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## Preface

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## Preface

In the early 2000s, the National Institute for Occupational Safety and Health (NIOSH) funded 10 high-quality, field-based studies to examine associations between job physical exposure and work-related musculoskeletal disorders (WMSDs). Seven of these studies focused on upper extremity and 3 on low back. All 10 studies addressed several methodological limitations of previous research on WMSDs by incorporating (a) prospective design; (b) direct, quantitative measurement of job physical exposure in workplaces; (c) assessment of psychosocial and work organization factors; and (d) both self-reported symptoms and physical-examination-based assessments of musculoskeletal symptoms and disorders (including nerve conduction studies for carpal tunnel syndrome).

This special issue presents some of the findings from 9 of the 10 NIOSH-funded studies. Results presented in this issue, as well as those previously reported in other scientific journals, collectively show a strong definitive link between job physical exposures and WMSDs. These high-quality, field-based, *in vivo* studies should help in resolving the ongoing controversy surrounding the role of job physical exposure in the development of WMSDs.

Some may argue that observational studies do not establish causation and that randomized control trials (RCTs) are necessary for establishing causal pathways. However, such studies are

impractical in most real-world situations because it can be unethical, economically difficult, and often impossible to control for job physical exposures. This challenge is somewhat analogous to studies of smoking and lung cancer; to our knowledge, there are no RCTs on smoking and lung cancer (as opposed to cessation of smoking), but almost no one would disagree with the conclusion that smoking causes lung cancer. In the absence of RCTs, well-conducted, prospective cohort studies provide the best evidence that job physical factors cause WMSDs.

In this special issue, there is heterogeneity of the WMSDs studied. These disorders include low-back pain, seeking care for low-back pain, low-back functional impairment, carpal tunnel syndrome, lateral epicondylitis, hand/wrist tendonitis, flexor tendon entrapment of digits, hand/arm symptoms, and hand/arm disorders. The issue is divided into three sections. First we present six papers on low-back pain and low-back functional performance, followed by eight papers on upper-extremity symptoms and disorders, and conclude with three papers on topics such as lifting thresholds for pregnant workers, age-related declines in range of motion and strengths, and workplace assault and musculoskeletal pain.

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