

Functional MRI of food evaluation and choice in normal weight and overweight subjects across the lifespan.

No registrations found.

Ethical review	Positive opinion
Status	Recruitment stopped
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON26000

Source

NTR

Health condition

Overweight and obesity

Sponsors and support

Primary sponsor: University Medical Centre Utrecht

Source(s) of monetary or material Support: European Union Seventh Framework Programme

Intervention

Outcome measures

Primary outcome

Neural activation (percentage BOLD signal change) induced by the presentation of pictures of food and food choice.

Secondary outcome

1. Scores on LFPQ & perceived caloric content;
2. Gut hormone levels during hungry and satiated condition on several time points;
3. Neural activation (percentage signal change) in response the execution of a reward task.

Study description

Background summary

Ultimately, the decision to eat is made in the brain. To elucidate the neural processes of food evaluation and choice in normal weight and overweight subjects across the lifespan, it is of great interest to obtain neuroimaging data during these processes.

Study objective

Rationale:

Ultimately, the decision to eat is made in the brain. To elucidate the neural processes of food evaluation and choice in normal weight and overweight subjects across the lifespan, it is of great interest to obtain neuroimaging data during these processes.

Objective:

To assess the differences in the brain responses to food presentation and food choice and how these responses are modulated by hunger and gut signals in normal weight and overweight subjects across the lifespan.

Study design

Data collection 24 months;

Data analyses 12 months.

Intervention

The study consists of two morning MRI scan session. On both days, the subjects will come in after an overnight fast of at least ten hours. During one session the subjects will be scanned after the consumption of a fixed amount of a test meal (a protein shake) per kg lean body weight, whereas during the other session the subjects will be scanned while they are fasted. Upon arrival on a study day, subjects score their appetite and thirst on a 9-point hedonic scale and answer a question on last menstruation (if applicable). Before the scan subjects

execute a computerized 'liking task' (LFPQ) in which the food pictures used in the fMRI tasks are rated on their pleasantness. Additionally, subjects estimate the caloric content of each food on a 9-point hedonic scale. Furthermore, they will practice the choice task used in the scanner. Subsequently, subjects will undergo a 40-min MRI scan session consisting of several MRI scans. During the first functional MRI scan subjects will perform a food choice task in which they choose between two foods according to their preference. During a second fMRI scan subjects view images of high and low calorie foods (HCF and LCF) and non-foods (NF). In addition subjects will perform a reward task during the third scan.

After leaving the scanner subjects again score their appetite and thirst on a 9-point hedonic scale.

Contacts

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Eligibility criteria

Inclusion criteria

1. Healthy (self-reported);
2. Age group 1: 8-10, group 2: 13 -17, group 3: 25-45 and group 4:65-75 at day 01 of the study;
3. Body Mass Index (BMI) adults: between 20 and 25 kg/m² (normal weight) or 27.5 and 35 kg/m² (overweight adults). For children and adolescents we calculated BMI ranges based on age and gender by using the growth reference data for 5-19 year olds of the World Health Organization (Butte, Garza et al. 2007). A BMI range of -1SD to +1SD in children equals approximately a BMI of 20-25 in adults; A BMI range of

1SD+2SD/2 to +3SD in children equals approximately a BMI of 27.5-35.0 in adults (See Table 1 for BMI ranges per age (-group) and gender);

4. Right-handed;

5. Having given their written informed consent;

6. Willing to comply with the study procedures;

7. Willing to accept use of all anonymized data, including publication, and the confidential use and storage of all data;

8. Willing to be informed about chance findings of pathology and approving of the disclosure of this information to the general physician.

Exclusion criteria

1. Smoking;

2. Having a special diet (e.g. to lose weight, medically prescribed diet in the past 6 months, no meat etc);

3. Highly restraint eating (Van Strien et al., 1986);

4. Having a food allergy;

5. Having gained or lost >5 kg of body weight in the past 6 months;

6. Having a history of or current alcohol consumption > 28 units per week;

7. Having a history of medical or surgical events that may significantly affect the study outcome, such as metabolic or endocrine disease, or any gastro-intestinal disorder;

8. Use of medication, except aspirin/paracetamol and contraceptives;

9. Mental or physical status that is incompatible with the proper conduct of the study;

10. Not having a general practitioner;

11. Participation in any other clinical trial during this study;

12. Working at the Image Sciences Institute or the Radiology Department of the UMC Utrecht as employee or student;

13. MRI exclusion criteria:

A. Claustrophobia;

B. Having metal implants (i.e. pacemaker, metal joints, prostheses, etc.) or metal objects on the body which cannot be removed (i.e. piercing, hearing aid, brace, etc);

C. Being pregnant.

14. Task related exclusion criteria:

A. Unsuccessful satiation of the participant (i.e. hungry after liquid breakfast consumption);

B. Nausea.

Study design

Design

Study type:	Observational non invasive
Intervention model:	Parallel
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	29-10-2012
Enrollment:	120
Type:	Actual

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Positive opinion
Date: 01-10-2012
Application type: First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 41399
Bron: ToetsingOnline
Titel:

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

No registrations found.

In other registers

Register	ID
NTR-new	NL3512
NTR-old	NTR3644
CCMO	NL39563.041.12
ISRCTN	ISRCTN wordt niet meer aangevraagd.
OMON	NL-OMON41399

Study results

Summary results

PMID: 29337278 DOI: 10.1016/j.neuroimage.2018.01.012, PMID: 34245869 DOI: 10.1016/j.neuroimage.2021.118374