

Ageing pilots' risk of incapacitation

European Union Regulation 1178/2011 prohibits pilots over the age of 60 from flying commercial aeroplanes unless they are part of a multi-pilot crew, and sets an upper limit of 65. This systematic review (10 papers met inclusion criteria) concludes that medical in-flight incapacitation is very rare, and while the risk rises with age 'the slope of the increase in in-flight incapacitation is a lot flatter than for medical incapacitation in general'. There is limited evidence on increasing incapacitation with age, with some estimates derived by extrapolating risks in the general population without adjusting for the better health of pilots. Comparable data (in-flight incapacitation versus flight hours) were available from four papers, giving an all-age rate of 0.19–0.46 incapacitations per million flight hours for professional pilots. Most incapacitations are neither deadly nor lead to an accident, and the majority are not age-related, being caused, for example, by gastroenteritis and viral infection. A register of all pilots' career and health information would provide more objective information on deciding upper age limits.

- *International Archives of Occupational and Environmental Health* 2014; online first: doi: 10.1007/s00420-013-0901-x
- <http://link.springer.com/article/10.1007/s00420-013-0901-x>

Offshore shift work – effects on sleep and health

Workers in the offshore oil industry are able to adapt fully to nightshift work within one to two weeks, according to this systematic review (29 studies); however, re-adaptation to daytime shifts is slower. There is inconsistent evidence on sleep quality and duration, though most studies show that dayshift workers reported better and longer sleep, and fewer sleep problems (eg staying asleep or fragmented sleep) compared with nightshift workers. Three studies found no evidence for slower reaction times among night workers. There was insufficient evidence to justify conclusions on the impact of shiftwork on physical and mental health – findings on the impact of offshore shiftwork as a risk factor for poor mental health, higher body mass index and increased risk of work-related accidents were inconsistent. Longitudinal studies to investigate long-term outcomes are needed.

- *Industrial Health* 2013; 51(5): 530–544
- http://www.jniosh.go.jp/en/indu_hel/pdf/IH_51_5_530.pdf

Work scheduling could reduce HGV crashes

A large case–control study involving 1,047 heavy goods vehicle (HGV) drivers (99% male) in Australia found that scheduling journeys to avoid the midnight-to-dawn period would achieve a three-fold reduction in crash risk. The study examined 530 long- distance HGV drivers who had been involved in a police-reported crash over a two-and-a-half-year period, and 517 drivers who had not been involved in an accident. Drivers were excluded if they had been involved in an accident involving a fatal or serious injury. Risk factors were assessed by questionnaire, and all drivers were provided with a diagnostic device to test for obstructive sleep apnoea. Diagnostic tests revealed that the prevalences of 'likely severe' sleep apnoea were 19% among case drivers and 16% in the control drivers; while prevalences regardless of severity, according to the Multivariate Apnoea Prediction Index scores, were 38% and 47%, respectively. Despite these relatively high prevalences, sleep apnoea was not associated with increased risk of having a non-fatal, non-severe crash. The risk of being involved in an accident was significantly elevated for: driving between midnight and 5.59am (adjusted odds ratio (OR) = 3.42; 95% confidence interval (CI) 2.04–5.74), driving more than four hours without a break (OR = 2.44; CI 1.63–3.64), having an empty load (OR = 2.61; CI 1.72–3.97), and being a less experienced driver (less than 10 years in the job) (OR = 3.09; CI 2.27–4.20). Use of caffeinated drinks lowered the risk (OR = 0.30; CI: 0.22–0.39), as did being in the early stages (less than eight hours) of a trip (OR = 0.64; CI 0.45–

0.91). More than one-third of drivers reported having had trouble staying awake while driving during the past month.

- *American Journal of Epidemiology* 2014; 179(5): 594–601
- <http://aje.oxfordjournals.org/content/early/2013/12/17/aje.kwt305.abstract>

Chromium VI cancer risk at work

A systematic review (five included studies) identified an ‘acceptable’ lifetime risk of lung cancer from exposure to hexavalent chromium (Cr(VI)) of fewer than four cases per 10,000 workers at airborne concentrations of 0.1µg/m³. There was an ‘intolerable’ risk – more than four cases per 1,000 – at 1µg/m³. The authors acknowledge limitations in their pooled risk estimates, including due to uncertainty in the exposure estimates and possible co-exposure of those working in chromate plants from which the estimates are derived.

- *International Archives of Occupational and Environmental Health* 2013; 86(8): 943–955
- <http://link.springer.com/article/10.1007/s00420-012-0822-0>

COPD causally linked to occupational exposure

A systematic review of 25 population-wide and 34 industry or occupation specific studies finds strong and consistent evidence for a causal association between occupational exposures to vapours, gases, dusts and fumes, and chronic obstructive pulmonary disease (COPD). Evidence quality was assessed using the Scottish Intercollegiate Guidelines Network protocol – with all studies rated as at least 2+ (high quality, low risk of bias). Odds ratios ranged from 1.08–2.13 in population-based studies, 1.70–3.80 in studies of inorganic exposure, and 1.20–8.86 in those of organic exposure. Dose–response relationships were found for a range of exposures/occupations, including cotton textile, wood workers, welding, coal mining, foundry work, farming and non-mining industrial dust.

- *Scandinavian Journal of Work, Environment and Health* 2014; 40(1): 19–35
- http://www.sjweh.fi/show_abstract.php?abstract_id=3400

Worksite exercise – no effect on psychosocial factors or job satisfaction

A cluster randomised controlled trial of a worksite strength-training programme demonstrated no benefit to participants in reported psychosocial factors or job satisfaction¹. The study was set up following the finding of a 2009 meta-analysis that increasing employees’ physical activity at work might lead to reduced job stress and increased job satisfaction². A total of 282 workers took part in a 20-week programme comprising three 20-minute sessions of high-intensity strength training for the neck and shoulder muscles three times a week. The control group comprised 255 workers encouraged to stay active and who were consulted once a week by a supervisor. Three psychosocial factors – influence at work, sense of community, and time pressure – as well as job satisfaction were measured by validated questionnaire. There were no significant differences in any of the four variables.

- 1 *International Archives of Occupational and Environmental Health* 2013; 86(8): 861–864
<http://link.springer.com/article/10.1007%2Fs00420-012-0823-z>
- 2 *American Journal of Preventive Medicine* 2009; 37(4): 330–339
[http://www.ajpmonline.org/article/S0749-3797\(09\)00413-9/abstract](http://www.ajpmonline.org/article/S0749-3797(09)00413-9/abstract)

Germany loses €2.18 million in weight-related sick leave

Overweight employees take one-third (31%) more sickness absence than those of 'normal' weight, while obese workers take nearly twice as much (88% more) according to this cross-sectional analysis of data from the German Socio-Economic Panel (an annual general household survey). The study examined self-reported sickness absence in 2009 from 7,990 respondents aged 18–65, with participants categorised according to World Health Organization body mass index (BMI) categories. In total, 38% of respondents were overweight and 17% obese, with lower prevalences in women (27% and 15%, respectively) compared with men (47% and 19%). The simple bivariate analysis revealed a significant association between BMI and sickness absence ($p < 0.001$), although in the multivariate regression analysis, which adjusted for socio-demographic, work and health-related factors, only overweight and obese women had significantly more sick leave. The annual cost to the German economy of overweight and obesity related sick leave is estimated at €2.18 million.

- *Journal of Occupational and Environmental Medicine* 2014; 56(1): 20–27. ohaw.co/1fjcUBW
- http://journals.lww.com/joem/Abstract/2014/01000/Sick_Leave_Days_and_Costs_Associated_With.3.aspx

Work can protect against cognitive impairment and dementia

Work characterised by high job control and high work complexity appears to protect against cognitive decline and dementia, according to this systematic review of 17 included studies. The available evidence suggests that jobs rated very challenging, highly demanding intellectually, with high cognitive stimulation and high mental workload are protective. It was not possible to carry out a meta-analysis owing to differences between the various study designs, so the scale of the protective effect is not quantified. Publication bias (ie research with positive results may have a greater chance of being published) and the impact of individuals with higher cognitive abilities being selected for more cognitively challenging jobs cannot be ruled out.

- *Occupational and Environmental Medicine* 2014; online first: doi: 10.1136/oemed-2013-101760. ohaw.co/1loTpbL
- <http://oem.bmj.com/content/early/2013/11/20/oemed-2013-101760.abstract>

Work tasks may risk hand osteoarthritis

There is limited evidence from epidemiological studies that work activities requiring repeated or sustained pinch grip is associated with osteoarthritis (OA) in the finger joints; however, there is inconsistent evidence to support an association for OA with either hand grip or exposure to hand–arm vibration. The systematic review and meta-analysis included 19 studies, 17 of which were cross-sectional designs. For pinch grip, there was an elevated risk of OA in the proximal interphalangeal joint (odds ratio (OR) = 1.68; CI 1.22–2.31) and first carpometacarpal joint (OR = 2.04; CI 1.40–2.97), but there were no significant effects on the distal interphalangeal, metacarpophalangeal or wrist joints. The two positive findings remained significant after excluding studies that did not control for age.

- *Scandinavian Journal of Work, Environment and Health* 2014; 40(2): 133–145. ohaw.co/PnV6w2
- http://www.sjweh.fi/show_abstract.php?abstract_id=3409

Carpal tunnel syndrome not linked to computer use

There is no evidence for an association between computer use and carpal tunnel syndrome (CTS), according to this meta-analysis of epidemiological studies (six papers met inclusion criteria). None of the estimated odds ratios for the assessed risks were significant: computer use – OR = 1.67 (CI 0.79–3.55); keyboard use – OR = 1.11 (CI 0.62–1.98); and mouse use – OR = 1.94 (CI 0.90–4.21). The conclusions are limited by methodological weaknesses in the original research papers, such as the way CTS is diagnosed and how exposure to computer tasks is assessed, and the small number of papers meeting inclusion criteria.

- *Journal of Occupational and Environmental Medicine* 2014; 56(2): 204–208. ohaw.co/1nh56WQ
- http://journals.lww.com/joem/Abstract/2014/02000/Is_Carpal_Tunnel_Syndrome_Related_to_Computer.18.aspx