

# Developing a satiety map of common foods

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<b>Registration date</b> 05/03/2024	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 16/02/2024	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Currently, there is no reference system relating the properties of foods to measure satiety or how consumers experience or perceive the satiating properties of different foods. This project aims to understand appetitive responses to a set of representative foods. This project will link objective measures of food composition and satiety to self-report food perceptions, appetitive traits, and food intake.

### Who can participate?

Healthy adult volunteers aged 18 years old and over

### What does the study involve?

This project will recruit participants to complete an online survey, followed by laboratory visits on two occasions. At the laboratory visits participants will be required to consume either a control food (bread) or a test food, which will be randomly selected and will be presented in 240 kcal portions. Over the next 2 hours, appetitive responses will be assessed with questionnaires. At the end of the visit, subjects will be provided with an ad-libitum meal to assess energy intake.

### What are the possible benefits and risks of participating?

Benefits of participating include £25 per participant for completion of the study. There is a risk of allergic reactions to the study foods. Therefore, the study will not recruit anyone who reports an allergy to any ingredient of any of the study foods.

### Where is the study run from?

University of Leeds (UK)

### When is the study starting and how long is it expected to run for?

April 2022 to June 2025

### Who is funding the study?

Slimming World UK (UK)

### Who is the main contact?

Professor James Stubbs, [r.j.stubbs@leeds.ac.uk](mailto:r.j.stubbs@leeds.ac.uk) (UK)

# Contact information

## Type(s)

Public, Scientific, Principal Investigator

## Contact name

Prof R James Stubbs

## ORCID ID

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## Contact details

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# Additional identifiers

## EudraCT/CTIS number

Nil known

## IRAS number

## ClinicalTrials.gov number

Nil known

## Secondary identifying numbers

RG.PSYC.118567

# Study information

## Scientific Title

Objectively measured satiety of 36 food preload foods that are representative of the nutritional properties of the UK diet in UK 444 adults - The SatMap Project

## Acronym

SatMap

## Study objectives

This project aims to understand appetitive responses to a set of representative foods. This project will link objective measures of food composition and satiety to self-report food perceptions, appetitive traits, and food intake.

Hypothesis 1: That the macronutrient composition and energy density of foods explain differences in measured satiety in response to eating different foods.

### **Ethics approval required**

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### **Ethics approval(s)**

Approved 25/05/2023, University of Leeds, School of Psychology Ethics Committee (School of Psychology, Faculty of Medicine and Health, Leeds, LS2 9JT, United Kingdom; +44 (0)113 3437601; [psyc-ethicssubmissions@leeds.ac.uk](mailto:psyc-ethicssubmissions@leeds.ac.uk)), ref: PSYC-PSYC-524

### **Study design**

Within and between subject comparison intervention of the satiating effect of different foods

### **Primary study design**

Interventional

### **Secondary study design**

Randomized counterbalanced allocation

### **Study setting(s)**

Internet/virtual, University/medical school/dental school

### **Study type(s)**

Efficacy

### **Participant information sheet**

Not available in web format, please use contact details to request a participant information sheet

### **Health condition(s) or problem(s) studied**

The satiating effect of different foods in healthy participants

### **Interventions**

The study is a laboratory-based experimental design, with online questionnaire assessments. Participants will be required to fill in several physiological and psychological measures online and attend the Human Appetite Research Unit (HARU) at the University of Leeds in person for a minimum of 2 separate visits. The visits are test days that involve a control preload on one day and a randomly selected test preload on another day, which can be conducted over 3 months. Randomisation is performed between subjects for intervention versus control in a counterbalanced order. The rationale for the inclusion of a control food (bread) for all participants is that the bread will act as a standard comparator to allow the normalisation of VAS scores for all participants. Throughout the test days, the participants will fill in visual analogue scales (VAS) measuring appetite sensations and the Leeds Food Preference Questionnaire (LFPQ) measuring food preferences and rewards. At 120 minutes after each of the meals, an ad libitum test meal (provided by Slimming World, [food TBC]) will be given to the participants.

Each participant receives 240 kcal of bread versus 240 kcal of test food. Researchers on the project are PhD-level investigators trained in Good Clinical Practice and Good Laboratory Practice.

The Leeds Food Preference Questionnaire (LFPQ) is used to assess food hedonics, which measures implicit and explicit wanting for high-fat (>50% energy) and low-fat (<20% energy) foods matched for familiarity, sweetness, protein, and acceptability. Implicit wanting will be assessed by asking the participants to choose as quickly as possible which food from specific categories “they most want to eat”. Scores are computed from mean response times, adjusted for frequency. Explicit liking is measured by asking participants to rate on a Visual Analog Scale (VAS) the extent to which they like each high-fat or low-fat food presented. Low-fat scores are subtracted from high-fat scores; so that a positive score demonstrates greater implicit wanting or explicit wanting towards high-fat compared to low-fat foods.

The method of randomisation was quasi-randomly assigning of subjects to preload, which used the total number of preloads given to the previous subject and the foods the current subject is willing to eat. A sampling algorithm was used (see [https://colab.research.google.com/drive/1e3ZNk1T8flvnRsaM2Wc7fQWUPjc28MXR#scrollTo=\\_ALS1nvsb2Xg](https://colab.research.google.com/drive/1e3ZNk1T8flvnRsaM2Wc7fQWUPjc28MXR#scrollTo=_ALS1nvsb2Xg)).

### **Intervention Type**

Other

### **Primary outcome measure**

Motivation to eat measured using a Visual Analogue Scale (VAS) at -10, -5, 10, 20, 30, 60, 90, and 120 minutes post-ingestion

### **Secondary outcome measures**

1. Energy intake at a standardised test meal 120 minutes after the test preload food. Which is the same test meal on each occasion.
2. Expected satiety before ingestion of the preload food measured using a 100 mm Visual Analogue Scale (VAS) 15 minutes before the preload, and 15 minutes after the preload
3. Food preferences and reward measured using the Leeds Food Preference Questionnaire (LFPQ) 15 minutes before the preload, and 15 minutes after the preload

### **Overall study start date**

01/04/2022

### **Completion date**

01/06/2025

## **Eligibility**

### **Key inclusion criteria**

1. Age >18 years
2. BMI >18.5 kg/m<sup>2</sup>
3. Able and willing to eat the study foods
4. Able and willing to attend the university at the required intervals

### **Participant type(s)**

Healthy volunteer

### **Age group**

Mixed

**Lower age limit**

18 Years

**Upper age limit**

100 Years

**Sex**

Both

**Target number of participants**

444

**Key exclusion criteria**

1. Report having had weight loss surgery
2. Report having a medical condition or taking medication that affects appetite/body weight (will be verified with a medication list within the ACEB group)
3. Smokers, or those who have given up within the last 6 months
4. Report having a history of or currently affected by an eating disorder
5. Report an allergy to any of the preload foods
6. Have insufficient English language skills to complete study questionnaires

**Date of first enrolment**

01/06/2023

**Date of final enrolment**

01/06/2025

**Locations****Countries of recruitment**

England

United Kingdom

**Study participating centre**

**Human Appetite Research Unit**

School of Psychology

Faculty of Medicine and Health

University of Leeds,

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LS2 9JT

**Sponsor information**

**Organisation**

University of Leeds

**Sponsor details**

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**Sponsor type**

University/education

**Website**

<https://www.leeds.ac.uk/>

**ROR**

<https://ror.org/024mrx33>

**Funder(s)****Funder type**

Industry

**Funder Name**

Slimming World UK

**Results and Publications****Publication and dissemination plan**

Planned publication in a high-impact peer-reviewed journal

**Intention to publish date**

02/02/2026

**Individual participant data (IPD) sharing plan**

The anonymized data sets generated and analysed during the current study will be available upon request from Professor James Stubbs, [r.j.stubbs@leeds.ac.uk](mailto:r.j.stubbs@leeds.ac.uk).

Anonymised data that has any personally identifiable information removed will be available 3 years after study completion. Data will be available on request from the study contacts.

**IPD sharing plan summary**

Available on request