

**Cover Page**  
**Study Protocol**

Study Title: Mirror Therapy and Treadmill Training for Patients with Chronic Stroke. A Pilot Randomised Controlled Trial

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## **Study Protocol for Mirror Therapy and Treadmill Training (Patrick Broderick, IT Sligo, Ireland).**

Research sessions will take place in the Institute of Technology Sligo, in the health science physiology lab located in the main building on campus. A total of 30 participants will be randomly assigned to one of two conditions.

Patients will verbally guide the speed of the treadmill at the beginning of each of the 12 therapy sessions and this will be adjusted by the therapist accordingly. A COSMED h/p/cosmos T170 treadmill will be for the intervention. Patients encouraged to walk at their comfortable walking velocity when on the treadmill. Treadmill velocity in session will be guided by baseline data from the Ten Metre Walk Test providing an average comfortable walking velocity in metres per second. For safety and the fact that no weight bearing harness will be employed during the intervention, patients will be advised to use the treadmill handrails for support when required. There is a stationary handrail in front of the participant where individual hands or both hands can be placed and individual stationary handrails for single hand placement on the left and right sides. The participant will also be provided with contact-guard assistance throughout each mirror and treadmill session. Patients will be asked to wear dark sports leggings so that the non-paretic leg can be fully viewed by rolling the fabric above the knee joint and the paretic limb is kept completely covered by the sports leggings to assist in appropriate mirror visual feedback of the non-paretic limb.

Experimental participants will walk on the treadmill while viewing a reflection of their non-paretic limb in a custom built acrylic mirror apparatus, positioned in the mid-sagittal plane between the legs which will provide a full view of non-paretic leg movement, both in rear and forward positions. The angle of the mirror can adjusted according to participant preference to gain a full view of the non-affected limb. Treadmill velocity can increase or decrease according to clinician judgment and participant tolerance. Each session will be divided into two 15-minute sessions with a 5-minute rest period between them.

Additionally, according to the Borg RPE Scale comfortable exertion occurs at 13/14 and the participants will asked to let it be known if they experience feelings of 'very hard' while walking. At this point, the participant was encouraged to slow down or take a break.