IWH Research Alert
July 21, 2017

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***Lane TJ, Lilley R, Hogg-Johnson S, LaMontagne AD, Sim MR, and Smith PM. A prospective cohort study of the impact of return-to-work coordinators in getting injured workers back on the job. Journal of Occupational Rehabilitation. 2017; [epub ahead of print]. http://dx.doi.org/10.1007/s10926-017-9719-9**

Abstract: Purpose To assess the impact of workplace-based return-to-work (RTW) Coordinators' interpersonal and functional activities on RTW outcomes. Methods Multivariable logistic regression analyses of cross-sectional and longitudinal survey responses of 632 injured workers with at least 10 days of work absence in Victoria, Australia, adjusting for demographic and other workplace factors. Outcome was being back at work for at least 1 month, measured at both baseline and 6 month follow-up survey. Participant responses to stressfulness of Coordinator interactions were dichotomised into good and poor and evaluated as a proxy for Coordinators' interpersonal activities, while having a RTW plan was evaluated as a proxy for functional activities. Results At baseline, RTW plans doubled the odds of RTW (OR 2.02; 95% CI 1.40-2.90) and attenuated the impact of good Coordinator interactions (1.14; 0.77-1.70). At 6-month follow-up, the opposite was observed: good interactions nearly doubled odds of RTW (1.90; 1.22-2.95) while RTW plans were non-significant (1.02; 0.68-1.54). Conclusions Differences between when the two Coordinator activities were effective may be due to the nature of claimants who RTW in each survey period. Length of shorter-duration claims are influenced by injury related factors, while psychosocial factors tend to be more important for longer-duration claims. Such factors may determine whether a claimant is more likely to respond to

Coordinators' functional or interpersonal activities. The findings have important implications for increasing Coordinator effectiveness

Bethancourt J. Fall protection: overcoming misconceptions in residential construction. Professional Safety. 2017; 62(3):58-64.
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Comper MLC, Dennerlein JT, Evangelista GDS, Rodrigues da Silva P, and Padula RS. Effectiveness of job rotation for preventing work-related musculoskeletal diseases: a cluster randomised controlled trial. Occupational and Environmental Medicine. 2017; 74(8):545-552.
http://dx.doi.org/10.1136/oemed-2016-104077
Abstract: OBJECTIVE: Job rotation is an organisational strategy widely used on assembly lines in manufacturing industries to mitigate workers' exposure so as to prevent musculoskeletal disorders. This study aimed to evaluate the effectiveness of job rotation for reducing working hours lost due to sick leave resulting from musculoskeletal diseases. METHODS: The design consisted of a 1-year cluster randomised controlled trial with a blinded assessor. Production sectors of the textile industry were randomised to intervention and control groups. Both groups received ergonomic training. The intervention group performed a job rotation programme. The primary outcome measure was number of working hours lost due to sick leave as a result of musculoskeletal disease (ICD-10). The secondary outcome measures were musculoskeletal symptoms (Yes/No), risk factors for musculoskeletal diseases (0-10), psychosocial factors and fatigue (0-100), general health (0-100), and productivity (0-10). All secondary outcomes were measured at baseline and 12-month follow-up. RESULTS: At the 12-month follow-up, both groups showed an increase in the number of working hours lost due to sick leave for musculoskeletal disease. There was no significant difference between the job rotation intervention group (mean deviation -5.6 hours, 95% CI -25.0 to 13.8) at the 12-month follow-up and the control group. There were no significant differences between groups for the secondary outcomes ($p>0.05$). CONCLUSIONS: The job rotation programme was not effective in reducing the number of working hours lost due to sick leave, decreasing the prevalence of musculoskeletal symptoms, or improving perception of musculoskeletal pain and workplace risk factors, psychosocial risk factors and productivity. TRIAL REGISTRATION NUMBER: NCT01979731

Cheng WJ and Cheng Y. Night shift and rotating shift in association with sleep problems, burnout and minor mental disorder in male and female employees. Occupational and Environmental Medicine. 2017; 74(7):483-488.
http://dx.doi.org/10.1136/oemed-2016-103898
Abstract: OBJECTIVES: Shift work is associated with adverse physical and psychological health outcomes. However, the independent health effects of night work and rotating shift on workers' sleep and mental health risks and the potential gender differences have not been fully evaluated. METHODS: We used data from a nationwide survey of representative employees of Taiwan in 2013,

consisting of 16 440 employees. Participants reported their work shift patterns 1 week prior to the survey, which were classified into the four following shift types: fixed day, rotating day, fixed night and rotating night shifts. Also obtained were self-reported sleep duration, presence of insomnia, burnout and mental disorder assessed by the Brief Symptom Rating Scale. RESULTS: Among all shift types, workers with fixed night shifts were found to have the shortest duration of sleep, highest level of burnout score, and highest prevalence of insomnia and minor mental disorders. Gender-stratified regression analyses with adjustment of age, education and psychosocial work conditions showed that both in male and female workers, fixed night shifts were associated with greater risks for short sleep duration (<7 hours per day) and insomnia. In female workers, fixed night shifts were also associated with increased risks for burnout and mental disorders, but after adjusting for insomnia, the associations between fixed night shifts and poor mental health were no longer significant. CONCLUSIONS: The findings of this study suggested that a fixed night shift was associated with greater risks for sleep and mental health problems, and the associations might be mediated by sleep disturbance

von Dreden C and Binnewies C. Choose your lunch companion wisely: the relationships between lunch break companionship, psychological detachment, and daily vigour. European Journal of Work and Organizational Psychology. 2017; 26(3):356-372.
http://dx.doi.org/10.1080/1359432X.2017.1301428

Fujishiro K, Lividoti Hibert E, Schernhammer E, and Rich-Edwards JW. Shift work, job strain and changes in the body mass index among women: a prospective study. Occupational and Environmental Medicine. 2017; 74(6):410-416.
http://dx.doi.org/10.1136/oemed-2016-103747
Abstract: OBJECTIVES: The effects of job strain and shift work on weight gain have not been studied jointly. Cross-sectional and longitudinal studies on shift work and weight gain have reported different results. This study examines potential effect modification by job strain on the link between shift work and weight gain, and concurrent and delayed effects of shift work on weight gain. METHODS: Data came from 52 622 women who participated in the Nurses' Health Study II, a prospective cohort study. Using linear regression, we modelled change in body mass index (BMI) over 4 years as a function of change in job strain, cumulative exposure to rotating night shift previously and during the 4 years (ie, previous and concurrent exposures) and the interaction between job strain and concurrent shift work exposure. Age, race/ethnicity, pregnancy history, baseline BMI, job types and health behaviours at baseline were controlled for. RESULTS: Job strain and rotating shift work, concurrent and previous, all had independent associations with BMI change during the 4-year period. There was no evidence for effect modification by job strain. Concurrent and previous exposures to rotating night shift had different associations with BMI change: an

inverted U-shape for concurrent exposure (ranging from 0.01 to 0.14 kg/m2 increase), a dose-response for previous exposure (-0.02 to 0.09 kg/m2). CONCLUSIONS: Job strain and rotating night shift work have independent contributions to weight gain. Reducing job strain and supporting night shift workers are both important intervention goals

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Kuhnel J, Zacher H, de Bloom J, and Bledow R. Take a break! Benefits of sleep and short breaks for daily work engagement. European Journal of Work and Organizational Psychology. 2017; 26(4):481-491.
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Lipszyc JC, Silverman F, Holness DL, Liss GM, Lavoie KL, and Tarlo SM. Comparison of psychological, quality of life, work-limitation, and socioeconomic status between patients with occupational asthma and work-exacerbated asthma. Journal of Occupational & Environmental Medicine. 2017; 59(7):697-702.
http://dx.doi.org/10.1097/JOM.0000000000001066
Abstract: OBJECTIVE: The aim of this study was to compare psychological status, quality of life (QoL), work limitation, and socioeconomic status between patients with occupational asthma (OA) and work-exacerbated asthma (WEA). METHODS: The following questionnaires were administered to participants: Beck anxiety and depression (II) inventories, Marks' Asthma Quality of Life Questionnaire, and Work Limitations Questionnaire. Cross-sectional analyses between OA and WEA subgroups were completed. RESULTS: There were 77 participants. WEA subjects had a trend to higher anxiety scores (OA = 9.2 +/- 8.0, WEA = 12.8 +/- 8.3, P = 0.07, Cohen d = 0.4). Depression scores trended higher for those with WEA (OA = 9.6 +/- 10.3, WEA = 13.4 +/- 13.5, P = 0.2, Cohen d = 0.3). QoL was comparable between groups. WEA subjects had fewer work limitations (N = 50, OA = 25.1 +/- 27.3, WEA = 20.6 +/- 24.4, P = 0.56, Cohen d = 0.3) and OA subjects were more likely to have reduced income. CONCLUSION: In a tertiary clinic, there were some modest differences for specific variables between OA and WEA subjects that may help inform management

Marchand A, Blanc ME, and Beauregard N. Exposure to work and nonwork stressors and the development of heart disease among Canadian workers aged 40 years and older: a 16-year follow-up study (1994 to 2010). Journal of Occupational & Environmental Medicine. 2017; [epub ahead of print].
http://dx.doi.org/10.1097/JOM.0000000000001095
Abstract: OBJECTIVE: The aim of this study was to evaluate the contribution of work, nonwork, and individual factors to self-reported heart disease, and to evaluate gender-related differences over a period of 16 years among Canadian

workers aged 40 years and more. METHODS: Using the National Population Health Survey (NPHS, 1994 to 2010), we estimated multilevel logistic regression models (N = 2996). RESULTS: Couple-related strains, being a man, age, hypertension, and body mass index, are associated with an increased risk of heart disease. In analysis stratified by gender, physical demands at work and having high child-related strains were associated with heart disease specifically among women. Psychotropic drug use increased the risk of heart disease only in men. CONCLUSION: Our study suggests that work stressors measured by Statistics Canada NPHS are largely not associated with the risk of heart disease, except in women exposed to physical demands at work

McCarthy VJC, Cronly J, and Perry IJ. Job characteristics and mental health for older workers. Occupational Medicine. 2017; 67:394-400.
http://dx.doi.org/10.1093/occmed/kqx066
Abstract: Background: Adverse job characteristics have been linked with increased incidence of depression and anxiety in working populations. However, the association between job characteristics and mental health, in an older working population while controlling for personality traits, is less well known. Aims: To examine the association between job characteristics (job demands and job control) and mental health (depression and anxiety) for older workers while controlling for personality traits. Methods: A sample of workers aged 50-69 years were recruited from a primary health care clinic in Southern Ireland. Job characteristics were measured using the Copenhagen Psychosocial Questionnaire; demands (quantitative and cognitive) and control (influence at work and possibilities for development). Personality traits were measured using the Ten-Item Personality Inventory, depression was measured using the Center for Epidemiological Studies-Depression Scale and anxiety was measured using the Hospital Anxiety and Depression Scale. Descriptive analysis, simple and multiple linear regression analyses were conducted. Results: The final sample size was 1025 with an initial 67% response rate. Multiple linear regression analysis showed job characteristics (in particular, job demands) to be significant positive predictors of symptoms of depression and anxiety. The inverse was true for job control variables and symptoms of depression. Neither possibilities for development nor influence at work were associated with symptoms of anxiety. Conclusions: Our findings indicate that despite potential confounders, higher demands at work can impact the worker's mental health negatively. Reducing job demands and encouraging role development may benefit the mental health of older workers

Neupane S, Leino-Arjas P, Nygard CH, Oakman J, and Virtanen P. Developmental pathways of multisite musculoskeletal pain: what is the influence of physical and psychosocial working conditions? Occupational and Environmental Medicine. 2017; 74(7):468-475.
http://dx.doi.org/10.1136/oemed-2016-103892
Abstract: OBJECTIVE: To investigate the developmental pathways of multisite

musculoskeletal pain (MSP) and the effect of physical and psychosocial working conditions on the development of MSP trajectories. METHODS: The study was conducted among food industry workers (N=868) using a longitudinal design. Surveys were conducted every 2 years from 2003 to 2009. The questionnaire covered MSP, physical and psychosocial working conditions (physical strain, environmental factors, repetitive movements, awkward postures; mental strain, team support, leadership, possibility to influence) and work ability. MSP as an outcome was defined as the number of painful areas of the body on a scale of 0-4. Latent class growth modelling and multinomial logistic regression were used to analyse the impact of working conditions on MSP pathways. RESULTS: Five MSP trajectories (no MSP 35.6%, persistent MSP 28.8%, developing MSP 8.8%, increasing MSP 15.3% and decreasing MSP 11.5%) were identified. In a multivariable model, the no MSP pathway was set as the reference group. High physical strain (OR 3.26, 95% CI 2.10 to 5.04), poor environmental factors (3.84, 2.48 to 5.94), high repetitive movements (3.68, 2.31 to 5.88) and high mental strain (3.87, 2.53 to 5.92) at baseline predicted the persistent MSP pathway, allowing for poor work ability (2.81, 1.84 to 4.28) and female gender (1.80, 1.14 to 2.83). High physical strain and female gender predicted the developing MSP pathway. High physical strain, poor environmental factors and high repetitive movements predicted the increasing and decreasing MSP pathways. CONCLUSIONS: A substantial proportion of individuals reported having persistent MSP, and one-third reported changing patterns of pain. Adverse physical working conditions and mental strain were strongly associated with having high but stable levels of MSP

Pater R. Use leading indicators to derail ergonomic injuries: part 2: set up & apply early indicators of success. Professional Safety. 2017; 62(4):21-23. [doi unavailable on July 21, 2017]

Pollock A, Campbell P, Brunton G, Hunt H, and Estcourt L. Selecting and implementing overview methods: implications from five exemplar overviews. Systematic Reviews. 2017; 6(1):145.
http://dx.doi.org/10.1186/s13643-017-0534-3 [open access]
Abstract: BACKGROUND: Overviews of systematic reviews are an increasingly popular method of evidence synthesis; there is a lack of clear guidance for completing overviews and a number of methodological challenges. At the UK Cochrane Symposium 2016, methodological challenges of five overviews were explored. Using data from these five overviews, practical implications to support methodological decision making of authors writing protocols for future overviews are proposed. METHODS: Methods, and their justification, from the five exemplar overviews were tabulated and compared with areas of debate identified within current literature. Key methodological challenges and implications for development of overview protocols were generated and synthesised into a list, discussed and refined until there was consensus. RESULTS: Methodological features of three Cochrane overviews, one overview of diagnostic test accuracy

and one mixed methods overview have been summarised. Methods of selection of reviews and data extraction were similar. Either the AMSTAR or ROBIS tool was used to assess quality of included reviews. The GRADE approach was most commonly used to assess quality of evidence within the reviews. Eight key methodological challenges were identified from the exemplar overviews. There was good agreement between our findings and emerging areas of debate within a recent published synthesis. Implications for development of protocols for future overviews were identified. CONCLUSIONS: Overviews are a relatively new methodological innovation, and there are currently substantial variations in the methodological approaches used within different overviews. There are considerable methodological challenges for which optimal solutions are not necessarily yet known. Lessons learnt from five exemplar overviews highlight a number of methodological decisions which may be beneficial to consider during the development of an overview protocol

Ramos DG, Arezes PM, and Afonso P. Analysis of the return on preventive measures in musculoskeletal disorders through the benefit–cost ratio: a case study in a hospital. International Journal of Industrial Ergonomics. 2017; 60:14-25.
http://dx.doi.org/10.1016/j.ergon.2015.11.003

Robertson MM, Huang YH, and Lee J. Improvements in musculoskeletal health and computing behaviors: effects of a macroergonomics office workplace and training intervention. Applied Ergonomics. 2017; 62:182-196.
http://dx.doi.org/10.1016/j.apergo.2017.02.017
Abstract: Computer use and its association with musculoskeletal and visual symptoms is an escalating concern. Organizations are shifting to a more proactive injury prevention perspective. Accordingly, a macroergonomics intervention consisting of flexible workplace design and office ergonomics training was designed to examine the effects on worker's computing behaviors, postures, and musculoskeletal discomfort, and their relationship to psychosocial factors. Participants were assigned to either group: 1) no-intervention control 2) flexible Workplace-only (WP-only), and 3) flexible Workplace + Training (WP+T). Observational findings indicate both intervention groups experienced positive, significant changes in improved workstation arrangements and computing postures, with the WP+T intervention group exhibiting a higher, significant change of behavioral translation. Also, significant, positive relationships between observed postures and musculoskeletal discomfort/pain were found. The intervention effect was stronger when management was responsive to workers' ergonomics needs. This study suggests that a macroergonomics intervention can produce beneficial effects for office and computer workers and organizations

Strickland JR, Wagan S, Dale AM, and Evanoff BA. Prevalence and perception of risky health behaviors among construction workers. Journal of Occupational & Environmental Medicine. 2017; 59(7):673-678.
http://dx.doi.org/10.1097/JOM.0000000000001051

Abstract: OBJECTIVE: This study aimed to evaluate construction workers' health behaviors, attitudes, and perceptions of health risks from work related and non-work related hazards. METHODS: Construction workers completed a survey that assessed hazardous health behaviors (such as alcohol and tobacco use), attitudes toward health, and health risk perceptions. We compared construction workers' health behaviors to general population data from the behavioral risk factor surveillance system (BRFSS). RESULTS: Construction workers reported greater smoking and drinking compared with their age-adjusted white man counterparts in Missouri. While there was a high awareness of work-related health and safety risks, concerns about general health risks did not correspond with risks from relevant health behaviors. CONCLUSION: Educational efforts have created awareness of work-related safety and health issues in this population; similar efforts are needed to address disparities of general health behaviors

*IWH authored publication.