Sugar, non-caloric sweeteners and reward.

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

Samenvatting

ID

NL-OMON23659

Bron NTR

Verkorte titel SweetER

Aandoening

Eating behaviour

Ondersteuning

Primaire sponsor: Wageningen University, Department of Human Nutrition **Overige ondersteuning:** AgentschapNL

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The primary objective of this study is to determine the effect of replacing added sugar by non-caloric sweeteners in a nutrient-rich matrix (dairy drink yoghurt) and in a nutrient-empty

matrix (soft drink) on reward value reflected in preferences and brain responses after repeated exposure.

Toelichting onderzoek

Achtergrond van het onderzoek

Rationale:

The prevalence of overweight and obesity is still increasing. The development of new and healthier food products, e.g. products in which sugar has been replaced by non-caloric sweeteners, may provide solutions to help people to meet dietary guidelines. However, besides taste, sugar also provides metabolic reward, which is important for consumer acceptance on the longer term. A reduced consumer acceptance on the longer term may reduce the effectiveness of non-calorically sweetened products for weight management.

Objective:

To determine the effect of replacing added sugar by non-caloric sweeteners in a nutrient-rich matrix (dairy drink yoghurt) and in a nutrient-empty matrix (soft drink) on reward value after repeated exposure.

Study design:

The study will use a randomized crossover design whereby subjects are repeatedly exposed to sugar sweetened and non-caloric sweetened versions of a yoghurt drink and a soft drink. The study consists of 2 periods with 3 parts: pre-measurements, a conditioning period, and post-measurements. In the conditioning period (5 days a week for 4 weeks), subjects will be offered a sugar sweetened or a non-caloric sweetened version of either a yoghurt drink or a soft drink 10 times in random order. Before and after this repeated exposure, reward value will be assessed with behavioural tasks and fMRI measurements. The behavioural tasks will assess the preference for the sugar sweetened and the non-caloric sweetened versions after repeated consumption. With the fMRI measurements, responses to the drinks in brain reward areas will be measured. In period 1, subjects receive either the sugar sweetened or the non-caloric sweetened versions of the yoghurts or the sugar sweetened and non-caloric sweetened or the non-caloric sweetened versions of the soft drinks. In period 2, these conditions are switched.

The study population consists of 40 (20 males/20 females) apparently healthy, normal weight, unrestrained, adults between the ages of 18 to 35. Only the males will participate in the fMRI part of the study.

Primary outcomes:

The primary outcome measures of this study are 1) the shift in product preference, i.e., the difference in preference for the sugar sweetened and non-caloric sweetened yoghurt drinks and the sugar sweetened and non-caloric sweetened soft drinks after repeated exposure (males and females) and 2) the change in brain reward responses to the sugar sweetened and non-caloric sweetened exposure (males).

Doel van het onderzoek

It is hypothesized that foods that have an intrinsic nutrient-rich matrix are less susceptible to changes in reward value due to replacing the sugar content than foods that have intrinsic a nutrient-empty matrix. Thus we expect that the reward value of the non-caloric sweetened yoghurt drink will not change over time and will remain similar to that of the sugar sweetened version. It is hypothesized that the non-caloric sweetened soft drink will decrease in reward value over time compared to its sugar-sweetened counterpart.

Onderzoeksopzet

Every participant will visit the laboratory every day during the intervention periods.

Onderzoeksproduct en/of interventie

In the conditioning period (5 days a week for 4 weeks), subjects will be offered a sugar sweetened or a non-caloric sweetened version of either a yoghurt drink or a soft drink 10 times in random order.

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. BMI: 18.5 25.0 kg/m2;
- 3. Healthy (as judged by the participant).

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- 1. Restraint eating (men: score > 2.25; 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, other endocrine disorders;
- 8. Having a history of neurological disorders;
- 9. Having taste or smell disorders;
- 10. Usage of daily medication other than birth control pills;
- 11. For females: Being pregnant or lactating;
- 12. Smoking more than one cigarette a day;
- 13. Being allergic/intolerant for products under study;
- 14. Exclusive consumption of 'light' versions of yoghurt and/or soft drinks;
- 15. Working at the division of human nutrition (WUR);
- 16. Current participation in other research from the division of human nutrition (WUR);
- 17. For males: Having a contra-indication to MRI scanning (including, but not limited to):
- A. Claustrophobia;
- B. Epilepsy or a family history of epilepsy;
- C. Serious physical or mental illnesses;
- D. Pacemakers and defibrillators;
- E. Intraorbital or intraocular metallic fragments;
- F. Ferromagnetic implants;
- G. Presence of any other metal object e.g. in the mouth;
- H. Being lefthanded.

Onderzoeksopzet

Opzet

Type:

Interventie onderzoek

Onderzoeksmodel:	Cross-over
Toewijzing:	Gerandomiseerd
Blindering:	Enkelblind
Controle:	N.v.t. / onbekend

Deelname

Nederland Status:	Werving nog niet gestart
(Verwachte) startdatum:	26-03-2012
Aantal proefpersonen:	40
Туре:	Verwachte startdatum

Ethische beoordeling

Positief advies	
Datum:	14-02-2012
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	NL3145
NTR-old	NTR3289
Ander register	MEC Wageningen / ABR : 11/40 / NL38562.081.11;
ISRCTN	ISRCTN wordt niet meer aangevraagd.

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Resultaten

Samenvatting resultaten

N/A