

used multiple logistic regression models to identify determinants of disability discharge, and stratified analyses to explore effect modification.

Results: In multivariable analyses, non-white women had half the risk of disability compared to whites (odds ratio (OR)=0.5, 95% CI (CI): 0.41, 0.60). Age, marital status, pay grade, and job category were also predictors of disability. In stratified analyses, ORs increased monotonically from 0.68 to 2.66 with increasing quintiles of age for white women (range: 17-60 years). Among non-whites, ORs stayed at 1.1 through the third, doubled in the fourth and increased to 2.4 in the fifth relative to the first quintile of age. Risk of disability was lower for married versus non-married women of both races. For both races, women in the highest pay grades had the lowest ORs vs. women in the lower grades (OR=0.25, CI: 0.12, 0.50 for whites and OR=0.14, CI: 0.06, 0.33 for nonwhites). Relative to support/administration, most job categories showed small increases in risk. ORs for white women were lower than ORs for nonwhite women for three of eight, and higher for two of eight categories.

Conclusions: For Army enlisted women, sociodemographic characteristics were stronger determinants of knee-related disability discharge than work exposures. Interactions between race and occupation suggest certain subgroups in the Army are at higher risk of disability than others; further understanding of these patterns may suggest effective interventions. To elucidate the role, if any, of job characteristics and/or work exposures in the development of knee-related disability, future research should be restricted to specific demographic subgroups.

E5.2 Toward a Typology of Dynamic and Hazardous Work Environments—Scharf T, Vaught C, Kidd P, Steiner L, Kowalski K, Wiehagen B, Cole H

Mining, fishing, logging, farming, construction, and transport: by many measures, these are the most hazardous industries in the U.S. Is there an underlying consistency to the fatality records? Or are the causes of occupational fatalities so unique to each industry that no common features can be determined? On the one hand, we see the same jobs ranking highest on fatalities year after year - suggesting a consistent pattern. On the other hand, the causes of these fatalities are quite specific to each of the jobs, e.g. falls from heights (construction), tractor overturns (agriculture), roof collapse (mining), etc. - suggesting unrelated mechanisms of injury.

We suggest that the common feature of these jobs is that the work environments are under constant change. The central thesis of this paper is that the requirement to continually adapt and respond to a dynamic and hazardous work environment places workers in these jobs at highest risk, regardless of the specifics of the hazards. What our observations suggest is that workers react in similar ways to

changing hazardous situations, even though the specific hazards may be quite different.

Translated into a research hypothesis, what are the common components of change that can be identified across different dynamic and hazardous work environments? More specifically, since the hazards are very different, are there common qualities about the dynamic nature of the hazards that can be identified? Two questions are implied: 1) what makes an environment hazardous, and 2) what makes a work environment dynamic?

These questions are examined and discussed. A preliminary typology of dynamic and hazardous work environments is proposed, and the workload pressures on the workers are considered. The long-term goal of this effort is to improve the safety and efficacy of organizational-level work practices in dynamic and hazardous work environments.

E5.3 Indicators of Lift Readiness and Lift Posture in Patients With Low Back Pain—Dionne CP, Smith SS

The purposes of this study were to (a) determine clinical indicators for initiation of lifting by patients with low back pain (LBP); (b) determine the greatest lift force exerted by patients in three lift postures, comparing lift capacities with those of healthy subjects.

From a consecutive sample of 40 patients with LBP, 35 patients (18 men [aged X = 36.7 years, SD= 7.5], 17 women [aged X = 39.3 years, SD = 7.8]) passed the screening criteria and were randomly assigned to one of four groups in which repeated movements testing (RM) was compared separately and in combination with trunk extensor muscle endurance, sitting, and all protocols. Thirty-one patients confirmed lift readiness with a self-selected lift, then tested in three lift positions (self-selected, lordotic, and kyphotic).

To compare the four sets of lift criteria, a Chi-square test for independent samples was used. To determine predictive clinical indicators of lift readiness, positive predictive values were calculated. A repeated measures MANOVA was used to determine differences in lift force between patients and healthy subjects and among lift postures in patients.

No difference was found among the four sets of lift criteria used to confirm lift readiness. All four sets lift readiness criteria were positively predictive (PPV 3 75%). Thirty of 31 patients lifted, and successfully managed their symptoms. Isometric lift force capacity differed between healthy subjects and patients, but did not differ between lordotic and self-selected lift postures among patients.

RM testing may be the only criterion necessary because RM was as predictive as the other sets of lift readiness criteria.



NOIRS 2000

*Pittsburgh, Pennsylvania
October 17-19, 2000*

ABSTRACTS

**National Occupational
Injury Research Symposium**

CDC
CENTERS FOR DISEASE CONTROL
AND PREVENTION

*National Institute for
Occupational Safety and Health*
NIOSH