NEW BIOPHYSICAL STIMULATION MODALITY PROVIDES SIGNIFICANT STRENGTH GAINS TO DIABETIC NEUROPATHY PATIENT

vibetech™
Faster Recovery
Less Pain

Author
Jeff Leismer, PhD

Author(s) Disclosures
Jeff Leismer is the Founder and CEO of VibeTech and inventor of the VibeTech technology.

Abstract
Jeff Leismer, PhD (Founder & CEO – VibeTech)

Objective
To investigate the effects of a novel robotic rehabilitation system with therapeutic vibration stimulation on leg strength in a patient with diabetic neuropathy, declining strength and mobility, and a fear of falling.

Design
This case study tracked subject progress over a 12-week period as they started a new intervention for strength and mobility.

Setting
The study took place in an R&D facility established by the startup company that produced the equipment used in this study (VibeTech – Sheboygan, WI) to translate clinical research into new technologies and best practices.

Participants
The study participant was a 72-year-old female with diabetic neuropathy, foot-drop, hip repair after a fall/fracture, and a fear of falling, who used a walking aid 100% of the time during ambulation.

Interventions
Ten-minute treatments were performed ~1x/week for 12 weeks and consisted of therapeutic vibration plus leg presses or passive range of motion exercises performed on a VibeTech 2 semi-recumbent robotic rehabilitation system.

Main Outcome Measure(s)
Isometric leg (press) strength was consistently assessed on each leg immediately before and after each treatment using the VibeTech 2.

Results
The subject demonstrated a 3x gain in left leg strength (+174 lbf) and 2x gain in right leg strength (+118 lbf), resulting in equal strength in each leg (~300 lbf), stopped using a walking aid, and no longer had a fear of falling at study completion.

Conclusions
The intervention contributed to significant strength gain and mobility improvement for the subject. Larger sample sizes are necessary to confirm the repeatability of the study results for others with diabetic neuropathy.