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Journal articles marked with an asterisk indicate an IWH scientist or adjunct scientist is included in the list of authors.

***Saygin D, DiRenzo D, Raaphorst J, de Groot I, Bingham CO, Lundberg IE, Regardt M, Sarver C, de Visser M, Maxwell LJ, Beaton D, et al. Responsiveness and meaningful thresholds of PROMIS pain interference, fatigue, and physical function forms in adults with idiopathic inflammatory myopathies: report from the OMERACT Myositis Working Group. *Seminars in Arthritis and Rheumatism*. 2024; 64:152339.**

<https://doi.org/10.1016/j.semarthrit.2023.152339>

Abstract: Background: A series of qualitative studies conducted by the OMERACT Myositis Working Group identified pain interference, fatigue, and physical function as highly important life impact domains for adults with idiopathic inflammatory myositis (IIM). In this study, our goal was to assess the responsiveness and minimal important difference of PROMIS pain interference (6a), fatigue (7a), and physical function (8b). Methods: Adults with IIM from USA, Netherlands, Korea, Sweden, and Australia with two "clinical" visits were enrolled in this prospective study. Anchor questions on a Likert scale were collected at baseline, and manual muscle testing (MMT), physician and patient reported global disease activity, and PROMIS instruments were collected at both visits. Responsiveness was assessed with i) ANOVA, ii) paired t-test, effect size and standardized response mean, and iii) Pearson correlation. Minimal important difference (MID), minimal important change (MIC) and minimal detectable change (MDC) values were calculated. Results: 114 patients with IIM (median age 60, 60 % female) completed both visits. Changes in PROMIS instruments were significantly different among anchor categories. Patients who reported improvement had a significant improvement in their PROMIS scores with at least medium effect size, while

patients who reported worsening and stability did not show a significant change with weak effect size. PROMIS instruments had weak to moderate correlations with MMT, patient and physician global disease activity. MID was approximately 2-3 points for Pain Interference and 3-4 points for Fatigue and Physical Function forms based on the method used. MIC was approximately 4-5 for improvement of all the instruments, while MDC was 1.7-2 points for Pain Interference and Physical Function and 3.2-3.9 for Fatigue. Conclusion: This study provides evidence towards the responsiveness of the PROMIS instruments in a large international prospective cohort of adults with IIM supporting their use as PROMs in adult myositis.

***Sears JM, Rundell SD, Fulton-Kehoe D, Hogg-Johnson S, and Franklin GM. Using the Functional Comorbidity Index with administrative workers' compensation data: utility, validity, and caveats. American Journal of Industrial Medicine. 2024; 67(2):99-109.**

<https://doi.org/10.1002/ajim.23550>

Abstract: Background: Chronic health conditions impact worker outcomes but are challenging to measure using administrative workers' compensation (WC) data. The Functional Comorbidity Index (FCI) was developed to predict functional outcomes in community-based adult populations, but has not been validated for WC settings. We assessed a WC-based FCI (additive index of 18 conditions) for identifying chronic conditions and predicting work outcomes. Methods: WC data were linked to a prospective survey in Ohio (N = 512) and Washington (N = 2,839). Workers were interviewed 6 weeks and 6 months after work-related injury. Observed prevalence and concordance were calculated; survey data provided the reference standard for WC data. Predictive validity and utility for control of confounding were assessed using 6-month work-related outcomes. Results: The WC-based FCI had high specificity but low sensitivity and was weakly associated with work-related outcomes. The survey-based FCI suggested more comorbidity in the Ohio sample (Ohio mean = 1.38; Washington mean = 1.14), whereas the WC-based FCI suggested more comorbidity in the Washington sample (Ohio mean = 0.10; Washington mean = 0.33). In the confounding assessment, adding the survey-based FCI to the base model moved the state effect estimates slightly toward null (<1% change). However, substituting the WC-based FCI moved the estimate away from null (8.95% change). Conclusions: The WC-based FCI may be useful for identifying specific subsets of workers with chronic conditions, but less useful for chronic condition prevalence. Using the WC-based FCI cross-state appeared to introduce substantial confounding. We strongly advise caution-including state-specific analyses with a reliable reference standard-before using a WC-based FCI in studies involving multiple states

Assuncao AA and Abreu MNS. Inequalities in employment and gender differences in the prevalence of work-related musculoskeletal disorders cases: a nationwide survey from Brazil, 2019. Public Health. 2023; 225:244-250.

<https://doi.org/10.1016/j.puhe.2023.10.006>

Abstract: Objectives: The present study aimed to investigate the prevalence of work-related

musculoskeletal disorders (WRMDs) and to determine whether differences regarding the employment status (standard and non-standard), according to gender, increased the probability of WRMDs. Study design: Cross-sectional study. Methods: Data from the 2019 National Health Survey (NHS) in Brazil were used. In total, 50,066 participants, both women and men, aged 18-65 years were included. Data were analysed for self-reported WRMDs. The binary logistic regression model, adjusting for possible covariables, was used to evaluate the association between working in the labour market and the occurrence of WRMDs. For covariates in the multivariate analysis, a P-value of <0.20 was considered in the univariate analysis. The variables with a P-value of <0.05 remained in the model. The odds ratio (OR), together with their confidence intervals at 95% (95% CI), were estimates both in the univariate and multivariate models. Results: The prevalence of WRMDs was higher in women (4.2%) than men (1.9%). The likelihood of WRMDs was associated with the employment status only among men and proved to be lower for non-standard employment than standard employment (OR = 0.61; 95% CI = 0.43-0.87). Only among women, an increase in the likelihood of WRMDs associated with exposure to occupational noise was observed (OR = 1.77; 95% CI = 1.31-2.38) and a less favourable self-reported health (OR = 1.66; 95% CI = 1.08-2.54). Results showed higher change of WRMD for men and women associated with rheumatoid arthritis (men: OR = 3.94; 95% CI = 2.10-7.38; women: OR = 2.39; 95% CI = 1.68-3.39), depression (men: OR = 2.62; 95% CI = 1.54-4.45; women: OR = 2.39; 95% CI = 1.68-3.39) and occupational accidents (men: OR = 4.36; 95% CI = 2.34-8.14; women: OR = 2.20; 95% CI = 1.19-4.07). Conclusions: It is possible that the "double presence" that involves both the productive and reproductive spheres explains the higher prevalence of WRMDs among women. Indicators that are sensitive to the effects of gender norms are necessary to understand the context of inequalities in the prevalence of WRMDs. The results of this study should be considered when developing strategies in the workplace and public health policies to reduce the prevalence of WRMDs.

Blafoss R, Aagaard P, Clausen T, and Andersen LL. Association of objectively measured lifting load with low-back pain, stress, and fatigue: a prospective cohort study.

Scandinavian Journal of Work, Environment & Health. 2024; 50(1):11-21.

<https://doi.org/10.5271/sjweh.4127> [open access]

Abstract: Objectives: Limited knowledge exists about the association of lifting loads on a daily basis with physical and mental symptoms among warehouse workers. This study investigated associations between objectively measured lifting load and low-back pain (LBP), mental stress, and bodily fatigue after work and the following morning. Methods: Warehouse workers (N=85) from the retail industry replied to daily questionnaires before and after work for 21 days about LBP intensity, mental stress, and bodily fatigue (outcome, all scales 0-10). We assessed lifting exposure using company records from the warehouse logistic systems on total lifting load (kg) per workday. Associations between variables were tested using linear mixed models with repeated measures controlling for relevant confounders. Results: Mean daily lifting load was 1667.2 kg (range: 0-9998.4 kg). Compared to lifting 0-499 kg during a

workday, lifting 500-1999 kg was associated with 0.59 points [95% confidence interval (CI) 0.10-1.08] elevated LBP intensity after work, while lifting =5000 showed a higher LBP intensity of 1.26 points (95% CI 0.48-2.03). LBP intensity remained elevated the following morning. Lifting =5000 kg was associated with higher mental stress after work of 0.74 points (95% CI 0.10-1.37), while no association was observed for bodily fatigue. Conclusions: Higher daily lifting loads were associated with higher LBP intensity after work and the following morning. These findings suggest that warehouses should consider the daily lifting loads when organizing warehouse work to prevent development of LBP, eg, using company records to provide a more equal distribution of daily lifting loads between workers.

Cueva K, Bulkow L, Milton E, Van Wyck R, Hargrave S, and Meyer J. Application of COVIDTracer to inform public health workforce planning in Alaska during the COVID-19 pandemic. Public Health Reports. 2024; 139(1):11-17.

<https://doi.org/10.1177/00333549231199479>

Abstract: The COVID-19 pandemic has caused social and economic disruption worldwide and spurred numerous mitigation strategies, including state investments in training a large contact tracing and case investigation workforce. A team at the University of Alaska Anchorage evaluated implementation of the COVID-19 contact tracing and case investigation program of the State of Alaska Department of Health and Social Services, Division of Public Health, Section of Public Health Nursing. As part of that evaluation, the team used COVIDTracer, a spreadsheet modeling tool. COVIDTracer generated projections of COVID-19 case counts that informed estimates of workforce needs and case prioritization strategies. Case count projections approximated the reported epidemiologic curve with a median 7% difference in the first month. The accuracy of case count predictions declined after 1 month with a median difference of 80% in the second month. COVIDTracer inputs included previous case counts, the average length of time for telephone calls to cases and outreach to identified contacts, and the average number of contacts per case. As each variable increased, so too did estimated workforce needs. Decreasing the average time from exposure to outreach from 10 to 5 days reduced case counts estimated by COVIDTracer by approximately 93% during a 5-month period. COVIDTracer estimates informed Alaska's workforce planning and decisions about prioritizing case investigation during the pandemic. Lessons learned included the importance of being able to rapidly scale up and scale down workforce to adjust to a dynamic crisis and the limitations of prediction modeling (eg, that COVIDTracer was accurate for only about 1 month into the future). These findings may be useful for future pandemic preparedness planning and other public health emergency response activities

Daae HL, Graff P, Foss OAH, Kofoed VC, Afanou AK, Frederiksen MW, et al. A cross-sectional study on occupational exposure to microorganisms, endotoxin, hydrogen sulfide, and dust during work at drilling waste treatment plants. Annals of Work Exposures and Health. 2024; 68(1):58-77.

<https://doi.org/10.1093/annweh/wxad069> [open access]

Abstract: This cross-sectional study aims to obtain knowledge about workers' exposure to airborne dust, bacterial and fungal species, endotoxin, biofilm formation, and hydrogen sulfide (H₂S) in drilling waste treatment plants. In total, 408 full-shift personal samples, 66 work areas, 40 drilling waste, and reference (outdoor air and seawater) samples were analyzed. Some workers were exposed to high levels of endotoxin (207 EU/m³), bacteria (3.8 × 10⁴ colony forming units (CFU)/m³ and 9.8 × 10⁴ DNA copies/m³), or fungi (1.4 × 10⁷ CFU/m³ and 3,600 copies/m³). The exposure levels to endotoxin, bacteria, and peaks of H₂S were dependent on the treatment technique. All types of drilling waste contained large concentrations of bacteria compared to the seawater references. Elevated concentrations of airborne bacteria were found close to drilling waste basins. In total, 116, 146, and 112 different bacterial species were found in workers' exposure, work areas, and the drilling waste, respectively. An overlap in bacterial species found in the drilling waste and air (personal and work area) samples was found. Of the bacterial species found, 49 are classified as human pathogens such as *Escherichia coli*, *Enterobacter cloacae*, and *Klebsiella oxytoca*. In total, 44 fungal species were found in the working environment, and 6 of these are classified as human pathogens such as *Aspergillus fumigatus*. In conclusion, across the drilling waste treatment plants, human pathogens were present in the drilling waste, and workers' exposure was affected by the drilling waste treated at the plants with elevated exposure to endotoxin and bacteria. Elevated exposure was related to working as apprentices or chemical engineers, and working with cleaning, or slop water, and working in the daytime.

Gelaw AY, Sheehan L, Gray SE, and Collie A. Time off work following psychological injury among health and social care workers: a population-based retrospective cohort study in New South Wales, Australia. Occupational and Environmental Medicine. 2024; 81(1):17-25. <https://doi.org/10.1136/oemed-2023-109105>

Abstract: **OBJECTIVE:** This study aimed to determine the disability duration and burden of compensated time loss in the health and social care (HSC) sector following psychological injury. **METHODS:** A retrospective cohort study was conducted using data from the New South Wales workers' compensation system. The median weeks disability duration and total weeks of working time lost (WWL) per 1000 workers were compared between the HSC sector and all other industries, and between specific occupational groups in the HSC sector, using accelerated failure time models. **RESULTS:** HSC workers had a median (IQR) disability duration of 12.4 (3.3-40.0) weeks, which was less than the 15.3 (4.3-48.3) weeks observed in other industries. Within the HSC sector, ambulance officers had the longest disability duration at 31.1 (6.1-104.0) weeks and highest WWL at 15 734 weeks per 1000 workers. Conversely, nurses and midwives had the shortest disability duration at 8.0 (2.0-25.8) weeks, while other healthcare workers had the lowest WWL (17.0). Controlling for other determinants, ambulance officers had the highest likelihood of longer disability duration (time ratio (TR) 2.14; 95% CI 1.64 to 2.78), followed by social workers (TR 1.46; 95% CI 1.20 to 1.79) and administrators and managers (TR 1.41; 95% CI 1.15 to 1.71). Older age, female sex, full-time employment and working in small organisations correlated with extended disability duration.

CONCLUSION: There is considerable variation in the duration and burden of work disability due to psychological injury across occupational groups in the HSC sector. Findings suggest the need for occupation-specific workplace rehabilitation and psychological support to reduce the impact of psychological injury on HSC workers and improve return-to-work outcomes

Haby MM, Barreto JOM, Kim JYH, Peiris S, Mansilla C, Torres M, et al. What are the best methods for rapid reviews of the research evidence? A systematic review of reviews and primary studies. Research Synthesis Methods. 2024; 15(1):2-20.

<https://doi.org/10.1002/jrsm.1664>

Abstract: Rapid review methodology aims to facilitate faster conduct of systematic reviews to meet the needs of the decision-maker, while also maintaining quality and credibility. This systematic review aimed to determine the impact of different methodological shortcuts for undertaking rapid reviews on the risk of bias (RoB) of the results of the review. Review stages for which reviews and primary studies were sought included the preparation of a protocol, question formulation, inclusion criteria, searching, selection, data extraction, RoB assessment, synthesis, and reporting. We searched 11 electronic databases in April 2022, and conducted some supplementary searching. Reviewers worked in pairs to screen, select, extract data, and assess the RoB of included reviews and studies. We included 15 systematic reviews, 7 scoping reviews, and 65 primary studies. We found that several commonly used shortcuts in rapid reviews are likely to increase the RoB in the results. These include restrictions based on publication date, use of a single electronic database as a source of studies, and use of a single reviewer for screening titles and abstracts, selecting studies based on the full-text, and for extracting data. Authors of rapid reviews should be transparent in reporting their use of these shortcuts and acknowledge the possibility of them causing bias in the results. This review also highlights shortcuts that can save time without increasing the risk of bias. Further research is needed for both systematic and rapid reviews on faster methods for accurate data extraction and RoB assessment, and on development of more precise search strategies

Hall A and Tucker E. The limits of worker health and safety rights in a pandemic: the case of unionized health care and education workers in Canada. Comparative Labor Law & Policy Journal. 2023; 43(2):327-354.

<https://cllpj.law.illinois.edu/>

Kilicoglu H, Jiang L, Hoang L, Mayo-Wilson E, Vinkers CH, and Otte WM. Methodology reporting improved over time in 176,469 randomized controlled trials. Journal of Clinical Epidemiology. 2023; 162:19-28.

<https://doi.org/10.1016/j.jclinepi.2023.08.004>

Abstract: Objectives: To describe randomized controlled trial (RCT) methodology reporting over time. Study design and setting: We used a deep learning-based sentence classification model based on the Consolidated Standards of Reporting Trials (CONSORT) statement,

considered minimum requirements for reporting RCTs. We included 176,469 RCT reports published between 1966 and 2018. We analyzed the reporting trends over 5-year time periods, grouping trials from 1966 to 1990 in a single stratum. We also explored the effect of journal impact factor (JIF) and medical discipline. Results: Population, Intervention, Comparator, Outcome (PICO) items were commonly reported during each period, and reporting increased over time (e.g., interventions: 79.1% during 1966-1990 to 87.5% during 2010-2018). Reporting of some methods information has increased, although there is room for improvement (e.g., sequence generation: 10.8-41.8%). Some items are reported infrequently (e.g., allocation concealment: 5.1-19.3%). The number of items reported and JIF are weakly correlated (Pearson's $r(162,702) = 0.16, P < 0.001$). The differences in the proportion of items reported between disciplines are small (<10%). Conclusion: Our analysis provides large-scale quantitative support for the hypothesis that RCT methodology reporting has improved over time. Extending these models to all CONSORT items could facilitate compliance checking during manuscript authoring and peer review, and support metaresearch.

Lindstrom I, Holtta P, Airaksinen L, Suuronen K, Suomela S, and Suojalehto H. Occupational asthma, rhinitis and contact urticaria from greenhouse work. *Occupational Medicine*. 2023; 73(8):470-478.

<https://doi.org/10.1093/occmed/kqad099>

Abstract: BACKGROUND: The current knowledge about occupational allergic diseases among greenhouse workers is scant. AIMS: To describe greenhouse workers' occupational allergic diseases. METHODS: We identified 28 greenhouse workers with occupational allergic diseases in 2002-2020 by conducting a systematic search in the patient register of the Finnish Institute of Occupational Health. All the patients worked in tomato- or cucumber-growing greenhouses and showed immunoglobulin-E-mediated sensitization to occupational agents. Specific inhalation challenges or workplace peak expiratory flow monitoring confirmed occupational asthma (OA), nasal allergen challenges confirmed occupational rhinitis (OR) and open skin tests confirmed occupational contact urticaria (OCU). RESULTS: Most patients had more than one occupational disease and were sensitized to several workplace agents. Tomato plants were the most common cause of occupational diseases and induced 22 allergic diseases in 14 patients. Cucumber plants caused occupational diseases in 10 patients (3 OA, 7 OR and 6 OCU). The pest control mite *Amblyseius swirskii* and a mixture of parasitic wasps *Encarsia formosa* and *Eretmocerus eremicus* both induced two OA cases. Three patients had an occupational disease caused by storage mites and three others had a work-related systemic reaction to a bumblebee sting. CONCLUSIONS: The greenhouse workers typically suffered from several occupational allergic diseases and were sensitized to cultivated plants, various pest control organisms and storage mites. All these can cause OA and OR, but in this study, OCU was only induced by cultivation plants. Cucumber plant is a novel cause of OA and OR, and *A. swirskii* is a novel cause of OA

Neto IR and Amaral FG. Teaching occupational health and safety in engineering using active learning: a systematic review. *Safety Science*. 2024; 171:106391.

<https://doi.org/10.1016/j.ssci.2023.106391>

Park H, Park GR, and Kim J. Transitioning into and out of precarious employment and life satisfaction: evidence from asymmetric fixed effects models. *Social Science & Medicine*. 2024; 341:116539.

<https://doi.org/10.1016/j.socscimed.2023.116539>

Abstract: Previous studies have found that those with precarious jobs report lower levels of life satisfaction than those with non-precarious jobs. However, it is unclear whether transitioning into and out of precarious jobs has differential effects on life satisfaction. This study examines the association between employment status transitions and life satisfaction, as well as gender differences in these associations. Data from the Korean Welfare Panel Study (N = 9,792) from 2006 to 2020 were used in this study. A novel asymmetric fixed effects model was employed to separately estimate the association for transitioning into and out of precarious employment. Gender heterogeneity was estimated by including an interaction term of gender and employment transition. Standard fixed effects estimates showed that precarious employment is negatively associated with life satisfaction ($b = -0.048$). Asymmetric fixed effects models revealed that transitioning out of precarious employment is associated with increased life satisfaction ($b = 0.051$), while transitioning into a precarious job is not significantly associated with life satisfaction. These asymmetric associations were more pronounced for men than women. This study provides evidence that, especially for men, the association for transitioning out of precarious employment is significantly larger than the association for transitioning into precarious employment. Policies that facilitate the transition into stable employment are likely to enhance the quality of life for employed individuals.

Richardson DB, Martin AT, McClure ES, Nocera M, Cantrell J, Ranapurwala SI, et al. Forty-year trends in fatal occupational injuries in North Carolina. *American Journal of Industrial Medicine*. 2024; 67(2):87-98.

<https://doi.org/10.1002/ajim.23549>

Abstract: **BACKGROUND:** We describe progress in the control of deaths on-the-job due to fatal occupational injury in North Carolina over the period 1978-2017. **METHODS:** Forty years of information on fatal occupational injuries in North Carolina has been assembled from medical examiners' reports and death certificates, supplemented by newspaper and police reports. Cases were defined as unintentional fatal occupational injuries among adults. Annual estimates of the population at risk were derived from US Census data, and rates were quantified using Poisson regression methods. **RESULTS:** There were 4434 eligible deaths. The unintentional fatal occupational injury rate at the beginning of the study period was more than threefold the rate at the end of the study. The fatal occupational injury rate among men declined from 9.6 per 100,000 worker-years in the period 1978-1982 to 3.1 per 100,000 worker-years in the period 2013-2017. The fatal occupational injury rate among women

declined from 0.3 per 100,000 worker-years in the period 1978-1981 to 0.1 per 100,000 worker-years in the period 2013-2017. Declines in rates were observed for young adults as well as older workers and were observed across all major industry categories. Average annual declines in rates were greatest in those industries and occupations that had the highest fatal injury rates at the start of the study period. CONCLUSIONS: The substantial decline in fatal injury rates underscores the importance of injury prevention and demonstrates the ability to make meaningful reductions in unintentional fatal injury

Schmitz H, Bauer JF, and Niehaus M. Working anytime and anywhere -even when feeling ill? A cross-sectional study on presenteeism in remote work. Safety and Health at Work. 2023; 14(4):375-383.

<https://doi.org/10.1016/j.shaw.2023.11.001> [open access]

Abstract: Background Working despite feeling ill – presenteeism – is a widespread behavioral phenomenon. Previous research has shown that presenteeism is influenced by various work-related and personal factors. It's an illness behavior leading to a range of negative but also positive consequences. Due to coronavirus disease 2019 (COVID-19) pandemic, remote work has become the “new normal” for many employees. But so far, little is known about presenteeism in remote work. This study aims to investigate presenteeism in remote work by looking at the extent of remote presenteeism, differences to presenteeism in on-site work, and associated factors. Methods A nationwide cross-sectional online survey was conducted in Germany with N = 233 participants. Data were analyzed using descriptive statistics, t-tests, and correlation analysis. Results The results reveal that presenteeism is prevalent in remote work $\bar{x} = 4.13$ days (Md = 3; D = 2; s = 4.95). A low ability to detach from work ($r = -.17$; $p = .005$) and low supervisor support ($r = -.14$; $p = .02$) is associated with more remote presenteeism days. Remote working conditions seem to facilitate presenteeism. Conclusion This study provides empirical insights into a subject area of great societal relevance. The results show that awareness should be raised for presenteeism in remote work. It should be regarded as a behavior that can be functional or dysfunctional, depending on the individual situation. Supervisor support and detachment should be fostered to help reduce dysfunctional presenteeism. Promotion of health literacy might help remote workers to decide on a health-oriented illness behavior. Further research is vital to analyze to what extent and under which circumstances presenteeism in remote work is (dys)functional and to derive clear recommendations.

Vestergaard JM, Dalboge A, Bonde JPE, Garde AH, Hansen J, Hansen AM, et al. Night shift work characteristics and risk of incident coronary heart disease among health care workers: national cohort study. International Journal of Epidemiology. 2023; 52(6):1853-1861.

<https://doi.org/10.1093/ije/dyad126>

Abstract: Background: Night work has been associated with coronary heart disease. The present study examined exposure-response relations between quantitative night work characteristics and coronary heart disease (angina pectoris or myocardial infarction) with the

aim to contribute to evidence-based recommendations for low-risk night work schedules. Methods: We followed 100 149 night workers (80% women) and 153 882 day workers (78% women), all health care workers in Denmark with day by day payroll information on night shifts from 2007 to 2015. We analysed data with Poisson regression stratified by sex and adjusted for age, calendar year, diabetes, family history of cardiovascular disease, educational level, occupation, indicators for obesity, hypercholesterolaemia, and hypertension. Results: Female and male night workers worked on average 1.7 and 1.8 night shifts per month for an average duration of less than 4 years. During follow-up, 1198 night and 2128 day workers were hospitalized with first-time coronary heart disease. When compared with day workers, the overall incidence rate ratios for female and male night workers were 1.06 [95% confidence interval (CI): 0.97, 1.17] and 1.22 (95% CI 1.07, 1.39). Highest risks were observed in top exposure categories for several night work characteristics. However, no consistent exposure-response relations by number of monthly night shifts, cumulative night shifts, years with rotating night shifts, years with any night shift and consecutive night shifts were observed among the night workers of either sex. Conclusions: This study of a population with low exposure to night work does not indicate that reducing extent of monthly night shifts, cumulative night shifts, years with rotating night shifts, years with any night shift and consecutive night shifts would reduce the risk of coronary heart disease.

Wahlstrom V, Januario LB, Mathiassen SE, Heiden M, and Hallman DM. Hybrid office work in women and men: do directly measured physical behaviors differ between days working from home and days working at the office? *Annals of Work Exposures and Health*. 2023; 67(9):1043-1055.

<https://doi.org/10.1093/annweh/wxad057> [open access]

Abstract: OBJECTIVE: We investigated and compared temporal sitting patterns among male and female hybrid office workers when working at the office (WAO), working from home (WFH), and for non-working days (NWD). METHODS: We analyzed data collected in 2020 among 165 hybrid office workers, carrying thigh-worn accelerometers for 938 days in total. Day type (WAO, WFH, or NWD) and time in bed were identified using diaries. Time awake was exhaustively classified as non-sitting time and time sitting in short, moderate, and long bouts. Effects of day type and gender on the 24-h compositions of physical behaviors were analyzed using multilevel linear mixed models. RESULTS: During workdays (both WAO and WFH), workers spent less time in bed and more time sitting, particularly in moderate and long bouts, than during NWD. Time in bed was longer when working from home than when working at the office, and more of the awake time was spent sitting. Differences between WAO and WFH in ratios between short, moderate, and long bouts of sitting were small and inconsistent. Men spent more time sitting than women, and more time in moderate and long sitting bouts relative to short bouts. CONCLUSIONS: When working from home, hybrid office workers sat more during their hours awake compared to when working at the office. Sitting time was larger during working days than during non-working days and was higher in men

than in women. These results may contribute to support organizational policies for hybrid work

Zerguine H, Healy GN, Goode AD, Abbott A, and Johnston V. Co-design and development of the sit-stand e-guide: an e-training program for the optimal use of sit-stand workstations. *Applied Ergonomics*. 2024; 116:104207.

<https://doi.org/10.1016/j.apergo.2023.104207> [open access]

Abstract: This paper describes the co-design and development process of an evidence-informed e-training program (Sit-Stand e-Guide) to support the safe and optimal use of sit-stand workstations from ergonomics and behavioural change perspectives. Using an instructional system design process, supported by a participatory design approach, data was collected through three workshops with workplace consumers (staff [n = 5] and managers [n = 5]), and subject matter experts (n = 5). Content and learning activities were developed based on behaviour change principles and optimal pedagogy. Key topics identified for the e-training were sedentary behaviour and health; workstation set-up; and strategies for behaviour change. Learning activities (scenarios and reflection) to enhance knowledge retention and skills implementation and an interactive one-page guide on completion were included in the e-training. The relevance and usefulness of the training prototype were reviewed through one-to-one think-aloud sessions with the workshop consumers (n = 5) and external health and safety professionals (n = 5) receiving positive feedback. The Sit-Stand e-Guide is readily available for workplace implementation and evaluation. This paper serves as a practical guide for future training development.

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