

Cover Page

Study Protocol

Study Title: Unilateral Strength Training and Mirror Therapy for Enhancing Upper Limb Motor Function Post Stroke: A Pilot Randomised Controlled Trial

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Study Protocol for Unilateral Strength Training and Mirror Therapy for the Upper Limb in Chronic Stroke Patients (Monika Ehrensberger, IT Sligo, Ireland).

Assessments will take place in the Institute of Technology Sligo, in the health science physiology laboratory located in the main building on campus. The principal researcher/ research student Monika Ehrensberger along with a second exercise professional will call to participants' homes for approximately 30 minutes per day, 3 days per week for 4 weeks to instruct and supervise the training intervention. A total of 32 participants will be randomly assigned to one of two conditions.

For the duration of the intervention participants will be seated on a standard chair in front of a standard table. They will be asked to wear a loose fitting top so that the fabric can be rolled above the elbow joint and to take off any jewellery. The participant's less-affected (LA) upper limb will be strapped into a custom made arm brace consistently holding the elbow joint at an 85° angle, the more-affected (MA) arm will rest on the table. The warm-up includes 1 minute of dynamic elbow extensions without resistance and 1 set of 5 repetitions of unilateral (LA side) isometric elbow extensions performed at perceived 50% of maximal voluntary contractions. According to maximal strength training guidelines, the main part of the training programme consists of 4 sets of 5 maximal effort isometric elbow extensions (LA limb only) held for 5 seconds with 5 seconds rest between repetitions and 3 minutes rest between sets. The principal researcher will verbally guide each participant through the intervention. Participants in the experimental group will observe the reflection of the LA training limb in a Perspex mirror placed in their mid-sagittal plane. The angle of the mirror can be adjusted according to participant preference to gain a full view of the LA limb. Prompts to focus on the reflection in the mirror will be given before each set. Participants in the control group will exercise without a mirror entirely.