*Once you pop, you just can*t stop*: how mindset rules biology and makes you eat

Published: 04-11-2015
Last updated: 19-04-2024

The main goal of the current project is to study whether a mindset of perceived control / loss of control over intake affects hormone release, brain reward processing, desire to eat and actual consumption.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON44037

Source
ToetsingOnline

Brief title
*Once you pop, you just can*t stop*:

Condition

- Other condition

Synonym
obesity

Health condition

eetgedrag

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Maastricht
Source(s) of monetary or material Support: NWO

Intervention

Keyword: eat behavior, fMRI, hormones, mindset

Outcome measures

Primary outcome

- Food intake --> amount of chocolate intake in grams with bogus taste test

- Feelings of control --> questionnaires on feeling of craving and control

- Desire to eat --> questionnaires on desire to eat

- Satiety feelings --> hunger and satiety questionnaires

- Ghrelin response --> blood hormone level determination

- GLP-1 response --> blood hormone level determination

- Brain reward activity --> fMRI reward related areas

- Brain control activity --> fMRI control related areas

Secondary outcome

N.A.

Study description

Background summary

The previously popular Pringles jingle *once you pop, you just can*t stop* perfectly describes a common belief of many that might emerge when eating something good. In the current food affluent society, many people experience occasions of not being able to stop eating, at least they think so. This belief that one is not able to stop eating might be due to specific cognitions (mindsets). In this innovative project, it is hypothesized that a mindset is able to regulate the biological processing of food and in that way determines

actual consumption.

Participants will be randomly assigned to one of the two mindset conditions for the first measurement. After a month, the participants will be measured in the other mindset. In these conditions a control (even though you pop, you can always stop) or a loss-of-control (once you pop, you just can*t stop) mindset will be manipulated. The effect of these manipulated mindsets on brain activation in reward and control areas, the release of the gut hormones ghrelin and GLP-1, the desire to eat, the experience of control and satiety and actual consumption will be measured.

It is hypothesized that the manipulated *once you pop, you just can*t stop* mindset will induce biological responses that prepare for ongoing food intake, even after eating, while the manipulated *even though you pop, you can always stop* mindset will induce a biological and cognitive state of satiety, independent from actual consumption. If the hypothesis is supported, these findings might have large impact on the science of eating, health interventions and consumer behaviour.

Study objective

The main goal of the current project is to study whether a mindset of perceived control / loss of control over intake affects hormone release, brain reward processing, desire to eat and actual consumption.

Study design

The current project is a single-blind randomized controlled trial comparing the effect of two mindset conditions. First year female students will be recruited at Maastricht University. The experiment consists of two sessions with a duration of approximately 2 hours each.

Participants will be tested in two mindset conditions: (1) perceived loss of control or (2) perceived control. These mindsets will be behavioral manipulated by giving participants visual information and stimuli and the participants will be asked to associate with these stimuli. After manipulating the participants* beliefs, participants will be required to eat one piece of chocolate, and then undergo a measurement session during which fMRI-scanning will be done to assess activity in brain reward and control areas in response to pictures of chocolate. It is made sure that the belief is kept salient during fMRI scanning by repeatedly priming participants with the manipulated mindset during the scanning period.

Furthermore, the effect of a perceived control / loss of control mindset will also be examined on ghrelin and GLP-1 responses. Blood samples will be taken to assess ghrelin and GLP-1 levels prior, during and after the scanning period.

Questionnaires on desire to eat and perceived control will be assessed using visual analogue scales (VAS). There will be 5 time points where hormone levels and desire to eat/perceived control VAS will be assessed. At the end of the experiment a chocolate bogus taste test will be administered, to examine the effect of a mindset on actual consumption. Ghrelin and GLP-1 will also be measured after the chocolate-taste-test to study the hormonal post-intake effect.

Intervention

The effect of two manipulated mindsets will be compared:
- Loss-of-control mindset
- Control mindset

Study burden and risks

The proposed study carries minimal risks and discomfort while the additional information it significantly improves insight in the relationship between cognitions (mindset) and biological responses related to food desires as well as the actual response behaviour. The present study could provide innovative direct and precise insight in relationships between gut hormone activity and brain activity and their interactions. The participants will receive a financial compensation (¤100,00) in iris cheques after completing the study.

Contacts

Public
Universiteit Maastricht

Universiteitssingel 40
Maastricht 6200 MD
NL
Scientific
Universiteit Maastricht

Universiteitssingel 40
Maastricht 6200 MD
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

female
first years' bachelor students (age between 18 - 25 years)
right handed
Score >70 mm on milk and/or dark chocolate liking rating

Exclusion criteria

- Not able to speak/write Dutch
- Standard MRI safety / contra-indication exclusion criteria; including: bodily metallic fragments/implants, pregnancy, claustrophobia, epilepsy
- anxious for needles/blood sampling
- Self-reported eating disorders
- Chronic diseases (e.g. diabetes mellitus)

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Single blinded (masking used)
Control:	Active
Primary purpose:	Prevention

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	11-04-2016
Enrollment:	33
Type:	Actual

Ethics review

Approved WMO Date:	04-11-2015
Application type:	First submission
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)
Approved WMO Date:	25-04-2016
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	NL53894.068.15