



Combined Brain Stimulation and Hand Robotic Training in Chronic SCI

Clinical Trial

Currently recruiting participants

Start Date: May 1, 2017

End Date: Estimated Primary

Completion Date: December 2018

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Trial Identifier: NCT03555838

Lab: The Clinical Laboratory for Early Brain Injury Recovery

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Goal

The purpose of this study is to improve hand function combining transcranial direct current stimulation (tDCS) and innovative interactive hand robotic training in people with chronic SCI. We also aim to investigate the mechanisms of the motor recovery and to characterize the neurophysiological profile of patients and specific muscles that respond to robotic motor training by using Transcranial Magnetic Stimulation (TMS).

Study Protocol

The combined tDCS and hand robotic training is a 6-week program that includes 3 sessions per week, each session lasting approximately 1 hour (18 sessions total). The hand robotic training will be preceded by 20 min anodal 2mA tDCS or sham stimulation. The participants will be evaluated before, after and in a 1 month follow-up. Participants will be assessed on clinical/functional evaluation, TMS and robotic kinematics.

Inclusion Criteria

- **Age:** 18 to 75 years old
- **Injury Date:** Greater than 6 months after injury
- **Injury Type:** Cervical lesion. Traumatic/Non-traumatic. ASIA B, C, D
- Presence of some degree of weakness in the hand
- Ability to pick at least one block in the Box and Blocks test
- Ability to tolerate sitting upright at for at least one hour
- Cognitively and behaviorally capable of complying with the regimen

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