



SmartStep™

Eases Every Step in the Rehabilitation of Post Total Knee Replacement

Overview

J.M. is a 65-year-old male who weighed 210 pounds when he underwent knee replacement surgery. His post-operative treatment goals were to enhance the weight-bearing capabilities of the entire foot with a focus on the hind foot while walking and standing, as well as to improve gait pattern and symmetry.

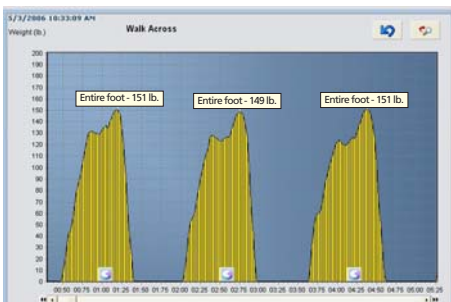
SmartStep™ – Guiding Patients to Higher Thresholds in Weight-Bearing Capability

J.M. was initially evaluated with SmartStep™ nine days after undergoing the surgery. Following this, he received physical therapy treatment three times a week and started a guided gait training program. After the first evaluation with SmartStep™, his treatment goals were to enhance body weight on the entire and hind foot during walking and standing, and to improve gait pattern and symmetry.

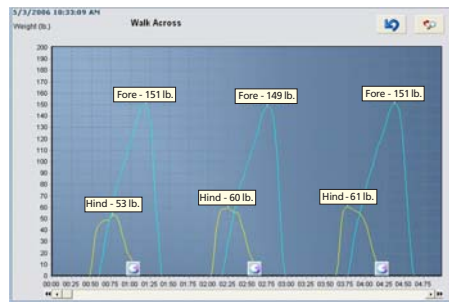
“SmartStep” proved to be an essential tool in J.M.’s rehabilitation process, by setting up an effective treatment plan, quantifying the progress made and providing measurable results for therapist, patient and insurer.”

Healthsouth Rehabilitation Hospital of Tinton Falls, N.J. USA

First evaluation using SmartStep™



Weight-Bearing Measurement for the Entire Foot



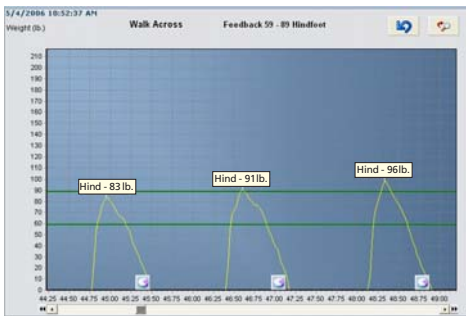
Heel-to-Toe Gait Pattern

The SmartStep™ system’s biofeedback component assisted the patient with visual and audible cues, which promoted a proper gait sequencing pattern.

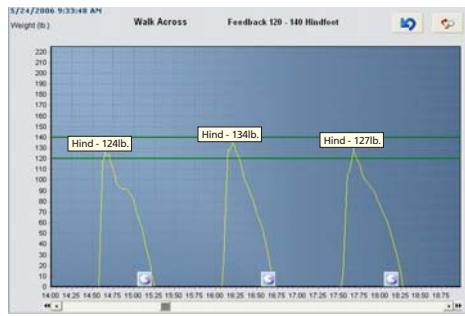


The feedback treatment threshold was set to 73% to 88% of J.M.'s body weight, in order to enhance his weight-bearing capability. Treatment threshold for the hind foot was set to 28% to 42% of J.M.'s body weight, so as to enhance his hind foot weight-bearing capabilities.

The following graphs illustrate the gait training process featuring biofeedback at different thresholds and the improvement made within 20 days of treatment.

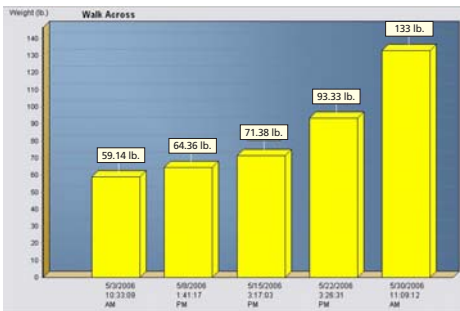


Hind Foot Performance during First Training Session

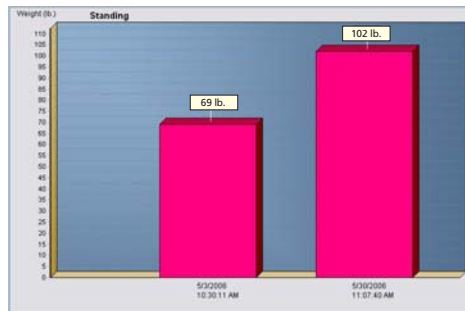


Hind Foot Performance during Last Training Session

Progress in weight-bearing while walking and standing

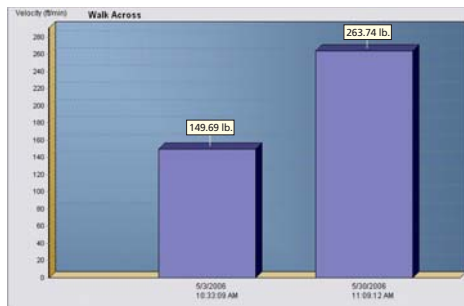


Progress in weight-bearing from 28% to 63% BW on the hind foot during walking in four weeks of therapy



Loading symmetry during standing improved from 32% to 48% BW achieving normal symmetrical standing

Progress in gait velocity



The graph illustrates improvement in walking speed from 149 to 263 ft/min

Conclusion

The results clearly indicate a marked weight-bearing improvement of the involved extremity, as well as a marked progress in the gait sequence pattern, from baseline data to final analysis. In addition, the patient's scores for Functional Independence Measurement (FIM) show significant improvement.

SmartStep™ allows users to validate data by providing visual feedback for measurable changes between sessions.

