

# Sensory stimulation of the foot and ankle early post-stroke: a feasibility study (MoTaStim-Foot)

<sup>1,2</sup>Aries AM, <sup>3</sup>Pomeroy VM, <sup>1,2</sup>Sim J, <sup>4</sup>Read S, <sup>1,2</sup>Hunter SM

<sup>1</sup>School of Health and Rehabilitation, Keele University; <sup>2</sup>Institute for Applied Clinical Sciences (IACS), Keele University;

<sup>3</sup>Acquired Brain Injury Rehabilitation Alliance (ABIRA), School of Health Sciences, University of East Anglia; <sup>4</sup>School of Nursing & Midwifery, Keele University

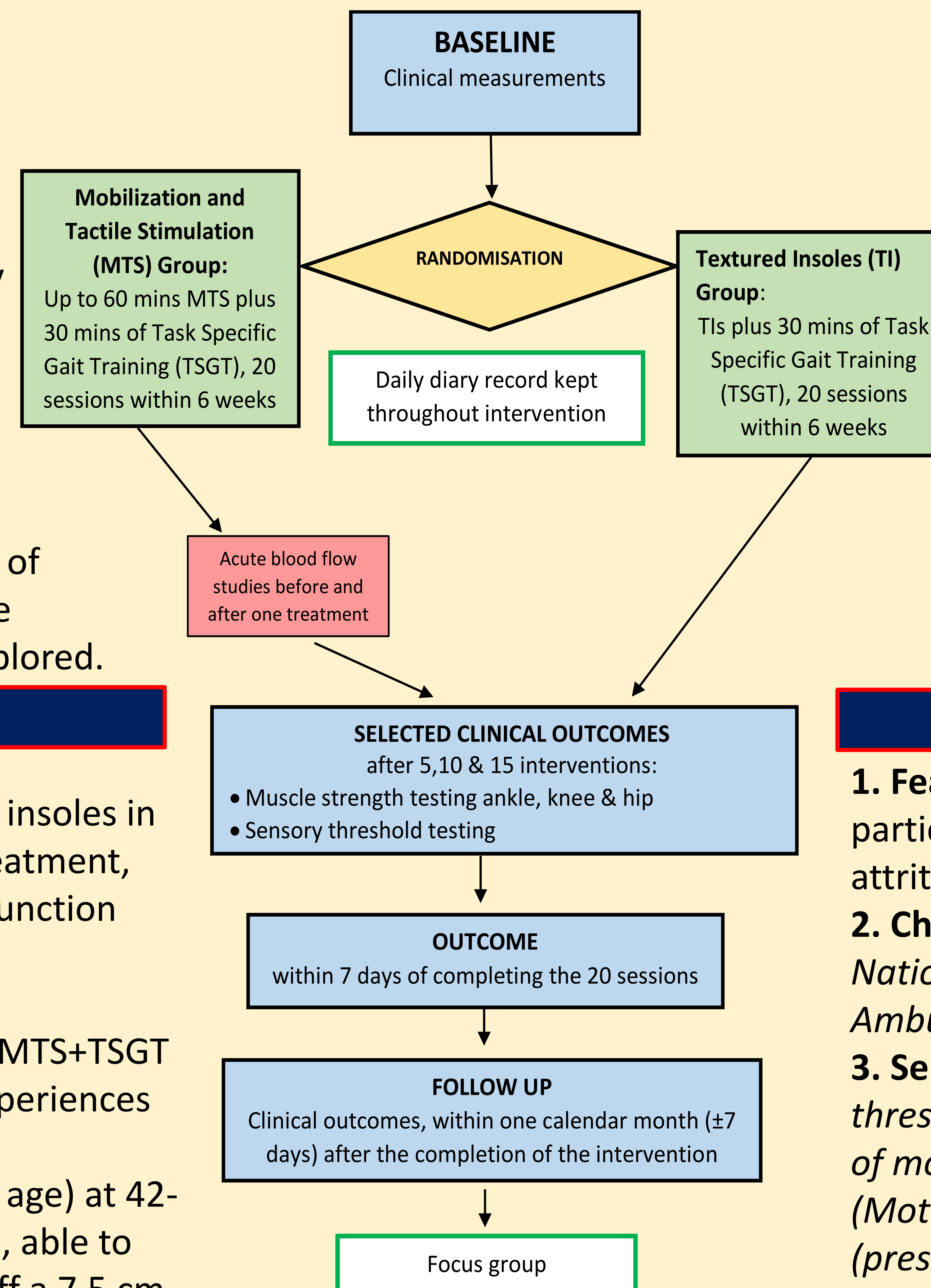
## Introduction and Purpose



Image by P Bailey, 2016

Stroke affects approximately 150,000 people in the United Kingdom annually. Loss of sensation in the foot after stroke can adversely affect standing balance and gait. Conventional physical therapy to re-sensitize the foot, such as Mobilization and Tactile Stimulation (MTS)<sup>1</sup>, has potential to improve balance and gait; alternatively, this could be achieved by wearing of textured insoles. However, the evidence has not yet been explored.

## Trial diagram



## Interventions

**MTS+TSGT:** 20 sessions of up to 60 minutes MTS (involving massage/petrissage; passive and accessory joint mobilisation techniques; sensory stimulation; soft tissue mobilisation techniques; and retraining of selective movement)<sup>1</sup> prior to 30 minutes of TSGT, over a period of up to 6 weeks.

**TI+TSGT:** TI wearing in shoe of hemiparetic foot (smooth insole on non-paretic side), as much as possible during the 4-6-week period of intervention, plus 20 sessions of 30 minutes TSGT.



## Methods

### Primary Research Aim:

To explore the feasibility of delivering MTS or textured insoles in combination with Task-Specific Gait Training (TSGT) treatment, designed to increase sensory awareness and sensory function within the foot after stroke.

**Design:** randomized, single blinded, two-group mixed methodology feasibility trial; Randomisation to either MTS+TSGT or TI+TSGT; daily diaries and focus group to explore experiences and perceived effects of interventions.

**Participants:** N=34 adult stroke survivors (>18 years of age) at 42-112 days post stroke, previously independently mobile, able to follow simple commands, and unable to step on and off a 7.5 cm high block more than 12 times in 15 seconds.

## Outcomes

- 1. Feasibility:** Assessment of recruitment strategy; number of participants consenting to study; acceptability of interventions; attrition rate; identify primary outcome measure
- 2. Characterization of clinical presentation of participants:** *National Institutes of Health Stroke Scale (NIHSS) & Functional Ambulatory Category*
- 3. Sensorimotor impairment:** *Plantar touch/pressure sensory thresholds (Semmes-Weinstein monofilaments); ankle joint range of motion (electro-goniometer); lower limb motor impairment (Motricity Index); centre of pressure under feet in standing (pressure insoles)*
- 4. Lower limb function and balance:** *(5m walk test, Modified Rivermead Mobility Index)*
- 4. Measurements of blood flow** pre-post MTS

### REFERENCE:

- Hunter SM, Crome P, Sim J, Donaldson C, Pomeroy VM (2006) Development of treatment schedules for research: a structured review to identify methodologies used and a worked example of 'mobilisation and tactile stimulation' for stroke patients. *Physiotherapy* 92:195-207