

calculated. Acceleration signals were acquired in several body districts (foot, knee and hip). All measurements were related to the walking condition without the vibration.

**Result** Preliminary results showed that vibration does not affect stride length and step phases. The muscular activation patterns exhibit frequency related modification, in terms of sEMG bursts amplitude and timing. There is a linear correlation between 8 Hz frequency and muscular activation.

**Discussion** Transmitted vibration triggers a tonic vibration reflex (TVR) that is related to mechanical frequencies.<sup>2</sup> TVR is also related to the motor task because of the mechanical coupling between vibrator and biological apparatus.<sup>3</sup> These facts could explain the modifications in leg muscle activation revealed with sEMG.

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#### HEARING LOSS INDUCED BY ENVIRONMENTAL NOISE IN MEXICAN ADULTS FROM MEXICO CITY

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10.1136/oemed-2018-ICOHabstracts.1492

**Introduction** The noise affects the individual social integration by damaging their hearing.

**Aim** The aim of the study was to measure the average hearing threshold (UAP) and its determinants in a group of Mexican adults in Mexico City.

**Methods** We studied 177 adults of both sexes. We excluded those exposed to industrial noise and organic solvents, as well as those who suffered brain trauma with loss of consciousness, frequent respiratory infections and otitis media. We measured the auditory threshold by tonal audiometry (125–8000 Hz). The UAP was modelled with robust multiple linear regression.

**Results** 57.3% (101) were men, with a mean age of 29 (9 16–61] years and 43% (76) women aged 30 (9 17–54]. There was appreciated a fall at the auditory threshold frequencies 3, 4 and 6 KHz (notch) and recovery to the 8 kHz, by sex, age and terciles in both ears. The 4 kHz showed hearing loss of  $\beta=2.96$  dB ( $p=0.005$ ) by urban travel time >40 minutes/day in men  $\beta=2.6$  dB ( $p=0.009$ ), by categories of age: 25–34 years  $\beta=2.2$  dB ( $p=0.070$ ), 35–44 years  $\beta=5.2$  dB ( $p=0.001$ ) and 45–61 years  $\beta=8.3$  dB ( $p<0.001$ ).

**Discussion** The indentation suggests a hearing loss similar to the first stage of the noise-induced hearing damage. It is likely his relationship to the ambient noise of Mexico City.

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#### NEW RISK CONCEPTS IN THE NORWEGIAN OIL AND GAS INDUSTRY AND ITS IMPACT ON NOISE RISK ASSESSMENT

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10.1136/oemed-2018-ICOHabstracts.1493

The Norwegian Petroleum Safety Authority has been defined risk as the consequences of an activities, with associated uncertainty. This concept applies on both quantitative risk assessment (with focus on large accidents) where it has been developed and the field of occupational hygiene and acoustics.

This presentation will discuss its impact on occupational health risk assessment in general and on noise risk assessment more specific and gives examples of how this new concept has influenced our work.

## Women, Health and Work

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#### MAINSTREAMING GENDER INTO OCCUPATIONAL SAFETY AND HEALTH (OSH) PRACTICE

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10.1136/oemed-2018-ICOHabstracts.1494

**Introduction** Women and men are different, and the jobs they do, their working conditions and circumstances and how society treats them are different, affecting the occupational risks they face: a gender-sensitive prevention approach is required. However, gender mainstreaming and taking a gender-sensitive approach are not always well understood in OSH. Practice needs to be exchanged and experiences shared in order to debunk some of the myths and barriers. This project researched examples of policies, programmes and practices from across the EU and worldwide to illustrate gender approaches in OSH.

**Methods** The cases cover approaches by national and intermediary organisations and gender-sensitive approaches to OSH in the workplace. Detailed descriptions of a range of cases were made, covering the development process and what was achieved. Brief summaries of additional examples were made. The cases were analysed for success factors, challenges, drivers and transferability.

**Results** The cases were varied, covering: integrating gender mainstreaming into organisations' planning, administration and daily working practices; developing methods and tools to promote gender mainstreaming; facilitating working conditions suitable for both women and men, including both health and human resources management; the reconciliation of work and family life and thereby promoting better work–life balance; ensuring women are encouraged and supported in working in male-dominated professions; designing and promoting personal protective equipment (PPE) for women; conducting awareness-raising campaigns on health.

**Discussion** Men and women benefit when gender differences are recognised and are addressed in OSH. The report shows

that this is happening in many different ways, through policy and strategy, research and at the workplace. Those taking action include scientific associations, OSH organisations, equalities organisations, health organisations, employers and trade unions. The cases range from comprehensive gender-mainstreaming projects to simple steps that organisations can take to ensure that the OSH of both male and female workers is covered.

### 1278 WORK ABILITY IN BREAST CANCER WOMEN SURVIVORS: A QUESTIONNAIRE-BASED STUDY

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10.1136/oemed-2018-ICOHabstracts.1495

**Introduction** Breast cancer is the most common cancer in women worldwide. Early breast cancer diagnosis and improvement of therapeutic procedures have reduced the impact of treatment on function and increased the proportion of possibly employed survivors. The growth in female labour participation and the extension of working life have increased the number of women with breast cancer that work or have to face the issue of returning to work. The aim of the study was to identify predictors of reduced work ability at return to work among women treated for breast cancer.

**Methods** A questionnaire was sent to all 18–65 years old women resident and treated for breast cancer in Bologna Local Health Authority area in the period 2010–2012 to collect data about personal characteristics, medical history, breast cancer treatment work history and return to work. A multivariate logistic regression analysis was performed to identify predictors of reduced work ability among workingwomen.

**Results** A total of 1578 women were invited to fill in the questionnaire. The response rate was 53,3%. Data of 503 workingwomen returned to work at the time of the study were analysed.

Reduced work ability at return to work was reported by 43.5% women compared to the pre-diagnosis period. Reduced work ability was significantly more common in non-cohabiting than in cohabiting/married women, in labourers than in Office clerks/sales assistants and managers and more frequent after mastectomy than after breast-conserving interventions.

Adjustments of work activities, occupational physician visits, less support from employer and colleagues and discrimination were significantly more frequently reported by women with a reduced work ability.

**Conclusion** Perceived reduced work ability is common in women who return to work after the treatment for breast cancer. Occupational physicians and GPs should be aware of a wide asset of factors to facilitate a successful return to work.

### 13 HEALTH STATUS OF ADOLESCENT GIRLS EMPLOYED IN THE TEXTILE INDUSTRY OF TAMIL NADU, INDIA

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10.1136/oemed-2018-ICOHabstracts.1496

**Introduction** A 'marriage assistance scheme' prevails in Tamil Nadu, India, where unmarried adolescent girls are recruited to work for specified periods of time in textile factories in return for a bulk amount of money at the end of tenure, which is used for their marriage expenses. We aimed to assess the health status of adolescent girls working in such factories.

**Methods** A total of 321 adolescent girls, 107 in each study group namely, current employees, past employees and the never-been employed were interviewed for the study. Standard tools used to evaluate the health and wellbeing of the adolescents.

**Result** Significant difference was observed among the study groups in terms of health practices such as physical activity, hours of sleep, consumption of fruits and vegetables, and access to health care. Prevalence of menstrual irregularities was more among the current employees and past employees with 38.3% and 37.4% of them affected as compared to 18.7% among the never-been employed girls [AOR 2.42 (95% CI: 1.42 to 4.72)]. Among the current and the past employees, 30% reported abuse at workplace. Significant difference in conditions such as depression and behavioural problems including emotional, conduct, hyperactivity and peer-relation problems were observed between the study groups, with more number of current and past employees suffering from these issues as compared to the never-been employed adolescents [AOR 2.25 (95% CI: 1.22 to 4.14)]. Musculoskeletal pain was also more among the current and past employees, with neck and shoulder being the common regions of the body which were affected [AOR 5.28 (95% CI: 2.13 to 13.1)].

**Discussion** Current and past employees have poorer health as compared to the never-been employed adolescents. Workplace counselling could prevent mental health morbidities among the employed adolescent girls. Appropriate ergonomic measures must be undertaken at workplaces to avoid musculoskeletal disorders among current employee.

### 1391 OCCUPATIONAL LUNG DISEASES IN DECEASED SOUTH AFRICAN WOMEN IN MINING

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10.1136/oemed-2018-ICOHabstracts.1497

**Introduction** Women have worked in South African mines for over a century. During the twentieth century, employment of women underground was legally prohibited. In the asbestos mining industry, women worked in surface processing activities e.g. hand-cobbing of asbestos. Most women were undocumented in mine employment records and were thereby excluded from medical surveillance and compensation. Women continue to be exposed to asbestos in the environment. The 2004 Mining Charter permitted women to work underground and set targets to their employment across the mining industry. From 2005, the National Institute for Occupational Health (NIOH) has recorded the sex of deceased individuals examined for the detection of OLDs for statutory compensation. We compared OLDs in deceased women and men.

**Methods** Records were extracted from the PATHAUT autopsy database (2005–2015). The NIOH also performs autopsies for