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# IMPROVEMENTS IN BIOMARKERS OF INFLAMMATION AND HEALTH AFTER AN EMPLOYER-MOTIVATED LEISURE TIME PHYSICAL ACTIVITY PROGRAM: A 15-MONTH FOLLOW-UP STUDY

<sup>1</sup>Marit Skogstad, <sup>2</sup>Lars-Kristian Lunde, <sup>1</sup>Bente Ulvestad, <sup>3</sup>Hans Christian Aass, <sup>4</sup>Elin Einarsdottir, <sup>3</sup>Reidun Øystebø, <sup>1</sup>Jose Hernán Alfonso, <sup>5</sup>Thomas Clemm, <sup>6</sup>Asgeir Mamen, <sup>1</sup>Øivind Skare. <sup>1</sup>Dept Occupational Medicine and Epidemiology, National Institute of Occupational Health, Oslo, Norway; <sup>2</sup>Dept for Work Psychology and Physiology, National Institute of Occupational Health, Oslo, Norway; <sup>3</sup>The blood cell research group, Department of Medical Biochemistry, Oslo University Hospital, Ullevaal, Norway; <sup>4</sup>Dept of Chemical and Biological Work Environment, National Institute of Occupational Health, Oslo, Norway; <sup>5</sup>Occupational Health Service department, Mesta AS, Rådal, Norway; <sup>6</sup>Kristiania University College, Norwegian School of Health Sciences, Oslo, Norway

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**Background** Manual workers are physically active during work-shift, but they run a higher risk of cardiovascular disease compared to higher educated office workers. Whilst manual workers with regular physical activity during leisure time may have a lower risk, the long-term effects of employer-motivated physical activity during leisure time have not been extensively evaluated.

We aimed to evaluate health effects of employer motivated leisure physical activity (PA) one year after a PA-program, and to study differences between high and low educated participants.

**Methods** We examined 121 employees in road maintenance before and after an 8 week PA-program. After 15 months, we reexamined 98 participants. We divided self-reported PA-levels into;

- physical activity  $\leq 1$  time per week,
- 2–3 times per week and
- $\geq 4$  times a week and registered high and moderate intensity activity after a 15 month follow-up.

We obtained blood pressure, resting heart rate (RHR), blood samples (lipids, glycosylated haemoglobin (HbA1c), C-reactive protein (CRP) and selected biomarkers), and applied mixed models to evaluate associations between PA and health parameters.

**Results** The PA-program yielded favourable health outcomes. Not all were sustainable at the 15 month follow-up. Physical activity was back to baseline values. The diastolic blood pressure increased among men during the 15 month follow-up. Favourable effects on lipids were only maintainable among those who were regularly physical active. Compared to baseline, HbA1c, CRP (log) and interleukin-6 (IL-6) were reduced significantly at the 15 month follow-up of 0.06 mmol/L (95% CI:  $-0.11$  to  $-0.01$ ), 0.25 mg/L (95% CI:  $-0.46$  to  $-0.04$ ) and 0.39 pg/mL (95% CI:  $-0.75$  to  $-0.04$ ). Inflammatory markers such as CRP, IL-6 and TNF- $\alpha$  decreased among the low educated men during follow-up.

**Conclusion** We found a reduction of HbA1c, CRP and IL-6, mostly pronounced among individuals who remained physically active throughout the 15 months, one year after termination of the PA-program motivated by employer. Manual workers benefit from workplace PA-programs.

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# THE DEVELOPMENT OF COST-EFFECTIVE HEALTH GUIDANCE COURSES FOR MALE WORKERS WITH THE RISK OF METABOLIC SYNDROME

<sup>1,2</sup>M Arakida\*, <sup>1</sup>Y Matsuda, <sup>3</sup>M Negishi, <sup>2</sup>M Aoyagi, <sup>2</sup>E Furuhashi, <sup>4</sup>K Otani, <sup>5</sup>E Tomizawa. <sup>1</sup>International University of Health and Welfare Graduate School, Minato-ku Tokyo, Japan; <sup>2</sup>International University of Health and Welfare, Odawara Kanagawa, Japan; <sup>3</sup>Fujisawa Taxi Co., LTD., Fujisawa Kanagawa, Japan; <sup>4</sup>Japanese Red Cross Toyota College of Nursing, Toyota Aichi, Japan; <sup>5</sup>Sikoku University, Tokushima Tokushima, Japan

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**Introduction** The health guidance system that focused on Metabolic Syndrome (MetS) for people over 40 years old was launched in 2008 in Japan. This study aimed to evaluate the health guidance courses and the cost effectiveness of the program.

**Methods** The three courses of the health guidance program for male workers of an automobile parts manufacturing company (age 19 to 60) having the risk of metabolic syndrome were conducted in May – July 2016, November – January 2016 and January – March 2017. Each course of the health guidance was held for three months in which lectures related to MetS and exercises were taught. In addition, physical measurements were recorded. Health education concerning hypertension and salt intake was held in the third course. The indicators of the effects of the health guidance were taken as the amount of change in weight, blood pressure and the measurement of the abdominal circumference. We conducted this study with the approval of the ethics committee of the university that I belonged to.

**Results** Number of subjects was 199 male workers. The cost of one course was 6900–7550 Japanese Yen/person. While there were no significant differences between the effectiveness of the health guidance courses seasonally (summer/winter) nor the age of the workers, the effects of the health guidance were different from the first and third courses from that of the 2d course which was conducted around New Year's and was the worst of the three. The first course that was held in spring was the most effective and had the highest cost effectiveness.

**Conclusion** Previous research reported that there was seasonal variation in body weight and HbA1c. In addition to the influence of seasonal fluctuation, further analysis involving factors of the subjects' health knowledge and physical activity is necessary.

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# TOBACCO CESSATION PROGRAM IN NATIONAL ROMANIAN TELEVISION

<sup>1</sup>Carmen Iliana Busneag\*, <sup>2</sup>Lecturer Alexandru Busneag. <sup>1</sup>National Romanian Television, Medical Department, Bucharest, Romania; <sup>2</sup>National Institute of Sports Medicine, Bucharest, Romania

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**Introduction** The smoking habit is widespread throughout the world, giving rise to great morbidity and mortality and being the leading cause of preventable diseases. In Romania, the percentage of smokers is 26% and tobacco consumption was