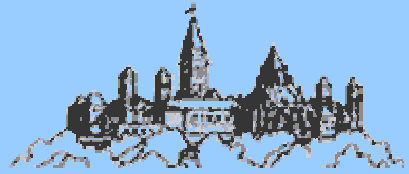




IEEE

**Ottawa
Section**



Practical Exploitation of Energy Return in a Personal Lift Assistive Device

Dr. Joan Stevenson

Professor School of Kinesiology & Health Studies, Queen's University

Researchers at Queen's University have developed an on-body personal lift assistive device (PLAD) that uses elastic elements to off-load some of the back muscles' force requirements during lifting and forward bending during manual materials handling tasks. The elastic elements are anchored at the shoulders and feet and have a pelvic spacer to create an improved moment arm for the elastic elements. The PLAD has gone through five design iterations and numerous scientific studies to determine its effectiveness and use-acceptability. In summary, the PLAD has reduced the back muscle force requirements by ~20% across all studies and 80% of automotive workers who wore it said they would wear it for specific assembly tasks. The presentation will present the various design iterations and scientific proof of effectiveness.



Feb 5, 2009

admission is free
17:30 – 19:00 pm
Mackenzie Building 4359
Carleton University

Light refreshment will be served



Joan Stevenson is a full professor in occupational biomechanics within the School of Kinesiology and Health Studies with a cross-appointment to the School of Rehabilitation Therapy. She has served as head of department and is now serving as current Chair of the General Research Ethics Board and Coordinator of the Ergonomics Research Group. Dr. Stevenson is working with a number of different research teams on projects involving: design of personal protective equipment, development of ergonomic aids, assessment of cumulative loading in industrial jobs, and development of standardized testing strategies for military applications.



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