POSTACTIVATION DEPRESSION CHANGES AFTER ROBOTIC-ASSISTED GAIT TRAINING IN HEMIPLEGIC STROKE PATIENTS.

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ABSTRACT

Postactivation depression is decreased in patients with spasticity and partially restored by physical exercise in spinal cord injured patients. Up until now, the possibility to modulate postactivation depression with motor training has never been explored in subjects with spasticity following brain lesions. Postactivation depression, assessed as frequency related depression of soleus H-reflex, was investigated before and after robotic-assisted gait training in a group of seven subjects with spastic hemiparesis following hemispheric stroke. Patients received three sessions per week of robotic-assisted gait training for a period of 4 weeks (12 sessions in total). Postactivation depression was measured before the treatment (T0), after the first session (T1) and after the last session (T2). Postactivation depression was quantified as the ratio between H-reflex amplitude at 1Hz and at 0.1Hz. The greater the 1Hz/0.1Hz ratio, the smaller the postactivation depression. Following robotic-assisted gait training, the 1Hz/0.1Hz ratio decreased from 0.79±0.26 at T0 to 0.56±0.18 at T1 and 0.58±0.13 at T2. Post hoc analysis showed a significant difference between T0 and T1 and between T0 and T2, stating an increase of postactivation depression. No significant differences were found between T1 and T2. This study provides the first demonstration that physical exercise can determine a partial normalization of postactivation depression in hemiparetic patients with spasticity following unilateral hemispheric stroke.

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