Based on feedback from stakeholder focus groups and a subscriber survey, Comcare is trialing a different format for our November Alert. While the Alert still has the latest research evidence on the Health Benefits of Work, the topics are grouped under five key focus areas that have resonated with our jurisdiction. Articles are collated using Pubmed© database for November 2018 only.

We value your input:
In order to understand if the modified Alert meets your needs, we are seeking your feedback via a short one-minute survey. We appreciate your time in advance as we continue to improve this valuable service.

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1. **Level of Evidence** – certain study designs are scientifically stronger at answering a question. The scoring hierarchy we provided is presented below

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>Description</th>
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<tbody>
<tr>
<td>Level 1</td>
<td>Evidence from a systematic review or meta-analysis of relevant studies.</td>
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<tr>
<td>Level 2</td>
<td>Evidence from a randomised controlled trial.</td>
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<tr>
<td>Level 3</td>
<td>Evidence from a controlled intervention trial without randomisation (i.e. quasi-experimental).</td>
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<tr>
<td>Level 4</td>
<td>Evidence from a case-control or cohort study.</td>
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<td>Level 5</td>
<td>Evidence from a single case study, a case series, or qualitative study.</td>
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<tr>
<td>Level 6</td>
<td>Evidence from opinion pieces, reports of expert committees and/or from literature reviews (scoping or narrative).</td>
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2. **Relevance** – research carried out in Australia or similar countries is most relevant to Australian readers

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>A study conducted in Australia; or outside Australia but confounders unlikely to affect relevance.</td>
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<tr>
<td>B</td>
<td>Study conducted outside Australia and confounders likely to affect generalisability.</td>
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Fostering Work Participation

Presenteeism

Four-year review of presenteeism data among employees of a large United States health care system: a retrospective prevalence study.

This study evaluated presenteeism among employees of a large United States health care system over a four-year period and assessed loss productivity due to poor health and its likely economic burden. 22,893 employees from six locations undertook an online Health Risk Appraisal which included the Health-Related Productivity Loss Instrument. The findings suggest that the conditions with the highest estimated daily productivity loss and annual cost per person were chronic back pain, mental illness, general anxiety, migraines or severe headaches, neck pain, and depression. However, allergies and migraines or severe headaches had the highest estimated annual company cost. The authors concluded that to improve productivity and to increase employee health and well-being of their workforce, employers should consider presenteeism data when planning comprehensive wellness initiatives.

Allen et al. 2018.
Keywords: Fostering work participation, Presenteeism, Employees, Productivity loss, Workplace wellness
Evidence Level: 4A

A daily diary study on sleep quality and procrastination at work: The moderating role of trait self-control.

This study examined the relationship between sleep quality and its effect on procrastination at work. 71 employees from several industries were asked to partake in daily electronic questionnaires on sleep quality and procrastination. The study results showed that sleep quality was negatively related to work procrastination the next day. However, the relation was only present for those who had low trait self-control, as employees with high trait self-control tended to be insusceptible to poor sleep quality.

Keywords: Fostering work participation, Diary study, Employees, Procrastination, Self-control, Sleep quality
Evidence level: 4A

Absenteeism

Identifying persons with axial spondyloarthritis at risk of poor work outcome: Results from the British society for rheumatology biologics register.

This study aims to evaluate if people with axial spondyloarthritis who report issues with work productivity are at higher risk of work absence and subsequently at a higher risk of leaving the workforce. 1188 participants were included in the study. The study found that leaving employment was associated with previous absenteeism and that factors such as high disease activity, fatigue, poorer physical function and a labor-intensive job were all associated with future presenteeism. The authors concluded that clinical and patient-reported factors along with aspects
of work are associated with an increased risk of the patients having a poor outcome in relation to work.

**Macfarlane et al. 2018.**
*Journal of Rheumatology [Epub ahead of print]*

**Key words:** Fostering work participation, Spondyloarthrosis, Work, Absenteeism, Presenteeism

**Evidence Level:** 4A

**Link:** [http://www.jrheum.org/content/early/2018/10/25/jrheum.180477.long](http://www.jrheum.org/content/early/2018/10/25/jrheum.180477.long)

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**Time pressure and sleep problems due to thoughts about work as risk factors for future sickness absence.**

This study aimed to investigate the association between time pressure or sleep problems due to thoughts about work and future sickness absence in twins. 16,127 individual twins were included in the study. The study results suggested a link between sleep problems due to thoughts about work and sickness absence, however, not between time pressure and sickness absence. Familial factors or sex differences did not seem to influence the associations. The authors concluded that sleep problems due to thoughts about work is a risk factor for future sickness absence.

**Svedberg et al. 2018.**
*International Archives of Occupational and Environmental Health, vol. 91, no. 8, pp. 1051-1059.*

**Key words:** Fostering work participation, Guiding and supporting mental health, Enabling healthy and safe workplaces, Sick leave, Sleep, Time pressure, Twins

**Evidence Level:** 4B


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**Lifestyle factors and risk of sickness absence from work: a multicohort study.**

This study aimed to examine the link between sickness absence from work and lifestyle factors such as smoking, alcohol consumption, high body mass index and low physical activity. 74,296 participants responded to a lifestyle survey which was linked to records of sickness absence episodes. The findings of the multicohort study suggest that lifestyle factors are associated with sickness absence due to several diseases, with musculoskeletal diseases and depressive disorders being the most common. However, the observational data cannot determine the nature of these associations.

**Virtanen et al. 2018.**

**Key words:** Fostering work participation, Enabling healthy and safe workplaces, Lifestyle factors, Employee absence, Sickness absence, Work health

**Evidence level:** 4B


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**Early Intervention**

**Recurrent back pain during working life and exit from paid employment: a 28-year follow-up of the Whitehall II Study.**

This study aimed to investigate the impact of recurrent reports of back pain on exit from paid employment. A 28 year follow up of a study cohort of 8665 men and women was conducted. The results suggested that an instance of low back pain was not associated with health-related job exit, however, recurrent pain was. It was identified that there were somewhat stronger
associations among middle-grade and lower-grade employees. The authors highlighted the need for early detection of recurrent back pain to prevent exit out of paid employment for health reasons.
Lallukka et al. 2018.
Occupational and Environmental Medicine, vol. 75, no. 11, pp. 786-791.
Keywords: Fostering work participation, Back disorders, Employment transitions, Epidemiology, Occupational cohort.
Evidence Level: 4A
Link: https://oem.bmj.com/content/75/11/786.long

Work Ability
This systematic review aimed to summarize the impact of endometriosis on the occupational functioning of women. Research in the area was reported to be scare with the review only including seven cross-sectional studies and one retrospective study. The review examines three main areas including the impact of endometriosis induced pain on occupational functioning: deterioration of work ability, work performance and quality of work caused by the condition; and the productivity loss caused by condition-related symptoms. The authors concluded that endometriosis causes major disturbance in occupational functioning of the women suffering from the condition.
Andysz et al. 2018.
Medycyna Pracy, vol. 69, no. 6.
Key words: Fostering work participation, Sickness absence, Work ability, Women’s health, Chronic disease, Quality of life
Evidence Level: 1A

Determinants of participation in voluntary work: a systematic review and meta-analysis of longitudinal cohort studies.
This systematic review aimed to summarize the evidence on the determinants of participation in voluntary work. 24 longitudinal studies conducted in developed countries were included within the review. A positive relationship for volunteering was found for socioeconomic status, being married, social network size, church attendance and previous volunteer experiences. While an inverse relationship was found for age, functional limitations and transitions into parenthood.
Niebuur et al. 2018.
Key words: Fostering work participation, Social participation, Volunteers, Factors, Unpaid work, Determinants
Evidence Level: 4A
Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-6077-2
Differences in self-rated health and work ability between self-employed workers and employees: Results from a prospective cohort study in the Netherlands.
This study primarily aims to evaluate the differences between self-rated health and work ability of self-employed workers and employees. The cohort study included 1,029 self-employed and 12,055 employees aged 45-64 years. The results of the study demonstrated that self-employed workers had higher scores in work ability and self-rated health than employees. Being self-employed also lead to an increase in work ability throughout the study.
Sewdas et al. 2018.
PLos One, vol. 13, no. 11, pp. e0206618.
Key words: Fostering work participation, Self-rated health, Work ability, self-employed, Employees
Evidence Level: 4B
Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0206618

Shift Work
Identifying shift worker chronotype: implications for health.
Little is known about the association between chronotype, shift work, and risks for acquiring chronic conditions. Therefore, this literature review focused on shift worker chronotype and circadian misalignment and their associations with obesity and other health issues. The results suggest that chronotype and certain health issues are associated with shift work. Consequently, the authors suggested that by further understanding this association, occupational health providers can deliver more complete worker education on the risks associated with shift work and sleep disturbances.
Hittle, BM & Gillespie, GL 2018.
Keywords: Fostering work participation, Enabling healthy and safe workplaces, Work schedule tolerance, Circadian rhythm, Night shift, Sleep
Evidence Level: 6A
Link: https://www.jstage.jst.go.jp/article/indhealth/56/6/56_2018-0018/_article

Chronic Health Issues
Strengthened general self-efficacy with multidisciplinary vocational rehabilitation in women on long-term sick leave: A randomised controlled trial.
To investigate the effects of two vocational rehabilitation interventions on self-efficacy, for women on long-term sick leave>=1 year due to chronic pain and/or mental illness. This study uses data from 401 women on long-term sick leave. A multidisciplinary team assessment and multimodal intervention increased self-efficacy in women on sick leave who had a low mean level of self-efficacy prior to inclusion. Thus, self-efficacy needs to be addressed in vocational rehabilitation.
Andersen et al. 2018.
Keywords: Guiding and supporting mental health; Fostering work participation; Sick leave; Vocational rehabilitation; Self-efficacy; Women; Multidisciplinary rehabilitation; Chronic pain; Mental illness.
Evidence Level: 2A
Link: https://link.springer.com/article/10.1007/s10926-017-9752-8
Living with disabling chronic pain: results from a face-to-face cross-sectional population-based study.
This cross-sectional study aimed to estimate the prevalence, analyze the characteristics, determine the multimorbidity and to identify the associated factors of disabling chronic pain in Spanish adults. Data was collected from 6,507 adults who participated in face-to-face home interviews. The results suggested that disabling chronic pain was associated with high multimorbidity, unemployment, manual work, low income, sleeping less than seven hours and reduced emotional social support. However, those with non-disabling chronic pain showed almost no differences when compared with the population without chronic pain.
Cabrera-Leon et al. 2018.
BMJ Open, vol. 12, no. 8, pp. e020913.
Keywords: Fostering work participation, Enhancing employer capability, Chronic pain, Multimorbidity, Unemployment, Quality of Life, Activity restriction
Evidence Level: 4B
Link: https://bmjopen.bmj.com/content/8/11/e020913.long

Enhancing Employer Capability

Health Promotion
A workplace intervention to reduce alcohol and drug consumption: a nonrandomized single-group study.
The consumption of alcohol and other drugs causes social and health problems, and is associated with work accidents, absenteeism and low productivity. This study involved an intervention which emphasized health promotion/health monitoring, and secondary prevention if risky consumption was identified. A program of worker health surveillance involving stakeholders and includes monitoring can improve compliance with workplace promotion programs, resulting in the facilitation of behavior change in areas such as alcohol and drug consumption.
Gómez-Recasens et al. 2018.
BMC Public Health, vol. 18, no. 1, pp. 1281
Keywords: Enhancing employer capability, Enabling healthy and safe workplaces, Drug prevention, Drugs, Health behavior surveillance, Healthy living, Risk
Evidence Level: 3A
Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6247683/

This study investigated the effect of implementing a six-week physical activity program ‘Walk with Ease’ into a workplace wellness program for Montana state employees. The aim was to determine the effect of the program on employee physical activity and arthritis symptoms. At six month follow up the study found significant increases in the mean number of minutes spent per week walking and engaging in other physical activity. Pain and fatigue decreased significantly at follow-up for participants with or without arthritis who began the program with moderate or severe pain and fatigue levels, however, the participants without arthritis had their mean pain levels increase at follow up.
Silverstein et al. 2018.
Cumulative risk of type 2 Diabetes in a working population: The Japan epidemiology collaboration on occupational health study.
This study aimed to estimate the cumulative risk of type 2 diabetes in a working population of 46,065 men and 7,763 women aged between 30 and 59 years. The cumulative risk was found to be 34.7% for men and 18.6% for women. Obese and overweight individuals had a much higher cumulative risk of the disease. Consequently, the authors highlighted the need for weight management programs and diabetes screening for employees.
Hu et al. 2018.
Key words: Enhancing employer capability, Cumulative risk, Epidemiology, Type 2 diabetes, Occupational health
Evidence level: 4B
Link: https://www.jstage.jst.go.jp/article/jea/28/11/28_JE20170093/_article

The role of positive emotion and ego-resilience in determining men's physical activity following a workplace health intervention.
This pre-post study examined the role of positive emotion, emotional outlook and ego-resilience in determining men’s physical activity and health-related quality of life (QOL) following implementation of a workplace health intervention. Results at the six-month follow-up suggested that both emotional outlook and ego-resilience were associated with increases in physical activity among men following the program. The authors concluded that workplace health interventions that incorporate the promotion of personal resources have the potential to make greater impacts.
Seaton et al. 2018.
Key words: Guiding and supporting mental health, Fostering work participation, Health promotion, Physical activity, Resilience, Well-being
Evidence Level: 5A

The majority of U.S. soldiers’ injuries occur gradually from cumulative micro-traumatic damage to the musculoskeletal system due to physical training. A five-step public health approach has proven to be an effective in building an injury prevention program: 1) surveillance to define the magnitude of the problem, 2) research and field investigations to identify causes and risk factors, 3) intervention trials and systematic reviews to determine what works to address leading risk factors, 4) program and policy implementation to execute prevention, and 5) program evaluation to assess effectiveness.
Jones et al. 2018.
Sedentary Work

Treadmill workstations in office workers who are overweight or obese: a randomised controlled trial.

This randomized controlled trial aimed to evaluate the long-term effects of treadmill workstation installation at offices for overweight or obese office workers. 80 participants from 13 difference companies were randomised to receive treadmill workstations for optional use or continue to work at their sit-stand desks as usual. The introduction of the treadmill workstations resulted in a statistically significant but less than the authors expected increase in daily walking time.

Bergman et al. 2018.
Key words: The future of work, Enabling healthy and safe workplaces, Office workers, Treadmill workstation, Overweight, Obese
Evidence Level: 2A
Link: https://www.sciencedirect.com/science/article/pii/S2468266718301634?via%3Dihub

Breaking up sedentary time in overweight/obese adults on work days and non-work days: results from a feasibility study.

This randomized crossover study aimed to test the feasibility of implementing a short-term intervention to increase physical activity in a sedentary group of overweight/obese adults. 22 participants were randomised to receive hourly interruptions for 5 minutes of physical activity; or one 45-minute physical activity bout per day; or as per usual. Both the interventions were found to improve physical activity (daily steps, time spent in moderate to vigorous activity), energy expenditure, self-perceived vigor and fatigue, and insulin sensitivity, however, not sitting-time and sit/stand transitions.

De Jong et al. 2018.
Key words: The future of work, Enabling healthy and safe workplaces, Sedentary behaviors, Physical activity, Overweight, Obese, Office worker
Evidence Level: 2A
Link: https://www.mdpi.com/1660-4601/15/11/2566

Occupational and leisure-time physical activity differentially predict 6-year incidence of stroke and transient ischemic attack in women.

This report examines physical activity effects on stroke and transient ischemic attack (TIA) among working women in the USA. Stroke and TIA risk increased with more standing and higher intensity work. Compared with mostly sitting, high intensity work increased TIA risk by 57%. Among women with cardiovascular disease, sitting and standing equally, especially at the current job, increased risks up to two-fold compared with mostly sitting at work. Higher intensity levels of occupational physical activity increased stroke and TIA risks.
Hall et al. 2018.
Scandinavian Journal of Work and Environmental Health [Epub ahead of print]
Key words: Enabling healthy and safe workplaces, Stroke, Risk, Physical activity, Sitting, Standing
Evidence Level: 4A

Associations of context-specific sitting time with markers of cardiometabolic risk in Australian adults.
This study examined associations of sitting time in four contexts with cardiometabolic risk biomarkers in 3429 Australian adults. Higher context-specific sitting times tended to be detrimentally associated, albeit modestly, with cardiometabolic risk score and several cardiometabolic risk biomarkers. There was some evidence suggesting that the context in which people sit is relevant above and beyond total sitting time with stronger associations for TV-viewing and computer use, and weaker for occupational sitting.

Dempsey et al. 2018.
Key words: Enabling healthy and safe workplaces, The future of work, Adiposity, Cardiovascular disease, Computer, Diabetes, Sedentary behavior, Sitting.
Evidence Level: 4A
Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6245709/

The Future of Work

Mining/Construction Industry

PARS: using augmented 360-degree panoramas of reality for construction safety training.
Improving the hazard-identification skills of construction workers is a vital step towards preventing accidents. Augmented 360-degree panoramas of reality offers an innovative low-cost, representation of the actual construction jobsite within which trainees may practice identifying hazards. This proof-of-concept study developed and evaluated a platform using augmented 360-degree panoramas of reality (PARS) for safety-training applications to enhance trainees' hazard-identification skills for four types of sample hazards. Trainees found the platform and augmentations advantageously to learning hazard identification.

Eiris et al. 2018.
International Journal of Environmental Research in Public Health, vol. 15, no. 11, pp. e2452
Key words: Enabling healthy and safe workplaces, Enhancing employer capability, The future of work, Construction safety training, Hazard recognition, Virtual reality.
Evidence Level: 4A
Link: https://www.mdpi.com/1660-4601/15/11/2452

Emerging ergonomics issues and opportunities in mining.
This paper explores several ergonomic issues and opportunities in the context of the mining sector that can impact the health and safety of miners. The opportunities explored vary from teleoperation and office workstations, to body-worn technology and autonomous systems. The authors concluded that by increasing the attention of the mining industry to ergonomics, it will be able to respond to changing production demands and workforce characteristics.
Dempsey et al. 2018
Key words: The future of work, Enabling healthy and safe workplaces, Ergonomics, Human factors, Mining, Occupational safety and health
Evidence Level: 6A
Link: https://www.mdpi.com/1660-4601/15/11/2449

**Technology**
Occupational risk prevention through smartwatches: precision and uncertainty effects of the built-in accelerometer.

This study assessed the precision and technical limitations of three types of wearable smartwatches and their potential application within occupational health. The authors assessed the applicability of the smartwatches for assessing physical activity, fall detection and hand-arm vibration. The results showed that despite the technical limitations produced by the factory configuration, that the watches can be used in numerous applications related to occupational risk assessment.

Sigcha et al. 2018
Sensors (Basel, Switzerland), vol. 18, no. 11, pp. e3805.
Key words: The future of work, Enabling healthy and safe workplaces, Wearable, Smartwatches, Risk assessment, Microelectronic mechanical systems accelerometers
Evidence level: 5A
Link: https://www.mdpi.com/1424-8220/18/11/3805

What maximizes the effectiveness and implementation of technology-based interventions to support healthcare professional practice? A systematic literature review.

This literature review examined interventions that included technology to support healthcare professional practice change and the barriers and facilitators to implementations of these interventions. 69 studies of quantitative and qualitative design were included. Technological interventions that focus on providing decision support for clinical practice using recognized behavior change techniques were the most successful. Facilitators of implementation included aligning studies with organisational initiatives, ensuring senior peer endorsement, and integration into clinical workload, while barriers included design, content and technical issues.

Keyworth et al. 2018.
BMC Medical Informatics and Decision Making, vol. 18, no. 93.
Key words: The future of work, Healthcare professional behaviour change, Technology, eHealth
Evidence Level: 6A
Guiding and Supporting Mental Health

Psychosocial Issues

Effects of an online imagery-based treatment program in patients with workplace-related posttraumatic stress disorder: A pilot study.
This study involved an imagery-based treatment program for patients with post-traumatic stress disorder (PTSD) related to workplace accidents and investigated the effects of the program on PTSD related symptoms in 35 patients. The results demonstrated that the relatively short online imagery-based treatment program developed for this study had beneficial effects for patients with workplace-related PTSD.
Lee et al. 2018.
Psychiatry Investigations [Epub ahead of print]
Key words: Guiding and supporting mental health, Fostering work participation, Imagery-based treatment, Posttraumatic stress disorder, Workplace injury
Evidence Level: 4A

Characteristics of self-reported daily life note (LN) users in return-to-work judgment for workers on sick leave due to mental health conditions, and usefulness of the tool.
A self-reported daily life note (LN) is a tool to assess the capacity of workers on sick leave due to mental illness to return to work (RTW). 363 occupational physicians completed self-reported questionnaires. LN users emphasized four criteria in assessing RTW: 1) constant wake-up time, 2) constant bedtime, 3) no midnight waking, and 4) no feeling of drowsiness during the day. LN users regard regular sleep rhythm and the absence of drowsiness during the day as important criteria for RTW.
Industry Health. [Epub ahead of print]
Key words: Guiding and supporting mental health, Return to work, Self-reported daily life note, Work capacity evaluation
Evidence Level: 4A
Link: https://www.jstage.jst.go.jp/article/indhealth/advpub/0/advpub_2018-0028/_article

Does paid vacation leave protect against depression among working Americans? A national longitudinal fixed effects analysis.
This study aimed to determine if paid vacation leave may protect against depression. This longitudinal study examined a sample of 3380 working American men and women aged 45-52 years who are not guaranteed vacation leave. The results suggested that for every ten additional days of paid leave, the odds of depression in women was 29% lower, however, there was no association found in men. Additionally, the odds of depression were 36% lower in White women and 38% lower in women with two or more children. Therefore, the authors concluded that policies that mandate paid vacation leave may have positive influences on the population health and economic burden of depression among working women in the United States.
Kim, D 2018.
Keywords: Fostering work participation, Guiding and supporting mental health, Mental health, Depression, Stress, Paid holiday leave, Vacation leave
Evidence Level: 4A
National Mental Health and Wellbeing Study of Police and Emergency Services
This study is the first national survey of the mental health and wellbeing of personnel in Australian police and emergency services. 21,014 people took part in the survey. This survey identified a range of issues that are related to mental health and wellbeing in the police and emergency services sector, and areas that could be addressed to improve wellbeing
Beyond Blue Ltd. 2018.
Keywords: Guiding and supporting mental health, Police, Emergency services,
Evidence Level: 4A

Caring for the caregivers: Evaluation of the effect of an eight-week pilot mindful self-compassion training program on nurses’ compassion fatigue and resilience.
This observational mixed methods study aimed to examine the benefits of an eight-week self-compassion skills training intervention for nurses. 18 female nurses participated in the training which resulted in a decline in secondary trauma and burnout and an increase in resilience and compassion satisfaction. The authors concluded that the results support self-compassion training for nurses.
Delaney, MC 2018.
Keywords: Guiding and supporting mental health, Fostering work participation, Mindful self-compassion training, Nurses, Compassion, Fatigue, Resilience
Evidence Level: 5A
Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0207261

Feasibility and acceptability of strategies to address mental health and mental ill-health in the Australian coal mining industry.
This study evaluated the feasibility, acceptability and effectiveness of employing a peer-based, multi-component mental health program in the Australian coal mining industry. 1275 miners from eight mines participated in the peer based mental health and suicide prevention program and 117 supervisors completed supervisor training. The results suggested that participants and supervisors were more confident identifying someone experiencing mental ill-health and were more willing to start a conversation about their mental health. Supervisors were increasingly able to recommend support services and have an effective conversation about performance issues that may be due to mental ill-health. Therefore, the authors concluded that there is evidence to support the use of peer-based mental health programs in the mining industry.
Tynan et al. 2018.
International Journal of Mental Health Systems, vol. 12, no. 66.
Keywords: Guiding and supporting mental health, Workplace health, Mental health, Mining, Coal, Peer-support
Evidence Levels: 5A
Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6211480/
Occupational Stress

Heart rate variability and occupational stress-systematic review.
This review explored studies regarding association between occupational stress and heart rate variability (HRV) during work. The review describes a range of different assessment techniques and identified that the assessment and analysis methods of occupational stress and HRV were diverse.
Key words: Guiding and supporting mental health, Enabling healthy and safe workplaces, Guiding and supporting mental health, Autonomic nervous system, Heart rate variability, Occupational stress, Work
Evidence Level: 1A
Link: https://www.jstage.jst.go.jp/article/indhealth/56/6/56_2017-0190/_article

Emotional exhaustion and innovation in the workplace-a longitudinal study.
This study aimed to examine the influence of working conditions on psychological wellbeing and innovation. 320 German workers participated in two online surveys 12 months apart. The results suggested that unreasonable tasks predicted emotional exhaustion and that task variety leads to individual innovation. However, supervisor social support, qualitative overload and diverging effects from working conditions did not seem to have an effect on either emotional exhaustion or individual innovation.
Koch, AK, Adler, M 2018.
Industrial Health, vol. 56, no. 6, pp. 524-538.
Key words: Guiding and supporting mental health, Enhancing employer capability, Emotional exhaustion, Innovation, Job demands, Working conditions
Evidence Level: 4A
Link: https://www.jstage.jst.go.jp/article/indhealth/56/6/56_2017-0095/_article

Burnout is reported to be high among social workers. This study explored factors associated with burnout in a group of social workers working in adults and children’s services in England. 3,786 social workers completed surveys which highlighted the critical moderating factors to burnout including work-engagement, administrative support and work experience. It was also found that personal characteristics, such as gender and ethnicity, were significantly associated with various levels of burnout and personal accomplishments.
Hussein, S 2018.
Administration and Policy in Mental Health and Mental Health Services Research, vol. 45, no. 6, pp. 911-923.
Keywords: Fostering work participation, Guiding and supporting mental health, Social work, Burnout, Mental wellbeing, Work engagement
Evidence Level: 4A
Link: https://link.springer.com/article/10.1007%2Fs10488-018-0872-z
Effect of a job demand-control-social support model on accounting professionals' health perception. Accountants are subject to pressure in performing their work, which influences their health and their job performance. This study investigates the effects of job demands on the occupational health of 739 accountants. The results confirm the relationship between certain stress factors and the health of the accountants, as well as the direct effect recognition of superiors in occupational health has. The results highlight the moderating effect of professional development and the support of superiors.


Evidence Level: 5B
Link: https://www.mdpi.com/1660-4601/15/11/2437

Enabling Healthy and Safe Workplaces

Risk Assessment

The effectiveness of the functional movement screen in determining injury risk in tactical occupations.

This meta-analysis aimed to determine the predictive value of the Functional Movement Screen in determining injury risk in workers engaged in tactical occupations. Ten studies were included in the analysis. The results found that the odds of injury were almost two times more for personnel scoring less or equal than 14 on the Functional Movement Screen compared to those who scored more than 14. Yet, the size of the effects was small, therefore, the authors concluded that the relationship between the Functional Movement Screen cut off scores and injury prediction was not supported as a sole predictor of injury.

Kollock et al. 2018. Industrial Health [Epub ahead of print]
Keywords: Fostering work participation, Enabling healthy and safe workplaces, Firefighters, Military medicine, Occupational medicine, Preventive medicine
Evidence Level: 1A
Link: https://www.jstage.jst.go.jp/article/indhealth/advpub/0/advpub_2018-0086/_article

Prevalence of hidden carbon monoxide poisoning in auto service workers; a prospective cohort study.

Carbon monoxide (CO) is a colorless, odorless, and poisonous gas that produces various acute and chronic effects in CO-exposed people. In this study, we measured CO levels in auto care repairmen with chronic CO-related illnesses. We determined that the risk of being affected by CO is high in buildings in which the auto services were located. In workplaces in which there is high exposure to CO, proper workplace safety measures should be taken to reduce this gas's harmful effects to employees.

Keywords: Enabling healthy and safe workplaces, Carbon monoxide, Auto mechanics
Evidence Level: 4A
Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6219102/
A Bayesian network model for reducing accident rates of electrical and mechanical (E&M) work.
The Bayesian Network (BN) model is proposed to establish a probabilistic relational network between causal factors, including both safety climate factors and personal experience factors that have influences on the number of accidents related to electrical and mechanical (E&M) work. The proposed BN provides the ability to find out the most effective strategy with the best utilization of resources, to reduce the chance of a high number of E&M accidents, by controlling a single factor or simultaneously controlling, both, the safety climate and personal factors, to improve safety performance.
Chan et al. 2018.
Key words: Enabling healthy and safe workplaces, The future of work, Bayesian Networks, Accident analysis, Electrical and mechanical work, Safety management, Risk
Evidence Level: 4A
Link: https://www.mdpi.com/1660-4601/15/11/2496

Sensor-based safety performance assessment of individual construction workers.
This study explores the use of advanced sensing technologies to quantitatively assess individual workers' safety performance. A tracking system was used to collect individuals' location data and a computational model developed to quantify the safety performance of individual workers. Results showed the model's ability to capture safety conditions of workers in pre-identified hazard zones. An automated method may present a suitable safety monitoring method that can eliminate human deployment that is expensive, error-prone, and time-consuming.
Park et al. 2018.
Sensors (Basel), vol. 18, no. 11, pp. e3897.
Key words: Enabling healthy and safe workplaces, The future of work, Awareness, Communication, Construction, Safety, Sensing
Evidence Level: 4A
Link: https://www.mdpi.com/1424-8220/18/11/3897

PARS: using augmented 360-degree panoramas of reality for construction safety training.
Improving the hazard-identification skills of construction workers is a vital step towards preventing accidents. Augmented 360-degree panoramas of reality offers an innovative low-cost, representation of the actual construction jobsite within which trainees may practice identifying hazards. This proof-of-concept study developed and evaluated a platform using augmented 360-degree panoramas of reality (PARS) for safety-training applications to enhance trainees' hazard-identification skills for four types of sample hazards. Trainees found the platform and augmentations advantageously to learning hazard identification.
Eiris et al. 2018.
International Journal of Environmental Research in Public Health, vol. 15, no. 11, pp. e2452
Key words: Enabling healthy and safe workplaces, Enhancing employer capability, The future of work, Construction safety training, Hazard recognition, Virtual reality.
Evidence Level: 4A
Link: https://www.mdpi.com/1660-4601/15/11/2452
Occupational risk prevention through smartwatches: precision and uncertainty effects of the built-in accelerometer.
This study assessed the precision and technical limitations of three types of wearable smartwatches and their potential application within occupational health. The authors assessed the applicability of the smartwatches for assessing physical activity, fall detection and hand-arm vibration. The results showed that despite the technical limitations produced by the factory configuration, that the watches can be used in numerous applications related to occupational risk assessment.

Sigcha et al. 2018
Sensors (Basel, Switzerland), vol. 18, no. 11, pp. e3805.
Key words: The future of work, Enabling healthy and safe workplaces, Wearable, Smartwatches, Risk assessment, Microelectronic mechanical systems accelerometers
Evidence level: 5A
Link: https://www.mdpi.com/1424-8220/18/11/3805

Identifying shift worker chronotype: implications for health.
Little is known about the association between chronotype, shift work, and risks for acquiring chronic conditions. Therefore, this literature review focused on shift worker chronotype and circadian misalignment and their associations with obesity and other health issues. The results suggest that chronotype and certain health issues are associated with shift work. Consequently, the authors suggested that by further understanding this association, occupational health providers can deliver more complete worker education on the risks associated with shift work and sleep disturbances.

Hittle, BM & Gillespie, GL 2018.
Keywords: Fostering work participation, Enabling healthy and safe workplaces, Work schedule tolerance, Circadian rhythm, Night shift, Sleep
Evidence Level: 6A
Link: https://www.jstage.jst.go.jp/article/indhealth/56/6/56_2018-0018/_article

Worker Health
The effectiveness of the functional movement screen in determining injury risk in tactical occupations.
This meta-analysis aimed to determine the predictive value of the Functional Movement Screen in determining injury risk in workers engaged in tactical occupations. Ten studies were included in the analysis. The results found that the odds of injury were almost two times more for personnel scoring less or equal than 14 on the Functional Movement Screen compared to those who scored more than 14. Yet, the size of the effects was small, therefore, the authors concluded that the relationship between the Functional Movement Screen cut off scores and injury prediction was not supported as a sole predictor of injury.

Kollock et al. 2018.
Industrial Health [Epub ahead of print]
Keywords: Fostering work participation, Enabling healthy and safe workplaces, Firefighters, Military medicine, Occupational medicine, Preventive medicine
Evidence Level: 1A
Link: https://www.jstage.jst.go.jp/article/indhealth/advpub/0/advpub_2018-0086/_article
A workplace intervention to reduce alcohol and drug consumption: a nonrandomized single-group study.
The consumption of alcohol and other drugs causes social and health problems, and is associated with work accidents, absenteeism and low productivity. This study involved an intervention which emphasized health promotion/health monitoring, and secondary prevention if risky consumption was identified. A program of worker health surveillance involving stakeholders and includes monitoring can improve compliance with workplace promotion programs, resulting in the facilitation of behavior change in areas such as alcohol and drug consumption.

Gómez-Recasens et al. 2018.
BMC Public Health, vol. 18, no. 1, pp. 1281
Key words: Enhancing employer capability, Enabling healthy and safe workplaces, Drug prevention, Drugs, Health behavior surveillance, Healthy living, Risk
Evidence Level: 3A
Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6247683/

Pharmaceutical use according to participation in worksite wellness screening and health campaigns.
The aim of this study was to evaluate whether partaking in worksite wellness screening and health campaigns influences the number and cost of pharmacy medication claims. 2531 workers from a large school district in the United States were studied. The results suggested that those who completed wellness screening were more likely to file a pharmacy claim, however, those completing a health campaign were less likely. It was also found that women were more likely to participate in the wellness screening and had higher pharmacy costs.

Merrill, RM, Telford, CT 2018.
Key words: Fostering work participation, Biometric evaluation, Health risks, Incentives, Prevention, Worksite wellness
Evidence Level: 4A
Link: https://www.sciencedirect.com/science/article/pii/S2211335518301918?via%3Dihub

Investigating self-reported health by occupational group after a 10-year lag: results from the total Belgian workforce.
This study aimed to examine the self-reported health among several occupational groups in Belgium. A total of 1.5 million men and 1 million women of working age were identified by occupational group in the 1991 census and were asked to report their self-reported health in the 2001 census. The study identified that physically demanding occupations were more likely to report poor health with building trade workers, service elementary workers and laborer’s in construction, manufacturing and transport being the likeliest.

Van den Borre, L, Deboosere, P 2018.
Achieves of Public Health, vol. 76, no. 68.
Key words: Enabling healthy and safe workplaces, Occupational health, Self-rated health, Health inequalities, Type of work
Evidence level: 4A
Link: https://archpublichealth.biomedcentral.com/articles/10.1186/s13690-018-0313-1
Investigation of obstructive sleep apnea using portable monitors and health check data in Japanese drivers.
The identification and management of commercial motor vehicle (CMV) drivers with unrecognized obstructive sleep apnea (OSA) is a major public health concern. This study involved 1309 Japanese CMV drivers aged 40-69 years. OSA was related to obesity, hypertension, and diabetes. When performing an objective assessment of the suspected OSA, evaluating BMI, blood pressure, and HbA1c during routine medicals may be useful to detect drivers with latent OSA.

Ueyama et al. 2018.
Key words: Enabling healthy and safe workplaces, Enhancing employer capability, Commercial motor vehicle drivers, Obstructive Sleep Apnea Syndrome, Sleep-Disordered Breathing.
Evidence Level: 4A
Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6224203/

Lifestyle factors and risk of sickness absence from work: a multi-cohort study.
This study aimed to examine the link between sickness absence from work and lifestyle factors such as smoking, alcohol consumption, high body mass index and low physical activity. 74,296 participants responded to a lifestyle survey which was linked to records of sickness absence episodes. The findings of the multi-cohort study suggest that lifestyle factors are associated with sickness absence due to several diseases, with musculoskeletal diseases and depressive disorders being the most common. However, the observational data cannot determine the nature of these associations.

Virtanen et al. 2018.
Key words: Fostering work participation, Enabling healthy and safe workplaces, Lifestyle factors, Employee absence, Sickness absence, Work health
Evidence level: 4B

The factors influencing the eating behaviour of shiftworkers: what, when, where and why.
This scoping review examines the evidence on the individual and environmental factors influencing the eating behaviors of shift workers. 62 articles were included within the review. The results of the review found that irregular working hours was the major influence on the timing of when workers ate on shift, while socialising with colleagues was the main reason why workers chose to eat. It was also found that shift type was the greatest influence on what workers ate, with most of the food purchased from canteens and cafeterias.

Gupta et al. 2018.
Industrial Health [Epub ahead of print]
Key words: Enabling healthy and safe workplaces, Eating at night, Meal timing, Nightshift, Safety, Shift work
Evidence Level: 6A
Link: https://www.jstage.jst.go.jp/article/indhealth/advpub/0/advpub_2018-0147/_article
Research methodologies for Total Worker Health®: Proceedings from a workshop.
This report reviews the current methodological and measurement considerations in Total Worker Health research following a workshop at the university of Iowa that included 26 experts in occupational health and safety related fields. Total Worker Health was defined as the policies, programs, and practices that integrate protection from work-related health and safety hazards with promotion of injury prevention to improve worker well-being.

Tamers et al. 2018.
Key words: Enabling healthy and safe workplaces, Health, Research methodologies, Safety, Total worker health, Well-being, Worker
Evidence Level: 6A
Link: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6221402/

Military applications of soldier physiological monitoring.
Wearable physiological status monitoring allows predictions about an individual's health and performance from their real-time physiological status. Military applications include: (1) enhancement of performance by providing individual information to optimize self-regulation, workload distribution; (2) detection of impending failure from stress load (physical, psychological, and environmental); (3) earliest possible detection of threat agent exposure; (4) casualty detection, triage, and early clinical management; (5) optimization of individual health and fitness readiness habits; and (6) long term health risk-associated exposure monitoring and dosimetry. This paper focuses on the performance-related applications for the soldier.
Friedl, KE 2018.
Journal of Science and Medicine in Sport, vol. 21, no. 11, pp. 1147-1153.
Key words: The future of work, Enabling healthy and safe workplaces, Metabolic monitoring, Military performance, Neurophysiology, Physiological models, Thermal biology, Wearable sensors
Evidence Level: 6B
Link: https://www.sciencedirect.com/science/article/pii/S144024401830255X?via%3Dihub

Workplace Regulation
Labour politics as public health: how the politics of industrial relations and workplace regulation affect health.
This paper explores the literature on political economy in order to argue that industrial relations and workplace regulation are political and crucial to public health in the UK. The paper discusses coordinated bargaining and wage compensation, shop floor worker power and occupational health and safety, incentive to invest in human capital, wellness, occupation safety and health, presenteeism and public health, gender and racial equality and class biases in political engagement. The author highlighted that politics influence public health by wage inequality, workplace health and safety, political engagement and investment in human capital.
Greer, SL 2018.
Key words: Enabling healthy and safe workplaces, Labor, Politics, Safety, Social welfare, Workplace, Public health
Evidence Level: 6B
Link: https://academic.oup.com/eurpub/article/28/suppl_3/34/5149571
**Musculoskeletal Health**

**Barriers for implementation of successful change to prevent musculoskeletal disorders and how to systematically address them.**

The primary purpose of this scoping review was to identify the common barriers and facilitators experienced during the implementation of actions to prevent musculoskeletal disorders. The review identified eleven barriers and three facilitators which were similar to those in general occupational health and safety processes. The barriers included a lack of management support, knowledge, time, resources, communication, trust, fear of job loss; resistance to change; changing work environment; difficulty of implementing controls; scope of activities and process deficiencies. The facilitators identified included an effective implementation process; training, knowledge and ergonomists' support and communication, participation and support.


**Key words:** Fostering work participation, Enhancing employer capability, Enabling healthy and safe workplaces, Barriers, Commitment, Injury prevention, Management systems, Participation

**Evidence Levels:** 6A


**Musculoskeletal training injury prevention in the U.S. Army: Evolution of the science and the public health approach.**

The majority of U.S. soldiers' injuries occur gradually from cumulative micro-traumatic damage to the musculoskeletal system due to physical training. A five-step public health approach has proven to be an effective in building an injury prevention program: 1) surveillance to define the magnitude of the problem, 2) research and field investigations to identify causes and risk factors, 3) intervention trials and systematic reviews to determine what works to address leading risk factors, 4) program and policy implementation to execute prevention, and 5) program evaluation to assess effectiveness.


**Key words:** Enabling healthy and safe workplaces, Injury Prevention, Military, Public health

**Evidence Level:** 6A


**Physical Activity**

**Treadmill workstations in office workers who are overweight or obese: a randomised controlled trial.**

This randomized controlled trial aimed to evaluate the long-term effects of treadmill workstation installation at offices for overweight or obese office workers. 80 participants from 13 difference companies were randomised to receive treadmill workstations for optional use or continue to work at their sit-stand desks as usual. The introduction of the treadmill workstations resulted in a statistically significant but less than the authors expected increase in daily walking time.


**Key words:** Enabling healthy and safe workplaces, Office workers, Treadmill workstation, Overweight, Obese

**Evidence Level:** 2A

**Breaking up sedentary time in overweight/obese adults on work days and non-work days: results from a feasibility study.**

This randomized crossover study aimed to test the feasibility of implementing a short-term intervention to increase physical activity in a sedentary group of overweight/obese adults. 22 participants were randomised to receive hourly interruptions for 5 minutes of physical activity; or one 45-minute physical activity bout per day; or as per usual. Both the interventions were found to improve physical activity (daily steps, time spent in moderate to vigorous activity), energy expenditure, self-perceived vigor and fatigue, and insulin sensitivity, however, not sitting-time and sit/stand transitions.

**De Jong et al. 2018.**

**Key words:** The future of work, Enabling healthy and safe workplaces, Sedentary behaviors, Physical activity, Overweight, Obese, Office worker

**Evidence Level:** 2A

**Link:** [https://www.mdpi.com/1660-4601/15/11/2566](https://www.mdpi.com/1660-4601/15/11/2566)

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**Sleep**

**Occupational health disparities among U.S. long-haul truck drivers: the influence of work organization and sleep on cardiovascular and metabolic disease risk.**

This study aimed to better understand the work organization of long-haul truck drivers and understand the effect that the occupation has on chronic disease risk. Blood samples and survey data was collected from 115 and 260 drivers, respectively. The truck drivers were found to have a significantly higher cardiovascular and metabolic disease risk compared to national standards. The drivers were found to be less physically active and had higher levels of smoking and BMI.

**Hege et al. 2018.**

**Key words:** Enabling healthy and safe workplaces, Occupational health, Truck drivers, Sleep, Health, Wellbeing

**Evidence level:** 4A

**Link:** [https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0207322](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0207322)

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**Investigation of obstructive sleep apnea using portable monitors and health check data in Japanese drivers.**

The identification and management of commercial motor vehicle (CMV) drivers with unrecognized obstructive sleep apnea (OSA) is a major public health concern. This study involved 1309 Japanese CMV drivers aged 40-69 years. OSA was related to obesity, hypertension, and diabetes. When performing an objective assessment of the suspected OSA, evaluating BMI, blood pressure, and HbA1c during routine medicals may be useful to detect drivers with latent OSA.

**Ueyama et al. 2018.**

**Key words:** Enabling healthy and safe workplaces, Enhancing employer capability, Commercial motor vehicle drivers, Obstructive Sleep Apnea Syndrome, Sleep-Disordered Breathing.

**Evidence Level:** 4A

**Link:** [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6224203/](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6224203/)
Irregular work schedule and sleep disturbance in occupational drivers-A nationwide cross-sectional study.

This study investigated the relationship between irregular work schedules and sleep disturbance and compare the impacts of work schedule on sleep disturbance between occupational drivers and office workers. 3,070 occupational drivers and 9,898 office workers were included in this study. Occupational drivers who are exposed to night work and evening work are at higher risks for sleep disturbance. Therefore, for the public and drivers' safety, optimal work schedules for minimising sleep disturbance should be developed.

Jeong et al. 2018.
**Key words:** Enabling healthy and safe workplaces, Enhancing employer capability, Commercial drivers, Sleep, Work schedules
**Evidence Level:** 4A
**Link:** [https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0207154](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0207154)

Time pressure and sleep problems due to thoughts about work as risk factors for future sickness absence.

This study aimed to investigate the association between time pressure or sleep problems due to thoughts about work and future sickness absence in twins. 16,127 individual twins were included in the study. The study results suggested a link between sleep problems due to thoughts about work and sickness absence, however, not between time pressure and sickness absence. Familial factors or sex differences did not seem to influence the associations. The authors concluded that sleep problems due to thoughts about work is a risk factor for future sickness absence.

Svedberg et al. 2018.
International Archives of Occupational and Environmental Health, vol. 91, no. 8, pp. 1051-1059.
**Key words:** Fostering work participation, Guiding and supporting mental health, Enabling healthy and safe workplaces, Sick leave, Sleep, Time pressure, Twins
**Evidence Level:** 4B