How we evaluate our food: Mapping brain regions involved in evaluating calories, taste intensity and pleasantness

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON20294

Source
NTR

Brief title
Axon

Health condition

Selective attention, evaluation of foods, calories, taste intensity, pleasantness

Sponsors and support

Primary sponsor: Wageningen University
Source(s) of monetary or material Support: Wageningen University, EFRO

Intervention

Outcome measures

Primary outcome

The main study parameter/endpoint is brain activation during tasting.

Secondary outcome

The secondary parameter/endpoint is ad libitum food intake.

Study description

Background summary

Rationale: How our brains respond to a mouthful of food depends on the attention we pay to it’s different characteristics. In fMRI taste research, instructions accompanying a taste are often very unspecific, e.g. ‘taste’, ‘swallow’ or ‘hold the solution in your mouth’, or sometimes absent (crosshair on the screen). This allows participants to focus their attention on various aspects of the food which makes it difficult to pinpoint very precisely what the associated brain activation reflects. In line with this, previous research showed that brain responses were different when selective attention was paid to the pleasantness or to the intensity of a taste.

Objective: The primary objective of this study is to assess how selective attention to different food characteristics (calories, taste intensity and pleasantness) affects brain responses during tasting. Secondary objectives are to assess (1) whether taste activation during selective attention to calories, taste intensity or pleasantness best predicts food intake, (2) to assess whether taste activation during selective attention is the same for different taste qualities and (3) to assess whether taste activation during selective attention is modulated by personality characteristics.

Study design: On the study day participants engage in a taste fMRI task in which they are instructed to alternately pay attention to the calories (C), taste intensity (T) and pleasantness (P) of a savory, a sweet and a neutral drink. At the end of the session (outside the scanner) participants will be asked to consume as much as they want from the sweet drink (ad libitum).

Study population: The study population consists of 26 apparently healthy, right-handed, normal weight (BMI 18.5-25 kg/m2), women between the age of 18 and 35 y.

Study objective

We expect to find differences in taste related brain regions, i.e. the primary and secondary taste cortex (AIFO and OFC) and brain regions involved in reward and energy processing, such as the striatum, amygdala and cingulate cortex.

Study design

1. brain activation during tasting is obtained during one fMRI scan

2. Ad libitum intake is measured after the fMRI scan

Intervention

Participants are instructed to pay attention to either the calories, taste intensity or pleasantness of a sweet, a savory and
a neutral stimulus and accordingly taste these stimuli.

Contacts

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Eligibility criteria

Inclusion criteria

• Age: 18-35 years

• BMI: 18.5 – 25.0 kg/m2

• Healthy (as judged by the participant)

• Being right handed

• Willing to comply with the study procedures

• Willing to be informed about incidental findings of pathology

• Having given written informed consent

• Successful completion of the training session

Exclusion criteria

• Restraint eating (women: score > 2.80)

• Lack of appetite

• Having difficulties with tasting, smelling, swallowing or eating

• Usage of an energy restricted diet during the last two months (preceding the screening session)

• Weight loss or weight gain of 5 kg or more during two months (preceding the screening session)

• Stomach or bowel diseases

• Diabetes, thyroid disease, kidney disease and other chronical disorders

• Having epilepsy or other neurological disorders

• Having claustrophobia, schizophrenia or another mental illness

• Usage of daily medication other than oral contraceptives, paracetamol or H1-antihistaminergic drugs

• Pregnancy during the last 6 months, having the intention to become pregnant or lactating

• Smoking on average more than one cigarette/cigar a day

• Being allergic/intolerant for products under study

• Disliking the beverages under study

• Working or doing an internship/thesis at the Department of Human Nutrition (WUR)

• Current participation in other (medical) research (except the EetMeetWeet study)

• Having a history of or current alcohol consumption of on average more than 21 units per week

• Having objections against being informed about incidental findings of pathology and against the general physician being informed about incidental findings of pathology

• Having a contra-indication to MRI scanning (including, but not limited to):

 Pacemakers and defibrillators

 Intraorbital or intraocular metallic fragments

 Ferromagnetic implants

 Presence of non-removable metal objects in the mouth

 Presence of non-removable piercings

 Presence of tattoos with iron pigments

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	24-06-2015
Enrollment:	26
Type:	Anticipated

Ethics review

Positive opinion

Date:	16-06-2015

Application type: First submission

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL5121
NTR-old	NTR5253
Other	52691 (ABR) : 15/07 (METC Wageningen University)

Study results

Summary results
N/A