to the illness) of past-month outpatient illness and physical inactivity using a two-part model. **Results:** In total, 277 participants with a mean age of 38.7 were included. Average direct and societal cost due to past-month outpatient illness were 146 THB (3.99 USD) (SD = 647 THB) and 457 THB (12.5 USD) (SD = 1390 THB), respectively. Compared to active participants, direct and societal cost of past-month outpatient illness were 153 THB (4.18 USD) (95%CI: -54.7 to 360 THB) and 426 THB (11.7 USD) (95%CI: 23.3 to 829 THB) higher in physically inactive individuals, respectively, adjusted for covariates. The additional societal cost of past-month outpatient illness was 145% higher in physically inactive participants compared to active participants. On the other hand, there was no significant association in direct and societal cost of past-year inpatient illness nor past-week indirect costs between physically active and non-active participants. **Conclusion:** Results were similar to recent findings in different countries. However, the findings should be generalized with caution due to the small sample size and potential bias from reverse causation. Future research is crucial for clarifying the health costs of physical inactivity in Thailand and other countries.

**Akksilp et al. 2023.**

**Frontiers in Public Health, vol. 7.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Economic cost; exercise; healthcare; physical activity; societal cost.

**Evidence Level:** 4B

**Link:** <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1037699/full>

### **Promoting physical activity-related health competence to increase leisure-time physical activity and health-related quality of life in German private sector office workers**

**Background:** Office workers (OWs) are at risk of low levels of health-enhancing physical activity (HEPA) and impaired health-related quality of life (HRQOL). Interventions based on physical activity-related health competence (PAHCO) aim to facilitate long-term changes in HEPA and HRQOL. However, these assumptions rely on the changeability and temporal stability of PAHCO and have not been tested empirically. This study therefore aims to test the changeability and temporal stability of PAHCO in OWs within an interventional design and to examine the effect of PAHCO on leisure-time PA and HRQOL. **Methods:** Three hundred twenty-eight OWs (34% female,  $50.4 \pm 6.4$  years) completed an in-person, three-week workplace health promotion program (WHPP) focusing on PAHCO and HEPA. The primary outcome of PAHCO as well as the secondary outcomes of leisure-time PA and HRQOL were examined at four measurement points over the course of 18 months in a pre-post design by employing linear mixed model regressions. **Results:** PAHCO displayed a substantial increase from the baseline to the time point after completion of the WHPP ( $\beta = 0.44$ ,  $p < 0.001$ ). Furthermore, there was no decrease in PAHCO at the first ( $p = 0.14$ ) and the second follow-up measurement ( $p = 0.56$ ) compared with the level at the end of the WHPP. In addition, the PAHCO subscale of PA-specific self-regulation (PASR) had a small to moderate, positive effect on leisure-time PA ( $\beta = 0.18$ ,  $p < 0.001$ ) and HRQOL ( $\beta = 0.26$ ,  $p < 0.001$ ). The subscale of control competence for physical training (CCPT) also had a positive small to moderate effect on HRQOL ( $\beta = 0.22$ ,  $p < 0.001$ ). **Conclusion:** The results substantiate PAHCO's theoretical characteristics of changeability and temporal stability, and underline the theoretically postulated effects on leisure-time PA and HRQOL. These findings highlight the potential of PAHCO for intervention development, which can be assumed to foster long-term improvements in HEPA and HRQOL in OWs. **Trial registration:** The study was retrospectively registered in the German Clinical Trials Register, which is an approved Primary Register in the WHO network, at the 14/10/2022 (DRKS00030514).

**Blaschke et al. 2023.**

**BMC Public Health, vol. 23, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Behavioural change; health literacy; health-related quality of life; office workers; physical literacy; workplace health promotion.

**Evidence Level:** 4B

**Link:** <https://bmcpublikealth.biomedcentral.com/articles/10.1186/s12889-023-15391-7>

## Musculoskeletal Health

*This month we explore the association between telecommuting environments and shoulder pain, telehealth and musculoskeletal disorders, work-related musculoskeletal disorders symptoms and construction work, and Dupuytren's disease.*

### **A cross-sectional study of the association between telecommuting environments and shoulder pain among Japanese telecommuting workers**

**Background:** The aim of this study was to investigate the association between telecommuting environments and shoulder pain in Japanese telecommuters. **Methods:** We conducted an Internet-monitored, cross-sectional study and analyzed 2537 participants who mainly telecommuted at least 4 days per week. We assessed the presence of shoulder pain using a numerical rating scale and the characteristics of the telecommuting environment by asking eight questions. We used multilevel logistic regression analysis with the city of residence as a random effect. **Results:** Inadequate desk brightness (odds ratio [OR], 1.39; 95% confidence interval [CI], 1.09-1.78), inadequate foot space (OR, 1.27; 95% CI, 1.02-1.58), and uncomfortable temperature and humidity (OR, 1.41; 95% CI, 1.16-1.72) were associated with shoulder pain in multilevel logistic regression analysis. **Conclusions:** Inappropriate telecommuting environments were associated with an increase in the prevalence of shoulder pain in Japanese telecommuters.

**Sato et al. 2023.**

**Journal of Occupational and Environmental Medicine, vol. 65, no. 3.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)*  
(<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Shoulder pain; telecommunications.

**Evidence Level:** 4B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/03000/A\\_Cross\\_Sectional\\_Study\\_of\\_the\\_Association\\_Between.13.aspx](https://journals.lww.com/joem/Fulltext/2023/03000/A_Cross_Sectional_Study_of_the_Association_Between.13.aspx)

### **Dupuytren's disease is a work-related disorder: Results of a population-based cohort study**

**Background:** Dupuytren's disease (DD) is a fibroproliferative disorder of the hands, characterised by the development of fibrous nodules and cords that may cause disabling contractures of the fingers. The role of manual work exposure in the aetiology of DD is controversial. We investigated whether current occupational exposure to manual work is associated with DD, and if there is a dose-response relationship.

**Methods:** In this population-based cohort analysis, we used data from the UK Biobank cohort. Our primary outcome was the presence of DD. The exposure of interest was manual work, measured for each participant in two different ways to allow two independent analyses to be undertaken: (1) the current manual work status of the occupation at the time of recruitment, and (2) a cumulative manual work exposure score, calculated based on the occupational history. We performed propensity score matching and applied a logistic regression model. **Results:** We included 196 265 participants for the current manual work analysis, and 96 563 participants for the dose-response analysis. Participants whose current occupation usually/always involved manual work were more often affected with DD than participants whose occupation sometimes/never involved manual work (OR 1.29, 95% CI 1.12 to 1.49,  $p < 0.001$ ). There was a positive dose-response relationship between cumulative manual work exposure score and DD. Each increment in cumulative work exposure score increased the odds by 17% (OR 1.17, 95% CI 1.08 to 1.27,  $p < 0.001$ ). **Conclusions:** Manual work exposure is a risk factor for DD, with a clear dose-response relationship. Physicians treating patients should recognise DD as a work-related disorder and inform patients accordingly.

**van den Berge et al. 2023.**

**Occupational and Environmental Medicine, vol. 80, no. 3.**

**User License:** *Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)*  
(<https://creativecommons.org/licenses/by-nc/4.0/>)

**Keywords:** Occupational Health; preventive medicine.

**Evidence Level:** 4B

**Link:** <https://oem.bmj.com/content/80/3/137.long>

### **Teleworking and musculoskeletal disorders: A systematic review**

**Background:** Teleworking has spread drastically during the COVID-19 pandemic, but its effect on musculoskeletal disorders (MSD) remains unclear. **Methods:** We aimed to make a qualitative systematic review on the effect of teleworking on MSD. Following the PRISMA guidelines, several databases were searched using strings based on MSD and teleworking keywords. A two-step selection process was used to select relevant studies and a risk of bias assessment was made. Relevant variables were extracted from the articles included, with a focus on study design, population, definition of MSD, confounding factors, and main results. Of 205 studies identified, 25 were included in the final selection. **Results:** Most studies used validated questionnaires to assess MSD, six considered confounders extensively, and seven had a control group. The most reported MSD were lower back and neck pain. Some studies found increased prevalence or pain intensity, while others did not. Risk of bias was high, with only 5 studies with low/probably low risk of bias. Conflicting results on the effect of teleworking on MSD were found, though an increase in MSD related to organizational and ergonomic factors seems to emerge. **Conclusions:** Future studies should focus on longitudinal approaches and consider ergonomic and work organization factors as well as socio-economic status.

**Fadel et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 6.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Musculoskeletal diseases; occupational health; pain; public health; teleworking.

**Evidence Level:** 1A

**Link:** <https://www.mdpi.com/1660-4601/20/6/4973>

### **Prevalence and associated factors of work-related musculoskeletal disorders symptoms among construction workers: A Cross-Sectional Study in South China**

**Background:** Statistics showed that work-related musculoskeletal disorders (WMSDs) are the leading cause of productivity loss in the construction industry. **Methods:** This study aimed to investigate the prevalence of WMSDs and associated factors among construction workers. A cross-sectional study was conducted among 380 construction workers in Guangdong Province, China. A demographic, work-related survey and the Nordic musculoskeletal questionnaire were used to collect the workers' data. Descriptive statistics and logistic regression were used for the data analysis. **Results:** The results showed that the overall prevalence of WMSDs symptoms among the participants in any body region during the last 12 months was 57.9%. Neck (24.7%), shoulder (22.1%), upper back (13.4%), and lower back (12.6%) showed the highest prevalence of WMSDs. Age, exercise, work experience, work position, and level of fatigue after work were significantly associated with the prevalence of WMSDs symptoms in different body regions. The findings of this study showed that the prevalence of WMSDs symptoms among construction workers in south China is still high and is associated with different body areas compared to previous studies. **Conclusions:** The prevalence of WMSDs and risk-associated factors vary by country and region. This indicates that further local investigations are needed to propose specific solutions to improve the occupational health of construction workers.

**Lee et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 5.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Nordic musculoskeletal questionnaire; construction; logistic regression; musculoskeletal disorders symptoms; occupational health.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/5/4653>

## Guiding and Supporting Mental Health and Wellbeing

### Mental Health

*This month we explore mental health issues related to the association between work opportunities and job demands in workers with depression and, work-related posttraumatic stress disorder in paramedics. In Covid-19 related research we explore the effect of Covid-19 on the mental health of working parents, the risk of burnout among public health workers and the effectiveness of a brief online resilience intervention during the Covid-19 lockdown.*

#### **Do influence at work and possibilities for development mitigate the impact of job demands for workers with and without depression**

**Background:** Jobs characterized by low job demands and high job resources are associated with better work outcomes, yet it remains unclear whether this is the case for workers with depression. This study examined whether depression moderates the relationship between job demands, job resources, and maintaining employment. **Methods:** Data from the longitudinal population-based Lifelines cohort study were matched with register data on employment from Statistics Netherlands (N=55 950). Job demands included quantitative demands and work pace; job resources included influence at work and possibilities for development. The two-way interaction between job demands and depression and the three-way interaction between job demands, job resources and depression were examined in a zero-inflated Poisson regression model with path 1, including a binary employment outcome, and path 2, a count variable including months out of employment. **Results:** The interaction effect of job demands and depression on being employed was significant [ $b=-0.22$ , 95% confidence interval (CI)  $-0.44-0.01$ ]. Workers without depression were more likely to be employed whereas workers with depression were less likely to be employed if they had high job demands. The three-way interaction between job demands, job resources, and depression was significant for months out of employment ( $b=0.15$ , 95% CI  $0.01-0.29$ ), indicating that workers with depression had more months out of employment when reporting high job demands and high job resources compared to workers without depression. **Conclusion:** Although increasing influence at work and possibilities for development to prevent negative work outcomes may be beneficial for workers without depression, this approach might be limited for workers with depression.

Ots et al. 2023.

Scandinavian Journal of Work, Environment and Health, vol. 49, no. 2.

User License: Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

Keywords: Job demands; depression; mental health; better work outcomes.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4069>

#### **How the mental health of working parents in Australia changed during COVID-19: A pre- to during pandemic longitudinal comparison**

**Background:** Cross-sectional studies indicate that mental health has deteriorated in Australia during the COVID-19 pandemic, including for parents. However, robust longitudinal studies interrogating change from before to during the pandemic remain rare. The current study analysed data from Australian parents surveyed in 2016 and August 2020. We investigate whether distress was higher in the COVID-19 period compared to pre-pandemic levels, and whether any increases in distress were greatest for parents living in Victoria (who had entered their second prolonged lockdown). **Methods:** A community cohort of Australian working parents ( $n = 5197$ ) was recruited online in 2016. In August 2020, 25.9% ( $n = 1348$ ) completed a follow-up survey. Analyses were restricted to those employed at both time-points ( $n = 1311$ ). Random effects longitudinal models examined the association between time (i.e. pre vs. during-pandemic) and distress (K6 scale). Fixed effects models specifically tested change between time periods in association with change in distress. **Limitations:** The initial sample were recruited online with highly educated parents over-represented. Attrition between survey time-points may also limit generalisability. **Results:** All models consistently showed that the pandemic period was associated with greater distress. Overall, serious mental illness (i.e. K6 score  $\geq 18$ ) increased by 5.3 percentage points (from 8.0 to 13.3). This increase was greater

(by 4.7 percentage points) for those parents in Victoria. **Conclusions:** This study is one of few to longitudinally assess mental health pre- to during the pandemic. Psychological distress and serious mental illness increased for Australian working parents, and this effect was greatest for those experiencing a prolonged lockdown in Victoria.

**Leach et al. 2023.**

**Journal of Affective Disorders, vol. 325.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** COVID-19; lockdown; pandemic; psychological distress; working parents.

**Evidence Level:** 4A

**Link:** <https://www.sciencedirect.com/science/article/pii/S0165032723000137?via%3Dihub>

### **Burnout among public health workers during the COVID-19 pandemic in South Korea**

**Background:** This study aimed to investigate the prevalence of burnout experiences and factors associated with burnout among Korean health care workers during the coronavirus disease 2019 (COVID-19) pandemic. **Methods:** A nationwide survey was conducted in 2021, and the sample comprised 1000 public health center employees. Multivariate linear regression was used to examine the factors associated with burnout among the participants during the COVID-19 pandemic. Perceived factors contributing to burnout were also analyzed using an open-ended question. **Results:** Personal (e.g., age, gender, and self-rated health) and work-related factors (e.g., type of job tasks and COVID-19-related discrimination experience) affected burnout among health care workers. However, organizational support, including emotional support and sufficient financial compensation, was associated with lower burnout. **Conclusions:** Ensuring sufficient support and rewards for health care workers is essential to guaranteeing their well-being during the current public health crisis.

**Lee et al. 2023.**

**Journal of Occupational and Environmental Medicine, vol. 65, no. 3.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Burnout; COVID-19; public health workers.

**Evidence Level:** 4B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/03000/Burnout\\_Among\\_Public\\_Health\\_Workers\\_During\\_the.19.aspx](https://journals.lww.com/joem/Fulltext/2023/03000/Burnout_Among_Public_Health_Workers_During_the.19.aspx)

### **SPARK Resilience in the workplace: Effectiveness of a brief online resilience intervention during the COVID-19 lockdown**

**Background:** Science asserts that resilience at work can be developed, with evidence pinpointing to multiple resources that can be built through deliberate coaching, training and interventions. **Methods:** This paper presents a mixed-methods study exploring the effectiveness of group coaching using SPARK Resilience training, a model and a structured coaching protocol that have been administered in educational and workplace settings in face-to-face format and remotely. The study used a non-randomised controlled design with a pre-test and a post-test in a sample of French adults (N = 101 in the intervention group and N = 86 in the waitlist control group). The SPARK Resilience programme was administered online with 8 sessions spanning 4 weeks in April 2020, during the very early stage of the pandemic and lockdown in France. **Results:** The results indicate beneficial effects of the intervention on meaning, resilience, positive affect, and perceived stress outcomes (d in the .40-.56 range), as well as weaker effects on negative affect (d = .35) and work engagement (d = .21). Moderator analyses suggest that the effects of the intervention on perceived stress and negative affect tended to be stronger for older adults. Participants reported high levels of satisfaction with the intervention and provided 151 responses to three open-ended questions that were coded using thematic analysis, revealing specific benefits of the intervention. **Conclusions:** The findings are interpreted within the pandemic context, showing the way resilience interventions can help people overcome unprecedented challenges.

**Boniwell et al. 2023.**

**PLoS One, vol. 18, no. 3.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** COVID-19; lockdown; resilience; SPARK.

**Evidence Level:** 3B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0271753>

### **Work-related posttraumatic stress disorder in paramedics in comparison to data from the general population of working age: A systematic review and meta-analysis**

**Background:** Paramedics are at particularly high risk for developing posttraumatic stress disorders (PTSD). Hitherto, evidence for higher prevalence rates in paramedics compared to the general population is vague. We aimed to determine and compare 12-month prevalence of PTSD in paramedics and general population from high-income countries. **Methods:** We conducted systematic review processes to identify relevant studies for inclusion. For paramedics, we searched relevant databases, reference lists, and did citation tracking. Inclusion criteria were applied according to PICO. Quality of the studies was assessed using a validated methodological rating tool. Twelve-month prevalence data from all studies were pooled using random effects model. Subgroup analyses were performed to identify sources of heterogeneity.

**Results:** In total, we found 41 distinct samples with 17,045 paramedics, 55 samples with 311,547 individuals from non-exposed general population, 39 samples with 118,806 individuals from populations affected by natural disasters, and 22 samples with 99,222 individuals from populations affected by human-made disasters. Pooled 12-month prevalence estimates of PTSD were 20.0, 3.1, 15.6, and 12.0%, respectively. Prevalence estimates in paramedics varied with methodological quality and measurement instrument. Paramedics reporting distinct critical incidences had lower pooled prevalence than paramedics reporting indistinct types of exposure. **Conclusion:** Paramedics have a pooled prevalence of PTSD that is considerably higher than rates of unexposed general population and populations affected by human-made disasters. Chronic exposure to low-threshold traumatic events during daily routine work is a risk factor for developing PTSD. Strategies to ensure long working lifetime are strongly needed.

**Hoell et al. 2023.**

**Frontiers in Public Health, vol. 11.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Ambulance personnel; critical incidence; meta-analysis; paramedics; post-traumatic stress disorder; prevalence.

**Evidence Level:** 1A

**Link:** <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1151248/full>

## **Bullying, Harassment and Workplace Violence**

*This month we explore the effect of work climate on the relationships between job stressors and workplace bullying, the 12 month prevalence of exposure to workplace bullying and the relationship between exposure to work-related violence and certified sickness absence due to mental disorders.*

### **When the going gets tough and the environment is rough: The role of departmental level hostile work climate in the relationships between job stressors and workplace bullying**

**Background:** In line with the work environment hypothesis, the present study investigates whether department-level perceptions of hostile work climate moderate the relationship between psychosocial predictors of workplace bullying (i.e., role conflicts and workload) and exposure to bullying behaviours in the workplace. **Methods:** The data were collected among all employees in a Belgian university and constitutes of 1354 employees across 134 departments. **Results:** As hypothesized, analyses showed positive main effects of role conflict and workload on exposure to bullying behaviours. In addition, the hypothesized strengthening effect of department-level hostile work climate on the relationship between individual-level job demands and individual exposure to bullying behaviours was significant for role conflict. Specifically, the positive relationship between role conflict and exposure to bullying behaviours was stronger among employees working in departments characterized by a pronounced hostile work climate. In

contrast to our predictions, a positive relationship existed between workload and exposure to bullying behaviours, yet only among individuals in departments with low hostile work climate. **Conclusions:** These findings contribute to the bullying research field by showing that hostile work climate may strengthen the impact of role stress on bullying behaviours, most likely by posing as an additional distal stressor, which may fuel a bullying process. These findings have important theoretical as well as applied implications.

**Zahlquist et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 6.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Hostile work climate; role conflict; workload; workplace bullying.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/5/4464>

### **Study of the variation of the 12-month prevalence of exposure to workplace bullying across national French working population subgroups**

**Background:** The studies are lacking on the variation of the prevalence of exposure to workplace bullying according to subgroups of national working populations. The objectives were to assess the 12-month prevalence of bullying in the national French working population, to describe the reported reasons for bullying, and to study its variation according to various employment variables. **Methods:** The study was based on the data of the 2013 national French working conditions survey. The study sample included 25,769 employees aged 15-65 working in the same job within the last 12 months. The 12-month prevalence of bullying was assessed using a 9-item questionnaire. Employment variables included: occupation, economic activity of the company, public/private sector, company size, permanent/temporary work contract, and full/part-time work. The analyses were performed using statistical methods for weighted survey data. **Results:** The 12-month prevalence of bullying was 26.7% and 28.7% for men and women, respectively. The most prevalent forms of bullying were criticisms, exclusion, and deprivation of right of expression. The leading reasons for being bullied were related to occupation, age, and gender. The prevalence of bullying was higher among the younger employees, the employees working in medium/large companies (including the public sector), and among employees working full time. Though significant, the variations according to occupations and economic activities of the company were small.

**Conclusion:** Workplace bullying appeared as a widespread phenomenon in France. More attention should be given to young employees and the employees working in medium/large companies. Preventive measures should also target the whole working population comprehensively.

**Niedhammer et al. 2023.**

**International Archives of Occupational and Environmental Health, vol. 96, no. 2.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Occupational exposure; violence; working population; workplace bullying.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s00420-022-01916-x>

### **Exposure to work-related violence and/or threats of violence as a predictor of certified sickness absence due to mental disorders: a prospective cohort study of 16,339 Swedish men and women in paid work**

**Background:** The aim of this prospective cohort study was to investigate if exposure to work-related violence and/or threats of violence predict certified sickness absence due to mental disorders.

**Methods:** Information on work-related exposure to violence and/or threats of violence were derived from the biannual Swedish Longitudinal Occupational Survey of Health (SLOSH) study 2012-2016, including individuals in paid work across Sweden and from different occupations/sectors (n = 16,339). Certified sickness absence due to mental disorders were ascertained from register data from the Swedish Social Insurance Agency. Odds ratios of certified sickness absence due to mental disorders according to exposure to work-related violence were estimated using multiple logistic regression. Several potential confounding variables, such as demographic and socio-economic factors, age, sex, cohabitation, children living at home, socio-economic status, educational level, as well as other types of psychosocial work environmental factors, were adjusted for in the analyses. **Results:** In the total study sample, 9% reported exposure to violence and/or threats of violence and the prevalence of sickness absence due to mental disorders was

5%. Exposure to work-related violence and/or threats of violence was associated prospectively with certified sickness absence due to mental disorders (odds ratio 1.46, 95% confidence interval 1.17-1.82,  $p < 0.01$ ). Analysis of possible interaction showed no difference in association when comparing women to men and different age groups. **Conclusions:** Exposure to work-related violence and/or threats of violence appear to increase the odds of certified sickness absence due to mental disorders. Preventive measures aiming to lower the risk of exposure is thus of great importance.

**Wijkander et al. 2023.**

**International Archives of Occupational and Environmental Health**, vol. 96, no. 2.

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Mental disorder; sickness absence; stress; work-related threats; work-related violence.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s00420-022-01917-w>

## Psychosocial Issues

*This month we explore the relationships between human-cobot interaction and job performance/satisfaction, between perceived injustice and severity of post-traumatic stress symptoms following occupational injury, between the role of an individual and work addiction, between mindfulness and perception of job stress and between low-grade inflammation and work-related psychosocial factors and global cognitive function. In Covid-19 related research we explore the perceived impact of work from home on life and work domains and the relationships between Covid-19 risk, life-safety risk, job insecurity, and work-family conflict.*

### **The relationships of human-cobot interaction fluency with job performance and job satisfaction among cobot operators: The moderating role of workload**

**Background:** Modern factories are subject to rapid technological changes, including the advancement of robotics. A key manufacturing solution in the fourth industrial revolution is the introduction of collaborative robots (cobots), which cooperate directly with human operators while executing shared tasks. Although collaborative robotics has tangible benefits, cobots pose several challenges to human-robot interaction. Proximity, unpredictable robot behavior, and switching the operator's role from a co-operant to a supervisor can negatively affect the operator's cognitive, emotional, and behavioral responses, resulting in their lower well-being and decreased job performance. Therefore, proper actions are necessary to improve the interaction between the robot and its human counterpart. Specifically, exploring the concept of human-robot interaction (HRI) fluency shows promising perspectives. However, research on conditions affecting the relationships between HRI fluency and its outcomes is still in its infancy. **Methods:** Therefore, the aim of this cross-sectional survey study was twofold. First, the relationships of HRI fluency with job performance (i.e., task performance, organizational citizenship behavior, and creative performance) and job satisfaction were investigated. Second, the moderating role of the quantitative workload in these associations was verified. **Results:** The analyses carried out on data from 200 male and female cobot operators working on the shop floor showed positive relationships between HRI fluency, job performance, and job satisfaction. Moreover, the study confirmed the moderating role of the quantitative workload in these relations. **Conclusions:** The results showed that the higher the workload, the lower the relationships between HRI fluency and its outcomes. The study findings are discussed within the theoretical framework of the Job Demands-Control-Support model.

**Paliga 2023.**

**International Journal of Environmental Research and Public Health**, vol. 20, no. 6.

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cobot; collaborative robot; creative performance; fluency; human-robot interaction; job performance; job satisfaction; organizational citizenship behavior; task performance; workload.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/6/5111>



### **Perceived injustice as a determinant of the severity of post-traumatic stress symptoms following occupational injury**

**Background:** The present study assessed the role of perceived injustice in the experience and persistence of post-traumatic stress symptoms (PTSS) following work-related musculoskeletal injury. **Methods:** The study sample consisted of 187 individuals who were absent from work as a result of a musculoskeletal injury. Participants completed measures of pain severity, perceived injustice, catastrophic thinking, post-traumatic stress symptoms, and disability on three occasions at three-week intervals. **Results:** Consistent with previous research, correlational analyses revealed significant cross-sectional relations between pain and PTSS, and between perceived injustice and PTSS. Regression analysis on baseline data revealed that perceived injustice contributed significant variance to the prediction of PTSS, beyond the variance accounted for by pain severity and catastrophic thinking. Sequential analyses provided support for a bi-directional relation between perceived injustice and PTSS. Cross-lagged regression analyses showed that early changes in perceived injustice predicted later changes in PTSS and early changes in PTSS predicted later changes in perceived injustice. **Conclusions:** Possible linkages between perceived injustice and PTSS are discussed. The development of effective intervention techniques for targeting perceptions of injustice might be important for promoting recovery of PTSS consequent to musculoskeletal injury.

**Pavilanis et al. 2023.**

**Journal of Occupation Rehabilitation, vol. 33, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Disability; injury; PTSD; PTSS; pain; perceived injustice.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s10926-022-10056-5>

### **The medium-term perceived impact of work from home on life and work domains of knowledge workers during COVID-19 pandemic: A survey at the National Research Council of Italy**

**Background:** The study aimed to investigate perceptions and determinants of the overall impact on life and work domains among a community of knowledge workers after 18 months of forced work from home due to the pandemic. **Methods:** A cross-sectional study with a retrospective assessment was conducted early in 2022 at the National Research Council of Italy. Five single-item questions explored the perceived impact on life domain while a 7-item scale the impact on the work domain. Bivariate analyses and multivariate regressions were used to evaluate the associations between impacts and some key factors defined by 29 *ad hoc* closed questions. **Results:** More than 95% of the 748 respondents reported a perceived change in at least one item of the life domain. For each of these items, although a large group of subjects has reported that working from home had no impact (from 27 to 55%), in the rest of the sample the positive evaluation (from 30 to 60%) clearly prevailed over the negative one. Overall, most of the subjects (64%) rated the impact on the work experience positively. Relationship with colleagues and participation in the work context were the items where the greatest number of negative rates was concentrated (27 and 25%, respectively). On the other hand, positive perceptions prevailed over both negative perceptions and lack of impact perceptions on the subjects of organizational flexibility and quality of work. The frequency of work-room sharing, home-work commute time and changes in sedentary lifestyle, have been identified as common explanatory factors of perceived impacts on both domains. **Conclusion:** Overall, respondents reported positive rather than negative perceived impacts of forced work from home in both their lives and work. The obtained results suggest that policies to promote the physical and mental health of employees, strengthen inclusion and maintain a sense of community are necessary to improve workers' health and prevent the effects of perceived isolation on research activities.

**Bodini et al. 2023.**

**Frontiers Public Health, vol. 11.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Forced work from home; knowledge workers; life domain; perceived impact; smart work; work domain.

**Evidence Level:** 4B

**Link:** <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1151009/full>

### **The role of an individual and a situation in explaining work addiction: Disclosing complex relations**

**Background:** The current study aimed to test the relationships between perfectionism, type A personality, and work addiction via mediator of extrinsic work motivation and moderators of both parent work addiction and demanding organization profiles. **Methods:** A cross-sectional study was carried out using an online self-report questionnaire. A sample consisted of 621 employees working in different Lithuanian organizations that were selected on the basis of the convenience principle. Prior to testing the hypotheses, latent profile analysis (LPA) was conducted in order to identify the subgroups of participants based on situational variables. Two profiles (i.e., 'less addicted parents' and 'more addicted parents') for parent work addiction and three profiles (i.e., 'slightly demanding organization', 'moderately demanding organization', 'highly demanding organization') for a demanding organization emerged from LPA. The hypotheses were tested using structural equation modeling. **Results:** Main results revealed that direct relationships between perfectionism, type A personality, and work addiction were positive and stronger for those working in highly demanding organizations. Indirect relationships between perfectionism, type A personality, and work addiction (via extrinsic motivation) were positive and stronger for employees who have parents with higher levels of work addiction. **Conclusions:** Future researchers and those who implement preventive practices should be aware that personal factors can be the first impetus for work addiction, and the second one (comprised of situational factors in a family and organization) can enhance the expression of these personal factors and stimulate the development of work addiction.

**Morkevičiūtė et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 5.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Latent profile analysis; moderated mediation; organization; parents; personality; work addiction; work motivation.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/5/4560>

### **How do COVID-19 risk, life-safety risk, job insecurity, and work-family conflict affect miner performance? Health-anxiety and job-anxiety perspectives**

**Background:** The coronavirus pandemic (COVID-19) has created challenging working conditions in coal-production activities. In addition to the massive loss of resources for miners, it has had a devastating impact on these individuals' mental health. **Methods:** Based on the conservation of resources (COR) theory and a resource-loss perspective, this study examined the impact of COVID-19 risk, life-safety risk, perceived job insecurity, and work-family conflict on miners' job performance. Moreover, this study investigated the mediating role of job anxiety (JA) and health anxiety (HA). The study data were collected through online structured questionnaires disseminated to 629 employees working in a coal mine in China. The data analysis and hypothesis generation were conducted using the structural equation modeling (partial least squares) method. **Results:** The results demonstrated that the perception of COVID-19 risk, life-safety risk, job insecurity, and work-family conflict negatively and significantly impacted miners' job performance. In addition, JA and HA negatively mediated the relationships between the perception of COVID-19 risk, life-safety risk, perceived job insecurity, work-family conflict, and job performance. **Conclusions:** The findings of this study can give coal-mining companies and their staff useful insights into how to minimize the pandemic's effects on their operations.

**Zhang et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 6.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Anxiety; job performance; life-safety risk; miners; perceived job insecurity; perception of COVID-19 risk; work-family conflict.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/6/5138>

### **Does mindfulness mediate the relation between impulsiveness and job stressfulness perception of professional drivers?**

**Background:** Professional driving is a stressful occupation that requires high levels of attention and decision-making, often leading to job stress. Impulsiveness, a personality trait characterized by a tendency to act without forethought, has been associated with negative outcomes such as anxiety, stress, and risky behaviors. Mindfulness has been proposed as a potential strategy for reducing job stress in various occupational settings. However, little is known about the relationship between these variables. This study aimed to investigate the mediating role of mindfulness in the relationship between impulsiveness and job stressfulness perception among professional drivers. **Methods:** A total of 258 professional drivers from Poland, Lithuania, and Slovakia, have completed self-report questionnaires: Impulsiveness-Venturesomeness-Empathy; Subjective Assessment of Work; Five Facet Mindfulness. **Results:** Results indicated a positive correlation between impulsiveness and job stressfulness perception, and a negative correlation with mindfulness. Mindfulness partially mediated the relationship between impulsiveness and job stressfulness perception. Additionally, variations were identified in the perceived work environment factors and mindfulness among drivers based on their country of origin. **Conclusions:** The findings suggest that mindfulness could be a useful approach for reducing job stressfulness perception among professional drivers with high levels of impulsiveness. Given the implications of job stressfulness for professional drivers' health and safety, developing mindfulness interventions tailored to their specific needs could be a promising direction for future research and intervention development.

**Mamcarz et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 5.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Impulsiveness; mindfulness; organizational factors; perception; professional drivers; safety; stress.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/5/4559>

### **Work-related psychosocial factors and global cognitive function: Are telomere length and low-grade inflammation potential mediators of this association?**

**Background:** The identification of modifiable factors that could maintain cognitive function is a public health priority. It is thought that some work-related psychosocial factors help developing cognitive reserve through high intellectual complexity. However, they also have well-known adverse health effects and are considered to be chronic psychosocial stressors. Indeed, these stressors could increase low-grade inflammation and promote oxidative stress associated with accelerated telomere shortening. Both low-grade inflammation and shorter telomeres have been associated with a cognitive decline. This study aimed to evaluate the total, direct, and indirect effects of work-related psychosocial factors on global cognitive function overall and by sex, through telomere length and an inflammatory index. **Methods:** A random sample of 2219 participants followed over 17 years was included in this study, with blood samples and data with cognitive function drawn from a longitudinal study of 9188 white-collar workers (51% female). Work-related psychosocial factors were evaluated according to the Demand-Control-Support and the Effort-Reward Imbalance (ERI) models. Global cognitive function was evaluated with the validated Montreal Cognitive Assessment (MoCA). Telomere length and inflammatory biomarkers were measured using standardised protocols. The direct and indirect effects were estimated using a novel mediation analysis method developed for multiple correlated mediators. **Results:** Associations were observed between passive work or low job control, and shorter telomeres among females, and between low social support at work, ERI or iso-strain, and a higher inflammatory index among males. An association was observed with higher cognitive performance for longer telomeres, but not for the inflammatory index. Passive work overall, and low reward were associated with lower cognitive performance in males; whereas, high psychological demand in both males and females and high job strain in females were associated with a higher cognitive performance. However, none of these associations were mediated by telomere length or the inflammatory index. This study suggests that some work-related psychosocial factors could be associated with shorter telomeres and low-grade inflammation, but these associations do not explain the relationship between work-related psychosocial factors and global cognitive function. **Conclusions:** A better

understanding of the biological pathways, by which these factors affect cognitive function, could guide future preventive strategies to maintain cognitive function and promote healthy aging.

**Duchaine et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 6.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** CRP; IL-6; cognitive function; demand–control–support; effort–reward imbalance; inflammatory biomarkers; mediation analysis; psychosocial stressors at work; telomere.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/6/4929>

## Fostering Work Participation

### Return to Work

*This month we explore return to work issues following shoulder surgery, cancer, and non-specific low back pain. In other studies we explore the associations between illness perceptions and return to work in workers with chronic diseases, assessment of the relationship between the return to work and the severity of work-related upper limb injuries and discrepancies between workers with disabilities and their supervisors in reported work accommodations and return to work.*

#### **Predictors of return to work following primary arthroscopic rotator cuff repair: An analysis of 1502 cases**

**Background:** It is undetermined which factors predict return to work after arthroscopic rotator cuff repair.

**Purpose:** To identify which factors predicted return to work at any level and return to preinjury levels of work 6 months after arthroscopic rotator cuff repair. **Study design:** Case-control study; Level of evidence, 3.

**Methods:** Multiple logistic regression analysis of prospectively collected descriptive, preinjury, preoperative, and intraoperative data from 1502 consecutive primary arthroscopic rotator cuff repairs, performed by a single surgeon, was performed to identify independent predictors of return to work at 6 months postoperatively. **Results:** Six months after arthroscopic rotator cuff repair, 76% of patients had returned to work, and 40% had returned to preinjury levels of work. Return to work at 6 months was likely if patients were still working after their injuries but before surgery (Wald statistic [W] = 55,  $P < .0001$ ), were stronger in internal rotation preoperatively (W = 8,  $P = .004$ ), had full-thickness tears (W = 9,  $P = .002$ ), and were female (W = 5,  $P = .030$ ). Patients who continued working postinjury but presurgery were 1.6 times more likely to return to work at any level at 6 months compared to patients who were not working ( $P < .0001$ ). Patients who had a less strenuous preinjury level of work (W = 173,  $P < .0001$ ), worked at a mild to moderate level post injury but presurgery, had greater preoperative behind-the-back lift-off strength (W = 8,  $P = .004$ ), and had less preoperative passive external rotation range of motion (W = 5,  $P = .034$ ) were more likely to return to preinjury levels of work at 6 months postoperatively. Specifically, patients who worked at a mild to moderate level postinjury but presurgery were 2.5 times more likely to return to work than patients who were not working, or who were working strenuously postinjury but presurgery ( $p < 0.0001$ ). Patients who nominated their preinjury level of work as "light" were 11 times more likely to return to preinjury levels of work at 6 months compared to those who nominated it as "strenuous" ( $P < .0001$ ).

**Conclusion:** Six months after rotator cuff repair, patients who continued to work after injury but presurgery were the most likely to return to work at any level, and patients who had less strenuous preinjury levels of work were the most likely to return to their preinjury levels of work. Greater preoperative subscapularis strength independently predicted return to work at any level and to preinjury levels.

**Ting et al. 2023.**

**American Journal of Sports Medicine, vol. 51, no. 4.**

**User License:** Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>)

**Keywords:** Determinants; predictors; return to work; rotator cuff repair; rotator cuff tear.

**Evidence Level:** 4B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10026167/>

### **The associations between illness perceptions and expectations about return to work of workers with chronic diseases and their significant others: A dyadic analysis**

**Background:** To examine the associations between illness perceptions and expectations about full return to work (RTW) of workers with chronic diseases and their significant others. **Methods:** This study used cross-sectional data of 94 dyads consisting of workers with chronic diseases and their significant others. We performed dyadic analyses based on the Actor-Partner Interdependence Model (APIM), estimating associations of illness perceptions of the two members of the dyad with their own expectations about the worker's full RTW within six months (actor effect) as well as with the other dyad member's expectations about the worker's RTW (partner effect). **Results:** Illness perceptions of one dyad member were significantly associated with his or her own RTW expectations (actor effect composite illness perceptions score;  $B = -0.05$ ,  $p < .001$ ;  $rd = .37$ ) and with the other dyad member's RTW expectations (partner effect composite illness perceptions score;  $B = -0.04$ ,  $p < .001$ ;  $rd = .35$ ). That is, more negative illness perceptions of one member of the dyad were associated with more negative RTW expectations in both dyad members. For most illness perception domains, we found small to moderate actor and partner effects on RTW expectations ( $rd$  range: .23-.44). **Conclusions:** This study suggests that illness perceptions and RTW expectations should be considered at a dyadic level as workers and their significant others influence each other's beliefs. When trying to facilitate adaptive illness perceptions and RTW expectations, involving significant others may be more effective than an individualistic approach targeted at the worker only.

**Snippen et al. 2023.**

**Journal of Occupational Rehabilitation, vol. 33, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Chronic disease; interpersonal relations; psychological adaptation; return to work.

**Evidence Level:** 4A

**Link:** <https://link.springer.com/article/10.1007/s10926-022-10062-7>

### **Effectiveness of physical activity interventions on return to work after a cancer diagnosis: A systematic review and meta-analysis**

**Background:** The aim of this study was to assess the effectiveness of physical activity (PA) interventions on return to work (RTW) in cancer survivors, compared to usual care, and to determine the dose of PA needed to improve this outcome. **Methods:** A systematic review and meta-analysis were conducted according to PRISMA guidelines. Six electronic databases including PubMed, Embase, Web of Science, CENTRAL, PsycINFO, and Scopus were searched to identify studies, and completed by a search of grey literature and health organization websites. Two authors performed screening, selection, and data extraction independently. Study and intervention characteristics were extracted and summarized. Pooled risk ratio (RR) was estimated using a weight random-effects model with 95% confidence intervals (CIs). **Results:** A total of 2655 records were identified, of which 8 intervention studies were included. The sample size of the included studies varied between 41 and 240, giving a total of 1087 participants aged between 18 and 75 years. Compared with usual care, PA interventions had a significant positive effect on RTW among cancer survivors with a pooled RR of 1.29 (95% CI 1.17, 1.42). We found that PA interventions (aerobic and resistance exercises) with an exercise dose between 7.6 METs.h/week and 15 METs.h/week, consisting in 50-60 min per session of moderate to vigorous physical exercise, twice a week seems relevant in improving RTW. **Conclusions:** Our results showed, with moderate quality evidence that PA interventions are more effective than usual care in increasing the rate of RTW in cancer survivors. SYSTEMATIC REVIEW REGISTRATION: PROSPERO Registration Number, CRD42020203614.

**Wilson et al. 2023.**

**Journal of Occupational Rehabilitation, vol. 33, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cancer; intervention; physical activity; return to work; systematic review.

**Evidence Level:** 1A

**Link:** <https://link.springer.com/article/10.1007/s10926-022-10052-9>

### **Impact of breast cancer care pathways and related symptoms on the return-to-work process: Results from a population-based French cohort study (CONSTANCES)**

**Background:** Breast cancer (BC) treatments and related symptoms may affect return to work (RTW). The objective of this study was to investigate the impact of BC care pathways (timing and sequence of treatments) and related symptoms on RTW. **Methods:** The study population included working-age women with BC who were enrolled in the French CONSTANCES cohort from 2012 to 2018. BC treatments, antidepressant/anxiolytic and analgesic drug deliveries (used as proxies of depression and pain, respectively) and statutory sick pay (used to estimate RTW and time to RTW) were assessed monthly using data from the French national healthcare system database. BC care pathways were identified with the sequence analysis method. Cox models with time-dependent covariates were used to investigate the impact of BC care pathways and related symptoms on RTW and time to RTW, after adjusting for age and socioeconomic characteristics. **Results:** 73.2% (231/303) of women returned to work within 2 years after BC diagnosis. Five BC care pathway patterns were identified: (i) BC surgery only, (ii) BC surgery and radiotherapy, (iii) BC surgery and chemotherapy, (iv) BC surgery and chemotherapy and radiotherapy, and (v) BC surgery and long-term alternative chemotherapy/radiotherapy. The hazards ratios of non-RTW were significantly higher for women who received BC surgery and long-term alternative chemotherapy/radiotherapy and for > 55-year-old women. Time to RTW was significantly longer in women who received chemotherapy (patterns iii to v) and in women with antidepressant/anxiolytic and analgesic drug deliveries. **Conclusion:** This study highlights the value of considering the dynamic, cumulative and temporal features of BC care pathways and related symptoms to facilitate the RTW of women with BC.

**Rolland et al. 2023.**

**Breast Cancer Research, vol. 25, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Breast cancer; care pathways; patterns; return to work; sequence analysis.

**Evidence Level:** 4B

**Link:** <https://breast-cancer-research.biomedcentral.com/articles/10.1186/s13058-023-01623-6>

### **Functional tests predicting return to work of workers with non-specific low back pain: Are there any validated and usable functional tests for occupational health services in everyday practice? A systematic review**

**Background:** The literature predominantly advocates subjective perception of disability and pain as an outcome measure for the functional evaluation of patients with low back pain (LBP). Physical outcome measurements are almost completely ignored. **Methods:** In this systematic review, we focused on physical functional measurements that can contribute to the prediction of patients' return to work (RTW) readiness after sick leave or rehabilitation. Searches were conducted in July 2022 without any time limit in the Cochrane Library, PEDro, PubMed and Scopus databases for functional and clinical tests reliable and applicable in clinical practice without demanding equipment. Two independent researchers extracted the data from the included articles in a standardised data collection form, and a third researcher validated the data extraction. No date restriction was applied. We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines in conducting the review. **Results:** We found seven original articles, including six with an impact on predicting RTW. We found four fair and three poor original studies fulfilling our criteria. We found the Back Performance Scale (BPS) and back endurance test to be the most promising tests for occupational health service and the clinical practitioner. Radiation of back pain, with or without neurological deficiencies, had some predictive value in terms of RTW, too. The working conditions vary a lot, which causes inconsistency in the studies and in their interpretation. Functional tests could complete the widely used working ability evaluations methods such as the Work Ability Index (WAI) and are worth considering for future research. Overall, more research is needed in this field. **Conclusions:** The question of when LBP patients can resume everyday activities and work is not possible to determine with functional tests alone. Psychosocial aspects and work demands must be considered. PROSPERO: CRD42022353955. The study was funded by the University of Helsinki.

**Hurri et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 6.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Functional tests; low back pain; return to work; work.

**Evidence Level:** 1A

**Link:** <https://www.mdpi.com/1660-4601/20/6/5188>

### **Assessment of the relationship between the return to work and the severity of work-related upper limb injuries using the whole person impairment**

**Background:** Upper limb disorders are one of the most common and important types of occupational injuries. Besides, identifying the factors influencing return to work following these injuries is essential to reduce the dimensions of the problem. In this study, we investigated the return to work and associated factors following occupational injuries leading to upper limb impairment. **Methods:** In this retrospective cohort study, the rate of return to work and associated factors were assessed in 256 workers with work-related upper limb injury referred to a teaching hospital from March 2011 to December 2018. The inclusion criterion was a history of occupational injury resulting in upper limb impairment, and exclusion criteria included the presence of simultaneous impairment in other organs, congenital or non-occupational limb defects as well as patients with incomplete information in their medical records. Individuals' records, including age at the time of injury, gender, date of injury, marital status, education, level of amputation and injury, whole person impairment (WPI) and physiotherapy (prescribed by the physician) were reviewed. The WPI was calculated to assess the extent of the injury. All analyzes were performed by SPSS version 25.0. **Results:** The rate of return to work was 54.3%, in which 51.8% for the same job and 48.2% for a new job. The main factors associated with non-return to work were more days off work ( $p = 0.001$ ), higher injury severity ( $p = 0.001$ ), and dominant hand injury ( $p = 0.034$ ). **Conclusion:** The number of days off work, the WPI, and dominant hand injury are the most important determinant in returning to work. In addition, increased job satisfaction and support from co-workers and employers are work-related factors that can lead to an increased return to work.

**Hosseininejad et al. 2023.**

**Chinese Journal of Traumatology, vol. 26, no. 2.**

**User License:** *Creative Commons Attribution - NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Occupational injury; return to work; upper limb impairment; whole person impairment.

**Evidence Level:** 4B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10071318/>

### **Discrepancies between workers with disabilities and their supervisors in reported work accommodations and associations with return to work**

**Background:** The aims of this study were: (1) to explore the frequency of discrepancies in work accommodations reported by workers and their supervisors, and (2) to investigate whether these discrepancies are associated with full return to work (RTW). **Methods:** We used data from a longitudinal survey study of long-term sick-listed workers and their supervisors ( $n = 406$ ). Discrepancies in reports on implementing eight types of work accommodations were explored. Logistic regression analyses were conducted to test associations between discrepancies in reported work accommodations and odds of full RTW 27 months after the sick-leave onset. **Results:** Discrepancies were the lowest for the work accommodation therapeutic RTW (53%) and the highest (85%) for job training or education and reimbursement of therapy or treatment. Four out of eight types of work accommodations were more often reported by workers than by their supervisors. Only a discrepancy on a job reassignment within the organization was associated with lower odds of full RTW (OR 0.56, 95%-CI 0.36-0.88). **Conclusion:** We found substantial discrepancies in the reported implementation of work accommodations between workers and their supervisors. Future research should focus on disentangling mechanisms that lead to discrepancies to avoid inefficiencies in the RTW process.

**Jansen et al. 2023.**

**BMC Public Health, vol. 23, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Longitudinal survey; people with disabilities; return to work.

**Evidence Level:** 4B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-023-15038-7>

## Presenteeism and Absenteeism

### Impact of opioid use on duration of time loss after work-related lower limb injury

**Purpose:** This study sought to determine patterns of opioid use among workers with a compensated lower limb injury, factors associated with opioid use, and how opioid use is associated with time loss duration.

**Methods:** Claims and medication data were provided by the workers' compensation regulator of Victoria, Australia, for claims lodged 2008-2018 from workers aged 15+ years with a lower limb injury. Descriptive statistics showed the number and prevalence of each opioid type (weak/strong) by demographic, claim and injury predictors. Binary and multinomial logistic regression determined the likelihood of any opioid use, and use of strong, weak or a combination of strong and weak opioids by predictors. Cox regression determined the effect of each opioid type on duration of time loss, controlling for predictors. **Results:** There were 51,334 claims and of these 23.6% were dispensed opioids (9.2% for strong opioids only, 6.6% for weak opioids only and 7.8% for a combination). Weak opioids, on average, were dispensed 15 days earlier than strong opioids. Time loss claims and workers with fractures or hip injuries were most likely to be dispensed opioids. All opioids were associated with increased duration of time loss, with those dispensed both weak and strong opioids having the longest duration of time loss. **Conclusions:** Any opioid use was associated with longer time loss duration, with increasing opioid strength having a greater effect. Review of pain management methods should be undertaken to reduce opioid use, which may have a positive impact on duration of time loss and long-term function.

**Szucs et al. 2023.**

**Journal of Occupational Rehabilitation, vol. 33, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Injury; lower extremity; opioid; worker's compensation.

**Evidence Level:** 4A

Link: <https://link.springer.com/article/10.1007/s10926-022-10048-5>

## Workers compensation

### "I grabbed my stuff and walked out": Precarious workers' responses and next steps when faced with procedural unfairness during work injury and claims processes

**Background:** Injured workers can experience adverse effects from work injury and claims processes. Workers may be treated unfairly by employers, compensation boards, and return-to-work coordinators; however, how workers respond to these challenges is unknown. This article describes how injured precarious workers responded behaviourally and emotionally to procedural unfairness in work injury and claims processes, and what workers did next. **Methods:** Interviews were conducted with thirty-six precariously employed injured workers recruited in Ontario through social media, email, cold calling, word-of-mouth, and the "snowball" method. Thematic code summaries were analyzed to identify how precarious workers responded to procedural unfairness. **Results:** Workers went through all or most of these five stages (not always linearly) when faced with procedural unfairness: (1) passive, (2) fought back, (3) quit pursuit of claim, (4) quit job, and (5) won or got further in fight. Feeling confused, angry, frustrated, unsupported, disappointed, determined, optimistic, and wary were common emotions.

**Conclusions:** Identifying unfairness and its emotional, behavioral, and material effects on workers is important to understand implications for compensation systems. Understanding and recognizing unfairness can equip employers, legal representatives, compensation boards, and physicians, to address and prevent it, and provide worker resources. Policy changes can ensure accountability and consequences to unfairness initiators.

**Billias et al. 2023.**

**Journal of Occupational Rehabilitation, vol. 33, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)



**Keywords:** Occupational injury; ontario; precarious employment; procedural unfairness; return to work; workers' compensation.

**Evidence Level:** 5B

**Link:** <https://link.springer.com/article/10.1007/s10926-022-10058-3>

## Wellness Programs

*This month we explore the effectiveness of an education programme for enhancing stress-coping skills, and the effect of participating in a workplace pedometer program.*

### **Effectiveness of a transactional model-based education programme for enhancing stress-coping skills in industrial workers: A randomized controlled trial**

**Background:** The aim of this study was to examine the effectiveness of a stress management educational intervention programme based on the Transactional Model of Stress and Coping (TMSC) among industrial workers. **Methods:** Participants were 106 employees of a power plant in Iran, randomly assigned into an intervention group and a control group. The intervention comprised active and participatory methods to enhance employees coping skills and it was delivered in six face-to-face sessions. Data was collected using the Ways of Coping Questionnaire, the Multidimensional Scale of Perceived Social Support, the Perceived Stress Scale, and the Spiritual Well-Being Scale at baseline and three months after the intervention.

**Results:** We found mean scores of distancing, self-controlling, seeking social support, escape-avoidance, planned problem-solving, positive reappraisal, total coping skills, perceived social support, and spiritual well-being significantly differed at follow-up compared to baseline in the intervention group, but not in the control group. There was also a significant difference in the mean score of perceived stress between the two groups. We conclude that the educational intervention based on the TMSC was effective in improving coping skills and reducing perceived stress. **Conclusions:** We suggest that interventions based on the TMSC model can be supportive in workplaces where job stress is common.

**Kaveh et al. 2023.**

**Scientific Reports, vol. 13, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Stress management educational intervention; stress-coping; industrial workers.

**Evidence Level:** 2B

**Link:** <https://www.nature.com/articles/s41598-023-32230-2>

### **Participation in the Global Corporate Challenge<sup>®</sup>, A four-month workplace pedometer program, reduces psychological distress**

**Background:** Psychological distress (stress) has been linked to an increased risk of chronic diseases and is exacerbated by a range of workplace factors. Physical activity has been shown to alleviate psychological distress. Previous pedometer-based intervention evaluations have tended to focus on physical health outcomes. This study aimed to investigate the immediate and long-term changes in psychological distress in employees based in Melbourne, Australia after their participation in a four-month pedometer-based program in sedentary workplaces. **Methods:** At baseline, 716 adults (aged 40 ± 10 years, 40% male) employed in primarily sedentary occupations, voluntarily enrolled in the Global Corporate Challenge<sup>®</sup> (GCC<sup>®</sup>), recruited from 10 Australian workplaces to participate in the GCC<sup>®</sup> Evaluation Study, completed the Kessler 10 Psychological Distress Scale (K10). Of these, 422 completed the K10 at baseline, 4 months and 12 months. **Results:** Psychological distress reduced after participation in a four-month workplace pedometer-based program, which was sustained eight months after the program ended. Participants achieving the program goal of 10,000 steps per day or with higher baseline psychological distress had the greatest immediate and sustained reductions in psychological distress. Demographic predictors of immediate reduced psychological distress (n = 489) was having an associate professional occupation, younger age, and being 'widowed, separated or divorced'. **Conclusions:** Participation in a workplace pedometer-based program is associated with a sustained reduction in psychological distress. Low-impact

physical health programs conducted in groups or teams that integrate a social component may be an avenue to improve both physical and psychological health in the workplace.

**Stone et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 5.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** K10; health promotion; intervention; occupational health; pedometer; physical activity; prevention; psychological distress; sedentary; sitting; stress; work.

**Evidence Level:** 4A

**Link:** <https://www.mdpi.com/1660-4601/20/5/4514>

## Job Design

*This month we explore the job design issues related to precarious employment, workplace isolation and the effects of combining occupationally relevant physical and cognitive tasks.*

### **Precarious employment and workplace health outcomes in Britain**

**Background:** The world of work is changing rapidly, and precarious employment is becoming more prevalent in Britain and elsewhere, particularly since the 2008 financial crisis. This is despite the evidence linking employment precarity to adverse health outcomes, and the policy discourses advocating for high-quality jobs. **Objective:** I seek to establish empirically the extent and nature of the potential link between employment precarity and health outcomes, which is done chiefly at the workplace level. The research can be vital from the perspective of informing policy, given that the workplace represents the level where key policy levers operate. **Methods:** I use nationally representative data from the British Workplace Employment Relations Survey. Four workplace health outcomes (WHOs; viz., injuries, illnesses, job satisfaction, and job anxiety) have been used to examine if organizations with precarious employment arrangements are likely to experience adverse health outcomes. I use alternative econometric approaches to compare organizations that reported to have three types of precarious employment arrangements, viz., shift working, annualised hours, and zero-hours contracts (ZHCs), vis-à-vis their counterparts without such arrangements. **Results:** The results obtained reveal that workplaces with precarious employment arrangements are significantly unhealthier, and those with the most insecure form of precarious employment perform particularly worst in this respect. **Conclusions:** Precarious employment may become ever more prevalent as organizations contend with economic fallouts from shocks such as Brexit or Covid-19. This may lead to sub-standard health outcomes. The positive influence of trade unions on working conditions has largely been decimated and the workforce in Britain is ageing. These combinations may pose significant challenges to public health including mental health crises. Public policy ought to help minimise adverse health outcomes linked to employment precarity.

**Haile. 2023.**

**Social Science and Medicine, vol. 320.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Britain; occupational health & safety; precarious employment; workplace health.

**Evidence Level:** 4B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0277953623000497?via%3Dihub>

### **Effects of combining occupationally relevant physical and cognitive tasks. A systematic review**

**Background:** Physical and cognitive tasks occur together in many occupations. Previous reviews of combined tasks have mainly focused on their effects in a sports context. This review investigated to which extent combinations (concurrent or alternating) of occupationally relevant physical and cognitive tasks influence responses reflecting biomechanical exposure, stress, fatigue, performance, and well-being.

**Methods:** We searched Scopus, Pubmed, Cinahl, and Psycinfo for controlled experiments investigating the effects of combinations of occupationally relevant physical and cognitive tasks in participants aged 18 to 70. In total, we identified 12 447 records. We added recent papers that had cited these studies (n = 573) to

arrive at a total of 13 020 publications. After screening for relevance, 61 studies remained, of which 57 were classified to be of medium or high quality. Of the 57 studies, 51 addressed concurrent tasks, 5 alternating tasks, and 1 both concurrent and alternating tasks. **Results:** Most studies of concurrent physical and cognitive tasks reported negative effects, if numerically small, on indicators of biomechanical exposure, fatigue, and performance, compared to a physical task alone. Results were mixed for stress indicators, and well-being was too little studied to justify any conclusions. Effects depended on the tasks, including their intensity and complexity. Alternating physical and cognitive tasks did not appear to influence outcomes much, compared to having passive breaks in-between physical tasks. **Conclusions:** The reviewed evidence indicated that concurrent physical and cognitive work tasks have negative, yet small effects on biomechanical indicators, fatigue and performance, compared to performing the physical task alone, but only if the physical task is intense, and the cognitive task is complex. Alternating between physical and cognitive tasks may have similar effects as breaking up physical tasks by passive breaks, but studies were few. Future studies should address ecologically valid combinations of physical and cognitive tasks, in particular in controlled field studies devoted to the long-term effects of combined work.

**Mixter et al. 2023.**

**Annals of Work, Exposure and Health, vol. 67, no. 3.**

**User License:** *Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)*

(<https://creativecommons.org/licenses/by-nc/4.0/>)

**Keywords:** Cognitive work; fatigue; performance; physical work; stress.

**Evidence Level:** 1A

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10015802/>

### **Influence mechanism and impacting boundary of workplace isolation on the employee's negative behaviors**

**Background:** Based on social identity theory, by introducing organizational identification as mediating variable and identification orientation as moderating variable, this paper studies the influence mechanism and impacting boundary of workplace isolation on employee fatigue and turnover intention.

**Methods:** Based on logic relationship, seven basic hypotheses are put forward to construct the theoretical model of the problem. Based on the 300 effective questionnaires being obtained from employees in Mainland China, the empirical investigation adopts the three-phase lag time design. By regression analysis and bootstrap test. **Results:** (1) Workplace isolation has a significant positive effect on employee's work fatigue; (2) Workplace isolation has a significant positive effect on employee's turnover intention; (3) Organizational identification plays a partial mediating role between workplace isolation and work fatigue; (4) Organizational identification plays a partial mediating role between workplace isolation and employee's turnover intention; (5) Employee identification orientation negatively moderates the relationship between workplace isolation and organizational identification, that is to say, the higher the degree of identification orientation, the more inhibited the negative impact of workplace isolation on organizational identification; (6) Employee identification orientation has a negative moderating effect, namely, compared with the low degree of employee identification orientation, the higher the employee identification orientation, the positive effect of workplace isolation on work fatigue and turnover intention through organizational identification become weaker. **Discussion:** Understanding these influencing mechanisms will have a great influence on guiding managers to mitigate the negative effects of "workplace isolation" in practice and improve the work efficiency of employees.

**Yang et al. 2023.**

**Frontiers in Public Health, vol. 11.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Identification orientation; organizational identification; turnover intention (TI); work fatigue; workplace isolation.

**Evidence Level:** 4B

**Link:** <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1077739/full>

## Shift Work

*This month we explore the association between the use of shift schedule evaluation tool and occupational injuries, and the association between night and evening shifts and risk of calling in sick.*

### **The association between the use of shift schedule evaluation tool with ergonomics recommendations and occupational injuries: A 4-year prospective cohort study among healthcare workers**

**Background:** This study aimed to find out whether utilizing a shift schedule evaluation tool with ergonomics recommendations for working hours has favorable effects on the incidence of occupational injuries.

**Methods:** This 4-year prospective cohort study (2015-2018) consisted of a dynamic cohort of healthcare shift workers (N=29 237) from ten hospital districts and six cities in Finland. Working hour characteristics and occupational injuries were measured with daily registry data. Multilevel generalized linear model was used for the analyses, and the estimates were controlled for hierarchical structure of the data and confounders. **Results:** Ward heads of the cities used the shift schedule evaluation tool 3.2 times more often than ward heads of the hospital districts. Overall incidence of workplace and commuting injuries did not differ between users and non-users of the evaluation tool. The incidence of dislocations, sprains, and strains was lower in the users than non-users [adjusted odds ratio (OR) 0.88, 95% confidence interval (CI) 0.78-0.99]. Approximately 13% of this association was mediated by increase in realized shift wishes and 10% by increase in single days off. In subgroup analyses, the incidence of workplace injury (OR 0.83, 95% CI 0.69-0.99), and among types of injuries, the incidence of dislocations, sprains, and strains (OR 0.69, 95% CI 0.55-0.85) and falling, slipping, tripping, or overturning (OR 0.75, 95% CI 0.58-0.99) were lower in users than non-users among employees of the cities, but no association was found among employees of the hospital districts. **Conclusion:** The use of ergonomics recommendations for working hours is associated with a reduced risk of occupational injuries.

**Shiri et al. 2023.**

**Scandinavian Journal of Work, Environment and Health, vol. 49, no. 2.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Shift schedule; occupational injuries; healthcare workers.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4068>

### **Night and evening shifts and risk of calling in sick within the next two days - a case-crossover study design based on day-to-day payroll data**

**Background:** Night and evening work is associated with risk of sickness absence, but little is known about the acute effects of these types of shifts on sickness absence. The aim of the current study is therefore to examine the risk of calling in sick within two days after a night or an evening shift. **Methods:** By use of a case-crossover design, odds of calling in sick within two days after a night or an evening shift compared to day shifts were analyzed within the same person. Day-to-day information on shifts and sickness absence were derived from the Danish Working Hour Database on 44 767 cases. Data were analyzed using conditional logistic regression. The analyses were supplemented by extensive testing of methodological choices. **Results:** Analyses showed higher odds of calling in sick after a night shift [odds ratio (OR) 1.22, 95% confidence interval (CI) 1.14-1.30] and lower odds after an evening shift (OR 0.89, 95% CI 0.84-0.93) compared to day shifts within the same person. Testing of methodological choices suggested that in particular the duration of case and control periods, time between these periods along with the number of control periods affected the results. **Conclusion:** This large and unique within-person study among Danish hospital employees indicate that the risk of calling in sick is affected by the types of shifts, independently of sex, age, and time-invariant confounding. Extensive testing identified important methodological choices eg, length and number of included periods to consider when choosing the case-crossover design.

**Larsen et al. 2023.**

**Scandinavian Journal of Work, Environment and Health, vol. 49, no. 2.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Night shift; sickness; absence; evening; shift work.

**Evidence Level:** 4B

Link: <https://www.sjweh.fi/article/4074>

## Work Ability

*This month we explore the work ability issues associated with sexual-orientation differences, knee osteoarthritis and the relationship between job crafting and work performance.*

### **Sexual-orientation differences in risk of health-related impaired ability to work and to remain in the paid workforce: A prospective population-based twin study**

**Background:** Studies consistently show an increased risk of poor health among sexual minorities (i.e., those identifying as lesbian, gay, bisexual [LGB] or other non-heterosexuals individuals), as compared to those identifying as heterosexual. It is largely unknown whether the increased risk of mental and physical health problems among sexual minorities is also reflected in an increased risk of health-related impaired ability to work, in terms of sickness absence (SA) and disability pension (DP), or successfully remain in the paid workforce. This study made use of a large sample of Swedish twins with self-reported information about sexual behavior in young adulthood to examine sexual orientation difference in SA and DP during a 12-year follow-up period. **Method:** Data from the Swedish Twin project of Disability pension and Sickness absence (STODS), including Swedish twins born 1959-1985 was used (N = 17,539; n = 1,238 sexual minority). Self-report survey data on sexual behavior was linked to information about SA and DP benefits from the MicroData for Analysis of the Social Insurance database (MiDAS), the National Social Insurance Agency. Sexual orientation differences in SA and DP between 2006 and 2018 was analyzed, as well as, the influence of sociodemographic, social stress exposure (i.e., victimization, discrimination), mental health treatment, and family confounding on these differences. **Results:** Compared to heterosexuals, sexual minorities were more likely to having experienced SA and having been granted DP. The odds were highest for DP, where sexual minorities were 58% more likely to having been granted DP compared to heterosexuals. The higher odds for SA due to any diagnosis could largely be explained by sociodemographic factors. The higher odds of SA due to mental diagnosis could partially be explained by increased risk of being exposed to discrimination and victimization, and partially by having received treatment with antidepressant medication. The higher odds of being granted DP could also partially be explain by increased risk of being exposed to social stress and treatment with antidepressant medication. **Conclusion:** To our knowledge, this is the first study to report on sexual orientation differences in risk of SA and DP in a population-based sample. We found higher period prevalence of both SA and DP among sexual minorities as compared to heterosexuals. The higher odds of SA and DP could partially or fully be explained by sexual orientation differences in sociodemographic factors, exposure to social stress, and antidepressant treatment for depression. Future studies can extend these findings by continuing to investigate risk factors for SA and DP among sexual minorities and how such factors can be reduced.

**Bränström et al. 2023.**

**BMC Public Health, vol. 23, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Disability pension; sexual minorities; sick leave; work ability.

**Evidence Level:** 4B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-023-15384-6>

### **What personal and work-related characteristics of dutch construction workers with knee osteoarthritis are associated with future work ability?**

**Background:** To assess personal and work-related characteristics of construction workers with knee osteoarthritis (KO) associated with their ability to perform their current profession in the following 2 years.

**Methods:** A cross-sectional study was performed among Dutch construction workers diagnosed with KO using data from the Worker Health Surveillance. Logistic regression was used to assess the characteristics associated with future work ability. **Results:** On the basis of 344 construction workers with KO, being able to perform their current profession in 2 years' time was associated with working weekly 36 to 45 hours (odds ratio [OR], 3.0 to 6.3), performing high-intensity exercises 1 to 2 times weekly (OR, 2.0 to 2.6), being

younger than 56 years (OR, 0.2 to 0.3), and not performing strenuous work activities such as lifting and kneeling (OR, 0.4 to 0.5). **Conclusions:** To keep construction workers with KO at work, intervention studies should evaluate the effects of reducing strenuous work activities and promote leisure-time exercise.

**De Kock et al. 2023.**

**Journal of Occupational and Environmental Medicine, vol. 65, no. 3.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Knee osteoarthritis; construction; performance; personal characteristics; work characteristics.

**Evidence Level:** 4B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/03000/What\\_Personal\\_and\\_Work\\_Related\\_Characteristics\\_of.12.aspx](https://journals.lww.com/joem/Fulltext/2023/03000/What_Personal_and_Work_Related_Characteristics_of.12.aspx)

### **Work limitations as a moderator of the relationship between job crafting and work performance: Results from an SEM analysis of cross-sectional survey data**

**Purpose:** Job crafting is an incremental, employee-initiated job design process used to achieve a better fit between job demands and worker skills. Persons with work limitations face multiple barriers to optimal work performance. Some persons with work limitations may innately use job crafting as a strategy to achieve better alignment with their job tasks and demands, however the extent to which job crafting may be helpful in improving work performance and engagement is unknown. The purpose of this study is (1) to examine the moderating role of work limitations in the relationship between job crafting and work performance and (2) to understand the complex relationship between job crafting, work limitations, work engagement, work performance, readiness to change, and worker characteristics. **Methods:** We conducted an online survey of workers with and without disabilities (final N = 742) in 2020-2021. Our sample included workers aged 18 and older. Descriptive statistics, bivariate statistics, and Partial Least Squares-Structural Equation Modeling (PLS-SEM) were used to assess the relationships among job crafting, work limitations, work engagement, work performance, readiness to change, and worker characteristics. **Results:** Work limitation moderates the relationship between job crafting and work performance by weakening the impact of innate job crafting on work performance. Worker characteristics such as education and years of work experience predict crafting behaviors and work engagement mediates the relationship between job crafting and work performance. **Conclusions:** Work limitation weakens the relationship between job crafting and work performance. Workers with limitations may benefit from job crafting interventions to increase work engagement and performance.

**Sundar et al. 2023.**

**Journal of Occupational Rehabilitation, vol. 33, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Disabled persons; job crafting; work engagement; work limitations; work performance; workplace.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s10926-022-10055-6>

## **Adapting to the Future of Work**

### **Aging Workforce**

*This month we explore the effect of uncertainties in late working life on retirement decisions, the ability to prolong work life of older workers and the relationship between worker aging, control, and well-being.*

### **The worn-out syndrome: Uncertainties in late working life triggering retirement decisions**

**Background:** In recent decades, the extension of individuals' working life has been construed as an important policy issue in Western Europe. Here, retirement causes have been thoroughly researched in a quantitative way, but there is a dearth of qualitative studies on the subject. **Methods:** Through

ethnographic fieldwork, we study the complex pathways that lead to the retirement of senior employees in the finance and production industries in Denmark. **Results:** In particular in the finance industry, we find an insidious uncertainty haunting senior employees regarding their capacity and reputation. We term this uncertainty worn-out syndrome, demonstrating how many interlocutors fear that they are beginning to be seen as worn out, for example, less productive, less motivated, and too old to work. To some extent, this syndrome resembles the impostor syndrome, but it differs in one important aspect: the senior employees are mostly confident about their own skills. Worn-out syndrome is triggered by stereotypes and implicit ageist remarks by colleagues and managers. We show that the worn-out syndrome appears in at least three different ways: as a fear of already being worn out, as a fear of being perceived as worn out by colleagues and managers, and as a fear of becoming worn out in the future without realizing it in time. **Conclusions:** We argue that current retirement decisions are often fueled by this syndrome and that it leads to abrupt and untimely retirement decisions.

**Aabo et al. 2023.**

**PLoS One, vol. 18, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Retirement; burnout; worn-out syndrome; Western Europe.

**Evidence Level:** 5B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0282905>

### **Can workplace intervention prolong work life of older workers? A quasi-experimental study**

**Background:** We aimed to evaluate the impact of a workplace senior program intervention on early exit from labor market and on the disability retirement among older employees and work-related physical factors associated with it. **Methods:** A total of 259 individuals aged 55 + years participated in the study (107 in intervention and 152 were controls). A questionnaire survey was conducted among Finnish food industry employees between 2003 and 2009 and the intervention "senior program" was provided between 2004 and 2009. The type of pension for the respondents who had retired by 2019 was obtained and dichotomized as statutory vs. early labor market exit. Disability pension was investigated as a separate outcome. Information on work-related factors was obtained from the survey. Cox regression analysis was used to estimate hazard ratios (HR) with their 95% confidence intervals. **Results:** Fifty-one employees had early labor market exit. Of them, 70% (n = 36) were control participants. Employees in the senior program worked for longer years (mean years 7.4, 95% CI 6.4-8.1) compared to the control (6.6, 95% CI 6.3-7.5). Sixty percent lower risk of early labor market exit (HR 0.40, 95% CI 0.19-0.84) and disability pension was found among employees in the senior program compared to the control group. Good work ability had a 94% lower risk (0.06, 95% CI 0.01-0.29) of early labor market exit and 85% lower risk (0.15, 95% CI 0.03-0.73) of disability pension compared to poor work ability. Employees with musculoskeletal pain had 4 times higher risk of disability pension compared to those without musculoskeletal pain. **Conclusions:** A workplace senior program intervention prolonged work life and had positive effect on reducing disability pension among older industrial workers.

**Neupane et al. 2023.**

**International Archives of Occupational and Environmental Health, vol. 96, no. 2.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Aging workers; disability pension; prolonged work life; workplace intervention.

**Evidence Level:** 3B

**Link:** <https://link.springer.com/article/10.1007/s00420-022-01919-8>

### **Worker aging, control, and well-being: A specification curve analysis**

**Background:** Among the many work (and life) characteristics of relevance to adult development and aging, various forms of control are some of the most extensively and diversely studied. Indeed, "control," whether objectively held (i.e., "actual" control), perceived, or enacted through self-regulation, is a concept central to our understanding of person-environment interactions, development, and well-being within and across life domains. However, variability in conceptualization and analysis in the literature on control presents challenges to integration. **Methods:** To partially address these gaps, the present study sought to explore the effects of conceptual and analytical specification decisions (e.g., construct types, time, covariates) on

observed control-well-being relationships in a large, age-diverse, longitudinal sample (Midlife in the United States I, II, and III datasets), providing a specification curve analysis (SCA) tutorial and guidance in the process. **Results:** Results suggest that construct types and operationalizations, particularly predictor variables, have bearing on observed results, with certain types of control serving as better predictors of various forms of well-being than others. **Conclusions:** These findings and identified gaps are summarized to provide direction for theoretical clarification and reconciliation in the control and lifespan development literatures, construct selection and operationalization in future aging and work research, and inclusive, well-specified interventions to improve employee well-being.

**Rauvola et al. 2023.**

**Acta Psychologica, vol. 233.**

**User License:** *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

**Keywords:** Aging; control; lifespan development; specification curve; well-being.

**Evidence Level:** 4B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0001691823000094?via%3Dihub>

## Work Environment

*This month we explore the effect of remote work on work stress severity, subjective well-being and back pain.*

### **Remote and on-site work stress severity during the COVID-19 pandemic: Comparison and selected conditions**

**Background:** The aim of the present study was to explore whether remote and on-site work stress during the COVID-19 pandemic was experienced with different severity. The second goal was to investigate stress conditions at both working modes. **Material and methods:** The study involved 946 individuals working in the education system and BSS sector in different Polish organizations. The following tools were used: the *Brief Scale of Vocational Stress* by Dudek and Hauk, the Polish version of the scales to measure work-family conflicts by Grzywacz, Frone, Brewer and Kovner, Meyer and *Allen's Affective, Continuance, and Normative Commitment Scales* in the Polish adaptation by Bańka, Wołowska and Bazińska, the *Satisfaction with Job Scale* by Zalewska. **Results:** The analysis of intergroup differences revealed that remote work stress severity was significantly lower than on-site work stress severity. The regression analyses proved that work-family conflict and job satisfaction were significant predictors of remote and on-site work stress. Continuance commitment positively predicted on-site work stress. Both models turned out to be statistically significant. The variables included in the models explained 39% and 35% of the variability of the remote work and on-site work stress, respectively. **Conclusions:** Remote work is associated with lower stress severity than on-site work. For both types of work, the higher the level of work-family conflict, the higher the level of stress severity, but the higher the job satisfaction, the lower the stress severity. Continuance commitment is positively related to on-site stress, which means that people who work for an organization and see no alternative feel more stressed. Such an effect was observed only in the case of on-site work. The study findings are discussed in light of previous research, and implications for organizational practice are considered. *Int J Occup Med Environ Health.* 2023;36(1):96-111.

**Chudzicka-Czupała et al. 2023.**

**International Journal of Occupational Medicine Research and Environmental Health, vol. 36, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** COVID-19; job satisfaction; on-site work stress; organizational commitment; remote work stress; work-family conflicts.

**Evidence Level:** 4B

**Link:** [http://ijomeh.eu/Remote-and-on-site-work-stress-severity-during-the-COVID-19-pandemic-comparison-and\\_156059\\_0\\_2.html](http://ijomeh.eu/Remote-and-on-site-work-stress-severity-during-the-COVID-19-pandemic-comparison-and_156059_0_2.html)



### **Ongoing remote work, returning to working at work, or in between during COVID-19: What promotes subjective well-being?**

**Background:** The COVID-19 pandemic precipitated a massive turn to remote work, followed by subsequent shifts for many into hybrid or fully returning to the office. **Methods:** To understand the patterned dynamics of subjective well-being associated with shifting places of work, we conducted a nationally representative panel survey (October 2020 and April 2021) of U.S. employees who worked remotely at some point since the pandemic (N = 1,817). **Results:** Cluster analysis identified four patterned constellations of well-being based on burnout, work-life conflict, and job and life satisfaction. A total return to office is generally more stressful, leading to significantly lower probabilities of being in the optimal low stress/high satisfaction constellation by Wave 2, especially for men and women without care obligations. **Conclusions:** Remote and hybrid arrangements have salutary effects; moving to hybrid is especially positive for minority men and less educated men, although it disadvantages White women's well-being.

**Fan et al. 2023.**

**Journal of Health and Social Behavior, vol. 64, no. 1.**

**User License:** *Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)* (<https://creativecommons.org/licenses/by-nc/4.0/>)

**Keywords:** COVID-19; intersectionality; remote work; stress process; subjective well-being.

**Evidence Level:** 4B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9902780/>

### **Remote work and back pain during the COVID-19 pandemic in adults and older population in South Brazil**

**Background:** This article aims to investigate the association between remote work and Back Pain during the COVID-19 pandemic, and to analyze this relationship according to the body mass index.

**Methods:** Population-based, cross-sectional study carried in two cities in southern Brazil, in individuals aged 18 years and over. Data were collected through household interviews from October to January 2020/21. Outcomes: back pain (cervical, thoracic, lumbar/acute, chronic) and pain intensity. Exposure variable: remote work. For the analyses, Poisson regression with robust adjustment for variance was used, stratified by BMI (eutrophic vs overweight/obese), and restricted to those who had worked in the past month. **Results:** 1,016 had worked during the pandemic, average 42 years old (SD = 14), varying from 18 to 93 years. Remote work was performed by 7.7% of the individuals. Prevalence of back pain: 25.6% (95%CI: 19.5 to 31.7%). Overweight/obese remote workers felt pain acute cervical pain PR = 2.82 (95%CI: 1.15 to 6.92); chronic low back PR = 1.85 (95%CI: 1.04 to 3.29); acute thoracic PR = 1.81(95%CI: 3.76 to 8.68) compared to those who did not work. **Conclusions:** About one in four remote workers reported back pain during of the COVID-19 pandemic. BMI proved to be an important moderator between outcomes and exposure variable.

**Saes-Silva et al. 2023.**

**Ciência & Saúde Coletiva, vol. 28, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Remote work; back pain; COVID-19.

**Evidence Level:** 4B

**Link:** <https://www.scielo.br/j/csc/a/wsKtZyyzLNcxzwBmn53rCdf/?lang=en>