VARIABILITY IN RESPONSIVENESS TO INTERVENTIONS IN PEOPLE WITH SPINAL CORD INJURY: DO SOME RESPOND BETTER THAN OTHERS?

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ABSTRACT

Spinal cord injury (SCI) results in significant impairments in function and ankle joint spasticity is a common secondary complication. Various interventions have been trialed to improve function and reduce spasticity after SCI, with variable results. We investigated the effects of a pharmacological (an anti-spastic medication - tizanidine) and a physical intervention (robotic-assisted locomotor training - Lokomat) on function in people with incomplete SCI over 4-week of training. The outcome measures were walking speed, endurance and mobility. Subjects were randomized into one of three groups; no intervention (control), Lokomat (Lok) and tizanidine (Tiz). To account for variability, we used growth mixture modelling (GMM) to class subjects based on their recovery patterns. GMM identified two classes of recovery: high and low function. Significant improvements were seen in walking speed and mobility in high and low functioning subjects in the Lok group, and in walking endurance in high functioning subjects in the Tiz group. However, changes with training were clinically important only for approximately 10% of subjects, who achieved a minimal important difference (MID) in functional outcomes as a result of the training. We used mixed model ANOVAs to compare the group effects. Improvements with training were seen in both classes, however no differences between interventions were found. The GMM had classed all subjects that achieved the MID as high functioning. GMM can be used to successfully class subjects; however larger subject numbers and longer interventions are required to fully utilize this technique. Our results demonstrate that both interventions have potential to improve walking capacity, but more intense training for a longer period may need to achieve MID.

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