

## PARTICIPANT INFORMATION SHEET

**Researchers:** Dr Stefan Kolimechkov, Prof. Fernando Naclerio, Dr Marcos Seijo



Registered as a clinical trial on ClinicalTrials.gov  
NCT05567237

**UNIVERSITY of GREENWICH**

University Research Ethics Committee Approval  
FREC-EHHS-21-3-35-03

**MICROCURRENT WITH & WITHOUT EXERCISE**

In this study, we are exploring the effectiveness of microcurrent with/without resistance exercises on body composition, muscle strength, and physical function in middle-aged adults.

**UNIVERSITY of GREENWICH**  
ILD | Institute for Lifecourse Development

Dear participant,

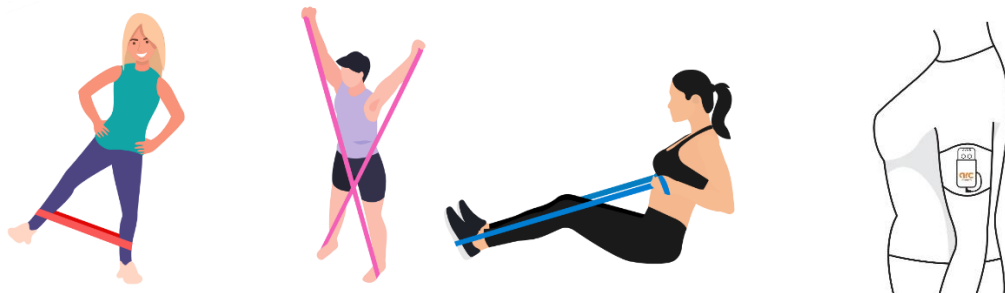
My name is Stefan Kolimechkov, and I am currently undertaking a PhD in Human Sciences at the University of Greenwich. I had already completed a PhD in Physical Education in 2018. However, in line with my short and long-term goals, interests, and passion for research in health and fitness, as well as my genuine curiosity towards slowing the ageing process through following an active lifestyle (being 3 x Gymnastics Champion on Rings in London), I took the decision to pursue a second PhD. As part of my current degree, I am undertaking a research study entitled "Effects of microcurrent treatment with and without resistance exercises on body composition, muscle strength, and physical function in middle-aged and older adults".

### Invitation

I would like to invite you to take part in this research. Before you decide whether to take part, you should understand the reasons of why this research is being conducted, as well as what you would need to do in order to take part. Please take time to read the following information carefully. If something is not clear or you would like more information, please do not hesitate to contact me. Thank you for reading this.

## Overview and purpose of the study

Ageing is associated with the involuntary loss of muscle mass, which is named sarcopenia. This age-related decline in muscle mass is accompanied by loss of muscle strength and muscle function, which reduces our ability to perform simple tasks of daily living like jogging or being actively involved in our hobbies. It has been well documented that after the age of 30, muscle mass decreases with around 3 to 8% per decade and even at a higher rate after the age of 60. This involuntary loss of muscle mass, accompanied by decline in muscle strength and function is one of the main causes of disability in middle-aged and older adults. With increased age, sarcopenia leads to loss of independence and the need for long-term care. Therefore, it is of high importance to look for effective treatments for slowing the age-related decline of muscle mass, strength and function. The hallmark of prevention and counteracting sarcopenia (the involuntary loss of muscle mass and strength) is resistance exercise. Emerging evidence suggest that a potential method for interacting with the signs of sarcopenia is **the application of microcurrent**. In this study, we would like to analyse the effects of microcurrent treatment alone and combined with a resistance exercise programme using elastic bands, as a potentially effective treatments to effectively combat sarcopenia and improve health and wellbeing in adults over the age of 40.



### What is Microcurrent?

Microcurrent devices produce very low-level electrical currents into your body through two electrode pads applied to the skin. The current is perfectly safe and **it can't be felt at all** because it is sub-sensory. It is similar in strength to our body's own natural bio-currents, and it has been used in beauty centres, physiotherapy and osteopathy clinics in the UK and around the world. Research showed that microcurrent can increase ATP (boost the energy levels), help the body reduce inflammation and pain while increasing its own natural tissue repair and regeneration mechanisms.



### What will happen if you take part?

- Once you have decided to take part in this research, you will be asked to come to the University labs (Sparrows Ln, Eltham SE9 2BP), where our research team will discuss the details of the study with you and answer any questions you may have. We will ask you to sign a consent form.
- We are looking at the benefits of a new, light and easy to use microcurrent device (Arc4Health), so you will have to wear the small device (either Sham or Live) 3 hours a day on the dominant upper arm for a period of 6 weeks.
- No adverse effects have been registered in any previous studies while using the device, so there are no reasons to worry about. The Arc4Health has regulatory approval as a Class IIa medical device in the areas of pain management and tissue repair in 33 countries.

In addition to wearing the microcurrent device, we will provide you with the following 2 options:

1. To take part in a specialised resistance training home programme with elastic bands which aims to improve muscle function and body composition (2 times per week for 6 weeks).
2. To choose not to engage in physical exercises during the study period.

- At the beginning and at the end of the study we will take some measurements to determine your body composition and test your muscle strength and muscle function. Muscular architecture will be evaluated by using Ultrasound (non-invasive methodology). General blood markers of health will be registered at the University's lab. Your diet will be assessed by filling in a food frequency questionnaire before and after the study.
- You will be assigned to either a Microcurrent group (using live microcurrent) or a Control group (using sham device which will look the same as the real one). You must wear the device 3 hours a day for a period of 6 weeks. You will also wear a pedometer which is a small device that measures the number of steps you take every day.
- If you choose to participate in the resistance training programme, you will be provided with familiarization sessions on how to perform the exercises with elastic bands, after which you will follow a resistance training programme, twice a week for 6 weeks for a total of 12 sessions (each session is about 60 min).

### **How can participants withdraw from the study?**

All participants are free to withdraw from this study without giving a reason for withdrawing by contacting me or the research supervisor by email (provided below). All devices must be returned if you decide to withdraw.

### **What are your benefits from taking part?**

- You will benefit from using a new microcurrent sham/live device Arc4Health for a period of 6 weeks (and potentially 12 weeks if you decide to extend your involvement).
- You will have a free 6-week resistance exercise training home programme.
- At the end of the whole study, you will be provided with the results from your fitness tests, body composition, physical strength, general blood markers of health, muscular architecture and nutritional habits.

### **What about confidentiality?**

No sensitive data will be stored. Digital data will be anonymised wherever possible, stored on an encrypted disk, and kept in a locked cupboard for the duration of the study; non-digital data will be stored in a locked box, in a locked cupboard. Data will only be accessed by the researchers and staff members directly involved in the study and data that can be used to identify individuals will not be made public without the express written informed consent of the individual being identified. Once the study has been completed (and any archiving responsibilities undertaken) the data will be shredded (non-digital and CD/DVD media) or deleted and overwritten (for re-writeable digital media).

### **Who has reviewed the study?**

This study has a University Research Ethics Committee Approval (FREC-EHHS-21-3-35-03). This study is registered as a clinical trial on ClinicalTrials.gov (#NCT05567237)

<https://classic.clinicaltrials.gov/ct2/show/NCT05567237>

### **Who to reach in case of queries or concerns.**

In case of any queries or concerns feel free to reach me through my University email address: Dr Stefan Kolimechkov, [s.kolimechkov@gre.ac.uk](mailto:s.kolimechkov@gre.ac.uk).

Alternatively, you can do this through my research supervisor, Professor Fernando Naclerio, who can be reached via his University email [F.J.Naclerio@gre.ac.uk](mailto:F.J.Naclerio@gre.ac.uk) and University telephone number: +44 (0)20 8331 8441.