IWH Research Alert
November 13, 2020

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***Zhang JC, Carnide N, Holness L, and Cram P. Cannabis use and work-related injuries: a cross-sectional analysis. Occupational Medicine. 2020; [epub ahead of print].**
https://doi.org/10.1093/occmed/kqaa175
Abstract: BACKGROUND: Although the association of cannabis use with automobile accidents has been well-studied, the impact of cannabis on workplace safety and injuries is less clear. AIMS: The purpose of this study was to examine the relationship between work-related injury and cannabis use in the past year. METHODS: We performed a cross-sectional analysis of the Canadian Community Health Survey (2013-16) of working individuals. We used multiple logistic regression modelling to calculate the odds of experiencing a work-related injury (defined as non-repetitive strain injury) among workers who reported using cannabis more than once during the prior 12 months as compared to non-users. We repeated the analysis among participants working in high injury risk occupational groups only. RESULTS: Among the 136 536 working participants, 2577 (2%) had a work-related injury in the last 12 months. Of these 2577 who had a work-related injury, 4% also reported being a cannabis user in the same period. We found no association between past-year

cannabis use and work-related injury (odds ratio for work injury among users 0.81, 95% confidence interval 0.66-0.99). The association was unchanged in the subgroup analysis limited to high injury risk occupational groups. CONCLUSIONS: We found no evidence that cannabis users experienced higher rates of work-related injuries. While awaiting prospective studies, occupational medicine practitioners should take a risk-based approach to drafting workplace cannabis policies

Araya F. Modeling the spread of COVID-19 on construction workers: an agent-based approach. Safety Science. 2021; 133:105022.
https://doi.org/10.1016/j.ssci.2020.105022

Bethge M, Spanier K, and Streibelt M. Using administrative data to assess the risk of permanent work disability: a cohort study. Journal of Occupational Rehabilitation. 2020; [epub ahead of print].
https://doi.org/10.1007/s10926-020-09926-7
Abstract: Purpose Unmet rehabilitation needs are common. We therefore developed a risk score using administrative data to assess the risk of permanent work disability. Such a score may support the identification of individuals with a high likelihood of receiving a disability pension. Methods Our sample was a random and stratified 1% sample of individuals aged 18-65 years paying pension contributions. From administrative records, we extracted sociodemographic data and data about employment and welfare benefits covering 2010-2012. Our outcome was a pension due to work disability that was requested between January 2013 and December 2017. We developed a comprehensive logistic regression model and used the model estimates to determine the risk score. Results We included 352,140 individuals and counted 6,360 (1.8%) disability pensions during the 5-year follow-up. The area under the receiver operating curve was 0.839 (95% CI 0.834 to 0.844) for the continuous risk score. Using a threshold of = 50 points (20.2% of all individuals), we correctly classified 80.6% of all individuals (sensitivity: 71.5%; specificity: 80.8%). Using = 60 points (9.9% of all individuals), we correctly classified 90.3% (sensitivity: 54.9%; specificity: 91.0%). Individuals with 50 to < 60 points had a five times

higher risk of a disability pension compared to individuals with low scores, individuals with = 60 points a 17 times higher risk. Conclusions The risk score offers an opportunity to screen for people with a high risk of permanent work disability.

Claxton G, Damico A, Rae M, Young G, McDermott D, and Whitmore H. Health benefits in 2020: premiums in employer-sponsored plans grow 4 percent; employers consider responses to pandemic. Health Affairs. 2020; 39(11):2018-2028. https://doi.org/10.1377/hlthaff.2020.01569

Abstract: The annual Kaiser Family Foundation Employer Health Benefits Survey is the benchmark survey of the cost and coverage of employer-sponsored health benefits in the United States. The 2020 survey was designed and largely fielded before the full extent of the coronavirus disease 2019 (COVID-19) pandemic had been felt by employers. Data collection took place from mid-January through July, with half of the interviews being completed in the first three months of the year. Most of the key metrics that we measure-including premiums and cost sharing-reflect employers' decisions made before the full impacts of the pandemic were felt. We found that in 2020 the average annual premium for single coverage rose 4 percent, to $7,470, and the average annual premium for family coverage also rose 4 percent, to $21,342. Covered workers, on average, contributed 17 percent of the cost for single coverage and 27 percent of the cost for family coverage. Fifty-six percent of firms offered health benefits to at least some of their workers, and 64 percent of workers were covered at their own firm. Many large employers reported having "very broad" provider networks, but many recognized that their largest plan had a narrower network for mental health providers.

Gallego V, Sanchez A, Marton I, and Martorell S. Analysis of occupational accidents in Spain using shrinkage regression methods. Safety Science. 2021; 133:105000. https://doi.org/10.1016/j.ssci.2020.105000

Hayden JA, Wilson MN, Stewart S, Cartwright JL, Smith AO, Riley RD, et al. Exercise treatment effect modifiers in persistent low back pain: an individual participant data meta-analysis of 3514 participants from 27 randomised controlled trials. British

Journal of Sports Medicine. 2020; 54(21):1277-1278.
https://doi.org/10.1136/bjsports-2019-101205
Abstract: BACKGROUND: Low back pain is one of the leading causes of disability worldwide. Exercise therapy is widely recommended to treat persistent non-specific low back pain. While evidence suggests exercise is, on average, moderately effective, there remains uncertainty about which individuals might benefit the most from exercise. METHODS: In parallel with a Cochrane review update, we requested individual participant data (IPD) from high-quality randomised clinical trials of adults with our two primary outcomes of interest, pain and functional limitations, and calculated global recovery. We compiled a master data set including baseline participant characteristics, exercise and comparison characteristics, and outcomes at short-term, moderate-term and long-term follow-up. We conducted descriptive analyses and one-stage IPD meta-analysis using multilevel mixed-effects regression of the overall treatment effect and prespecified potential treatment effect modifiers. RESULTS: We received IPD for 27 trials (3514 participants). For studies included in this analysis, compared with no treatment/usual care, exercise therapy on average reduced pain (mean effect/100 (95% CI) -10.7 (-14.1 to -7.4)), a result compatible with a clinically important 20% smallest worthwhile effect. Exercise therapy reduced functional limitations with a clinically important 23% improvement (mean effect/100 (95% CI) -10.2 (-13.2 to -7.3)) at short-term follow-up. Not having heavy physical demands at work and medication use for low back pain were potential treatment effect modifiers-these were associated with superior exercise outcomes relative to non-exercise comparisons. Lower body mass index was also associated with better outcomes in exercise compared with no treatment/usual care. This study was limited by inconsistent availability and measurement of participant characteristics. CONCLUSIONS: This study provides potentially useful information to help treat patients and design future studies of exercise interventions that are better matched to specific subgroups. PROTOCOL PUBLICATION: https://doi.org/10.1186/2046-4053-1-64

Karran EL, Grant AR, and Moseley GL. Low back pain and the social determinants of health: a systematic review and narrative synthesis. Pain. 2020; 161(11):2476-2493.

https://doi.org/10.1097/j.pain.0000000000001944
Abstract: The social determinants of health (SDH) are known to differentially impact outcomes from many noncommunicable diseases; however, their potential role in low back pain (LBP) is poorly defined. This review endeavours to comprehensively inform the field of their relevance. Our research question was: "How do the broad range of SDH and chronic LBP (CLBP) relate?" The primary aim of this review was to synthesise evidence of relationships between SDH and the frequency or severity of CLBP. Secondary aims were to identify relationships between SDH and LBP-related disability, work absenteeism, and opioid prescription. We included studies involving adult participants that evaluated relationships between one or more of the SDH and CLBP frequency or LBP outcomes (beyond 3 months). Two reviewers screened studies, extracted data, and assessed risk of bias. We synthesized the results narratively and applied PROGRESS to organise our findings. Database searches identified 7018 records. Forty-one studies were included, containing data from 2,161,617 adults from 17 countries. Twenty-four percent and 19% of the relationships included were classified as having a high risk of bias due to confounding and missing data, respectively. We reported 166 relationships representing the majority of the PROGRESS domains. An array of independent and interdependent relationships between the SDH and CLBP were identified with the strongest evidence for associations related to educational attainment and socioeconomic status. Our findings suggest that greater recognition of the contribution of SDH to disparities in LBP outcomes is warranted and this has the potential to usefully inform strategies to impact burden

Lingard H, Cooke T, Zelic G, and Harley J. A qualitative analysis of crane safety incident causation in the Australian construction industry. Safety Science. 2021; 133:105028. https://doi.org/10.1016/j.ssci.2020.105028

Lu Y, Gure Y, and Frenette M. The long-term labour market integration of refugee claimants who became permanent residents in Canada. Analytical Studies: Research Paper Series. (Statistics Canada: Catalogue no. 11F0019M, no. 455). Ottawa, ON: Statistics Canada; 2020

https://www150.statcan.gc.ca/n1/en/pub/11f0019m/11f0019m2020018-eng.pdf?st=UugbZOKM

Oh TK, Kwon YJ, Oh BH, Gwon YI, and Yoon HK. Suggestions for safety coordinator's roles at each construction stage (client, designer, supervisor, and contractor) to improve safety and health activities in South Korea. Safety Science. 2021; 133:104994.
https://doi.org/10.1016/j.ssci.2020.104994

Pagell M, Parkinson M, Veltri A, Gray J, Wiengarten F, Louis M, et al. The tension between worker safety and organization survival. Management Science. 2020; 66(10):4863-4878.
https://doi.org/10.1287/mnsc.2020.3589

Ruiz-Frutos C, Ortega-Moreno M, Allande-Cusso R, Dominguez-Salas S, Dias A, and Gomez-Salgado J. Health-related factors of psychological distress during the COVID-19 pandemic among non-health workers in Spain. Safety Science. 2021; 133:104996.
https://doi.org/10.1016/j.ssci.2020.104996

Sanghera J, Pattani N, Hashmi Y, Varley KF, Cheruvu MS, Bradley A, et al. The impact of SARS-CoV-2 on the mental health of healthcare workers in a hospital setting: a systematic review. Journal of Occupational Health. 2020; 62(1):e12175.
https://doi.org/10.1002/1348-9585.12175 [open access]
Abstract: OBJECTIVES: The SARS-CoV-2 global pandemic has subjected healthcare workers (HCWs) to high risk of infection through direct workplace exposure, coupled with increased workload and psychological stress. This review aims to determine the impact of SARS-CoV-2 on mental health outcomes of hospital-based HCWs and formulate recommendations for future action. METHODS: A systematic review was performed between 31st December 2019 and 17th June 2020 through Ovid Medline and Embase databases (PROSPERO ID CRD42020181204). Studies were included for review if they investigated the impact of SARS-CoV-2 on mental health outcomes of hospital-based HCWs and used validated psychiatric scoring tools. Prevalence of ICD-10 classified psychiatric disorders was the primary outcome measure. RESULTS: The initial search returned 436 articles. Forty-four studies were included in final

analysis, with a total of 69,499 subjects. Prevalence ranges of six mental health outcomes were identified: depression 13.5%-44.7%; anxiety 12.3%-35.6%; acute stress reaction 5.2%-32.9%; post-traumatic stress disorder 7.4%-37.4%; insomnia 33.8%-36.1%; and occupational burnout 3.1%-43.0%. Direct exposure to SARS-CoV-2 patients was the most common risk factor identified for all mental health outcomes except occupational burnout. Nurses, frontline HCWs, and HCWs with low social support and fewer years of working experience reported the worst outcomes. CONCLUSION: The SARS-CoV-2 pandemic has significantly impacted the mental health of HCWs. Frontline staff demonstrate worse mental health outcomes. Hospitals should be staffed to meet service provision requirements and to mitigate the impact onmental health. This can be improved with access to rapid-response psychiatric teams and should be continually monitored throughout the pandemic and beyond its conclusion

Sene-Mir AM, Portell M, Anguera MT, and Chacon-Moscoso S. Manual material handling training: the effect of self-observation, hetero-observational and intrinsic feedback on workers' knowledge and behaviour. International Journal of Environmental Research and Public Health. 2020; 17(21):E8095. https://doi.org/10.3390/ijerph17218095

Abstract: This study aimed to assess the effect of systematic self-observation, hetero-observational feedback, and feedforward and intrinsic feedback (SsObserWork components) on workers' knowledge and behaviour of a manual material handling (MMH) technique in the industrial sector. Blue-collar workers recruited from a food processing company in Catalonia (Spain) were randomized into SsObserWork (N = 31) and control (N = 30) groups. SsObserWork group members participated individually in two sessions and a three-week follow-up between sessions where they received the SsObserWork components. The control group participated individually in two sessions where they received a standard MMH training. An ad hoc instrumentcalled the MMH-SsObserWork instrument was used to assess the MMH behaviour, and an adaption of the instrument was done to assess the workers' knowledge. Significant differences were found between groups for the identification of recommended back positions in the first session and

also on comparing both sessions. However, no differences were found for the rest of the criteria. There also were significant differences between groups in the score changes of the back, knee joints, elbow joints, and interaction criterion, indicating that the SsObserWork group improved the MMH performance in these criteria (behaviour). SsObserWork intervention showed a positive effect on improving the knowledge and behaviour of the MMH technique, specifically on back posture

Taylor WC, Das BM, Paxton RJ, Shegog R, Suminski RR, Johnson SR, et al. Development and implementation of a logic model: occupational stress, physical activity, and sedentary behavior in the workplace. Work. 2020; 67(1):203-213. https://doi.org/10.3233/WOR-203266

Abstract: BACKGROUND: An increasing level of occupational stress is a major problem in the workplace that requires innovative approaches and strategies. An understudied research area pertains to the effects that physical activity performed during the workday have on occupational stress. OBJECTIVE: To determine if and how an intervention that increases physical activity and reduces sedentary behavior affects workplace stress. The population of interest are employees at a large university medical center including supportive staff, healthcare professionals, physicians, and faculty members; the study design is longitudinal; the approach is the implementation of an innovative workplace program (i.e., the Booster Break). METHODS: We present a logic model promoting physical activity and reducing sitting time during the workday as a feasible and practical strategy to cope with occupational stress. RESULTS: The logic model approach emphasizes that funding, partnerships, and incentives are inputs to implementing program activities such as Booster Break sessions, weekly meetings, social support, and personal self-monitoring. Short-term outcomes were categorized as psychosocial, goal setting, organizational, and social; intermediate outcomes were behavioral and psychosocial; and long-term outcomes were health status and physiological status. CONCLUSIONS: This study is the first known effort to outline a comprehensive intervention based on changing physical activity and sedentary behavior during the workday and the concomitant effects on occupational stress. The findings of this study can be used to develop and implement interventions at workplaces to

target increases in physical activity, decreases in sedentary time, and improvements in overall employee health

Trillo-Cabello AF, Carrillo-Castrillo JA, and Rubio-Romero JC. Perception of risk in construction. Exploring the factors that influence experts in occupational health and safety. Safety Science. 2021; 133:104990.
https://doi.org/10.1016/j.ssci.2020.104990

***IWH authored publication.**