the estimation of PWC and MWC parameters. Integrated indices such as BA on MWC, BA on PWC, BA on (MWC + PWC), predicted biological age (PBA) and ageing rate (BA-PBA) were calculated.

Results Statistically significant differences between MWC, PWC levels and ageing rates in the studied groups were revealed ($p < 0.001$ – 0.05). BA indices and ageing rates of lorry-drivers were significantly higher in comparison with control group ($p < 0.001$). The results presented showed that in equal conditions of submaximum physical load in both groups a significant premature decrease in adaptation ability of lorry-drivers' cardiovascular system was observed ($p < 0.001$). Analysis of correlations between length of service and CA of lorry-drivers from one side and MWC, PWC, BA indices and ageing rates from the other showed that most of criteria under study depend on driving experience significantly more than on CA of lorry-drivers ($p < 0.001$ – 0.05). The 40–49 year-old lorry-drivers with 15–19 years of driving experience were identified as a risk group with the symptoms of premature ageing.

Conclusion The above studies revealed the occupational environment and long driving experience being the risk factors for the accelerated ageing of lorry-drivers, which can result in health problems, occupational and work-related diseases.

1661 NEW EVIDENCE ON CHD RISKS DUE TO PSYCHOSOCIAL STRESS AT WORK AND PHYSICAL ACTIVITY

¹Johannes Siegrist*, ²Alicja Bortkiewicz*. ¹Faculty of Medicine, University of Düsseldorf, Düsseldorf, Germany; ²Department of Work Physiology and Ergonomics, Nofer Institute of Occupational Medicine, Lodz, Poland

10.1136/oemed-2018-ICOHabstracts.169

The topics of the session will cover interdisciplinary research on occupational and environmental agents (mainly stress, occupational physical activity, lifestyle) that may increase the risk of cardiovascular diseases (CVD). Those diseases are still a major health problem in Europe and, therefore, an efficient research on this topic is necessary. In the frame of the session it will be also presented results of WHO-ILO review on psychosocial risk factors (especially job insecurity and long working hours) and ischaemic heart disease.

Els Clays¹, Marco M Ferrario², Giovanni Veronesi³, Johannes Siegrist⁴

¹Department of Public health, Ghent University, Ghent, Belgium

²Research Centre in Epidemiology and Preventive Medicine, Department of Medicine and Surgery, University of Insubria at Varese, Varese, Italy

³Research Centre in Epidemiology and Preventive Medicine, Department of Medicine and Surgery, University of Insubria, Varese, Italy.

⁴Faculty of Medicine, University of Düsseldorf, Düsseldorf, Germany

1661a THE ROLE OF OCCUPATIONAL PHYSICAL ACTIVITY AND WORK STRESS IN CARDIOVASCULAR DISEASE

E Clays. Department of Public health, Ghent University, Ghent, Belgium

10.1136/oemed-2018-ICOHabstracts.170

Introduction Growing evidence has shown that occupational physical activity increases the risk for cardiovascular disease and mortality. Performing strenuous physical activities at work remains a daily reality for a significant part of workers in different sectors. There is thus a critical need to develop preventive measures against premature cardiovascular disease risk in workers with high physical demands. It is particularly important to elucidate structural preventive measures at the collective workplace level for primary prevention of cardiovascular disease in this group. The psychosocial work stress environment offers opportunities to counter the harmful effects of physical work demands.

Methods and result An overview will be presented of available studies addressing moderating effects of psychosocial stress measures in the relation between occupational physical activity and cardiovascular disease. A limited number of studies have shown that psychosocial resources – like social support at work and level of job control – may buffer the harmful effect on health from physical work demands. In addition, this presentation will focus on the potential mechanisms by which the psychosocial work environment might play a role in the effects of occupational physical activity on cardiovascular health outcomes.

Discussion Research showing that occupational physical activity does not produce cardiovascular health benefits – like leisure time physical activity does – has rapidly expanded over the past decade. On the contrary, more and more evidence confirms that engaging in high levels of occupational physical activity generates increased risk of cardiovascular disease. One of the current challenges in this research field is to investigate how the psychosocial work environment may play a role in this relation. Empirical evidence on the buffering effect of psychosocial stress measures in the relation between occupational physical activity and cardiovascular outcomes is still quite scarce. More detailed investigations using objective measurements are needed.

1661b EXPLORING THE COMBINED EFFECT OF JOB STRAIN AND OCCUPATIONAL PHYSICAL ACTIVITY ON CARDIOVASCULAR DISEASE INCIDENCE

^{1,2,3}MM Ferrario*, ²G Veronesi, ^{2,3}R Borchini, ¹M Roncaioli, ⁴G Grassi, ⁴G Cesana. ¹School of Occupational Medicine, University of Insubria at Varese, Varese, Italy; ²Research Centre in Epidemiology and Preventive Medicine, Department of Medicine and Surgery, University of Insubria at Varese, Varese, Italy; ³Occupational Medicine Unit, Varese University Hospital, Varese; ⁴Department of Medicine, University of Milano-Bicocca, Monza, Italy

10.1136/oemed-2018-ICOHabstracts.171

Introduction The aim of the study is to investigate the interplay between job strain (JS) and occupational physical activity (OPA) in determining the risk of major cardiovascular diseases (CVD), in a working male population.

Methods n=1515 participants to three population-based (WHO-MONICA Brianza II and III survey and PAMELA) North Italian cohorts, 25–64 years old, employed and CVD-free at baseline, were available for the analyses. JS was investigated using the Job Content Questionnaire (MONICA-MOPSY short version), and dichotomized as high vs no-high strain. A habitual OPA score was derived from the Baecke Questionnaire (8 items) and categorised in tertiles. Age-adjusted hazard ratios (HRs) and 95% confidence intervals for incidence of CVD (first coronary heart disease or ischaemic stroke, fatal or non-fatal) events were estimated from Cox-proportional hazard

models. A sensitivity analysis was carried out stratifying by sport PA levels.

Result In a median 17 years of follow-up, $n=102$ first CVD events occurred. As compared to the intermediate OPA tertile, workers with low and high OPA showed higher HRs of 1.67 (95% CI: 0.96 to 2.92) and 2.01 (1.17–3.46), respectively. Stratifying by sport PA, the above reported HRs for low and high OPA workers increased to 2.32 (1.15; 4.69) and to 2.54 (1.09; 5.95) when sport PA was below and above the median, respectively. High vs non-high JS workers evidenced an HR of 1.27 (0.76–2.11). When adjusting for age, BMI, alcohol intake, smoking and sport PA, a joint effect was detected between OPA and JS, with the highest HR for workers in the low OPA and high JS category [2.70 (1.17; 6.26)] as compared to workers in the intermediate OPA and non-high JS.

Discussion We observed a joint additive effect between sedentary work and high JS on the incidence of cardiovascular events.

1661c CARDIOVASCULAR DISEASE SCREENING AT THE WORKPLACE: DISCRIMINATION ABILITY OF LIFESTYLE RISK FACTORS AND JOB-RELATED CONDITIONS

¹G Veronesi*, ^{1,2}F Gianfagna, ³R Borchini, ⁴G Grassi, ^{1,2}L Iacoviello, ⁴G Cesana, ¹P Tayoun, ^{1,3}MM Ferrario. ¹Research Centre in Epidemiology and Preventive Medicine, Department of Medicine and Surgery, University of Insubria, Varese, Italy; ²IRCCS Neuromed, Pozzilli, Italy; ³Occupational Medicine Unit, Varese Hospital and University of Insubria, Varese, Italy; ⁴Department of Medicine, University of Milano-Bicocca, Monza, Italy

10.1136/oemed-2018-ICOHabstracts.172

Introduction Lifestyle and job-related conditions (LS and JRC) are recognised cardiovascular disease (CVD) risk factors, but their prognostic utility remains to be established. We investigated the discrimination ability at 10 years of LS and JRC in a Northern Italian working male population.

Methods $n=2532$ men, 35–64 years, CVD-free and employed at the time of recruitment (1989–1996) in either the MON-ICA-Brianza and PAMELA (population-based) or the SEMM (factory-based) cohorts, were available for the analyses. The following LS and JRC were ascertained using standardised procedures: smoking (current vs non-current); alcohol intake (drinks/day; 1–3 drinks as reference); habitual occupational and sport physical activity (PA; the Baecke questionnaire); job strain (high vs non-high; Job Content Questionnaire) and BMI, from measured height and weight. Workers were followed-up (median 14 years) until first major coronary event or ischaemic stroke, fatal or non-fatal. Discrimination ability was estimated as the Area Under the ROC-Curve (AUC) for a Cox model with LS and JRC satisfying the Akaike Information Criterion for the selection of candidate predictors, and contrasted to the AUC from a model including blood lipids, blood pressure, smoking and diabetes.

Result $n=162$ events occurred during follow-up (10 year risk: 4.3%). BMI was not associated with the endpoint. The risk factors meeting the AI Criterion were: smoking (Hazard Ratio=2.49, 95% CI: 1.81 to 3.42); alcohol intake (abstainers: HR=1.52, 1.03–2.23; 6+drinks/day: HR=1.81, 1.11–2.95); job strain (HR=1.39, 0.98–1.97); combined sport and occupational PA ($p=0.02$), as the HRs for sport PA changed between workers at low (HR=0.42) and intense (HR=1.55) occupational PA (interaction test $p=0.001$). The LS and JRC model had the same discrimination (AUC=0.75; 95% CI: 0.70 to 0.78) than the model with clinical and biological risk factors

(AUC=0.75); this finding was consistent across the occupational classes.

Discussion Our results support the potential of primary prevention interventions at the workplace based on promoting healthier lifestyles and on improving job-related risk factors, to reduce CVD risk among workers.

1661d PSYCHOSOCIAL STRESS AT WORK INCLUDING JOB INSECURITY – IMPORTANT RISK FACTORS OF CHD: AN UPDATED SYSTEMATIC REVIEW

¹J Siegrist*, ²J Li. ¹Senior Professorship, Faculty of Medicine, University of Düsseldorf, Germany; ²Institute of Occupational and Social Medicine, Faculty of Medicine, University of Düsseldorf, Germany

10.1136/oemed-2018-ICOHabstracts.173

Introduction In recent years evidence on elevated risks of coronary heart disease (CHD) due to exposure to adverse, chronically stressful psychosocial working conditions has accumulated. Exhausting demands and efforts in combination with low control and low reward at work seem to be of particular significance, augmenting physiological dysregulation of the cardiovascular system. Two theoretical models, demand-control and effort-reward imbalance, assessing these conditions, have been studied most frequently in recent past. This contribution aims at providing a synthesis of the current state of art concerning cohort studies on associations of these models with CHD.

Methods We conducted a systematic review on published and unpublished prospective epidemiologic studies estimating the relative risk of CHD as a function of either model. As results are often given for effects of single model components in addition to their summary measures this information is additionally analysed. This holds particularly true for job insecurity as this component has often been studied as a single risk factor. Reviews were conducted according to established quality criteria (PRISMA).

Result Taken together, both models were associated with a significantly elevated relative risk of CHD. Consistency of findings was higher if single components were analysed, specifically in case of low job control and high job insecurity. Moreover, the strength of associations varied according to adjustment for confounding factors, and there was limited evidence of a moderating role of socioeconomic position.

Discussion This review found support for a role of chronic psychosocial stress at work in terms of two theoretical models, demand-control and effort-reward imbalance, as risk factors of CHD. While the risk elevation was modest, the prevalence of exposure to stressful conditions at work was high, thus emphasising the relevance of findings for occupational health. Future studies should combine these models and enlarge the scope of analysis. Moreover, intervention studies are needed to strengthen the evidence base.

1661e CARDIOVASCULAR AUTONOMIC ASSESSMENT FROM THE CLINICAL LABORATORY TO THE OCCUPATIONAL ENVIRONMENT. A NEW CHALLENGE TO PREVENT CARDIOVASCULAR DISEASES IN WORK PLACE

F Barbic. Department of Internal Medicine, Humanitas Research Hospital, Humanitas University, Rozzano, Italy

10.1136/oemed-2018-ICOHabstracts.174