schedule (e.g., frequency of night shifts, duration in years) are needed. Further, research to the (mediating) role of lifestyle behaviours in the health effects of shift work is recommended, as this may offer potential for preventive strategies.

### 1617g ASSOCIATION OF INSOMNIA AND FATIGUE DUE TO SHIFT WORK IN MIDLIFE AND MOBILITY LIMITATIONS OVER 28 YEARS OF FOLLOW-UP

**Introduction**

Objectives We aimed to investigate the long-term association of insomnia and fatigue due to shift work (with and without night shifts) in midlife and mobility limitations (ML) among initially middle-aged subjects followed over 28 years.

**Methods**

The Finnish Longitudinal Study on Ageing Municipal Employees (FLAME) was conducted by the Finnish Institute of Occupational Health from 1981 to 2009 among 62,572 municipal workers. This study is based on the latest available response on ML questionnaires either from 1992 or 1997 or in 2009 (n=4704). International Classification of Functioning (ICF) was used to code the nine mobility tasks included in the ML. Insomnia and fatigue due to shift work were assessed using the yes/no questions in the baseline. The Incidence Rate Ratio (IRR) and 95% Confidence Interval (CI) for the association of insomnia and fatigue due to shift work and ML were assessed by using mixed Poisson regression. The results are presented separately for women and men in shift work with and without night shifts.
Abstracts

**458** EPIDEMIOLOGICAL STUDY BETWEEN TYPE 2 DIABETES AND BONE MINERAL DENSITY
Kazuhiro Hidaka, Yoshiki Kuroda. Department of Public Health, Faculty of Medicine, University of Miyazaki
10.1136/oemed-2018-ICOHabstracts.107

Introduction In Japan, many people over 65 years old are working now. However, elderly working people frequently face to getting lifestyle diseases, so it would be important to control lifestyle diseases. Among lifestyle diseases, diabetes mellitus (DM) is a popular in the world. On the other hand, Osteoporosis is also an important disease for elderly workers, because osteoporosis is a risk to get fracture. There are some reports indicated that fractures were frequently in workers with DM. However, it was also reported that bone mineral density (BMD) in type 2 DM patients was higher than non-diabetic persons. These reports were contradictory. Therefore, we planned to evaluate fracture risk and BMD of persons with type 2 DM comparing with healthy subjects.

Material and method We recruited 183 persons with type 2 DM (detail: 101 males, 82 females) under informed consent. We excluded persons with type 1 diabetes, rheumatic diseases. We collected individual data (age, sex, BMI, fasting blood sugar, average fasting blood sugar, HbA1c value, post history of fracture) and measure BMD using ultrasonic bone mass measurement.

Result • BMD decreased with age. And BMD was higher than healthy subjects (Male and Female).
• In male, there was a significant positive correlation between BMD and BMI.
• In female, a significant positive correlation was found between BMD and fasting blood sugar.
• We didn’t detect the difference concerning to fracture history between persons with DM and healthy persons.

Discussion We indicated BMD of DM persons was higher than healthy subjects. In addition, BMD of female was a significant positive correlation with the fasting blood sugar. But we could not indicate higher fracture risk in DM persons. We are planning to check whether fracture frequently happened or not in persons with DM.

---

**804** THE DETERIORATION TENDENCY OF HEALTH CONDITION IN AGE GROUP AND SEX BY FOLLOW-UP DATA
1Y Higuchi*, 2M Ohita, 3M Kumashiro. University of Teacher Education Fukuoka, Munakata, Japan; 4Fukuoka Women’s University, Fukuoka, Japan; 5The Association for Preventive Medicine of Japan, Tokyo, Japan
10.1136/oemed-2018-ICOHabstracts.108

Introduction Along with the ageing society as a whole, the upper limit of the employment period in law has reached the age of 65 in Japan. It is thought that health risk increases in the elderly. In Japan, the age group subject to focused health promotion activities is considered to be in the 40 s and over. However, from the viewpoint of primary prevention, it is considered that measures to prevent disease are necessary before deterioration of health. Therefore, in order to obtain evidence on the deterioration of health condition, we have observed worker’s health examination data over time.

Methods Health examination data for 14 years (2002–2015) were analysed. Within this period, the rate at which abnormal values appeared in blood pressure, GOT, total cholesterol, triglyceride, fasting blood glucose was calculated. The sample size is n=25 146 who did not have missing values in all data.

Results At the time of baseline (in 2002), abnormal values were found in the examined items, 55% for males and 36% for females. In 2015, they were 69% (14% increase) and 57% (21% increase), respectively. By age group and gender, increase rate for male increased by 16% (38% to 54%) in their 20 s, 17% increase (51% to 68%) in their 30 s, 9% increase in their 40 s (67% to 76%) and increased by 8% (72% to 80%) in their 50 s. For female, these rate increased by 4% (33% to 37%), 19% (33% to 52%), 32% (40% to 72%) and 11% (65% to 76%), respectively.

Conclusion With age, the appearance rate of abnormal values in major medical examination items increases. The tendency of the rate of increase varies depending on age group and. The rate of increase in male in their 20 s and 30 s is large, while in females the rate in their 40 s is large. From the viewpoint of disease prevention, it is necessary to develop health education to improve self-management ability and to review lifestyle habits from the stage before deterioration of health condition.

---

**1482** OCCUPATIONAL SOCIAL CLASS AND SELF RATED HEALTH. A CROSS SECTIONAL STUDY OF OLDER IRISH ADULTS FROM THE IRISH LONGITUDINAL STUDY ON AGEING
1S Kelly*, 2A McCarron, 3A Reid. 1Specialist Registrar in Occupational Medicine, Tallaght Hospital, Dublin, Ireland; 2Dublin City University, Dublin, Ireland; 3Consultant Occupational Physician, Tallaght Hospital and Coombe Women and Infants University Hospital, Dublin, Ireland
10.1136/oemed-2018-ICOHabstracts.109

Introduction Self-rated health has been shown to be an important predictor of future morbidity and mortality. We investigated the association between self-rated health and occupational social class in a population at work aged ≥50 years in Ireland, and determined its relationship with demographic and health-related variables.