Making Assistive Technology and Rehabilitation Engineering a Sure Bet

Assesment of the ISO Impact Damping Test

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ABSTRACT

The ISO impact damping test characterizes wheelchair cushion abilities to reduce impact loading on tissues and to help maintain postural stability, reporting the number of rebounds greater than 10% of the peak impact acceleration and the ratio of the 2nd to 1st rebound. Based upon our analysis, 3 critical issues have been identified. 1) Impact magnitude should be part of the analysis. 2) Impact should be used instead rebound accelerations. 3) Oscillation from impact is not a simple 2nd order damped harmonic, instead several natural frequencies are embedded in the damped oscillation. In conclusion, ISO should utilize impact accelerations and more complex analysis to characterize the damping properties of wheelchair cushions.

Keywords:

seating, ISO, pressure ulcer, impact damping, wheelchair

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