WBV 2017 – Final program April 24th 2017

Sunday June 18th

09.00 - 16.00 Pre-conference course

Methods for collecting and assessing vehicle operators’ exposures to whole body vibration
Course leader  Professor Peter W Johnson, USA
Faculty Per Jonsson PhD Sweden
Location  Occupational and Environmental Medicine, Medicinaregatan 16 A, Gothenburg

17.00- 19.00 Reception for all participants

Mingel with light food and drink and registration
Location: Occupational and Environmental Medicine, Medicinaregatan 16 A, Gothenburg

POSTERS Monday June 19th – Tuesday June 20th

- Association between alternative cumulative lifetime vibration doses and low back outcomes - Massimo Bovenzi (M Schust)
- Development of a multidisciplinary evidence-based guideline on decreasing exposure to whole-body vibration in order to prevent low back pain - Carel Hulshof
- Optimization of the contact damping and stiffness coefficients to attenuate vertical whole body vibration - Massimo Cavacece
- Metrological characterization of low-cost systems for the evaluation of posture at the workplace - Marco Tarabini
- Sickness absence among workers exposed to whole body vibrations – a prospective study - Adnan Noor
- Positive health effects of exposure to whole body vibration - Mats Hagberg
- Study of Impact Exposure on Humans Working Onboard High-Speed Boats - Carl-Magnus Ullman
- Comparing whole body vibration exposures across active and passive truck seats - Fangfang Wang (Pete Johnson)
- Lumbar disc herniation in a bus driver – a case report - Per M. G. Jonsson
Monday June 19th

Location  Wallenberg Conference center, Medicinaregatan 20 A, Gothenburg

08.15  Registration

09.00  Opening (Mats Hagberg)

Theme 1  Vibration and Shock (Chair/Co-chair: Carel Hulshof/ Ronnie Lundström)

09.15  Predicting discomfort caused by whole-body vibration and mechanical shock
Michael Griffin (invited)

09.45  Adaptation of muscle activity and upper body kinematics after mechanical
shocks in seated position - Börje Rehn

10.00  Seated postural reactions depends on the complexity of the mechanical shock
Tobias Carl Stenlund

10.15 – 10.45  Coffee

Theme 2  Marine (Chair/Co-chair: Subhash Rakheja/Börje Rehn)

10.45  Boat seat testing – lessons from other industries
Thomas Gunston (invited speaker)

11.15  Musculoskeletal pain and performance impairments in marine personnel
Riccardo Lo Martire

11.30  Monitoring and characterizing vibration and shock conditions aboard high-
speed craft - Manudul Pahansen de Alwis

11.45  Engineering for balance between working conditions and hull loads at high-
speed operation at sea - Karl Garme

12.00  Whole-body vibration exposure during occupational use of high-speed craft: a
comparison of standardized assessment methods - Francesco Picciolo

12.15 – 13.15  Lunch, exhibition, Posters

Theme 3  Mining (Chair/Co-chair: Christian Freitag/Tohr Nilsson)

13.15  Whole-body vibration exposure and interventions in mining
Tammy Egers (invited speaker)

13.45  Whole Body Vibration Exposures and Back Pain among Miners in the Subarctic
Region: A Cross-sectional Analysis - Hans Petterson

14.00  Vibration Toolkit: An Occupational Health Intervention Focused on Vibration
Exposure in the Mining Industry - Mallorie Leduc
14.15 Use of a free iOS application to measure and evaluate whole-body vibration at coal mines - Danellie Lynas

14.30 – 15.00 Coffee

**Health economic and WBV**

15.00 Reducing Risk and Costs Associated with Back Pain among Bus and Truck Drivers – Successful Interventions - Peter Johnson (invited speaker)

**Theme 4 Driving I (Chair/Co-chair: Michael Griffin/Hans Pettersson)**

15.30 Effectiveness of tractors certified seats for attenuation of whole body vibration - Angelo Tirabasso

15.45 About the risk of exposure to whole body vibrations among motorized driver trucks in logistics. Supply of an occupational health service - Mathieu Chauvet

16.00 Whole-body vibration of drivers and co-drivers in trucks - Christian Frei

16.15 – 16.30 Fruit

**Theme 5 Driving II (Chair/Co-chair: Massimo Bovenzi/Tohr Nilsson)**

16.30 Understanding working conditions of long-haul drivers: a crucial step - Alice Turcot

16.45 Analytical and experimental studies on human comfort in a combat vehicle (cv) during steady state runs and firing - Sujatha Chandramohan

17.00 Thin and lightweight suspension seat for small trucks using polyurethane foam as suspension - Kazuhito Kato

17.15 New hydraulic AVC Seat for vibration protection of agricultural operators - Antonio Moschetto

17.30 Determination of Vibration and Stress Induced by Random Excitation in Different Parts of the Human Body using Finite Element Method – Jahnavi Chinnagangu

17.45 End

1745-18.30 Optional: choose between a tour of Department/Clinic of Occupational & Environmental Medicine or a walk to the Botanical Garden

18.30-19.00 Pre dinner drink

**Conference Dinner 19.00-21.00**

Location Wallenberg Conference center, Medicinaregatan 20 A, Gothenburg
Tuesday June 20th

08.30 Coffee

Theme 6  Back pain I (Chair/Co-chair: Subhash Rakheja/ Lars Gerhardsson)

09.00  Low back pain and exposure to whole-body vibration and mechanical shocks
       Massimo Bovenzi (invited speaker)

09.30  Lumbar and cervicocranial symptoms in a car test driver - a case report
       Lars Gerhardsson

09.45  Does professional driving, including exposure to whole-body vibration, increase
       the risk of lumbosacral radiculopathy? Systematic review and meta-analysis
       Carel Hulshof

10.00  Whole-body vibration and lumbar disc herniation - Jens Wahlström

10.15 - 10.45  Coffee

Theme 7  Back pain II (Chair/Co-chair: T Edgers/ Jens Wahlström)

10.45  Meta-analysis of health effects of whole-body vibration
       Tohr Nilsson (invited speaker)

11.15  A Cost-Utility Analysis of Bus Driver Seating Alternatives: Assessing the Health
       and Claims Costs of Whole Body Vibration Exposures - Katherine Gregersen

11.30  Evaluation of multi-axial suspension seat in reducing whole body vibration
       exposure and associated muscle loading in low back muscle in agricultural
       tractor application - Jeong Ho Kim

11.45  Active and passive seat dampening systems – effects on fatigue development in
       lower back - Charlotte Lewis

12.00  A musculoskeletal spine model for predicting spinal muscle forces of a human
       body exposed to whole body vibration - Suzan Cansel Dogru

12.15 – 13.15  Lunch, exhibition

Theme 8  Seating I  (Chair/Co-chair: Michael Griffin/ Helena Sandén)

13.15  Vibratory sensation evaluation of a seated human - Gen Tamaoki

13.30  Gender and anthropometric effects on whole-body vibration power absorption
       of the seated body - Pierre Marcotte
13.45  A multi-body dynamic model of seat-occupant system for predicting seat transmissibility with combined vertical, fore-and-aft and pitch vibrations
   Hui Zhou

14.00  Equivalent comfort contours for fore-and-aft, lateral, and vertical whole-body vibration in the frequency range 1 to 10 Hz - James Arnold

14.15  Vehicle-specific seat suspension using kineto-dynamic design optimization
   Subhash Rakheja

14.30 – 14.50  Coffee

Theme 9 Seating II (Chair/Co-chair: T Egers/ Per Jonsson)

14.50  Characterizing Whole Body Vibration Exposures during Neonatal Ground Transport - Dawn M. Ryan

15.05  Combined exposures of whole-body vibration and awkward posture
   Nastaran Raffler

15.20  Vibration Exposure Standards are not relevant for Impact Exposure
   Johan Ullman

10 min break

15.45 Theme 10 Modelling (Chair/Co-chair: Christian Freitag/ Mats Hagberg)

15.45  A musculoskeletal spine model for predicting spinal muscle forces of a human body exposed to whole body vibration - Suzan Cansel Dogru

16.00  Resonant frequency identification at the foot when standing in a natural upright position during vertical vibration exposure - Katie Goggins

16.15  Evaluation of vibration transmitted to the feet when standing on different outsole and insole material – Marco Tarabini

16.30  Muscular activation in vibration perturbed human walking - Enrico Marchetti

16.45  Inter-subject variability and intra-subject variability in walking and running forces - Massimo Cavacece

17.00 - 17.45  Wrap & juice

17.45  Meeting outside the entrance, Wallenberg Conference center

17.45 - 22.30 Excursion Hällered Proving Ground
   e.g. vibration tests for Volvo cars, buses and trucks
Wednesday - June 21st 2017

09.30 - 12.00 Round table discussion:

Is health surveillance for whole body vibration exposure appropriate today (2017)? What type is appropriate if any? Roles for occupational health care?

Background: In 2001 Guidelines for Whole-Body Vibration Health Surveillance Appendix W1E to Final Report May 2001: http://resource.isvr.soton.ac.uk/HRV/VINET/pdf_files/Appendix_W1E.pdf Stated: “It is suggested that periodic medical examination should be made available at least every two years to all workers who are exposed to WBV.”

In 2005 HSE UK stated “Health surveillance for WBV is not appropriate since it fails to meet the criteria listed in regulation 7(2). It is not considered that any methods exist for the detection of changes in peoples’ backs which can reliably indicate the early onset of changes (which may cause low back pain) that are specifically related to workplace factors.” Whole-body vibration The Control of Vibration at Work Regulations 2005 Guidance on Regulations http://www.hse.gov.uk/pUbns/priced/l141.pdf

Aim: To identify whether there is new knowledge since 2001 and 2005 to justify health surveillance of workers exposed to whole body vibrations. What type is appropriate if any? Roles for occupational health care?

Outcome: Summary of discussions to be published as a short note either in the ICOH web or in a scientific journal

Chair: Carel Hulshof

Location Ingegerd Ericsson, Academicum, Medicinaregatan 3, Gothenburg