

is in progress to characterize the CPNE2 knockout mice in order to elucidate the precise role of CPNE2 at the interface between autophagy, lysosomes, and mitochondria in the context of normal aging and disease.

#### IMPAIRMENT OF AN ENDOTHELIAL NAD<sup>+</sup>-H<sub>2</sub>S SIGNALING NETWORK IS A REVERSIBLE CAUSE OF VASCULAR AGING

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With aging there is a notable decline in capillary density and blood flow contributing to mortality and morbidity. The use of NAD<sup>+</sup> boosters to reverse aspects of aging, is in part, through the mechanism of activating sirtuin deacetylases (SIRT1–SIRT7) that mediate the benefits of exercise and calorie restriction (CR). We show here that SIRT1 in endothelial cells is a key mediator of pro-angiogenic signals secreted from myocytes. Treatment of mice with the NAD<sup>+</sup> precursor nicotinamide mononucleotide (NMN) improves blood flow and increases endurance in advanced aged mice by promoting SIRT1-dependent increases in capillary density, an effect augmented by exercise or increasing the levels of hydrogen sulfide (H<sub>2</sub>S), a CR mimetic and regulator of endothelial NAD<sup>+</sup> levels. These findings have implications for improving blood flow to organs and tissues, increasing performance, and reestablishing a virtuous cycle of mobility in aged individuals.

#### SESSION 1490 (SYMPOSIUM)

##### INTEREST GROUP SESSION - AGING WORKFORCE: EMPLOYMENT HISTORY, RETIREMENT TRANSITION AND HEALTH DEVELOPMENT

Chair: S. Stenholm, *University of Turku, Turku, Varsinais-Suomi*

Discussant: H. Westerlund, *Stress Research Institute, Stockholm University, Stockholm, Stockholms Lan*

The large postwar baby-boomer generations are currently retiring from labor market in the US and in Europe. The transition to retirement is considered an important turning point which is accompanied by changes in many aspects of life. The international symposium will explore the dynamic relationships between employment histories, transition into retirement and health and health behaviours. Dr. Neda Agahi will present results related to changes in drinking habits following retirement based on the Health, Aging and Retirement Transitions in Sweden study. Dr. Baowen Xue will share results related to changes in cognitive functioning during

retirement transition based on the Whitehall II Study from the UK. Dr. Sari Stenholm will examine whether individual and neighborhood socioeconomic indicators influence on the changes in health and health behaviors during retirement transition based on the Finnish Public Sector Study. MSc Sascha de Breij highlights whether work characteristics predicts health development after retirement by using data from three European countries: Netherlands (LASA), Denmark (DLSA) and England (ELSA). Finally, Dr. Paola Zaninotto presents results related to critical employment histories from early to late adulthood and their associations with cognition, well-being and health in late life based on the English Longitudinal Study of Ageing (ELSA) and the Study of Health, Ageing and Retirement in Europe (SHARE). Taken together, these studies will provide new insights on employment history, changes during and after retirement transition and will increase our understanding about this life stage as a potential opportunity to support active and healthy aging.

##### TRAJECTORIES OF ALCOHOL CONSUMPTION IN RELATION TO RETIREMENT TRANSITION IN SWEDEN

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Today's older adults in Sweden drink more alcohol than earlier cohorts of older adults. Alcohol consumption is affected by life transitions. A major life transition in older adulthood is retirement. Many natural inhibitors of alcohol consumption disappear with the removal of the work constraints and fundamental changes in daily structure, thereby facilitating increased alcohol consumption. This study investigates changes in drinking habits following retirement. Data come from the HEalth, Aging and Retirement Transitions in Sweden (HEARTS-study), a nationally representative study of 60-66-year-olds with annual follow-ups (n=3696). Preliminary results show that retired individuals drink more than those who are still working, and the drinking habits of both these groups seem stable over time. Those who retire during the follow-up increase their drinking right after retirement and this increase continues further into the subsequent year. More knowledge is needed about subgroups of retirees that increase drinking into risky levels.

##### CHANGES IN COGNITION DURING RETIREMENT TRANSITION: THE WHITEHALL II COHORT STUDY

B. Xue<sup>1</sup>, D. Cadar, PhD<sup>2</sup>, M. Fleischmann, PhD<sup>3</sup>, S.A. Stansfeld, PhD<sup>4</sup>, E. Carr, PhD<sup>5</sup>, M. Kivimäki, PhD<sup>6</sup>, A. McMunn, PhD<sup>7</sup>, J. Head, MSc<sup>8</sup>, 1. *University College London, London, England, United Kingdom*, 2. *Department of Epidemiology and Public Health, University*

College London, UK, 3. Department of Epidemiology and Public Health, University College London, UK, 4. Wolfson Institute of Preventive Medicine, Queen Mary University of London, UK, 5. Biostatistics and Health Informatics, Institute of Psychiatry, Psychology & Neuroscience, King's College London, UK; Department of Epidemiology and Public Health, University College London, UK, 6. Department of Epidemiology and Public Health, University College London, UK, 7. Department of Epidemiology and Public Health, University College London, UK, 8. Department of Epidemiology and Public Health, University College London, UK

We tested the 'use it or lose it' hypothesis in a cohort of 3,433 civil servants who participated in the Whitehall II Study, including repeated measurements of cognitive functioning up to 14 years before and 14 years after retirement. Piecewise models, centred at the year of retirement, were used to compare trajectories of verbal memory, abstract reasoning, phonemic verbal fluency, and semantic verbal fluency before and after retirement. We found that all domains of cognition declined over time. Declines in verbal memory were 38% faster after retirement compared to before, after taking account of age-related decline. Higher employment grade was protective against verbal memory decline while people were still working, but this 'protective effect' was lost when individuals retired, resulting in a similar rate of decline post-retirement across employment grades. We did not find a significant impact of retirement on the other cognitive domains.

#### CHANGES IN HEALTH AND HEALTH BEHAVIOURS DURING RETIREMENT TRANSITION BY SOCIOECONOMIC STATUS

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We examined whether and how changes in health and health behaviours during retirement transition are modified by individual and neighbourhood socioeconomic statuses (SES). The study population consisted of 9,702 public-sector employees in the Finnish Public Sector study who retired in 2000–2011 and who reported their health and health behaviours pre- and post-retirement. Low occupational status was associated with greater decrease in poor self-rated health, but no difference was observed by neighbourhood SES. Of the health behaviours, physical activity increased most among people in the high occupational status and who lived in the most wealthy neighbourhoods. While people in the lower SES seem to benefit most in terms of health perception, positive

changes in health behaviours, especially in physical activity, are seen mostly among high SES people.

#### THE RELATION BETWEEN WORK CHARACTERISTICS AND HEALTH AFTER WORK EXIT IN LOW AND HIGH SOCIOECONOMIC GROUPS

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This study examined whether the association between work characteristics and health remains after work exit and whether individual factors mediate this association. Longitudinal datasets from three countries were used: Netherlands (LASA), Denmark (DLSA) and England (ELSA). The association between pre-retirement work characteristics (physical demands, psychosocial demands, variation in activities and autonomy) and post-retirement self-rated health (SRH) was examined longitudinally, including individual factors (physical activity, smoking, alcohol use, BMI and depressive symptoms) as possible mediators. Work characteristics were neither associated with post-retirement health nor with individual factors. Among the individual factors, higher physical activity and higher alcohol use were associated with better post-retirement SRH, and a higher BMI and more depressive symptoms, to poorer post-retirement SRH. These associations were found in both low and high SEP. Targeting work characteristics will not likely reduce social inequalities in post-retirement health. Improving individual factors will benefit the health of all.

#### CRITICAL EMPLOYMENT HISTORIES AND HEALTH AND WELL-BEING IN LATER LIFE

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The aim of this paper is to explore the relationships between critical employment histories and health and well-being in later life, using longitudinal studies of ageing in England and continental Europe. In particular we explore whether specific career characteristics of entire working histories (i.e. involuntary job loss, number and length of unemployment periods), from early to late adulthood, are related to cognition, well-being and several measures of health in late life. We use harmonized data from the Gateway to Global Aging Data for the English Longitudinal Study of Ageing (ELSA) and the Study of Health, Ageing and Retirement in Europe (SHARE). Employment histories were collected during a separate retrospective life history interview carried out in both studies using 'calendar interviews' which support respondents in remembering their prior life events.