# **Binging on processed foods**

Gepubliceerd: 25-08-2020 Laatst bijgewerkt: 15-05-2024

We hypothesize that especially the reward centres of the brain respond much stronger to processed food in BED, whereas much smaller differences are expected after consuming unprocessed food.

Positief advies
Werving nog niet gestart
-
Interventie onderzoek

# Samenvatting

#### ID

**NL-OMON29485** 

**Bron** NTR

Verkorte titel BINGE

Aandoening

**Binge Eating Disorder** 

### Ondersteuning

Primaire sponsor: n.a.

**Overige ondersteuning:** The study is funded by Nederlandse Wetenschaps Organisatie (NWO) NWA-IDG 2019 grant NWA.1228.192.006

#### **Onderzoeksproduct en/of interventie**

#### **Uitkomstmaten**

#### Primaire uitkomstmaten

 Changes in brain connectivity and activity (BOLD signal), Z-scores for functional connectivity, eigen vector values) after ingestion of different food stimuli within groups
Differences in brain connectivity and activity (BOLD signa)l, Z-scores for functional

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connectivity, eigen vector values) after ingestion of different food stimuli between groups

# **Toelichting onderzoek**

#### Achtergrond van het onderzoek

Rationale: Processed foods are foods that are produced industrially from substances derived from foods, often with many additives, but with little 'whole original food' ingredients. These types of food tend to be high in calories, (saturated) fat, sugar, and salt, while being nutrient-poor compared to unprocessed foods. Not surprisingly, increased consumption of processed foods raises our daily calorie intake, as in addition to the higher calorie content, processed foods are also associated with a relatively short period of satiation, this is seen as an important cause of overweight an obesity. Even though most people are aware that processed foods are unhealthy, over 50% of our modern diet consists of these foods. The importance of the (subconscious) regulatory role of the brain in directing this eating behavior is increasingly recognized.

Objective: The objective of the study is to determine the difference in brain responses after consumption of processed and unprocessed food between healthy lean subjects with a 'normal' eating pattern with that of Binge Eating Disorder (BED) patients, who are prone to overeating processed foods. We hypothesize that the brain responds much stronger to processed food in BED, whereas much smaller differences are expected after consuming unprocessed food.

Study design: Cross-over trail study design with two study visits with a patient and a control group.

Study population: The study population will consist of a group of healthy normal weight (BMI 18.5-25) adult female participants from the general population and a group of adult female BED patients with obesity (BMI >30) recruited from the GGZ Rivierduinen Eating Disorders Ursula.

Intervention (if applicable): We will compare the response of the brain to a commercially available candy bar (processed) with a mix of peanuts and dried dates (unprocessed) matched for total calories, carbohydrates, fat, and protein content.

Main study parameters/endpoints: Differences in brain responses between processed and unprocessed food as measured with functional Magnetic resonance imaging (fMRI).

Nature and extent of the burden and risks associated with participation, benefit and group relatedness: The study will consist of two visits to the LUMC (1-2 weeks between visits). For each visit participants will undergo one MRI scan, the duration of this visit will be 1.5 hour excluding travel time (one hour for the MRI scan plus instructions and preparations and questionnaires). The potential risks are limited. The risks of MRI are minimal (risk of everyday life), because there are no consequences to the health of the participant. The potential risk of

the food intervention are limited as these are commercially available products and participants with food allergies will not be included in the study. The questionnaires used during the study are also of a low burden nature. This study will provide more insight into the underlying subconscious reasons why processed foods are overconsumed or binged on. These insight are of importance for a better understanding, prevention and treatment of obesity in general and Binge Eating Disorder specifically. In light of the minimal risks for the study participants we believe that the further insights gained from the study into the ever growing obesity problem outweigh the very limited potential risks.

#### Doel van het onderzoek

We hypothesize that especially the reward centres of the brain respond much stronger to processed food in BED, whereas much smaller differences are expected after consuming unprocessed food.

#### Onderzoeksopzet

The study will consist of two time points at least one week apart. Participants will consume one of the two study interventions (processed or unprocessed snack) per visit.

During the first visit (time point 1) baseline characteristics will be measured (weight, height, BMI, fat percentage and waist circumference) and questionnaires for eating behavior and physical activity habits will be taken.

During both visits (time point 1 and 2) functional MRI will be performed to determine changes in brain connectivity and activity in response to the ingestion of the food stimuli as the primary outcome.

During both visits (time point 1 and 2) VAS scores for the level of hunger, thirst and satiety will taken before and after ingestion of the food stimuli as the secondary outcome.

#### **Onderzoeksproduct en/of interventie**

We will compare the response of the brain to a commercially available candy bar (processed) with a mix of peanuts and dried dates (unprocessed) matched for total calories, carbohydrates, fat, and protein content.

# Contactpersonen

#### **Publiek**

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### Wetenschappelijk

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# **Deelname eisen**

### Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Control subjects:

• Aged >18

- Female
- BMI >18,5 and <25

BED patients:

- Aged >18
- Female

• A primary diagnosis of BED according to DSM-IV criteria or subthreshold BED (an average of one binge eating episode a week)

• BMI >30

# Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- Age <18
- BMI not >18,5 and <25 for control subjects and BMI <30 for BED patients
- Male sex
- Diabetes
- Any know food allergy or intolerance
- Renal or hepatic disease
- Use of medication known to affect glucose (for example prednisone) or lipid metabolism

• A current history of self-induced vomiting, misuse of laxatives, diuretics, enemas, diet pills or other weight controlling medications, fasting, or excessive exercise within the last 24 weeks;

• A comorbid diagnosis of psychotic disorder, self-damaging behaviors or mental deficiency

- Pregnancy
- Any contra-indication to MRI scanning

# Onderzoeksopzet

### Opzet

Туре:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	Gerandomiseerd
Blindering:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

#### Deelname

Nederland Status:	Werving nog niet gestart
(Verwachte) startdatum:	01-11-2020
Aantal proefpersonen:	30
Туре:	Verwachte startdatum

# Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

# **Ethische beoordeling**

Positief advies	
Datum:	
Soort:	

25-08-2020 Eerste indiening

# Registraties

### **Opgevolgd door onderstaande (mogelijk meer actuele) registratie**

ID: 55035 Bron: ToetsingOnline Titel:

# Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

# In overige registers

Register	ID
NTR-new	NL8851
ССМО	NL74714.058.20
OMON	NL-OMON55035

# Resultaten