PARTICIPANT INFORMATION SHEET

Study Title: *Understanding dose-response in isometric exercise training: the role of training frequency in long-term blood pressure control*

Research Team

This study is being conducted by **Harry Swift** as part of a postgraduate research project at **Canterbury Christ Church University (CCCU)**, under the supervision of **Dr Jim Wiles** and **Dr Jamie O'Driscoll**.

Background

Isometric exercise (IET), such as wall squats, has been shown to significantly reduce resting blood pressure (BP), a key risk factor for cardiovascular disease. However, limited research has explored how frequently this type of exercise must be performed to maintain these benefits or how quickly they are reversed once training stops.

This study aims to investigate:

- The **minimum frequency** of IET training required to maintain reductions in blood pressure and cardiovascular strain.
- The **rate at which benefits are reversed** if training is stopped.

Understanding these effects can help optimise exercise guidelines for managing and preventing high blood pressure.

What will I need to do?

You will be required to visit the laboratory on **five occasions**:

1. **Visit 1: Familiarisation session** – to introduce you to the lab environment and exercise equipment.
2. **Visit 2: Baseline cardiovascular assessment** – a 5-minute seated resting recording using the **Task Force® Monitor**, measuring blood pressure, heart rate, cardiac output, vascular resistance, and autonomic function.

3. **Visit 3: Incremental isometric exercise test (IET)** – to determine your individual training knee joint angle corresponding to 95% of peak heart rate (HRpeak), using a validated protocol.

4. **Visit 4: Midpoint cardiovascular assessment** – taken after the first 4-week training block.

5. **Visit 5: Post-training cardiovascular assessment** – taken after the full 8-week training period.

Training Overview: All intervention participants will complete an initial **4-week period** of home-based wall squat training. This will involve **3 sessions per week**, each consisting of **4 × 2-minute wall squats** at your individualised squat depth, with **2 minutes of seated rest** between bouts. The target intensity is 95% of HRpeak, determined during your incremental test.

After Visit 4, you will be informed of your assigned group, which will determine your training frequency for the second 4-week phase:

- **Group 1:** Continue training 3×/week
- **Group 2:** Reduce to 2×/week
- **Group 3:** Reduce to 1×/week
- **Group 4:** Cease training entirely
- **Group 5:** No training throughout (control group)

Who can take part?

To participate, you must:

- Be aged 18–65
- Have systolic blood pressure between 120–139 mmHg (i.e. not clinically hypertensive)
- Not be taking blood pressure medication
- Be free from injury or significant cardiovascular, metabolic, or musculoskeletal conditions
- Not engaging in exercise

Are there any risks or benefits?

- Risks are minimal but may include temporary muscle fatigue or discomfort during squats.

- You may benefit from improved blood pressure and cardiovascular function.
- You will receive a summary of your personal results upon request.

Confidentiality

Your data will be stored securely at CCCU and accessed only by the research team. Personal identifiers will be removed, and data will be anonymised before analysis and publication. All procedures comply with the Data Protection Act (2018) and CCCU's ethical standards.

Do I have to take part?

Participation is voluntary. You are free to withdraw at any time without giving a reason and without consequence.

Contact Details

If you have any questions, please contact:

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Thank you for considering participation in this research study.