Transspinal Stimulation With and Without Blood Flow Restricted Exercise Via Telehealth in Persons With Tetraplegia

Status: RECRUITING

Eligibility Criteria

Age: 18 years to 70 years old

This study is NOT accepting healthy

Healthy Volunteers: volunteers

Inclusion Criteria:

1. A written clearance from the study medical doctor to ensure that the participant is safely able to engage in the study. 2. Participants must have a companion that will be able to help him/her throughout the study. 3. Greater than 1-year post SCI, neurologic level of C8 or above. 4. American Spinal Injury Association Impairment Scale (AIS) scores of B, C, or D indicating presence of an incomplete SCI. 5. Visible muscle contraction response to NMES wrist extensors, bilaterally. 6. Agreement to use telehealth services for delivery of research exercise training by study staff. Possesses appropriate technology to engage in telehealth including a personal web camera, computer, microphone, speakers, and high-speed broadband internet connection, valid email address (needed to obtain VA issued video conferencing software), and telephone number used to obtain login credentials for the In-Home Video Software

•Cisco Jabber Video for Telepresence Software. 7. Response of muscle contraction of wrist extensors bilaterally to neuromuscular electrical stimulation.

Exclusion Criteria:

1. Unhealed fracture in upper or lower extremities. 2. Severe scoliosis, severe upper extremity contractures, or other musculoskeletal issues that would impede participation in a BES + TS intervention or valid evaluation of outcome measures. 3. High resting blood pressure greater than 140/80 mmHg. 4. Taking anti-coagulants or anti-platelet agents, including aspirin if unable to be off this medication for medical reasons. 5. Pregnancy (female participants). A home pregnancy test will be conducted to role out any pregnancy before the study at the McGuire VAMC. The test will be repeated every month during the course of the study. 6. Implanted pacemakers and/or implanted defibrillator devices. 7. Other exclusion criteria may include the presence of implanted electrical device, cancer, thrombosis, pacemaker, defibrillator, or seizures. Patients who are currently on or receive anti-platelet or anticoagulant medications will be excluded from the trial. 8. Any condition that, in the judgment of the principal investigator or medical provider, precludes safe participation in the study. 9. Other exclusion criteria at the discretion of the medical team may include: 1. Uncontrolled autonomic dysreflexia (AD), refers to episodes of AD that do not respond to medications to ensure stable blood pressure in persons with SCI 2. Concurrent severe neurological injuries other than SCI: MS, CP, severe TBI, and stroke. 3. Unresolved deep vein thrombosis. 4. Psychiatric or cognitive impairments that preclude adherence to the intervention. 5. Known cardiac pathology that precludes safe participation. 6. Metabolic conditions such as cardiovascular disease, uncontrolled type II diabetes mellitus, uncontrolled hypertension, and those on insulin. 7. Presence of pressure sores stage three or greater. 8. Presence of a symptomatic urinary tract infection. 9. Severe spasticity as assessed by the Modified Ashworth Scale. 10. Changing neurologic status due to conditions such as progressive posttraumatic syringomyelia.

Conditions & Interventions

Interventions:
PROCEDURE: BES + TS, PROCEDURE: Experimental: BES+sham TS
Conditions:
Tetraplegia/Tetraparesis
Keywords:
Spinal Cord Injury

More Information

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IRB
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