WEDNESDAY, MARCH 23 | 8:30 A.M. – 9 A.M.

FORD MOTOR COMPANY'S OFFICE ERGONOMICS PROCESS

Karen Harrington, Senior Project Engineer, Sandalwood Engineering and Ergonomics (All)

Ford Motor Co.'s Office Ergonomics Process, a 2004 Ford Motor Co. President's Health and Safety Award Winner, has proven to be an effective approach to respond to employee requests for ergonomics assistance at offices and call centers across the nation. The interactive process is centered on the employee who is integral to the ergonomics analysis and solution development phases. The Office Ergonomics Process provides optimal ergonomics assistance to employees while effectively managing costs in today's business climate.

COST JUSTIFICATION FOR ERGONOMICS

Woody Dwyer, Director of Ergonomics; Bob Weneck, Senior Ergonomics Specialist, Travelers Insurance (I)

Do you struggle with getting your team's ergonomics recommendations approved by management? Does your management see ergonomics as a cost to the company as opposed to a value-added discipline? Many corporations continue to experience sprains and strain injuries and realize the burden to their company's overall performance. They establish and maintain ergonomics teams with the goals of reducing the loss frequency and incurred costs in workers' compensation as well as their lost and restricted work days.

THERMOGRAPHIC ASSESSMENT OF THUMB MUSCLES DURING PIPETTING TASKS

Nirathi Keerthi Govindu, Student/ Research Assistant; Kari Babski-Reeves, Assistant Professor, Mississippi State University (B)

Pipetting tasks have been linked to hand disorders, primarily due to equipment/tools used in these tasks. Quantifying the effects of task parameters on risk factors for disorder development is critical to develop effective interventions. For this study, thermograpic readings of the skin surface over the thenar thumb muscles during a pipetting task of six participants completing two, two-task test sessions were assessed. Participants used high- or low-volume pipettes to transfer viscous or nonviscous solutions between tubes. Change in skin surface temperature over the thumb muscles and subjective ratings of discomfort were collected. Results indicated that both temperature and discomfort increased with time and were moderately correlated. Viscosity and gender, as well as their interaction, affected thermal readings. Volume of the pipette had an effect on discomfort readings. These results suggest that skin temperature changes can be analyzed as a possible risk-assessing factor for injuries/disorders in the upper extremity.

CERVICAL LOAD DUE TO OPERATING WITH SURGICAL LOUPES

Ashish Nimbarte, Assistant Professor; Jennifer Sivak-Callcott, Oculoplastic Surgeon; Jonathan Li, Graduate Student Researcher; Yun Sun, Graduate Student Researcher, West Virginia University (I)

Work-related neck pain is an occupational hazard in surgeons who require surgical loupes and headlights to operate. The pathomechanism of cervical pain associated with performing surgery has never been studied. In this study, postures and movements involved while performing surgery on patients in the operating room was recorded using a 3-D kinematic data collection system. Subsequently, a musculoskeletal model of the cervical spine was developed. Based on the posture data collected during the surgeries, inverse dynamics analysis was performed to calculate the loading of the cervical spine.

Two particularly awkward postures were frequently used by the surgeons for prolonged duration during the surgeries. The average compressive load on the cervical spine was 75 percent and 180 percent more than neutral posture during the awkward postures 1 and 2, respectively. The results of this investigation clearly indicate that the working postures adopted by the surgeon cause substantial loading of the cervical spine.

WEDNESDAY, MARCH 23 | 9 A.M. – 9:30 A.M.

MARRIAGE OF MANAGEMENT SYSTEMS AND TACTICAL ERGONOMICS

John Grant, Senior Project Manager - Safety and Ergonomics, General Dynamics Bath Iron Works (I)

A transformation in Bath Iron Works Engineering Division's management system and tactical approach to ergonomics has realized a 55% reduction in labor cost. The approach has allowed Bath Iron Works Engineering Division to create a participatory, risk-based ergonomics culture, where improvement is realized through employee empowerment and provision of effective resources.

Key components of the program include:

- Solid resource infrastructure
- Three-tiered, risk-based approach using standardized tools, solutions and technology
- A 100 percent employee proactive self-evaluation deployed across multiple locations
- Leading metric scorecard and data analysis for continuous improvement

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