Neural representations of food stimuli in Anorexia Nervosa

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To investigate neural response patterns to visually and orally presented palatable (high vs low caloric) and unpalatable (high vs low caloric) foods in AN patients and matched healthy controls (HC). This will be investigated through 1 study with 2...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Eating disorders and disturbances
Study type	Observational non invasive

Summary

ID

NL-OMON52810

Source
ToetsingOnline

Brief title
NeuralRepAN

Condition

- Eating disorders and disturbances

Synonym
Anorexia nervosa, eating disorder

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Maastricht
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Anorexia Nervosa, fMRI, Mesocorticolimbic circuit, Mindset

Outcome measures

Primary outcome

Study 1: The effect of these manipulated attentional focus on brain regions related to inhibitory control and reward processing.

Study 2: The effect of informed and uninformed food caloric content on neural expectancy response and initial neural taste response.

Secondary outcome

Study 2: The effect of palatability vs tension on neural activity while tasting food.

Study description

Background summary

Anorexia Nervosa (AN) is one of the more difficult to treat psychiatric disorders, characterised by a high mortality rate and highly anxiogenic view of food in general. In a meta-review investigating mortality rates in mental disorders, it was found that Anorexia Nervosa had one of the highest, exceeded only by substance use disorders. It is therefore of great importance that we understand the disease and improve treatment. However, the complexity of AN is manifested in the pervasive sense of doubt still surrounding the aetiology of the disease. In an effort to come ever closer to a more comprehensive understanding of the origins of the disorder, these studies investigate the neural mechanisms underpinning food-choice processing in persons with AN using functional magnetic resonance imaging (fMRI). In the first study, we will investigate neural response patterns to visually presented palatable (pleasant to taste) and unpalatable (unpleasant to taste) high caloric and low caloric food images in AN patients and matched healthy control participants (HC). We assume that AN patients make decisions relating to food based on caloric content rather than taste. We will give the participants a clear food-evaluation task, to have much more control over the engaged mental process, enabling stronger conclusions from the neural results. Specifically,

while in the scanner, participants will be asked to perform a food evaluation task focusing on palatability, calorie content or a neutral aspect of the presented food images. The second study aims to investigate the neural responses to both the a) expectation and actual b) receipt of highly palatable (fat and sweet) taste stimuli in AN-patients vs healthy controls. We hypothesize that Anorexics will have the same initial taste perception as that of healthy persons but that this will quickly be overtaken by inhibitory responses in areas of the brain designated to cognitive control.This study will focus on the reward and taste areas of the gustatory system as well as inhibitory control processing areas such as the anterior cingulate cortex (ACC) and the dorsolateral prefrontal cortex (dlPFC) as those areas are implicated in cognitive control in the anorectic brain.

Study objective

To investigate neural response patterns to visually and orally presented palatable (high vs low caloric) and unpalatable (high vs low caloric) foods in AN patients and matched healthy controls (HC). This will be investigated through 1 study with 2 parts.

Study design

Part 1 - This experiment will be a block design, experimental fMRI study. The participants will view individually tailored highly palatable and highly unpalatable food images in the fMRI scanner while attentional focus is manipulated in 3 ways. Participants will be required to perform a one-back task while viewing the images.
Part 2 - This experiment will be a block design experimental fMRI study. The participants will taste versions of a high caloric and low caloric milk drink while in the scanner. The study design also consists of subjective ratings of tension and palatability of the milk drink at the end of each block.

Study burden and risks

The proposed study carries minimal risks and discomfort, but is time consuming for the participants. However, the information they deliver significantly improves insight into the relationship between cognitions and biological responses related to food desires (or lack thereof) as well as actual eating behaviour in AN. As an incentive and compensation for participation in the study, the participants will receive ¤20 in VVV vouchers after completing the study. We will also include cost of travel and travel arrangements for those AN patients coming from contributing centres.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (16-17 years)
Adults (18-64 years)

Inclusion criteria

In order to be eligible to participate in this study, a subject must meet all of the following criteria:
Anorexia Nervosa:
1. Female
2. Have a current diagnosis of Anorexia Nervosa (restrictive subtype)
3. Be a patient at MUMC (or other participating medical centres)
4. Have a BMI between 13 and 18
5. Be able to give informed consent
6. Must be >= 16 years of age
5.7. Able to speak and read Dutch
6.8. Not allergic or intolerant to the liquid stimulidairy drinks

Healthy Control:
1. Female
2. Not have a current or previous (within the past five years) diagnosis of an eating disorder, anxiety, depression and or OCD.
3. Have a healthy BMI (18.5 - 25).
4. Be able to give informed consent.
4.5. Must be >= 16 years of age
5.6. Able to speak and read Dutch.
6.7. Not allergic or intolerant to the liquid stimuli

Exclusion criteria

For all participants:.
1. Allergies or Intolerances to ingredients contained in the liquid stimuli
2. Left-handedness
3. Existing medically diagnosed neurological disorders
4. Standard fMRI exclusion criteria (e.g., metallic medical devices or implants, pregnancy, piercings that cannot be removed). See E2 appendix C of the submitted file.

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	17-08-2020
Enrollment:	45
Type:	Actual

Ethics review

Approved WMO Date:	30-10-2019
Application type:	First submission
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)
Approved WMO Date:	28-10-2020
Application type:	Amendment
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)

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
CCMO	NL69580.068.19