IWH Research Alert
September 11, 2020

Missed an issue? Catch up on previous *Research Alerts* available on the IWH website https://www.iwh.on.ca/journal-articles/research-alerts

Research Alert is a service provided to you by the Institute for Work & Health (IWH) to help you keep abreast of recent literature in the areas of occupational health and safety, epidemiology, public health and others within the IWH mandate. Please note that these articles have not been reviewed by Institute scientists to assess the quality of the studies. *Research Alerts* should not be considered an endorsement of the findings. Readers are cautioned not to act on the results of single studies, but rather to seek bodies of evidence. It should also be noted that the Institute for Work & Health cannot provide full-text of articles listed in *Research Alerts* to individuals outside of the organization, as this violates copyright legislation.

***Maxwell LJ and Beaton DE. Controversy and Debate Series on Core Outcome Sets. Paper 2: Debate on Paper 1 from the perspective of OMERACT [Outcome Measures in Rheumatology]. Journal of Clinical Epidemiology. 2020; 125:213-215.**
https://doi.org/10.1016/j.jclinepi.2020.05.012

Akerstedt T, Narusyte J, and Svedberg P. Night work, mortality, and the link to occupational group and sex. Scandinavian Journal of Work, Environment & Health. 2020; 46(5):508-515.
https://doi.org/10.5271/sjweh.3892
Abstract: Objective Night shifts are associated with several major diseases. Mortality has been studied only to a limited extent, and the association with night shifts remains unclear. The purpose of the present study was to investigate the association between duration of night shift exposure and mortality in a large sample from the Swedish Twin Registry (the SALT cohort). Methods Cox proportional hazards regression models were used to analyze the data (N=42 731) over a follow-up period of 18 years, with years of night shift work as the exposure variable and adjustment for lifestyle factors and age, and

stratification on gender and occupational group. Results The hazard ratio (HR) for "ever" night shifts for total mortality was 1.07 [95% confidence interval (CI) 1.01-1.15] but 1.15 (95% CI 1.07-1.25) for longer exposure (>5 years). Also, HR for cause-specific mortality due to cardiovascular disease was significant, with higher HR for longer night shift exposure. Mortality due to cancer was significant for longer exposure only. White-collar workers showed significant HR for longer exposure. In particular, male white-collar workers showed a significant HR, with a highest value for longer exposure [HR 1.28 (95% CI 1.09-1.49)]. Heredity did not influence the results significantly. Conclusions Long duration of exposure to night shift work is associated with increased mortality, particularly in male white-collar workers. The lack of effects of accumulated exposure suggests that the results should be interpreted with caution

Asfaw A, Quay B, and Chang CC. Do injured workers receive opioid prescriptions outside the workers' compensation system? The case of private group health insurances. Journal of Occupational & Environmental Medicine. 2020; 62(9):e515-e522. https://doi.org/10.1097/JOM.0000000000001961
Abstract: OBJECTIVES: We explored the impact of workplace injury on receiving opioid prescriptions from employer-sponsored private group health insurances (GHI) and how long injured workers receive opioid prescriptions after injury. METHODS: We used a difference-in-differences method and MarketScan databases for the years 2013 to 2015. RESULTS: Estimated odds for injured workers relative to noninjured workers to receive opioid prescriptions from the GHI within 60 and 180 days from the index date of injury were 4.9 and 1.5, respectively. In addition, the number of opioid prescriptions received within 60 days of injury was 2.5 times higher. CONCLUSION: Workplace injury could be a risk factor for both short and long-term prescription opioid use. Studies that use only workers' compensation medical claim data likely underestimate the magnitude of the impact of workplace injuries on opioid prescriptions

Becker A, Angerer P, Weber J, and Muller A. The prevention of musculoskeletal complaints: long-term effect of a work-related psychosocial coaching intervention compared to physiotherapy alone-a randomized controlled trial. International Archives of

Occupational & Environmental Health. 2020; 93(7):877-889. https://doi.org/10.1007/s00420-020-01538-1 [open access]
Abstract: Purpose: Research shows that psychosocial factors play a significant role in the emergence of musculoskeletal complaints (MSC). The aim of this study was to determine the long-term effects on unspecific MSC by a combined physiotherapy and coaching intervention compared to physiotherapy alone. The coaching intervention focussed on enabling better strategies for coping with work stressors. Methods: The participants of a previous randomized controlled intervention were invited to participate again in a third follow-up survey 22 months after the end of the intervention. In 2014, 65 nurses completed a 10-week personalised physiotherapy. Additionally, the intervention group (n = 33) passed five individual coaching sessions, plus an opening and closing session. 44 nurses (IG: n = 24; CG: n = 20) passed again a physical examination as well as another questionnaire assessment in 2016. The primary outcome was MSC, secondary outcomes were work ability and work-related well-being. Due to missing data, multiple imputations were conducted using the mice package in R. Data were analysed by ANOVA with two-way repeated measures, t tests for independent samples and Chi-squared tests. Results: In respect of MSC, stronger improvement of movement in the vertebral column was observed in the IG compared to the CG. No differences between the IG and CG regarding other long-term effects were observed. Conclusions: The results suggest that the combined intervention of work-related coaching and physiotherapy had only a marginally stronger long-term effect with respect to MSC than physiotherapy alone.

Creed PA, Hood M, Selenko E, and Bagley L. The development and initial validation of a self-report job precariousness scale suitable for use with young adults who study and work. Journal of Career Assessment. 2020; 28(4):636-654. https://doi.org/10.1177/1069072720920788

Dong XS, Brooks RD, and Cain CT. Prescription opioid use and associated factors among US construction workers. American Journal of Industrial Medicine. 2020; 63(10):868-877. https://doi.org/10.1002/ajim.23158
Abstract: Background: Construction workers are among the segments

of the US population that were hit hardest by the opioid prescription and overdose deaths in the past decades. Factors that underlie opioid use in construction workers have been compartmentalized and isolated in existing studies of opioid use and opioid overdose, but they ignore the overall context of their use. This study examines prescription opioid use and its association with a variety of occupational and nonoccupational factors in construction workers in the United States. Methods: Data from the 2011-2017 Medical Expenditure Panel Survey (n = 7994) were analyzed. The prevalence of prescribed opioid use and the association with occupational and nonoccupational characteristics among construction workers were examined in four multiple logistic regression models. Results: The odds of prescription opioid use for workers with occupational injuries was more than triple that of their noninjured counterparts when demographics and occupational factors were controlled (odds ratio = 3.38, 95% confidence interval: 2.38-4.81). Odds of prescription opioid use were higher in older construction workers, workers who were white, non-Hispanic, working part-time, and in poorer health, while Hispanic workers and those without health insurance were much less likely to report prescription opioid use. Conclusions: Prescription opioid use among construction workers encompasses both occupational and nonoccupational factors. As an insight into opioid use among construction workers becomes clearer, effectively responding to the opioid crisis remains a challenge.

Gao Y, Yang K, Cai Y, Shi S, Liu M, Zhang J, et al. Updating systematic reviews can improve the precision of outcomes: a comparative study. Journal of Clinical Epidemiology. 2020; 125:108-119.
https://doi.org/10.1016/j.jclinepi.2020.05.019
Abstract: Objectives: The objective of this study was to investigate the main characteristics and the precision of outcomes between updated and original systematic reviews (SRs). Study design and setting: We searched PubMed and Embase.com on 31 March 2019 and included 30 pairs of updated and original SRs. We calculated changes in outcomes and the precision of effect size estimates in updated SRs, compared with original SRs. Review Manager 5.3 software was adopted to create forest plots showing comparable outcomes. Results: The average update time was 56.0 months, and

incorporating new trials (23 SRs, 76.7%) was the main reason for the update. Compared with original SRs, 24 (80.0%) updated SRs included more randomized controlled trials and 22 (73.3%) updated SRs involved a larger number of patients. Of the 130 comparable outcomes, only three (2.3%) outcomes were observed with a significant change in three SR updates. No new data from randomized controlled trials were added to 36 (27.7%) outcomes during the update process. Of the 94 outcomes including new evidence, 83 (88.3%) showed an improvement in precision, 5 (5.3%) showed a decrease in precision, and 6 (6.4%) did not exhibit changes in precision. Conclusion: Updating SRs could increase the precision of most comparable outcomes, although the conclusions of almost all updated SRs were similar to original SRs.

Gonzalez K, Tillman CJ, and Holmes JJ. Coming home: why veterans with disabilities withhold workplace accommodation requests. Human Relations. 2020; 73(10):1439-1466. https://doi.org/10.1177/0018726719875810

Hu X, Yeo G, and Griffin M. More to safety compliance than meets the eye: differentiating deep compliance from surface compliance. Safety Science. 2020; 130:104852. https://doi.org/10.1016/j.ssci.2020.104852

Lennefer T, Lopper E, Wiedemann AU, Hess U, and Hoppe A. Improving employees' work-related well-being and physical health through a technology-based physical activity intervention: a randomized intervention-control group study. Journal of Occupational Health Psychology. 2020; 25(2):143-158. https://doi.org/10.1037/ocp0000169

Abstract: Although activity trackers are becoming more popular, little is known whether this new technology qualifies to improve employees' health. This study aimed to evaluate the effect of a workplace intervention applying activity trackers (behavioral approach) along with an online coach (cognitive approach) on work-related well-being (e.g., burnout) and physical health (e.g., body mass index). To test for intervention effects, 116 employees at risk were recruited at 1 large mobility enterprise in Germany and randomly assigned to an intervention group (n = 59) and a control

group (n = 57). Intervention effects were assessed 1 month, 3 months, and 1 year after the intervention. Analyses of variance for repeated measures revealed no intervention or long-term effects on work-related well-being. In the intervention group, we found a significant increase in health perception and a significant decrease in body mass index. These effects were stable over time 3 months after the intervention for health perception and 1 year after the intervention for body mass index. Our study shows that a cognitive-behavioral intervention with activity trackers improved physical health over time but was not effective in enhancing work-related well-being. (PsycInfo Database Record (c) 2020 APA, all rights reserved)

Park J, Oh YS, and Kim Y. Association of poor psychological well-being with co-exposure to psychosocial factors at work in Korean regular workers. American Journal of Industrial Medicine. 2020; 63(10):928-935.
https://doi.org/10.1002/ajim.23155
Abstract: Background: This study evaluated the association of co-exposure to different psychosocial factors with poor psychological well-being of Korean regular workers. Methods: This was a secondary analysis of data from the fifth Korean Working Conditions Survey, conducted in 2017. Multiple logistic regression was used to determine adjusted odd ratios (aORs) and 95% confidence intervals for poor psychological well-being associated with self-reported psychosocial factors. Poor psychological well-being was measured using the Well-Being Index of the World Health Organization. For each question on psychosocial factors (long weekly working hours, lack of decision latitude, work pressure, lack of autonomy, lack of role clarity, organizational injustice, lack of reward, and lack of support from managers), answers of "always" and "most of the time" were classified as affirmative and answers of "sometimes," "rarely," and "never" were classified as negative. Results: Poor psychological well-being was significantly associated with most individual work stressors for both sexes (aORs = 1.22-1.83). Furthermore, poor psychological well-being had a positive association with co-exposure to different psychosocial factors (aORs = 1.71-8.08). Co-exposure to an increasing number of psychosocial factors showed greater association with poor psychological well-being. Conclusion: We found that poor psychological well-being was associated with co-exposure

to psychosocial factors in Korean workers in regular employment. Thus, we suggest that employers provide comprehensive measures that will protect workers from simultaneous exposure to adverse psychosocial factors.

Patel K, Sutherland H, Henshaw J, Taylor JR, Brown CA, Casson AJ, et al. Effects of neurofeedback in the management of chronic pain: a systematic review and meta-analysis of clinical trials. European Journal of Pain. 2020; 24(8):1440-1457. https://doi.org/10.1002/ejp.1612

Abstract: Background and objective: Neurofeedback (NFB) provides real-time feedback about neurophysiological signals to patients, thereby encouraging modulation of pain-associated brain activity. This review aims to evaluate the effectiveness and safety of NFB in alleviating pain and pain-associated symptoms in chronic pain patients. Methods: MEDLINE, PUBMED, Web of Science and PsycINFO databases were searched using the strategy: ("Neurofeedback" OR "EEG Biofeedback" OR "fMRI Biofeedback") AND ("Pain" or "Chronic Pain"). Clinical trials reporting changes in pain following electroencephalogram (EEG) or functional magnetic resonance imaging (fMRI) NFB in chronic pain patients were included. Only Randomized-controlled trials (RCT), non-randomized controlled trials (NRCT) and case series were included. Effect size was pooled for all RCTs in a meta-analysis. Results: Twenty-one studies were included. Reduction in pain following NFB was reported by one high-quality RCT, five of six low-quality RCT or NRCT and 13 of 14 case-series. Pain reduction reported by studies ranged from 6% to 82%, with 10 studies reporting a clinically significant reduction in pain of >30%. The overall effect size was medium (cohen's d -0.76, 95% confidence interval -1.31 to -0.20). Studies were highly heterogeneous (Q [df = 5] = 18.46, p = .002, I2 = 73%). Improvements in depression, anxiety, fatigue and sleep were also seen in some studies. Common side-effects included headache, nausea and drowsiness. These generally did not lead to withdrawal of therapy except in one study. Conclusions: Neurofeedback is a safe and effective therapy with promising but largely low-quality evidence supporting its use in chronic pain. Further high-quality trials comparing different protocols is warranted to determine the most efficacious way to deliver NFB. Significance: Neurofeedback is a

novel neuromodulatory approach which can be used to reduce the severity of pain and pain-associated symptoms such as sleep disturbances, mood disturbances, fatigue and anxiety in a number of chronic pain conditions. It has a potential to provide integrative non-pharmacological management for chronic pain patients with pain refractory to pharmacological agents with high side-effect profiles. Further high-quality double-blinded randomized sham-controlled trials are needed in order to fully explore the potential of this therapy.

Svendsen MJ, Schmidt KG, Holtermann A, and Rasmussen CDN. Expert panel survey among occupational health and safety professionals in Denmark for prevention and handling of musculoskeletal disorders at workplaces. Safety Science. 2020; 131:104932.
https://doi.org/10.1016/j.ssci.2020.104932 [open access]
Abstract: Occupational health and safety (OHS) professionals have a key role in supporting the health and work ability of employees, including preventing and handling musculoskeletal disorders (MSDs) at workplaces. MSDs are the leading cause of work disability, productivity loss and sickness absence in Europe. This may be due to limited consensus on use of effective OHS practices as facilitation of evidence-based practices increases quality of provided services. This study explored consensus of OHS professionals' practices and examined OHS professionals' request for development of evidence-based guidelines for prevention and handling of MSDs at workplaces. This was done by 1) field observations and interviews with OHS professionals working with ergonomics or MSDs at workplaces, 2) development and pilot testing of a panel survey, 3) a three-round expert panel survey and 4) workshop with OHS stakeholders within the OHS organisations in Denmark. The findings indicate limited consensus of OHS practices and a request for development of practice- and evidence-based guidelines for prevention and handling of work-related MSDs in Denmark. The study also presents an end user involving process for increased uptake and implementation of guidelines.

Vinstrup J, Jakobsen MD, and Andersen LL. Perceived stress and low-back pain among healthcare workers: a multi-center prospective cohort study. Frontiers in Public Health. 2020; 8:297.

https://doi.org/10.3389/fpubh.2020.00297 **[open access]**
Abstract: Objective: This study aimed to investigate the association between perceived stress and odds of low-back pain (LBP) in a population of Danish healthcare workers. Methods: Utilizing a prospective cohort design with 1-year follow-up, a total of 1,944 healthcare workers from 389 departments at 19 hospitals responded to questionnaires containing items related to lifestyle, health, and working environment. Using Cohen's Perceived Stress Scale, associations between baseline stress levels and LBP intensity (0-10 scale) at follow-up were modeled using cumulative logistic regression, accounting for clustering at the department level and adjusting for age, sex, baseline intensity of LBP, education, seniority, number of daily patient transfers, psychosocial work environment, and lifestyle factors. Results: For the entire population, moderate and high stress (reference: low stress) at baseline increased the odds of LBP at 1-year follow-up with odds ratios (ORs) of 1.39 (95% CI 1.13-1.71) and 1.99 (95% CI 1.49-2.66), respectively. Sensitivity analyses among female nurses showed similar results [i.e., OR 1.40 (95% CI 1.08-1.80) and OR 2.08 (95% CI 1.44-3.00) for moderate and high stress, respectively], while only high stress significantly increased the odds among those without LBP at baseline. Conclusions: Psychological stress increases the odds of LBP among healthcare workers. Identifying and diminishing work-related psychosocial stressors should be included in strategies that aim to prevent musculoskeletal disorders in this population

Warden CA, Warden AR, Huang SC, and Chen JF. Job tension and emotional sensitivity to COVID-19 public messaging and risk perception. Population Health Management. 2020; [epub ahead of print].
https://doi.org/10.1089/pop.2020.0083
Abstract: During the COVID-19 pandemic, government social marketing messages support strategies of suppression (often stay-at-home orders or lockdowns) and/or mitigation (through testing, isolation, and tracing). Success at lowering the virus reproduction rate (R(0)) depends on social marketing messaging that rapidly changes behaviors. This study explores a potential side effect of a successful antivirus public health messaging campaign, when employees are back at work but the virus threat has not disappeared, that leads to

on-the-job stress. The authors surveyed office employees in Shanghai, the People's Republic of China, where a nearly 2-month COVID-19 quarantine ended in late March 2020 and work locations reopened with strong public health messaging to encourage cooperation with continued virus spread suppression strategies-an approach likely to be followed in numerous countries. This study examines the relationship of pandemic public messaging sensitivity with tension and negative emotions on the job. Canonical correlation analysis is used with a sample of 1154 respondents, 4 predictor variables (reference group, self-regulation, media, and risk), and 2 criterion variables (negative emotions and job tension). Results show employees are differentially affected by the pandemic background noise. Those more sensitive to social-level virus risks and more open to reference group influence report increased levels of negative emotions and work tension

***IWH authored publication.**