

Translational Research in Ergonomics: From Mobile Devices to Semi-trucks

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Abstract: As ergonomics is applied science to optimize the interface between human and environment, most ergonomics research is inevitably related to the concept, “Research to practice” (r2P). Many of our research studies at the University of Washington and Oregon State University have resulted in interventions and/or provide scientific evidences for recommendations and interventions. In this panel discussion, we will introduce two relevant ergonomic research studies. One study evaluated and compared biomechanical exposures including typing force, muscle activity, usability, and subjective discomfort among different key sizes on touch screen devices. The results showed that the keyboard with the 13x13 mm keys (15 mm center-to-center key spacing) had a slower typing speed, higher static (10th %tile) shoulder muscle activity, and greater wrist extension in both hands. The study findings were used to develop recommendations and guidelines for choosing an adequate mobile device (i.e. mobile phone). The other study is a evaluated the efficacy of a newly-developed active vibration cancelling suspension seat in reducing whole body vibration (WBV) exposure and its related adverse health outcomes such as low back pain and other musculoskeletal disorders. The results suggested that reducing exposure to WBV can reduce associated low back pain and other adverse health outcomes. The study results will provide a basis for developing new engineering controls to reduce WBV exposures and help in better targeting such future interventions to improve occupational health outcomes among professional truck drivers. These two studies are great examples to show how research findings can be translated into practice and evidence-based intervention programs.