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**PARTICIPANT INFORMATION SHEET**

**Impact of Exercise Training on Bioavailability of Flavanones from Orange Juice**

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. If you feel that something is not entirely clear or if you would like more information, do not hesitate to contact us. Take time to decide whether or not you wish to take part. Thank you for reading this.

**What is the purpose of the study?**

Flavonoids are compounds that may have a beneficial effect on health, such as reducing the risk of developing cardiovascular disease and, in some cases, cancer. Orange juice has a high flavonoid content. However, the absorption of flavanones into the body is limited. This study will investigate whether participation in physically active improves the absorption of flavanones into the body.

**Why have you been chosen?**

You have been chosen because you are 18-45 years old female and have been sedentary for at least 6 weeks. You also meet the following criteria: non-smoker, not taking any drug therapy, no gastrointestinal disease, and non-vegetarian and non-pregnant.

**Do I have to take part?**

It is up to you to decide whether or not to take part. If you decide to take part, you will be given this information sheet to keep and you will be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect the standard of care you receive.

**What will happen once I decide to take part?**

1. **Screening Procedures**

In order for us to determine whether you fall into the group of people we wish to study, you will be asked to attend a screening visit in which you will complete a Health Screening and Physical Readiness Questionnaires. We will also measure your height and weight and calculate body mass index.

1. **Experimental Tests**

You will be ask you to undertake 2 experimental tests: one before the intervention and the other after 4 weeks of training intervention. On the day of each experimental test you will be asked to come to the metabolic investigation room between 8 and 9 am. We will place a tiny plastic tube called a ‘cannula’ into a vein in your forearm, from which we will take blood samples. This is no more painful than a simple blood test. Following this, you will be asked to consume 1000 mg of paracetamol (standard dose) with 100 ml of water. Then you will be asked to consume 500 ml of freshly squeezed orange juice. Further blood samples will be obtained at 1, 2, 3, 4, 5, 6, 7, 8 hours after the juice intake. A total of 90 ml of blood will be taken over the course of the day. Expiratory breath hydrogen levels will be monitored every 30 minutes for 8 hours after the orange juice intake. At 4 hours after juice consumption you will be provided with a white roll with butter and some cheese and at the end of the experimental test with a polyphenol-free dinner. You will be allowed to leave after dinner and instructed to avoid polyphenol containing foods during the rest of the day and record all food and drink consumed. We will ask you to come back to the metabolic investigation room in the fasted state next morning for the last blood sampling. Then you will be provided with breakfast. Prior to the experimental test you will be asked to collect 24 hour urine in two fractions (day fraction and overnight fraction). You will be also asked to collect urine for 24 h after the juice ingestion, in different fractions: 0–2, 2–5, 5-8, 8-10, 10–20, 20-24 h.

**Interventions**

Exercise training will involve endurance type exercise (cycling , running or combination of both) for 30 minutes in week 1, 40 minutes in week 2, 50 minutes in week 3 and 60 minutes in week 4. The work load of cycling and running speed will correspond to the work load achieved at 70-80% of the predicted maximal heart rate. All training sessions will take place at Exercise and Energy Balance Laboratory (New Lister Building, the Royal Infirmary) and be supervised by a researcher. The time and day of each training session will be agreed between the investigator and the participant and will be based around the participant’s availability.

Other than specific tasks described above, for 2 days prior each experimental test you will be asked to follow a polyphenol-free diet. A list with polyphenol-free food is provided bellow. We will ask you to record your food intake throughout these 2 days before the first experimental test and replicate this food intake prior the second one. List of the foods that should not be eaten and foods that you may eat during the polyphenol free diet will be provided. Prior to the experimental tests you will be asked to collect 24 hour urine. We will also ask you to collect a stool sample before and during one of the very last days of the intervention.

**Will I be rewarded for taking part in this study?**

After the completion of the study, the participants of the exercise group will be offered a financial remuneration of £60 amazon voucher.

**What are possible disadvantages and risks of taking part?**

Blood sampling via cannula may cause minor bruising (a small accumulation of blood under the skin). Some people may feel faint when they give blood. Training intervention is not expected to cause any health related issues.

**What if something goes wrong?**

The chance of something going wrong is extremely small. In the unlikely event that you are harmed due to someone’s negligence, then you may have grounds for legal action. If you wish to complain, or have any concerns about any aspect of the way you have been approached or treated during the course of the study, the University of Glasgow complaints mechanism may be available to you.

**Will my taking part in this study be kept confidential?**

Any information which is collected about you during the course of the research will be kept strictly confidential. You will be identified by an ID number. Furthermore, findings from the study that are published will contain only the results. We will not pass on confidential personal information to others.

**Who has reviewed the study?**

This study has been reviewed and approved by the College of Medical, Veterinary and Life Sciences Ethics Committee for Non Clinical Research Involving Human Subjects.

**Contact for Further Information**

Any questions about the procedures used in this study are encouraged. If you have any doubts or questions, please ask for further explanations by contacting

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**You will be given a copy of this information sheet and a signed consent form to keep for your records.**