Discussion Workplace culture was seen as a barrier to healthy eating. Initiatives designed to modify work culture may prove effective as a means by which to promote healthy eating in the organisational setting.

848 THE ROLE OF AGE AND HEALTH IN RETURNING TO WORK: RESULTS FROM THE SUPPORTING OLDER PEOPLE INTO EMPLOYMENT (SOPIE) COHORT

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Introduction By 2020 people aged 50 years and over will make up almost half of the adult population in the UK. Policy aims to enable more people to work for longer however there is a dramatic drop in labour participation after age 50. Our aim was to investigate the impact of age, and health on return to work (RTW) in welfare benefit claimants engaging with the Work Programme (WP); the UK Government's main RTW initiative. It supports two main groups of claimants for two years – Job Seeker Allowance (JSA), for people who are unemployed but capable of work; Employment Support Allowance (ESA), for people with a disability that makes it more difficult to work.
Methods The data were from the SOPIE cohort (13 461 unemployed clients aged 18–64, who entered the WP in Scotland in 2013/2014). Data were analysed using STATA 14 and a Poisson modelling approach using fractional polynomials to model age as a continuous variable.
Results Clients aged 50 and over accounted for 15% of JSA and 30% ESA groups. The proportion of clients disclosing health conditions (HC) were: 'JSA under-50', 25%; 'JSA over-50', 53%; 'ESA under-50', 97%; 'ESA over-50', 98%. Multiple HC were more common in ESA clients. Job start rates for clients were: 'JSA under-50', 65%; 'JSA over-50', 49%; 'ESA under-50', 23%; 'ESA over-50', 14%. There was a strong relationship between age, health and job start with the predicted probability of job start highest in the first three months of the WP. The analyses also investigated the influence of biopsychosocial factors on RTW.
Conclusion This study is on-going and will inform interventions focussing on addressing age-specific, health and biopsychosocial barriers for future RTW programmes with the aim of improving employment outcomes, so that not only individuals but employers and the economy can benefit from extending working lives.

935 PHYSICAL REHABILITATION APPROACH FOR RETAINING HEALTH CARE WORKERS SUFFERING FROM MUSCULOSKELETAL DISORDERS

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Introduction Healthcare professionals are known to be at high risk for work-related musculoskeletal disorders (MSDs). Physical rehabilitation may be an important approach for retaining Health Care Workers (HCWs) suffering from these disorders, especially among older workers. The aim of this study was to evaluate the results of a rehabilitation program dedicated to the employees of a large hospital in the Northern Italy.
Methods HCWs with shoulder disorders (SD) and Low Back Pain (LBP) were identified by the Occupational Health Unit and admitted to a physical rehabilitation program. Functional assessment scales were administered at the beginning and the end of the program: UCLA and Constant scale for SD and Borg scale for LBP. We applied Wilcoxon test for statistical comparisons. The level of significance adopted was 5%.
Results During a 24 months period, occupational physicians identified 123 HCWs with MSDs. Workers were mainly nurses (37.5%) and nursing assistive personnel (34.8%), with an average length of service of 28.53±8.92 years. Only 47 workers completed the rehabilitation program. The treated workers were mainly affected by LBP (n=22, 46.81%) and SD (n=20, 42.52%). After rehabilitation, significant improvements in the UCLA scale (p-value: 0.0206) were observed among the subjects affected by SD. The improvements in the Borg scale were also significant (p-value: 0.0011) among the subjects affected by LBP. Occupational physicians prescribed work restrictions in only five subjects (5.88%). Three workers with previous work restrictions were considered fully fit-for-work after treatment. The remaining subjects returned to work without any restrictions.
Conclusions A rehabilitation program appears to be a valuable approach for retaining older HCWs affected by MSDs. In our study, more than 88% of workers have positively evaluated the program. Occupational physicians may play an important role in this program, especially in the assessment of subjects with work-related problems.

968 IMPACT OF INDIVIDUAL MOTIVATION DIFFERENCES ON REDUCING SEDENTARY BEHAVIOUR

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Introduction Reviews small effects for interventions sitting behaviour. This study aimed at evaluating basic psychological needs (need for competence, for autonomy and for relatedness) reduction in sitting behaviour.
Methods This study is part of the Move@TheOffice RCT-study in the offices a large pharmaceutical company. The experimental group (19 participants) received a multiintervention to reduce sitting. To measure the basic psychological needs, the Work-related Basic eed atisfaction cale was used. The BREQ-3 measured the degree of motivation regulation to reduce sitting. Sitting was measured using the micro Activ-Pal^{TM} monitor. Data were analysed using SPSS.
Results Significant decrease (p<0,05) in sitting time was found the experimental group. A significant BREQ-index was found after the intervention (p<0.05), a higher to decrease sitting

behaviour. This was related to the basic psychological needs, mainly due to a higher of the need for autonomy ($p<0.01$).
Conclusion Need for autonomy important in the motivation to reduce sitting. Presenting different to reduce sitting seems to autonomy. Future studies are warranted to evaluate if more emphasis on the need relatedness by organising e.g. group discussions during the interventions, results in a larger reduction sitting behaviour.

Allergy and Immunotoxicology

1053 AUGMENTED PROLIFERATION OF MESOTHELIAL CELLS CAUSED BY SECRETORY FACTORS DERIVED FROM IMMUNE CELLS UPON EXPOSURE TO ASBESTOS

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Introduction Our studies have demonstrated suppressive effects of asbestos exposure on anti-tumour immunity related with malignant mesothelioma. On the other hand, whether there is a potential interaction between immune and mesothelial cells remains to be clear. The present study examined the effect of secretory factors produced by human peripheral blood mononuclear cells (PBMC) upon exposure to chrysotile A (CA) or crocidolite (CR) asbestos on human mesothelial cell line of MeT-5A.
Methods PBMC were cultured with antibodies to CD3 and CD28 upon exposure to CA or CR at 5 or 20 μg/ml. After 2 or 7 days, culture supernatants were harvested and stored. MeT-5A cells were cultured with 8-fold diluted culture supernatants for 48 hours. Cell proliferation was assayed by WST-1. Cytokines in the culture supernatants were assayed by luminex. G-CSF, GM-CSF, IL-1α, IL-1β, IL-3, IL-5, IL-13 and IL-17A were added into the parts of MeT-5A cell cultures.
Results In contrast to 2 days, the supernatants of 7 days PBMC cultures with CA or CR at 20 μg/ml significantly increased MeT-5A cell proliferation. The productions of IL-1α, IL-1β, IL-3, IL-5, IL-13 and IL-17A in the culture of PBMC were high upon CA or CR exposure. The supplementation with G-CSF and GM-CSF into the culture did not increase proliferation of MeT-5A, whereas IL-1α, IL-3, IL-5, IL-13 and IL-17A augmented it. In contrast, the combined addition of these cytokines did not change MeT-5A cell proliferation.
Conclusion These results indicate that there is an interaction between immune and mesothelial cells, in which secretory factors derived from immune cells exposed to asbestos augmented mesothelial cell proliferation. Actually, asbestos-exposed immune cells showed increased production of cytokines, some of which individually augmented MeT-5A cell proliferation. Those findings suggest that asbestos-exposed immune cells might let mesothelial cells proliferate in an uncontrolled manner, leading to generation of transformed cells.

1097 IMPORTANCE OF SKIN EXPOSURE IN A SUB-CHRONIC MOUSE MODEL OF CHEMICAL-INDUCED ASTHMA

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Introduction Toluene 2,4-toluene diisocyanate (TDI) is well-known chemical sensitizer and occupational asthmogen. In a chronic mouse model, with dermal sensitisation and five weeks of intranasal challenges with TDI we were able to induce several key hallmarks of occupational asthma, including airway hyperreactivity (AHR), and a predominant Th2 immune responses. Yet, no features of airway inflammation, nor airway remodelling were present. Therefore, we altered the TDI mouse model and introduced endotracheal challenge to investigate lung inflammation and remodelling.
Methods On days 1 and 8, BALB/c mice were dermally treated (20 μl/ear) with 0.5% TDI or the vehicle AOO (3:2). From day 15, the mice received under light isoflurane anaesthesia, a total of five oropharyngeal challenges with 20 μl of the chemical or AOO (1:4) (days 15, 17, 19, 23 and 24). Two days after the last challenge, airway hyperreactivity (AHR) to methacholine was assessed, followed by an evaluation of pulmonary inflammation in bronchoalveolar lavage (BAL). As immunological parameters, lung dendritic cells, lymphocyte subpopulations (T- and B-cells) and the cytokine production profile (Th1 vs Th2) in auricular lymph nodes were measured. Blood was sampled to determine total serum IgE, IgG1 and IgG2a.
Results Mice dermally sensitised and challenged with TDI showed significant increased proliferation of the auricular lymph nodes, characterised by Th-, Tc- and B-cells. The cytokine production profile of the auricular lymph nodes showed increased levels of IL4, IL13, IL10 and IFNλ. Furthermore, mice sensitised and challenged with TDI showed significantly increased serum IgE and IgG1 levels. These TDI-sensitised and challenged mice showed pronounced airway hyperreactivity, along with a mixed eosinophilic and neutrophilic inflammation and recruitment of several dendritic cell subpopulations. Mice that were not dermally sensitised, but only received the TDI challenges did not show airway hyperreactivity, but had a neutrophilic lung inflammation, compared to the complete control mice. These mice also did not show any signs of immune sensitisation, yet dendritic cell recruitment to the lungs was identical to the TDI-sensitised and TDI-challenged mice.
Conclusion Endo-tracheal instillation with TDI leads to lung inflammation, without AHR, probably due to the irritant properties of TDI. Yet, mice dermally sensitised with TDI, followed by TDI challenges showed a predominant Th2 response, with AHR and eosinophilic inflammation. These data confirm the important role of dermal sensitisation in the development of chemical-induced asthma.