

## Supplementary material – Study inclusion and exclusion criteria

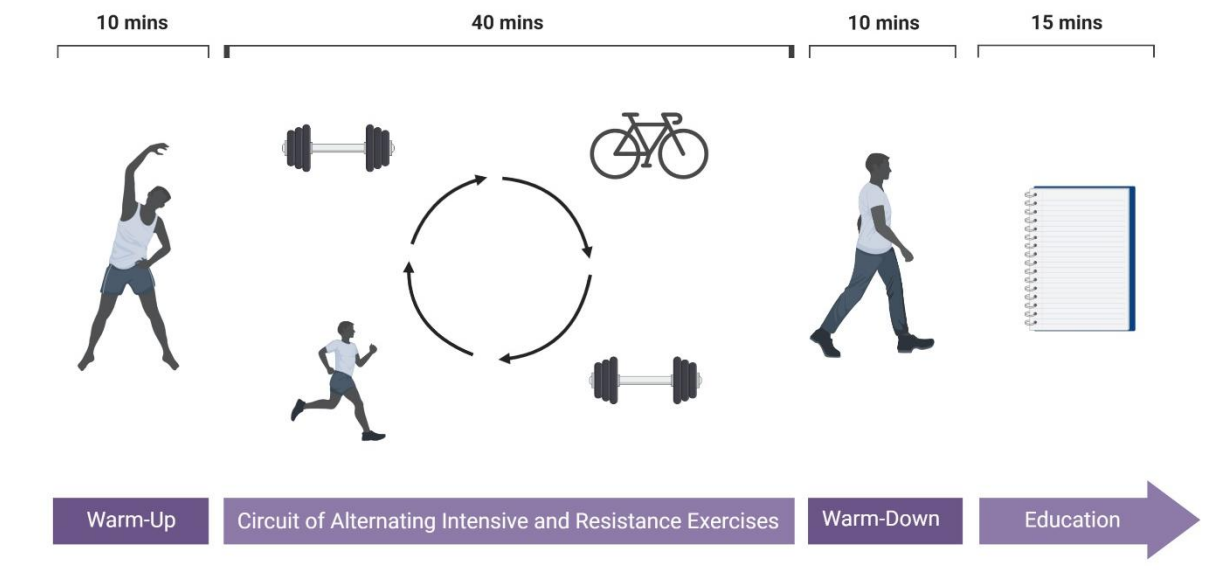
### Inclusion:

- Resident in Sheffield
- Able to sit independently
- Able to comprehend verbal instruction

### Exclusion:

- Cognitive or language impairment precluding circuit sessions
- Stroke or TIA caused by vascular dissection (spontaneous or traumatic)
- Contraindication to exercise as detailed in the *American College of Sports Medicine Guidelines For Exercise Testing and Prescription*:
  - Recent electrocardiographic changes suggesting myocardial infraction
  - Severe stenotic or regurgitant valvular heart disease
  - Uncontrolled arrhythmia, hypertension or diabetes
  - Unstable angina
  - Third degree hear block or progressive heart failure
  - Acute aortic dissection, myocarditis or pericarditis
  - Acute deep venous thrombosis, pulmonary embolism or pulmonary infection
  - Suspected or known dissecting aneurysms
  - Uncontrolled visual or vestibular disturbance
  - Acute infections
  - Recent injurious falls without medical assessment
  - Extreme obesity (> 159Kg – exceeds weight capacity of equipment)

## Supplementary material - Schematic illustration of a typical exercise session



Schematic representation of exercise sessions.

- A) **Warm-up:** 10 minutes of stretching and on-the-spot walking.
- B) **Circuit:** 40 minutes of alternating intensive and recovery exercises. Intensive exercises included step-ups, incline walking, running, lunges, jumping jacks, press-ups, lateral arm raises, side steps and seated cycling. Recovery exercises included resistance weights, shoulder press and bicep curls.
- C) **Warm-down:** 10 minutes of slow walking and stretching.
- D) **Education:** 15 minutes each week on aspects of diet, benefits of increased physical activity, medication compliance, cardiovascular risk, return to work education and stress management.

## Supplementary material - Consensus on Exercise Reporting Template (CERT)

1. **Exercise equipment**
  - a. Routine leisure gymnasium equipment including cycle ergometers, treadmill (including incline), box step, floor mats, shoulder press machine, chest press machine, free weights, resistance bands.
2. **Qualifications**
  - a. All instructors at the 5 leisure centres were level 3 or 4 trained at UK National Standards to manage exercise referrals from medical or allied health professionals.
3. **Group or individual**
  - a. All exercise sessions were group based, involving between 4 and 8 people.
4. **Supervision**
  - a. All exercise sessions were supervised by a level 3 for 4 exercise instructor that did not have specific training in managing patients with stroke.
5. **Recording and reporting of adherence**
  - a. All participants were given a admission card that was swiped at entry to the leisure centres on the days of the programme to record attendance.
6. **Motivation strategies**
  - a. The initial interview on referral included a personalized goal setting session. Furthermore, each session was concluded with some educational element that stimulated discussion relating to healthy behaviors, however, no formal motivational interviewing or other strategies were employed.
7. **Decision rules for exercise progression (a & b)**
  - a. Guided by patient progress, but instructors aimed to progress participants from light to moderate intensity work outs within the first 2 weeks based on Borg's RPE.
8. **Exercise description**
  - a. **Warm-up:** 10 minutes of stretching and on-the-spot walking. **Circuit:** 40 minutes of alternating intensive exercise and recovery exercises. Intensive exercises included step-ups, incline walking, running, lunges, jumping jacks, press-ups, lateral arm raises, side steps, seated cycling. Recovery exercises include resistance weights, shoulder press, bicep curls. **Warm-down:** 10 minutes of slow walking and stretching. **Education:** 15 minutes each week on aspects of diet, benefits of increased physical activity, medication compliance, cardiovascular risk, return to work education and stress management.
9. **Home programme component**
  - a. Nil
10. **Non-exercise components**
  - a. 10-15 minute education session at the end of each session rotating information as above.
11. **Describe adverse events**
  - a. No serious adverse events reported due to exercise sessions. Only few adverse events reported including sore muscles and joints post sessions that were short lived.
12. **Setting**
  - a. All sessions were performed at recreational leisure centres run by 2 companies in Sheffield: People for Places & Sheffield International Venues.
13. **Details of the exercise intervention**

- a. **Warm-up:** 10 minutes of stretching and on-the-spot walking. **Circuit:** 40 minutes of alternating intensive exercise and recovery exercises. Intensive exercises included step-ups, incline walking, running, lunges, jumping jacks, press-ups, lateral arm raises, side steps, seated cycling. Recovery exercises include resistance weights, shoulder press, bicep curls. **Warm-down:** 10 minutes of slow walking and stretching.

**14. Details of tailoring exercises**

- a. Exercise circuits were largely generic but the intensity (repetitions, weights, durations) were varied according to participant preference and initial reported ability.

**15. Rules determining starting level**

- a. Participants asked to start exercise components at a light level for the first 1-2 weeks (Borg's RPE 11-13) and exercise duration and weights gradually increased to reach moderate (RPE 14-16) intensity following the second week, unless participant progression required longer.

**16. Fidelity and planned delivery**

- a. Records were kept of the number of individual sessions attended and the number of participants that completed the 12 week programme.

**Supplementary material – Description of Level 3 and 4 Exercise Instructor Training (in accordance with the Register of Exercise Professionals – REP, UK)**

**Level 3:**

- Personal training qualification – diploma and certification
- Personal training career progression for gym instruction
- Exercise and health specialist career progression
- Exercise referral from health specialists
- Antenatal and postnatal instructor training
- Older adult instructor training
- Nutrition for physical activity
- Anatomy and physiology for exercise and health

**Level 4:**

- Advanced personal training
- Endurance training
- Responsive intensity prescription
- Special populations
- Emergency procedures
- Exercise and health specialist training in:
  - Obesity and diabetes
  - Lower back pain
  - Cardiovascular disease and its risk factors
  - Medical and surgical treatments for heart disease
  - Medications
  - Cardiac rehabilitation

**Additional specialised modules are available at level 4 qualification although non-mandatory**