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US West study compares the ergonomic benefits of the Contour Perfit Mouse to a Cirque Touch pad and Logitech Mouse in Call Centers presented at IIE conference.

"A Joint Labor/Management Comparative Study of Various Non-Keyboard Computer Input Devices in a Call Center Environment"

Very little research exists in the literature with regards to the comparison of various types of non-keyboard input devices and their impact within the workplace. Concern is rising that non-keyboard computer input devices could be a causal factor in the development of work-related musculoskeletal disorders (WMSDs). Employee-perceived barriers due to input devices, discomfort and injury are issues of interest in a computerized workplace, especially with more and more non-keyboard input device functions such as "click-and-drag," point, scroll and "double-click." The purpose of this study was to provide data comparing individually fitted sculpted mice and touch pads against a control group of users that had a variety of commonly procured mice.

This study involved a repeated measure design, using custom instrumentation to measure the perceived ease of operation, productivity, and comfort of the input device. Instruments were administered pre-study, three and six weeks after study initiation, and three weeks post-study. Four groups of sixteen employees agreed to participate. Informed consent was obtained. Two groups were given the Cirque touch pad input device, one group was given a custom-fitted, Contour Design sculpted mouse and one group (the control group) maintained their current device. The experimental groups were trained in input device usage.

Data were collected via paper/pencil survey. Survey return rate was 100%. The instrumentation was tested for test-retest reliability using the Cronbach-alpha method. Descriptive statistics were generated for all survey questions. Qualitative answers to the "comment" sections were analyzed using thematic analysis.

Inferential conclusions were achieved via a nested design general linear model to test for differences among the groups on the primary response variables. Evaluation of correlation coefficients was conducted to eliminate the effect of multi-co linearity and to

assess directionality of differences among groups. Previous experience with any of the devices was assessed via the survey and included in the model as a covariate to control for this influence.

The survey included items that were descriptive and perceptual in nature. These binomial responses were analyzed using a chi-square test of independence. This final test allowed for the evaluation of differences among the groups in responses to descriptive, demographic and perceptual survey items.

Biographical Data for James M. Stewart

James M. Stewart, M.S., M.P.H, CPE, CIE has been Corporate Ergonomist at U S WEST, Inc. for two years. Previously, he was employed both as a safety and ergonomics professional with ConAgra and a military pilot/aviation safety officer with the U.S. Army. He holds a United States Patent for a device that reduces ergonomic stressors associated with meatpacking. He has designed “state-of-the-art” office ergonomics training and the U S WEST Ergonomics Accessories Program, making over 200 office ergonomic accessories available. He has designed and implemented an Oracle database to track physical demands assessments and job hazard analyses. He is a member of the Human Factors and Ergonomics Society the American Society of Safety Engineers and chairs the National Telecommunications Safety Panel’s Ergonomic Subgroup, which was responsible for the development of comments on the proposed federal ergonomics rule on behalf of the telecommunications industry and is the forum for exchange of ergonomic “best practices” within the industry. Mr. Stewart holds a master of sciences from Colorado State University and a master of public health from the University of Northern Colorado. He is also a Certified Professional Ergonomist and a Certified Industrial Ergonomist.