A PORTABLE GAIT ASSESSMENT TOOL TO RECORD TEMPORAL GAIT PARAMETERS IN SCI.

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ABSTRACT

BACKGROUND: The ability to objectively analyze gait in a clinical environment is challenging due to time, space and cost constraints. This study investigated the validity of a portable gait assessment tool in objectively assessing the temporal gait parameters in subjects with spinal cord injury. The portable gait assessment tool consisted of a pair of insoles instrumented with force sensing resistors that were strategically positioned over the sole of each foot.

AIM: To demonstrate the validity of the gait assessment tool by assessing the change in walking ability in incomplete spinal cord injured (ISCI) subjects, who participated in a robot-assisted gait training program.

METHODS: Eighteen subjects with either an acute or chronic ISCI participated in this study (age range 26-63 years). Each subject participated in a robot assisted gait training programme for 6 weeks. Assessments were performed using the gait assessment tool before during and after the intervention.

RESULTS: The gait assessment tool showed greater sensitivity to the change in the subject's gait, when compared to clinical assessments such as the walking index in spinal cord injury (WISCI II). Subjects with an acute ISCI showed a statistically significant (p<0.05) change in temporal gait parameters within the first 3 weeks of training.

DISCUSSION AND CONCLUSION: This study for the first time has used the gait assessment tool in an ISCI population and has demonstrated that gait parameters can be measured and changes can be quantified within a clinical environment. The statistically significant changes during the first 3 weeks of training may indicate that an effective dose of robotic training can be administered within a relatively short period in ISCI subjects during the acute phase.