Brain patterns of anticipatory and consummatory reward

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON28090

Source
NTR

Brief title
Neuron

Health condition

Light products, anticipatory and consummatory reward, taste activation (brain activation).

Light producten, verwachting van een beloning, consumptie van een beloning, smaak activatie (brein activatie).

Sponsors and support

Primary sponsor: Wageningen University, Division of Human Nutrition
P.O. Box 9101
6700 HB
Wageningen
The Netherlands
+31 (0)317 489111
+31 (0)317 483999
info@wur.nl
Source(s) of monetary or material Support: Wageningen University, Division of Human Nutrition, EFRO

Intervention

Outcome measures

Primary outcome

The main study parameters/endpoints are (1) the difference in brain activation between an anticipatory reward and a consummatory reward and (2) the difference in brain activation between a consummatory reward labeled as light versus labeled as regular.

Secondary outcome

The 1st secondary study parameter/endpoint is the correlation between brain activation in response to exposure to an anticipatory or a
consummatory reward and reaction times and errors (push/pull measure). In addition, two groups will be made based on the product choice
outcome and anticipatory reward responses and consummatory reward responses are compared between those groups (i.e. there is looked
at the group*reward response interaction).
The 2nd secondary study parameter/endpoint is the correlation between brain activation in response to exposure to an anticipatory or a
consummatory reward and subject characteristics like reward sensitivity, delayed discounting, impulsivity, health attitude, stress, executive
functioning and food neophobia.

Study description

Background summary

Food reward consist of an anticipatory component often related to the presentation of a cue and a consummatory component related to reward receipt. In the current study we intent to investigate the difference in brain patterns associated with anticipatory (visual cue) and consummatory (taste) reward. ‘Off the shelf’ labels of a light and regular beverage will be used as anticipatory reward cues in order to give more inside on the acceptance of light products/labels.

Study objective

We hypothesize (1) that an anticipatory reward will lead to more activation in reward related areas such as the striatum, amygdala, and dopaminergic midbrain compared to a consummatory reward (preceded by an anticipatory reward). Furthermore, we expect the orbitofrontal cortex to be similarly activated for both reward types. In addition we expect that having an anticipation of a consummatory reward (in this case provoked by a label) can

change the perception of this consummatory reward when it is received. We assume that expected pleasantness for the beverage coupled to the light label will be lower than for the beverage coupled to the regular label. Therefore, we hypothesize (2) that the receipt of a consummatory reward presented as a regular product will result in more activation in reward related areas such as the striatum and dopaminergic midbrain (e.g. ventral tegmental area and substantia nigra) compared to the receipt of the same product presented as light. Furthermore, based on previous research, we presume that labels bias food evaluation especially in the amygdala (region associated with emotion) thus that dissociable responses can be found in this region (Grabenhorst et al., 2013).

Study design

1. anticipatory and consummatory brain activation measurements are obtained during one fMRI scan.

2. Questionnaires and tasks are filled out in the weeks before the fMRI scan.

Intervention

Participants are exposured to three different labels, a light label a regular label and a 'neutral' label, and two tastants, a regular beverage and

a neutral control stimulus.

There are three task conditions:

a) presentation of a light label - consumption of a regular beverage

b) presentation of a regular label - consumption of a regular beverage

c) presentation of a ‘neutral’ label - consumption of a neutral control stimulus
These three task conditions are randomized and counterbalanced.

Contacts

Public
Bomenweg 2
Inge Rijn, van
Wageningen 6703 HD
The Netherlands
+31 (0)317 480759
Scientific
Bomenweg 2
Inge Rijn, van

Wageningen 6703 HD
The Netherlands
+31 (0)317 480759

Eligibility criteria

Inclusion criteria

1. Age: 18-35 years;

2. Being female;

3. BMI: 18.5 – 25.0 kg/m2;

4. Healthy (as judged by the participant);

5. Being right handed;

6. Willing to comply with the study procedures;

7. Willing to be informed about incidental findings of pathology;

8. Having given written informed consent;

9. Successful completion of the training session.

Exclusion criteria

1. Restraint eating (women: score > 2.80)

2. Lack of appetite

3. Having difficulties with swallowing/eating

4. Usage of an energy restricted diet during the last two months

5. Weight loss or weight gain of 5 kg or more during the last two months

6. Stomach or bowel diseases

7. Diabetes, thyroid disease, kidney disease and other endocrine disorders

8. Having a history of neurological disorders

9. Having taste or smell disorders

10. Having schizophrenia or another serious mental illnesses

11. Usage of daily medication other than oral contraceptives, Paracetamol or hay fever tablets

12. Pregnancy during the last 6 months, having the intention to become pregnant or lactating

13. Smoking on average more than one cigarette/cigar a day

14. Being allergic/intolerant for products under study

15. Exclusive consumption of ‘light’ versions of beverages

16. Avoidance of ‘light’ versions of beverages

17. Disliking the beverages under study

18. Working or doing an internship/thesis at the group Sensory science and eating behavior (WUR)

19. Current participation in other nutrition related or medical research

20. Having a history of or current alcohol consumption of on average more than 28 units per week

21. Having a contra-indication to MRI scanning (including, but not limited to):

Claustrophobia

Epilepsy

Pacemakers and defibrillators

Intraorbital or intraocular metallic fragments

Ferromagnetic implants

Presence of non-removable metal objects in the mouth

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	12-12-2013
Enrollment:	26
Type:	Anticipated

Ethics review

Positive opinion

Date:	05-11-2013
Application type:	First submission

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
NTR-new	NL4104
NTR-old	NTR4249
Other	NL45977 (ABR) : 13/17 (METC -WU)
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results
N/A