Fullbrain study

Gepubliceerd: 29-05-2018 Laatst bijgewerkt: 18-08-2022

We expect brain activity and brain reactivity to change as satiation progresses. ROI are : Brainstem (dorsal vagal complex (DVC), nucleus tractus solitarius (NTS), parabrachial nucleus (PBN)), Hypothalamus, Insula, overlying operculum, secondary:...

Positief advies
Werving nog niet gestart
-
Interventie onderzoek

Samenvatting

ID

NL-OMON29447

Bron NTR

Verkorte titel Fullbrain

Aandoening

Overeating, obesity, overweight over eaten, obesitas, overgewicht

Ondersteuning

Primaire sponsor: Wageningen University **Overige ondersteuning:** NWO

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Differences in brain activity in rest and in reactivity (BOLD signal) upon oro-sensory exposure to food, between hungry and progressive satiated states.

1 - Fullbrain study 3-05-2025

Regions of interest (ROI) are:

• Satiation: Brainstem (dorsal vagal complex (DVC), nucleus tractus solitarius (NTS), parabrachial nucleus (PBN)), Hypothalamus

• Taste perception: primary: Insula, overlying operculum, secondary: orbitofrontal cortex, Thalamus

 Reward: striatum (nucleus accumbens, Putamen), amygdala, Hippocampus, Midbrain (Ventral tregmental area (VTA), substantia nigra), medial pre frontal cortex.

In addition to these ROI we are interested in brain activity networks (functional connectivity).

Toelichting onderzoek

Achtergrond van het onderzoek

Objective: The objective of this study is to determine differences in resting state brain activity and brain reactivity to taste, between hungry and progressive satiated states, with a focus on activity within the brainstem.

Study design: The study has a within subject repeated-measures experimental study design and consists of one test day.

Study population: Forty, right-handed healthy adults between 18-35 years old with a BMI between 18.5-27 kg/m2 will be included.

Intervention: We will measure resting state brain activity and brain reactivity to chocolate milk using fMRI, in a hungry state, a 50% sated state and a 100% sated state. To arrive at the 50% and 100% satiated states, subjects will be asked to drink chocolate milk between scanning blocks.

Main study parameters: Differences in brain activity in rest and brain reactivity (BOLD response) upon oro-sensory exposure to food, between hungry, 50% and 100% sated states (3 repeated measures). The secondary outcome of this study is stomach filling (ml) measured by MRI at 4 time points (hungry, at the beginning and end of the 50% sated state MRI measure, and once during the 100% sated state MRI measure).

Doel van het onderzoek

We expect brain activity and brain reactivity to change as satiation progresses. ROI are : Brainstem (dorsal vagal complex (DVC), nucleus tractus solitarius (NTS), parabrachial nucleus (PBN)), Hypothalamus, Insula, overlying operculum, secondary: orbitofrontal cortex, Thalamus striatum (nucleus accumbens, Putamen), amygdala, Hippocampus, Midbrain (Ventral tregmental area (VTA), substantia nigra), medial pre frontal cortex.

Onderzoeksopzet

hungry state, 50% sated state, 100% sated sate

Onderzoeksproduct en/of interventie

This study investigates changes in brain responses as satiation progresses. In order to study this we will measure resting state brain activity and brain reactivity to taste in 1) a hungry state, 2) a 50% sated state and 3) a 100% sated state within each subject.

Contactpersonen

Publiek

Wageningen University

Marlou Lasschuijt Biotechnion, Building 307, Room 107B

Wageningen The Netherlands tel +31 317 484586

Wetenschappelijk

Wageningen University

Marlou Lasschuijt Biotechnion, Building 307, Room 107B

Wageningen The Netherlands tel +31 317 484586

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

• Right handed (Left and right handed people show differences in brain activation when tasting)

- Between 18-35 years old at the day of inclusion
- Able to understand and speak English fluently or without difficulty (self-report)
- BMI 18.5-27 kg/m2
- Good general health and appetite (see F1 questionnaire self-report)
- Willing to comply with the study procedures

• Agrees on being informed about incidental findings of pathology through his general practitioner

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- Failing to meet one or more of the inclusion criteria
- Women: being pregnant, having the intention to become pregnant within half a year.

• Women: using a IUD as anti-conceptive (with exception of the Mirena IUD which is MRI safe).

• Having difficulties with tasting, smelling, swallowing or eating in general.

• Suffering from a neurological, endocrine, or eating disorder, gastrointestinal or mental illness or illness of the thyroid gland, respiratory disease or diabetes.

- Having sight (except glasses) or hearing disorder (self-report)
- Having non-removable dental braces (with the exception of a dental wire)
- Smoking: smoking on average one or more cigarettes/cigars a day

• Having a history of, or current alcohol consumption of, drinking on average more than 21 units per week (cut-of based on ref (50))

- Not willing to stop using drugs during the study period (from inclusion till test session)
- Use of medication that may influence study outcomes (self-report, see F1 questionnaire)
- Allergies or intolerance to any ingredient of the test foods.
- Not willing to eat the test food/drink because of eating habits or believes.

- Followed an energy restricted diet during the last 2 months
- Gained or lost 5 kg of body weight over the last half year
- High restrained eater according to the Dutch Eating Behaviour Questionnaire
- Participating in another research study
- Employee of Human Nutrition department of Wageningen university

• Thesis student or intern at the chair group of Sensory Science and Eating Behaviour Human Nutrition (WUR).

- not having a general practitioner
- Intensive exercising more than 8 hours per week
- Low score ([] 4, neutral) for liking the test food on a nine point likert scale*

MRI related exclusion criteria:

- Not willing to be in an MRI scanner
- Claustrophobic (self-report)
- Having a contra-indication to MRI scanning (including, but not limited to):
- Pacemakers and defibrillators
- Epilepsy or family history of epilepsy
- Intraorbital or intraocular metallic fragments
- Ferromagnetic implants
- Presence of non-removable piercings

Onderzoeksopzet

Opzet

Type: Onderzoeksmodel: Interventie onderzoek Factorieel

5 - Fullbrain study 3-05-2025

Toewijzing:	N.v.t. / één studie arm
Blindering:	Open / niet geblindeerd
Controle:	Geneesmiddel

Deelname

Nederland	
Status:	Werving nog niet gestart
(Verwachte) startdatum:	01-07-2018
Aantal proefpersonen:	40
Туре:	Verwachte startdatum

Ethische beoordeling

Positief advies	
Datum:	29-05-2018
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL7034
NTR-old	NTR7239
Ander register	Medical Ethical approval number : ABR 65187

Resultaten