International Journal of Industrial Ergonomics 38 (2008) 651

Contents lists available at ScienceDirect

International Journal of Industrial Ergonomics

journal homepage: www.elsevier.com/locate/ergon

Editorial

Workplace vibration exposure: Characterization, assessment and ergonomic interventions

This special issue presents recent research efforts in the field of workplace vibration exposure and control, including the characterization and assessments, ergonomic interventions, the state of the art in the associated supporting technologies, as well as perspectives on future developments and applications. The effects and control of exposure to hand-transmitted and whole-body vibration are particularly addressed. The effects of hand-transmitted vibration were recognized among the miners and stonecutters in the 18th century. However, it was not until the 1970s when epidemiologic methods were used to identify a range of occupational factors and injury mechanisms, which produced strong evidences of various vascular, neural and musculoskeletal disorders in the hand–arm system attributed to hand-transmitted vibration. Subsequently considerable efforts have been made towards seeking ergonomic interventions and anti-vibration tools and protective devices. Despite such efforts, the exact injury mechanism and the roles of various work-related factors remain either unknown or vague. The whole-body workplace vibration, in a similar manner, has been strongly associated with the symptoms of low back pain among the exposed workers. The dose–response relationship, however, remains unknown due to a multitude of co-varying confounders, and complexities associated with characterizing the nonlinear human body responses to vibration.

This special issue presents a compilation of recent research and development efforts addressing some of the challenges, including characterization, assessments and monitoring of hand-transmitted and whole-body vibration exposures; health risks assessments; biodynamic and psychophysical assessments of the whole body and the human hand–arm; vibrotactile perception thresholds of hand-transmitted vibration; cardiovascular responses, postural effects and paraspinal muscle activities under whole-body vibration; and more.

The guest editors would like to express their appreciations to the substantial efforts of the contributors and the several reviewers. The guest editors also wish to thank the Chief Editor, Prof. Anand Gramopadhye, for supporting this initiative, and most of all the publishing staff at Elsevier for their diligent efforts in compiling this issue.

Guest Editors
Subhash Rakheja
CONCAVE Research Centre, Concordia University, Montreal, Canada
E-mail address: guf2@cdc.gov

R.G. Dong
Engineering Control and Technology Branch, National Institute of Occupational Safety and Health, Morgantown, WV, USA

0169-8141/$ - see front matter © 2008 Published by Elsevier B.V.
doi:10.1016/j.ergon.2008.02.014