Abstracts

Poster: 0157

Field Evaluation of a Continuous Passive Lumbar Motion System Among Operators of Earthmoving Equipment

MJ Jorgensen (1) presenting, M Viswanathan (1), NK Kittusamy (2)

Wichita State University, Wichita, KS, United States (1), NIOSH--Spokane Research Lab, Spokane, WA, United States (2)

Operating heavy mobile construction equipment is often associated with elevated rates of low back discomfort. However, few formal studies have evaluated interventions that may reduce low back discomfort among these workers. The objective of this study was to determine the effectiveness of a continuous passive lumbar motion system (CPLMS), which is an additional lumbar seat support that can cyclically inflate and deflate, in reducing low back discomfort among operators of heavy earth-moving equipment. This was a quasi-experimental intervention study with multiple observations in which body part discomfort surveys were collected from an intervention and a control group during normal working days. The intervention group also completed a CPLMS preference survey after completing use of the CPLMS for 646 hours.

Results from the body part discomfort survey showed no significant difference in low back discomfort between mornings and evenings for the first seven days, but a significant difference on the eighth and final day for the intervention group. In the control group, there was a significant difference between mornings and evenings on three out of five days for the low back discomfort score, where, the evening score was always higher than the morning score for all days.

In addition, comparisons between the control and intervention groups indicated that the difference between morning and evening low back discomfort rating was less for the intervention group than the control group ($p = 0.06$). The CPLMS preference survey showed that 54% of the operators felt very comfortable using the CPLMS, 36% wanted one for their equipment, and 54% showed interest in experimenting with the CPLMS for a longer time period. Results from this study suggest that the use of this intervention may effectively reduce the development rate of low back discomfort experienced by operators of heavy earth-moving equipment throughout the work day.

NORA Symposium 2006

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April 18-20, 2006

L'Enfant Plaza Hotel

Washington, DC

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