ISRCTN67732674 https://doi.org/10.1186/ISRCTN67732674

Developing a satiety map of common foods

Submission date	Recruitment status	[ ] Prospectively registered
11/12/2023	No longer recruiting	[ ] Protocol
Registration date	**Overall study status**	[ ] Statistical analysis plan
05/03/2024	Completed	[ ] Results
Last Edited	**Condition category**	[ ] Individual participant data
16/02/2024	Other	[ ] 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 (UK)

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Protocol serial number
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
Ethics approval required

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), ref: PSYC-PSYC-524

Primary study design
Interventional

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

Study type(s)
Efficacy

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 aVisual 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).

Intervention Type

Other

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

Key secondary outcome(s)
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

Completion date
01/06/2025

Eligibility

Key inclusion criteria
1. Age >18 years
2. BMI >18.5 kg/m2
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

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
100 Years

Sex
All

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
United Kingdom

England

Study participating centre
Human Appetite Research Unit
School of Psychology
Faculty of Medicine and Health
University of Leeds,
Leeds
United Kingdom
LS2 9JT

Sponsor information

Organisation
University of Leeds

ROR
https://ror.org/024mrxd33

Funder(s)

Funder type
Industry

Funder Name
Slimming World UK

Results and Publications

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.

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