ISRCTN14567895 https://doi.org/10.1186/ISRCTN14567895

Does umami taste enhance appetite and satiety?

Submission date 14/11/2013	**Recruitment status** No longer recruiting	[_] Prospectively registered [_] Protocol [_] Statistical analysis plan [X] Results [_] Individual participant data
Registration date 26/11/2013	**Overall study status** Completed	
Last Edited 20/06/2014	**Condition category** Other	

Plain English summary of protocol

Background and study aims
The fifth sense of taste, the savoury taste known as umami, has been thought to have evolved as a way of signalling the potential presence of protein in foods. One of the chemicals that generates the umami taste is monosodium glutamate (MSG), which occurs naturally in many foods, but the umami taste is further enhanced by the presence of other compounds including inosine monophosphate (IMP). It is well established that protein suppresses appetite more effectively than do carbohydrate or fat, and recent studies suggest that the presence of MSG may be partly responsible for the effects of protein on appetite. No study has looked at the effects of a combination of MSG and IMP and this study sets out to test this since new ways of making foods more filling may be helpful in the future treatment of overeating.

Who can participate?
Healthy volunteers aged 18-40.

What does the study involve?
Volunteers will come to the test centre on four non-consecutive days. They will be served a standard breakfast, and then can leave the test centre for 3 hours. When they return, they will consume a bowl of soup, and then 45 minutes later will be provided with a lunch. They will make ratings of their appetite before, during and after they eat the soup and lunch.

What are the possible benefits and risks of participating?
Participants will benefit by receiving the free test food and will be paid a small sum (£45) on completion of the final day to compensate them for their time.
As the study involves consuming food, potential participants who have specific conditions that require special dietary controls (those with diabetes, or with allergies or aversions to any of the foods and drinks used) are excluded for their safety. The foods and ingredients used are standard products used within the concentrations normally used by consumers, and pose no risk to the study population.

Where is the study run from?
The study is conducted at the Ingestive Behaviour Unit at the University of Sussex, Brighton, UK.

When is the study starting and how long is it expected to run for?
The study started in May 2013 and ran for 5 months.

Who is funding the study?
Ajinomoto Co., Inc., Japan.

Who is the main contact?
Professor Martin Yeomans
martin@sussex.ac.uk

Contact information

Type(s)
Scientific

Contact name
Prof Martin Yeomans

Contact details
School of Psychology
University of Sussex
Brighton
United Kingdom
BN1 9QH
martin@sussex.ac.uk

Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
N/A

Study information

Scientific Title
Acute effects of a combination of inosine monophosphate (IMP) and monosodium glutamate (MSG) on appetite and satiety in healthy volunteers

Study objectives
The addition of a combination of IMP/MSG to a neutral low-energy soup will enhance flavour and appetite when ingested but also signal the presence of protein, thereby enhancing protein-induced satiety.

Ethics approval required
Old ethics approval format

Ethics approval(s)

Science and Technology Cross-Schools Research Ethics Committee (C-REC) at Sussex University, 01/05/2013, MYUM0413

Study design
Within-participant design

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Other

Study type(s)
Screening

Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet

Health condition(s) or problem(s) studied
Satiety

Interventions
The study uses a preload-satiety design. On each of four test days, participants attend the research centre (Ingestive Behaviour Unit at Sussex University) between 0800 and 1000h to consume a fixed breakfast. They return 3 hours after breakfast to consume a test soup, and then 45 minutes later consume as much as they like of a test lunch. The key manipulations are the energy content (low-energy or high-energy protein) and the flavour characteristics (control or with added umami taste) of the soup.

Intervention Type
Other

Phase
Not Applicable

Primary outcome measure
Satiety is indexed by amount consumed at the ad libitum test lunch, while the acute stimulation of appetite by umami is measured as the immediate change in desire to eat on tasting the test soup. This will be measured on all four test sessions.

Secondary outcome measures
1. Calculated compensation for additional energy in protein-soups relative to low energy control
2. Changes in the rated experience of appetite post-ingestion
3. Rate of eating and duration for ingestion of the soup

Outcomes will be measured on all four test sessions.

Overall study start date
08/05/2013

Completion date
27/10/2013

Eligibility

Key inclusion criteria
Healthy men and women aged 18-50 and who score less than 7 on the restraint scale of the Three Factor Eating Questionnaire

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Upper age limit
50 Years

Sex
Both

Target number of participants
36

Key exclusion criteria
1. Individuals who were taking prescription medication (excluding the contraceptive pill)
2. Who smoked more than 5 cigarettes per week
3. Diabetic
4. Had a diagnosed eating disorder
5. Allergies or dietary intolerances to the foods used

Date of first enrolment
08/05/2013

Date of final enrolment
27/10/2013

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
School of Psychology
Brighton
United Kingdom
BN1 9QH

Sponsor information

Organisation
Ajinomoto Co., Inc (Japan)

Sponsor details
15-1 Kyobashi It-chome
Chuo-ku
Tokyo
Japan
104-8315

Sponsor type
Industry

ROR
https://ror.org/044mkdq33

Funder(s)

Funder type
Industry

Funder Name
Ajinomoto Co., Inc (Japan) - PhD studentship

Results and Publications

Publication and dissemination plan
Not provided at time of registration

Intention to publish date

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/08/2014		Yes	No