

IWH Research Alert
November 8, 2019

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Bosch C and Sonnentag S. Should I take a break? A daily reconstruction study on predicting micro-breaks at work. *International Journal of Stress Management*. 2019; 26(4):378-388. <https://doi.org/10.1037/str0000117>

Bosma AR, Boot CRL, De Maaker M, Boeije HR, Schoonmade LJ, Anema JR, et al. Exploring self-control of workers with a chronic condition: a qualitative synthesis. *European Journal of Work and Organizational Psychology*. 2019; 28(5):653-668. <https://doi.org/10.1080/1359432X.2019.1631801>

Cabral AM, Moreira RFC, de Barros FC, and Sato TO. Is physical capacity associated with the occurrence of musculoskeletal symptoms among office workers? A cross-sectional study. *International Archives of Occupational & Environmental Health*. 2019; 92(8):1159-1172. <https://doi.org/10.1007/s00420-019-01455-y>

Abstract: PURPOSE: Low physical capacity is hypothesized to be associated with the presence of musculoskeletal symptoms. Therefore, our aim was to investigate whether physical capacity is associated with the presence of musculoskeletal symptoms in the neck, shoulders, and thoracic and lumbar spine among office

workers. **METHODS:** Sixty-seven office workers, recruited at the university, were evaluated regarding the presence of musculoskeletal symptoms through the Nordic Musculoskeletal Questionnaire (NMQ). Measurements of muscle strength and endurance of shoulder abduction, endurance of trunk flexion and extension, and back and leg flexibility were obtained. Data were analysed through a binomial logistic regression model, considering physical capacity as the independent variable and symptoms as the dependent variable. An adjusted model was also applied that controlled for individual and occupational covariates. **RESULTS:** The basic model showed a significant association between reduced shoulder abduction strength and neck (OR: 0.87; 95% CI 0.78-0.98) and shoulder symptoms (OR: 0.88; 95% CI 0.78-0.99), and between reduced back and leg flexibility and thoracic spine symptoms (OR: 0.92; 95% CI 0.85-0.99). The adjusted model, after controlling for the covariates, demonstrated that reduced shoulder abduction strength (OR: 0.70; 95% CI 0.52-0.94) and reduced back and leg flexibility (OR: 0.81; 95% CI 0.66-0.99) were associated, instead, with the occurrence of neck and low back symptoms, respectively, in the last 12 months. **CONCLUSIONS:** Physical capacity is associated with the presence of neck and low back symptoms in office workers. Furthermore, individual and occupational characteristics affect the relationship between physical capacity and musculoskeletal symptoms and should be considered for understanding and managing musculoskeletal symptoms among office workers

Chandler JJ. Surveying vocational rehabilitation applicants online: a feasibility study. Journal of Disability Policy Studies. 2019; 30(3):164-173.

<https://doi.org/10.1177/1044207319835188>

Fredriksson S, Kim JL, Toren K, Magnusson L, Kahari K, Soderberg M, et al. Working in preschool increases the risk of hearing-related symptoms: a cohort study among Swedish women. International Archives of Occupational & Environmental Health. 2019; 92(8):1179-1190.

<https://doi.org/10.1007/s00420-019-01453-0> [open access]

Abstract: **PURPOSE:** To assess whether working in preschools increases the risk of hearing-related symptoms and whether age,

occupational noise, and stressful working conditions affect the risk. METHODS: Questionnaire data on hearing-related symptoms were analysed in women aged 24-65 (4718 preschool teachers, and 4122 randomly selected general population controls). Prevalence and risk ratio (RR) of self-reported hearing loss, tinnitus, difficulty perceiving speech, hyperacusis and sound-induced auditory fatigue were assessed by comparing the cohorts in relation to age and self-reported occupational noise and stressful working conditions (effort-reward imbalance and emotional demands). RR was calculated using log-binomial regression models adjusted for age, education, income, smoking, hearing protection, and leisure noise. Incidence rates and incidence rate ratios (IRR) were calculated for retrospectively reported onset of all symptoms except sound-induced auditory fatigue. RESULTS: Compared to the controls, preschool teachers had overall more than twofold RR of sound-induced auditory fatigue (RR 2.4, 95% confidence interval 2.2-2.5) and hyperacusis (RR 2.3, 2.1-2.5) and almost twofold for difficulty perceiving speech (RR 1.9, 1.7-2.0). Preschool teachers had a threefold IRR of hyperacusis (IRR 3.1, 2.8-3.4) and twofold for difficulty perceiving speech (IRR 2.4, 2.2-2.6). Significantly although slightly less increased RR and IRR were observed for hearing loss and tinnitus. RR and IRR were generally still increased for preschool teachers when stratified by age and occupational exposure to noise and stress. CONCLUSIONS: This large cohort study showed that working as preschool teacher increases the risk of self-reported hearing-related symptoms, indicating a need of preventative measures

Gard G, Pessah-Rasmussen H, Brogardh C, Nilsson A, and Lindgren I. Need for structured healthcare organization and support for return to work after stroke in Sweden: experiences of stroke survivors. Journal of Rehabilitation Medicine. 2019; 51(10):741-748.

<https://doi.org/10.2340/16501977-2591> [open access]

Abstract: OBJECTIVE: To explore stroke survivors' experiences of healthcare-related facilitators and barriers concerning return to work after stroke. DESIGN: A qualitative study. SETTING: Outpatient stroke rehabilitation unit at a University Hospital in southern Sweden. PARTICIPANTS: A convenient sample of 20 persons admitted to Skane University Hospital for acute stroke care (median age 52

years), in employment of at least 10 h per week at stroke onset and having been referred to stroke rehabilitation within 180 days.

METHODS: The interviews were performed by focus groups, and the data were analysed by content analysis. **RESULTS:** Facilitating factors were a tailored rehabilitation content with relevant treatments, adequate timing and a structured stepwise return-to-work process. A lack of sufficient early healthcare information, rehabilitation planning and coordination were perceived as barriers. An early rehabilitation plan, a contact person, and improved communication between rehabilitation actors were requested, as well as help with work transport, home care, children and psychosocial support for families. **CONCLUSION:** Tailored rehabilitation content and a structured stepwise return-to-work process facilitated return to work. Insufficient structure within the healthcare system and lack of support in daily life were perceived barriers to return to work, and need to be improved. These aspects should be considered in the return-to-work process after stroke

Hirsh AT, Miller MM, Hollingshead NA, Anastas T, Carnell ST, Lok BC, et al. A randomized controlled trial testing a virtual perspective-taking intervention to reduce race and socioeconomic status disparities in pain care. Pain. 2019; 160(10):2229-2240.

<https://doi.org/10.1097/j.pain.0000000000001634>

Abstract: We conducted a randomized controlled trial of an individually tailored, virtual perspective-taking intervention to reduce race and socioeconomic status (SES) disparities in providers' pain treatment decisions. Physician residents and fellows (n = 436) were recruited from across the United States for this two-part online study. Providers first completed a bias assessment task in which they made treatment decisions for virtual patients with chronic pain who varied by race (black/white) and SES (low/high). Providers who demonstrated a treatment bias were randomized to the intervention or control group. The intervention consisted of personalized feedback about their bias, real-time dynamic interactions with virtual patients, and videos depicting how pain impacts the patients' lives. Treatment bias was re-assessed 1 week later. Compared with the control group, providers who received the tailored intervention had 85% lower odds of demonstrating a treatment bias against black patients and 76%

lower odds of demonstrating a treatment bias against low SES patients at follow-up. Providers who received the intervention for racial bias also showed increased compassion for patients compared with providers in the control condition. Group differences did not emerge for provider comfort in treating patients. Results suggest an online intervention that is tailored to providers according to their individual treatment biases, delivers feedback about these biases, and provides opportunities for increased contact with black and low SES patients, can produce substantial changes in providers' treatment decisions, resulting in more equitable pain care. Future studies should examine how these effects translate to real-world patient care and the optimal timing/dose of the intervention

Ibrahim ME, Weber K, Courvoisier DS, and Genevay S. Recovering the capability to work among patients with chronic low back pain after a four-week, multidisciplinary biopsychosocial rehabilitation program: 18-month follow-up study. BMC Musculoskeletal Disorders. 2019; 20(1):439.

<https://doi.org/10.1186/s12891-019-2831-6> [open access]

Abstract: BACKGROUND: Chronic low back pain (LBP) is a leading cause of disability worldwide. Biopsychosocial rehabilitation programs have been advocated for its management, especially since the widespread acceptance of the biopsychosocial model of chronic pain. Despite extensive evidence of its short-term benefits, few studies have reported on its long-term effect and more specifically on indirect outcomes such as return to work and quality of life (QoL). The present study evaluated the long-term effect of a multidisciplinary biopsychosocial rehabilitation (MBR) program for patients with chronic LBP, for which short- and intermediate-term efficacy had been established, with an emphasis on recovering work capability. METHODS: This prospective cohort study enrolled 201 patients on a four-week MBR program incorporating physical and occupational therapies and psychological counselling. Assessments occurred at program admission and discharge and at 6 and 18 months. Work capability, Oswestry Disability Index, Tampa Scale for Kinesiophobia, Core Outcome Measures Index (COMI), and Hospital Anxiety and Depression Scale were assessed. Multiple mixed models were used to detect changes in each outcome. Logistic regressions were calculated to identify predictors of recovery of work capability.

RESULTS: Of the 201 patients who fulfilled the eligibility criteria, 160 (79.8%) attended the discharge assessment, 127 (63.2%) attended the 6-month follow-up, and 107 (53.3%) continued to the 18-month follow-up. Initially, 128 patients (71.5%) had been on sick leave. At 6 and 18 months, 72 (56.7%) and 84 (78.5%) participants had recovered their work capability, respectively. There were significant improvements in pain, disability, kinesiophobia, and anxiety and depression scores over time. Patients who recovered work capability showed significantly greater improvements in their total COMI score, general QoL, and disability, which were the best three predictors of recovering work capability. **CONCLUSIONS:** This study extends previous results confirming the program's contribution to recovering work capability among chronic LBP patients

Krause JS, Dismuke-Greer CE, Reed KS, and Rumrill P. Employment and job benefits among those with spinal cord dysfunction: a comparison of people with spinal cord injury and multiple sclerosis. Archives of Physical Medicine & Rehabilitation. 2019; 100(10):1932-1938.

<https://doi.org/10.1016/j.apmr.2019.05.031>

Abstract: **OBJECTIVE:** (1) Identify the proportion of participants with spinal cord dysfunction (SCD) reporting each of 10 job benefits and compare the proportions between participants with spinal cord injury (SCI) and multiple sclerosis (MS); and (2) examine if diagnostic criteria, demographics, education level, and functional limitations are associated with the number of job benefits received. **DESIGN:** Econometric modeling of cross-sectional data using a 2-step data analytic model of employment and job benefits. **SETTING:** Medical university in the southeastern United States. **PARTICIPANTS:** Participants (N=2624) were identified from the southeastern United States. After eliminating those age 65 and older, there were 2624 adult participants with SCD; 1234 had MS and 1390 had SCI. **INTERVENTIONS:** Not applicable. **MAIN OUTCOME MEASURES:** Current employment status; number of benefits received and specific benefits received. **RESULTS:** A greater proportion of participants with MS received benefits, with significant differences observed on all but 1 type of benefit. Among those who were employed, a greater number of benefits was associated with having MS, greater education, younger age, married or in an unmarried couple, and not

having functional restrictions with cognition, doing errands, or shopping alone in the community, and walking. **CONCLUSIONS:** Employed participants with MS were more likely to receive job benefits, indicative of a higher quality of employment, compared to participants with SCI. Employment without benefits is a form of underemployment that disproportionately affects individuals with many of the same characteristics that initially lead to disparities in probability of gainful employment

Lu L, Li W, Mead J, and Xu J. Managing major accident risk from a temporal and spatial perspective: a historical exploration of workplace accident risk in China. Safety Science. 2020; 121:71-82.

<https://doi.org/10.1016/j.ssci.2019.08.035>

Petrakis M, Stirling Y, and Higgins K. Vocational support in mental health service delivery in Australia. Scandinavian Journal of Occupational Therapy. 2019; 26(7):535-545.

<https://doi.org/10.1080/11038128.2018.1498918>

Abstract: **BACKGROUND:** Individuals experiencing severe and persistent mental illness report a desire to gain and sustain work. Individual Placement and Support (IPS) is an evidence-based approach to vocational rehabilitation to support competitive employment outcomes. **AIM/OBJECTIVE:** This study aimed to evaluate whether a joint-governance management partnership, between a clinical adult mental health and an employment service, could deliver a sustained IPS program in Australia. **MATERIALS AND METHOD:** The methodology entailed a Clinical Data Mining approach, to examine records from seven years of implementation of IPS in one setting within an Australian public mental health service context. **RESULTS/FINDINGS:** Despite the prevalence of schizophrenia spectrum diagnoses and an older mean age (39 years), indicating that a large proportion of the cohort had experienced serious mental illness for over twenty years, findings were that 46.3% of participants achieved employment. **CONCLUSIONS:** This is an excellent result and is comparable to the only randomised control trial, with adult services, in the Australian context, which found a 42.5% employment rate possible under IPS compared with just 23.5% with referral to external employment

services. SIGNIFICANCE: More extensive trialling of IPS across clinical services is required, in Australia and internationally, including fidelity protocols, for knowledge translation to be achieved

Salzwedel A, Wegscheider K, Schulz-Behrendt C, Dorr G, Reibis R, and Voller H. No impact of an extensive social intervention program on return to work and quality of life after acute cardiac event: a cluster-randomized trial in patients with negative occupational prognosis. International Archives of Occupational & Environmental Health. 2019; 92(8):1109-1120.

<https://doi.org/10.1007/s00420-019-01450-3>

Abstract: OBJECTIVES: To examine the effectiveness of extensive social therapy intervention during inpatient multi-component cardiac rehabilitation (CR) on return to work and quality of life in patients with low probability of work resumption after an acute cardiac event.

METHODS: Patients after acute cardiac event with negative subjective expectations about return to work or unemployment (n = 354) were included and randomized in clusters of 3-6 study participants. Clusters were randomized for social counseling and therapy led by a social worker, six sessions of 60 min each in 3 weeks, or control group (usual care: individual counseling meeting by request). The return to work (RTW) status and change in quality of life (QoL, short form 12: Physical and Mental Component Summary PCS and MCS) 12 months after discharge from inpatient CR were outcome measures. RESULTS: The regression model for RTW showed no impact of the intervention (OR 1.1, 95% CI 0.6-2.1, P = 0.79; n = 263). Predictors were unemployment prior to CR as well as higher anxiety values at discharge from CR. Likewise, QoL was not improved by social therapy (linear mixed model: DeltaPCS 0.3, 95% CI - 1.9 to 2.5; P = 0.77; n = 177; DeltaMCS 0.7, 95% CI - 1.9 to 3.3; P = 0.58; n = 215). CONCLUSIONS: In comparison to usual care, an intensive program of social support for patients during inpatient cardiac rehabilitation after an acute cardiac event had no additional impact on either the rate of resuming work or quality of life

Sanchez-Herrera IS and Donate MJ. Occupational safety and health (OSH) and business strategy: the role of the OSH professional in Spain. Safety Science. 2019; 120:206-225.

<https://doi.org/10.1016/j.ssci.2019.06.037>

Schwartz A, Gerberich SG, Kim H, Ryan AD, Church TR, Albin TJ, et al. Janitor ergonomics and injuries in the safe workload ergonomic exposure project (SWEEP) study. Applied Ergonomics. 2019; 81:102874.

<https://doi.org/10.1016/j.apergo.2019.102874>

Abstract: INTRODUCTION: A Minnesota union identified to researchers at the University of Minnesota a concern relevant to a possible relation between their daily workload and outcome of occupational injuries among a population of janitors. OBJECTIVE: To assess if the ergonomic workload is related to injuries among janitors. METHODS: Following an initial group discussion among janitors, which identified common and hazardous tasks potentially leading to occupational injuries, a questionnaire was developed, pre-tested, and distributed to the janitors. Questions addressed various exposures, including workload, and comprehensive information regarding injury occurrence over two six-month sequential periods (May 2016-October 2016, November 2016-April 2017). Quantitative ergonomic analyses were performed on a sub-group of janitors (n=30); these included data collection to identify Borg Perceived Exertion (Borg) and Rapid Entire Body Assessment (REBA) scores. Descriptive, multivariable with bias adjustment analyses were conducted on the resulting data. RESULTS: Eight tasks were found to be common for janitors. All average REBA scores for the tasks were identified in the high-risk category. The task of repeatedly emptying small trash cans (<25lb) was significantly related to injuries. Average Borg scores fell between the very light perceived exertion and somewhat difficult perceived exertion categories. Multivariable regression analyses indicated that age-sex-standardized ergonomic workload, measured by task frequencies and REBA or Borg scores, was positively related to injury occurrence. CONCLUSIONS: Standardized ergonomic workload was positively related to injury occurrence. This information serves as a basis for further research and potential intervention efforts

Verbeek J, Mattioli S, and Curti S. Systematic reviews in occupational health and safety: where are we and where should we go? La Medicina del Lavoro. 2019; 110(5):331-341.

<https://doi.org/10.23749/mdl.v110i5.8952>

Abstract: Systematic Reviews have been introduced to improve the

synthesis of available evidence and to reduce bias in the conclusions about a body of evidence. Nowadays, Systematic Review is an established method also in the Occupational Safety and Health (OSH) field. It is the Cochrane Work Review Group that facilitates authors to produce Cochrane reviews of intervention topics in this area. A variety of guidelines used Cochrane Work reviews for underpinning their recommendations. Due to the comprehensive search and reproducibility of the methods of a systematic review, it turned out that systematic reviews can be powerful in changing beliefs. For example, studies published in the eighties advocated the use of back schools. Nowadays, we know that the total body of evidence has changed the traditional view that training in lifting techniques could prevent back pain. 'Sitting is the new smoking' is an eye catching nicely alliterating motto, but it is of course highly overstated. The findings of a Cochrane review of the effects of interventions to decrease sitting at work showed that sitting time can be reduced by a bit less than two hours per day by providing sit-stand desks plus education. However, it is unclear if this is sufficient to counter the effects of sitting. A wealth of evidence on OSH interventions has been collected by international collaboration in the Cochrane Work Review Group. This can be extended to systematic reviews of the effects of exposure of workers to assess to which risks of adverse health effects they are exposed

Xu Y, Wang Y, Chen J, He Y, Zeng Q, Huang Y, et al. The comorbidity of mental and physical disorders with self-reported chronic back or neck pain: results from the China Mental Health Survey. Journal of Affective Disorders. 2020; 260:334-341.

<https://doi.org/10.1016/j.jad.2019.08.089>

Abstract: BACKGROUND: To investigate mental and physical health comorbidity with chronic back or neck pain in the Chinese population, and assess the level of disability associated with chronic back or neck pain. METHODS: Data were derived from a large-scale and nationally representative community survey of adult respondents on mental health disorders in China (n=28,140). Chronic back or neck pain, other chronic pain conditions and chronic physical conditions were assessed by self-report. Mental disorders were assessed by the Composite International Diagnostic Interview (CIDI). Role disability during the past 30 days was assessed with the World Health

Organization Disability Assessment Schedule (WHO-DAS-II).
RESULTS: The 12-month prevalence of chronic back or neck pain was 10.8%. Most of respondents with chronic back or neck pain (71.2%) reported at least one other comorbid condition, including other chronic pain conditions (53.4%), chronic physical conditions (37.9%), and mental disorders (23.9%). It was found by logistic regression that mood disorders (OR = 3.7, 95%CI:2.8-4.8) showed stronger association with chronic back or neck pain than anxiety disorders and substance disorders. Most common chronic pains and physical conditions were significantly associated with chronic back or neck pain. Chronic back or neck pain was associated with role disability after controlling for demographics and for comorbidities. Physical and mental comorbidities explained 0.7% of the association between chronic back or neck pain and role disability.
CONCLUSIONS: Chronic back or neck pain and physical-mental comorbidity is very common in China and chronic back or neck pain may increase the likelihood of other physical and mental diseases. This presents a great challenge for both clinical treatment and public health education. We believe that further study needs to be conducted to improve the diagnostic and management skills for comorbidity conditions

Zhou F, Shrestha A, Mai S, Tao Z, Li J, Wang Z, et al.
Relationship between occupational noise exposure and hypertension: a cross-sectional study in steel factories.
American Journal of Industrial Medicine. 2019; 62(11):961-968.
<https://doi.org/10.1002/ajim.23034>

Abstract: BACKGROUND: Hazardous exposure to occupational noise may be associated with an increased risk of cardiovascular disease and hypertension. This study was performed to assess the relationship between noise exposure and hypertension prevalence in steelworkers. METHODS: A cross-sectional survey using self-reported noise exposure and audiometrically measured hearing loss was performed. One thousand eight hundred and seventy-four workers were interviewed. Multiple logistic regression was used to calculate odds ratios for hypertension by noise exposure. Linear regression analysis was used to test associations between noise exposure and systolic blood pressure (SBP) and diastolic blood pressure (DBP). RESULTS: Occupational noise-exposed subjects

had significantly higher blood pressure levels than nonexposed subjects (SBP: 123.18 +/- (standard deviation) 12.44 vs 119.80 +/- 12.50 mm Hg; DBP: 77.86 +/- 9.34 vs 75.49 +/- 8.73 mmHg). The prevalence of hypertension was approximately 5% in the control group without noise exposure or hearing impairment and increased from 6% to 21% across the range of increasing degree of hearing loss and, separately, of cumulative exposure time. Noise exposure (any) was associated with an increase in the prevalence of hypertension (odds ratio, 2.03, 95% confidence interval [CI]: 1.15-3.58). Noise-induced hearing loss and cumulative noise exposure time were positively correlated with BP (hearing loss: SBP: beta = .09, 95% CI: 0.04-0.15 mm Hg, DBP: beta = .11, 95% CI: 0.06-0.17 mm Hg; cumulative exposure time: SBP: beta = .10, 95% CI: 0.04-0.15 mm Hg, DBP: beta = .09, 95% CI: 0.04-0.15 mm Hg).
CONCLUSIONS: Noise exposure measured in two different ways was strongly associated with the prevalence of hypertension in steelworkers. Reducing noise in the steel factory could be a way of decreasing the risk of hypertension in this population