

Progress on Clinical Trials and Product Development of a Simple, Inexpensive Feedback Device for Patients Requiring Partial Weight Bearing

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A weight bearing indicator (WBI) has been developed and is undergoing clinical trials and commercialization. The most recent version of the device includes load range indication ability. The WBI is installed in a patient's medical appliance (e.g. cam walker boot, surgical shoe) and allows patients recovering from lower extremity injuries to self monitor their rehabilitation. It is a simple and inexpensive mechanical device that utilizes the reversible buckling phenomena of a snap dome to provide a tactile 'click' and an audible 'snap' when a specified ground load on the bottom

of a patient's foot, which has been prescribed by an orthopedist or podiatrist as the partial weight bearing (PWB) upper limit, has been met or exceeded. A clinical study involving 20 subjects showed that PWB compliance improved when comparing the WBI device to standard of care approaches such as verbal instruction and the weight scale method. Specifically, PWB compliance improved from 58% and 45% body weight (BW) for verbal instruction and weight scale method, respectively, to 33% BW for the WBI device. In addition, PWB compliance using the WBI device was not dependent on subject weight like the standard of care approaches. Sometimes patients are instructed not only to avoid exceeding an upper load limit, but also to maintain their limb load above a lower limit as well. A newer version of the WBI has been developed that provides two distinct clicks to a patient corresponding to an upper and lower load limits.