

*Rapid Communication*

**The use of turnover rate as a passive surveillance indicator for potential low back disorders**

STEVEN A. LAVENDER

Rush-Presbyterian-St Luke's Medical Center,  
1653 West Congress Parkway, Chicago, IL 60612-3833, USA

and WILLIAM S. MARRAS

Biodynamics Laboratory, Ohio State University,  
Columbus, Ohio, USA

*Keywords:* Low-back disorder; Trunk motion; Lifting; Surveillance; Lumbar motion monitor (LMM); Turnover.

Passive surveillance techniques which rely only on injury reporting to locate ergonomic problems within a facility may not be sensitive enough to identify all jobs that place a worker at risk of low back disorder. The current study examines whether turnover rate data provide useful input to a passive surveillance approach. It is hypothesized that the turnover of employees through individual jobs, when not attributable to differential pay scales within a facility, is likely to indicate the presence of ergonomic hazards associated with low back cumulative trauma disorders. This study used the database and multiple logistic regression model developed by Marras *et al.* (1993) to evaluate this hypothesis. Two data sets were evaluated with the model to determine whether jobs with turnover resemble those with a high historical risk of LB-CTD. The first data set contained trunk motion and workplace data from jobs in which there had been turnover but there were no incidents of LB-CTD. When comparing these data to truly low risk jobs (no LB-CTD incidents or turnover), the model yielded an odds ratio of 5.2. This moderate odds ratio indicates that many of the jobs with turnover have characteristics similar to those found in high LB-CTD risk jobs. The second data set included jobs with turnover and moderate LB-CTD incident rates. The model's resulting odds ratio of 11.0 indicates that jobs with moderate incident rates and turnover are very similar to jobs with a high LB-CTD risk. These results suggest that passive surveillance programs would be more sensitive if turnover rates were determined for each job within a facility and were used to supplement incident rate data.