

### Preventing upper limb disorders

There is strong evidence that a workplace fitness programme of resistance training can help prevent and manage upper-limb disorders (ULDs), according to this updated systematic review of 61 included papers. It also found moderate quality evidence that stretching exercise programmes, forearm supports and computer mice with vibration feedback can help prevent ULDs. There is moderate evidence that job stress-management training, biofeedback and workstation adjustment alone (ie without other interventions) has no effect. There is limited evidence – but not enough ‘to guide current practice’ – that aerobic exercise, non-standard keyboards, trackball pointing devices, rest breaks, postural exercise programmes and neuromuscular exercise may be beneficial.

- *Occupational and Environmental Medicine* 2015; online first: doi: 10.1136/oemed-2015-102992
- <http://oem.bmj.com/content/early/2015/11/12/oemed-2015-102992.abstract>

### Obesity linked to poor future work ability

A large-scale cohort study has identified a link between obesity and future work ability. It was part of the Northern Finland 1966 Birth Cohort, which followed over 96% of people born in two Finnish provinces in 1966. Questionnaires were sent to participants when aged 31, and those still living in the area were invited for a clinical assessment. Further questionnaires were completed 15 years later. Current perceived work ability compared with lifetime best was assessed on a scale of 0 to 10, categorised as good (score of 8 to 10) or poor (0 to 7). Complete data were available for 5,654 participants. At age 46, 32% of men and 28% of women who were obese had poor work ability; compared with 15% of men and 13% of women who were not obese. After controlling for basic education, work history, health behaviours and social support at work, being obese at the age of 31 increased the risk of having poor work ability 15 years later by 55% for men (relative risk (RR) = 1.55; 95% confidence interval (CI) 1.22–1.97) and 82% for women (RR = 1.82; CI 1.45–2.28). Being obese at age 46, and becoming obese between the ages of 31 and 46, also increased the risk of poor work ability. Unhealthy behaviours (RR = 1.31; CI 1.06–1.61) and lack of social support at work (RR = 1.37; CI 1.13–1.67) at age 31, and a history of at least some unemployment (RR = 1.44; CI 1.21–1.71) were independently predictive of poor work ability at age 46. No information is given on future employment outcomes.

- *Journal of Occupational and Environmental Medicine* 2015; 57(12): 1262–1268. doi: 10.1097/JOM.0000000000000579
- [http://journals.lww.com/joem/Abstract/2015/12000/Long\\_Lasting\\_Obesity\\_Predicts\\_Poor\\_Work\\_Ability\\_at.2.aspx](http://journals.lww.com/joem/Abstract/2015/12000/Long_Lasting_Obesity_Predicts_Poor_Work_Ability_at.2.aspx)

### Presenteeism linked to weight gain

Analysis of data from a Danish study of healthcare workers found significant relationships between lower sickness presenteeism with lower body weight and with higher muscle strength. In total, 139 female healthcare workers (no further job information is given) took part in the ‘FINALE-health’ study – a 12-month cluster-randomised controlled trial of an intervention comprising dietary advice, strength exercises, cognitive behavioural training and leisure time physical activity. Results from the intervention study are published elsewhere; the analysis reported here is based on anthropometric, physical capacity and self-reported productivity data collected during the trial. On-the-job performance – the inverse of presenteeism – was assessed using one question from the WHO Health and Work Performance Questionnaire (self-rated productivity in the last month), one from the Work Ability Index (current work ability compared with lifetime best) and two on work quality and quantity (impact of health problems in the last month on quantity and quality of work). In the cross-sectional analysis, higher on-the-job performance (ie lower presenteeism) was significantly associated with lower body mass index (BMI) ( $p = 0.024$ ) and with greater maximal voluntary contraction (MVC) – a measure of muscle strength ( $p = 0.024$ ). Those with a BMI of over

30 kg/m<sup>2</sup> had lower on-the-job performance than those with a BMI of less than 25 kg/m<sup>2</sup> ( $p = 0.043$ ). Higher on-the-job performance (lower presenteeism) was also associated with decreasing BMI ( $p = 0.004$ ) and increasing MVC ( $p = 0.046$ ) over three months. The possible influences of depression and job satisfaction were not assessed.

- *Journal of Occupational and Environmental Medicine* 2015; 57(12): e146–e152. doi: 10.1097/JOM.0000000000000576
- [http://journals.lww.com/joem/Abstract/2015/12000/Sickness\\_Presenteeism\\_Among\\_Health\\_Care\\_Workers.21.aspx](http://journals.lww.com/joem/Abstract/2015/12000/Sickness_Presenteeism_Among_Health_Care_Workers.21.aspx)

### **Carpal tunnel syndrome**

Being overweight (odds ratio (OR) = 1.47; CI 1.37–1.57) or obese (OR = 2.02; CI 1.92–2.13) are both significant risk factors for developing carpal tunnel syndrome (CTS) – a common cause of work disability – according to this meta-analysis of 58 studies. The risk of developing CTS does not differ significantly between men and women (based on 23 studies). The effect of weight reduction on CTS is not explored.

- *Obesity Reviews* 2015; 16(12): 1094–1104. doi: 10.1111/obr.12324
- <http://onlinelibrary.wiley.com/doi/10.1111/obr.12324/abstract>

### **Doctors in training at risk of depression**

More than one in four physicians in training have depression or depressive symptoms at any one time, according to this meta-analysis of 31 cross-sectional studies and 23 longitudinal studies, with a combined total of over 17,500 individuals. Depression or depressive symptoms were mostly measured using self-report questionnaires; just three papers used clinical interviews. The overall prevalence of either depression or depressive symptoms was 28.8% (CI 25.3%–32.5%), though estimates varied depending on the type of assessment tool used – 21% for the nine-item Patient Health Questionnaire to 43% for the two-item PRIME-MD – and tended to be higher in studies of low methodological quality. Prevalence estimates from US studies did not differ significantly from those conducted elsewhere. Analysis of longitudinal studies found a significant increase (16%) in symptoms within one year of starting training.

- *JAMA* 2015; 314(22): 2373–2383. doi:10.1001/jama.2015.15845
- <http://jama.jamanetwork.com/article.aspx?articleid=2474424>

### **Anaesthetic gases**

A systematic review of 15 included papers found little, and only inconsistent, evidence of the adverse health effects of occupational exposure to anaesthetic gases. No significant adverse effects have been reported at exposures below permitted levels. There is conflicting evidence on the genotoxic effects of isoflurane, with more recent studies failing to show any correlation between genotoxicity and exposure at different levels in either nurses or anaesthetists. One study identified chromosomal abnormalities in hospital staff exposed to isoflurane and sevoflurane, but exposures were above permitted levels. Other studies on sevoflurane show conflicting results for genotoxicity. The review did not identify any useful biomarkers or clinical signs suitable for health surveillance in exposed healthcare workers.

- *Occupational Medicine* 2015; online first: doi: 10.1093/occmed/kqv193
- <http://occmed.oxfordjournals.org/content/early/2015/11/20/occmed.kqv193.abstract>

### **Exercise benefits people with dust-related respiratory disease**

There is low-quality evidence from two studies that exercise training benefits people who have a respiratory disease caused by dust exposure, this Cochrane systematic review finds. One study involved 35 individuals with either asbestos-related pulmonary disease, asbestosis, silicosis or mixed-dust pneumoconiosis. All five individuals in the second trial (a sub-group from a larger study) had asbestosis. Participants who did eight weeks' exercise training were, on average, able to walk more than 50 metres further in a six-minute walk test compared with those who had not trained. The benefit was sustained six months later. Quality of life, as measured using the Chronic Respiratory Disease Questionnaire, was also improved with training.

- *Cochrane Database of Systematic Reviews 2015; 11: CD009385. doi: 10.1002/14651858.CD009385.pub2*
- <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009385.pub2/abstract>

### Hepatitis B treatment

A systematic review on treating adult patients with chronic hepatitis B virus (HBV) infection found moderate-quality evidence that antiviral therapy reduces the risks of cirrhosis, decompensated liver disease and hepatocellular carcinoma in those with immune-active infection. The 73 included studies variously compared treatment with lamivudine, entecavir, tenofovir or telbivudine against controls. A meta-analysis of 11 studies comparing two potent antivirals, entecavir or tenofovir (both of which have a low risk of antiviral drug resistance), found no statistical differences in renal safety or effect on bone mineral density, at least in the short term. There were no comparative studies examining continuing or discontinuing antiviral therapy in patients with immune-active HBeAg-negative chronic HBV, but uncontrolled studies suggest a high rate of viral relapse if treatment ceases. Uncontrolled studies suggest there is little or no benefit from adding either entecavir or tenofovir to the treatment regimes of patients who do not achieve undetectable levels of HBV DNA when using either drug on its own. In the UK, peginterferon alfa-2A is the usual first-line treatment for HBV; tenofovir or entecavir are prescribed as alternatives where clinically indicated.

- *Hepatology 2015; online first: doi: 10.1002/hep.28280*
- <http://onlinelibrary.wiley.com/doi/10.1002/hep.28280/abstract>

### Hepatitis C treatment

Once-daily treatment with a single tablet combining the nucleotide polymerase inhibitor sofosbuvir and the NS5A inhibitor velpatasvir for 12 weeks elicited sustained virological response (SVR) – essentially the absence of virus – in 99% of patients with chronic hepatitis C virus (HCV) infection in this multi-site, double-blind, randomised controlled trial<sup>1</sup>. A total of 624 patients received the treatment, compared with 116 given a placebo. SVRs in treated patients were: 98% for genotype 1a infection; 99% for genotype 1b; 100% for genotype 2; 100% for genotype 4; 97% for genotype 5; and 100% for genotype 6. No patient given placebo achieved a SVR.

A second study<sup>2</sup> of the same drug combination achieved superior SVRs compared with standard treatment in patients chronically infected with HCV genotypes 2 and 3. Patients received either sofosbuvir–velpatasvir daily for 12 weeks (for both genotypes), or the current standard combination of sofosbuvir plus the antiviral drug ribavirin (12-week regimen for genotype 2 and 24-week regimen for genotype 3). In total, 266 genotype-2 and 552 genotype-3 patients were randomised to the new or standard regimens. SVR with sofosbuvir–velpatasvir was 99% for genotype 2 and 95% for genotype 3, compared with 94% ( $p = 0.02$ ) and 80% for sofosbuvir–ribavirin ( $p < 0.001$ ).

Genotypes 1 and 3 are the most common in the UK, accounting for 90% of HCV infections<sup>3</sup>. Response to the various treatments differs according to genotype.

- *1 New England Journal of Medicine 2015; online first: doi: 10.1056/NEJMoa1512610*

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- <http://www.nejm.org/doi/full/10.1056/NEJMoa1512610#t=abstract>
- 2 *New England Journal of Medicine* 2015; online first: doi: 10.1056/NEJMoa1512612
- <http://www.nejm.org/doi/full/10.1056/NEJMoa1512612#t=abstract>
- 3 *Hepatitis C in the UK: 2015 report. Public Health England, 2015*
- [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/448710/NEW\\_FINAL\\_HCV\\_2015\\_IN\\_THE\\_UK\\_REPORT\\_28072015\\_v2.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/448710/NEW_FINAL_HCV_2015_IN_THE_UK_REPORT_28072015_v2.pdf)