

Brain patterns of anticipatory and consummatory reward

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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...

Ethische beoordeling	Positief advies
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON28090

Bron

NTR

Verkorte titel

Neuron

Aandoening

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

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

Ondersteuning

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Overige ondersteuning: Wageningen University, Division of Human Nutrition, EFRO

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

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.

Toelichting onderzoek

Achtergrond van het onderzoek

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.

Doel van het onderzoek

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).

Onderzoeksopzet

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.

Onderzoeksproduct en/of interventie

Participants are exposed 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.

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen

(Inclusiecriteria)

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.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

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

Onderzoeksopzet

Opzet

Type: Interventie onderzoek

Onderzoeksmodel: Cross-over

Toewijzing:	Gerandomiseerd
Blinding:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland	
Status:	Werving gestart
(Verwachte) startdatum:	12-12-2013
Aantal proefpersonen:	26
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies	
Datum:	05-11-2013
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	NL4104
NTR-old	NTR4249
Ander register	NL45977 (ABR) : 13/17 (METC -WU)
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Resultaten

Samenvatting resultaten

N/A