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In honor of stroke awareness month, we wanted to share the abstract below, which was presented at the International Stroke Conference. This research is being conducted by the Kessler Foundation, a rehabilitation center in New Jersey that is using Ekso GT to treat their stroke patients during inpatient rehabilitation. The abstract can also be found here. Using Ekso GT as a rehabilitation tool for gait therapy, the therapists were able to help the patients increase their step dosage. The group that used Ekso GT demonstrated greater changes on their Functional Independence Measure (FIM) scores.

Utilization of a robotic exoskeleton to provide increased mass practice for gait training and its impact on discharge destination for individuals with acute stroke

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Introduction: *Mass practice of task-specific activity, such as repeated stepping for gait retraining, is an integral part of acute stroke rehabilitation. New technologies including the use of a robotic exoskeleton (RE) have recently been introduced to the inpatient rehab facility (IRF). A RE can help skilled physical therapists (PT) provide repetitive stepping practice to patients who have had a stroke.*

Hypothesis: *We hypothesize the use of a RE will enable PTs in an IRF to provide added stepping practice to their therapy program and influence discharge destination as compared to traditional treatment plans.*

Methods: *Fifteen participants with acute stroke (<6 months post, age 58±10; height 66±5in; 176±35lbs; LOS 29±7days) were recruited for RE gait training during inpatient rehabilitation in conjunction with traditional therapy. Participants ambulated in the RE over level surfaces with the assistance of a PT (minimum of 3 sessions in the RE). Participant inclusion requirements: medical clearance, upright standing tolerance (≥15 min), intact skin, and physically fit into the device. A matched sample of participants (n=15) was selected from a hospital database (matching criteria: length of stay, admission motor FIM, age, gender and affected side). The data was analyzed using independent sample and paired sample t-tests.*

Results: *Participants in the RE group walked an average distance of 212 feet in traditional PT where gait training was provided and 551 feet in RE sessions (p=.033). Discharge destination for the RE group: 10 home; 3 subacute; 2 nursing facilty and for the matched sample: 13 home; 2 subacute. Motor FIM scores significantly increased from admission to discharge: RE group (p≤.001) and matched group (p≤.001). Motor FIM gain at discharge in the RE group significantly increased compared to the matched sample, 26.4±6.4 vs. 21.6±5.9, (p=0.044).*

Conclusions: *This exploratory investigation demonstrated the RE provides increased dosing of gait training. Discharge destination was not notably impacted by method of gait training. Improvement of motor FIM scores in the RE group begins to demonstrate the impact of mass practice provided by the RE. Further research is needed to objectively explore the impact of RE on functional mobility and quality of life.*

Keywords: *Rehabilitation, stroke*

Have clinical questions? Please reply to EksoRounds@eksobionics.com to communicate with an Ekso Bionics clinical team member.