The effect of moderate alcohol consumption on subsequent food reward

Published: 25-09-2012
Last updated: 26-04-2024

Primary ObjectiveTo determine whether moderate alcohol consumption influences subsequent food reward, as measured by questionnaires on food *wanting* and food *liking*, and salivary and blood parameters related to food reward.Secondary ObjectivesTo...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Glucose metabolism disorders (incl diabetes mellitus)
Study type	Interventional

Summary

ID

NL-OMON36969

Source
ToetsingOnline

Brief title
The effect of alcohol on food reward

Condition

- Glucose metabolism disorders (incl diabetes mellitus)
- Appetite and general nutritional disorders

Synonym
Obesity

Research involving
Human

Sponsors and support

Primary sponsor: TNO
Source(s) of monetary or material Support: Stichting Alcohol Research,Stichting Alcohol Research (SAR) en Ministerie van Economische Zaken;Landbouw & Innovatie (EL&I)

Intervention

Keyword: Alcohol, Food reward, Nutrient sensing

Outcome measures

Primary outcome

- Questionnaire measuring food wanting explicitly (VASfood)

- Questionnaire measuring food wanting explicitly for different food categories

(LFPQ)

- Computer task measuring food wanting implicitly for different food categories

(LFPQ)

- Questionnaire measuring food liking explicitly for different food categories

(LFPQ)

- Questionnaire measuring hunger, fullness and prospective

food consumption (VASfood)

- Ad libitum food intake

- Breath alcohol concentration

Secondary outcome

- Computer task measuring food preferences (LFPQ)

- GLP-1 in plasma

- Ghrelin in plasma

- N-acyl ethanolamides in plasma

- Leptin, Insulin, FFA and glucose in serum

- Ghrelin in saliva

- N-acyl ethanolamides in saliva

Study description

Background summary

It has been shown in several studies that alcohol increases subsequent food intake. A chronic increased food intake can lead to obesity. In the Western world, where palatable food is highly available, hedonic motives probably play an important role in food intake behaviour besides the effects of hunger and satiety hormones. Consumption occurs often as a result of hedonic motives, because palatable food is very rewarding. Alcohol consumption is known to stimulate neurotransmitters important for reward, such as dopamine, opioids and endocannabinoids. Therefore, the effect of moderate alcohol consumption on reward could stimulate also the reward response on a subsequent meal, resulting in a higher consumption than when no alcohol is consumed.
It is hypothesized that the reward response of food or beverages can already be generated when food or beverages are sensed in the mouth, because oral nutrient sensing is known to induce a satiety response (i.e. the cephalic phase response). Moreover, taste bud nerves directly signal to brain areas closely connected to the reward areas in the brain.

Study objective

Primary Objective
To determine whether moderate alcohol consumption influences subsequent food reward, as measured by questionnaires on food *wanting* and food *liking*, and salivary and blood parameters related to food reward.

Secondary Objectives
To determine whether food reward is different when food is consumed than when food is sensed in the mouth, as measured by questionnaires on food *wanting* and food *liking*, and salivary and blood parameters related to food reward.

To determine whether moderate alcohol consumption influences subsequent food reward differently when food is consumed than when food is sensed in the mouth, as measured by questionnaires on food *wanting* and food *liking*, and salivary and blood parameters related to food reward.

Study design

Randomized, placebo-controlled, single-blind, cross-over trial

Intervention

This research consists of 6 treatment days. Each treatment day one of the following combinations of food will be researched:

1. 200 mL vodka orange juice mix + 40 g cake for consumption
2. 200 mL vodka orange juice mix + 40 g cake for modified sham feeding (chew and expectorate)
3. 200 mL vodka orange juice mix
4. 175 mL orange juice (including 31 g maltodextrin) + 40 g cake for consumption
5. 175 mL orange juice (including 31 g maltodextrin) + 40 g cake for modified sham feeding (chew and expectorate)
6. 175 mL orange juice (including 31 g maltodextrin)

Study burden and risks

Expected adverse events during the study
An amount of 65 ml of vodka will probably not cause adverse effects. Consumption of 20 gram alcohol (equal to 2 standard glasses in The Netherlands) is common and widespread under the population without causing adverse effects. However, people may feel nauseous or tired because of the alcohol. In addition, the placement of an intravenous cannula could cause pain, hematomas and, in rare cases, phlebitis. Filling out the questionnaires can lead to tiredness.

Expected benefit:
The participants will not have a direct benefit of participation.

Ongemakken:
Repeated blood collection; 24 times during the study (total circa 492 mL)

Contacts

Public
TNO

Utrechtseweg 48
Zeist 3704 HE
NL
Scientific
TNO

Utrechtseweg 48
Zeist 3704 HE
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

1. Caucasian men, this means that at least both parents and the subject himself should be of the Caucasian race;
2. Age 25-50 years (inclusive) on the day of the screening;
3. Body Mass Index (BMI) of 20-25 kg/m2 (inclusive);
4. Body weight of 60-100 kg (inclusive);
5. Able to read, write and fully understand the Dutch language, and
6. Able to participate in the study, willing to give written informed consent and to comply with the study procedures and restrictions

Exclusion criteria

1. Above average score (>2.26) on the restrained eating scale of the Dutch Eating Behaviour Questionnaire;
2. Alcohol consumption <=5 and >= 21 standard glasses/week;
3. Not having regular and normal Dutch eating habits (consuming mostly 3 main meals including breakfast);
4. Not having a normal day/night rhythm;
5. Smoking, or stopped with smoking <3 months prior to start of the study;
6. Using drugs, or stopped using drugs <3 months prior to start of the study;
7. Having a (family) history of alcohol or drug related problems;
8. Reported slimming or being on a medically described diet;
9. Having a vegan, vegetarian or macrobiotic lifestyle;
10. Loss of blood outside the limits of Sanquin within 3 months prior to screening;
11. Participation in a clinical trial within 3 months prior to the start of this study or more than 4 times a year;
12. Having a food allergy, sensitivity or disliking of one of the foods used in the study;
13. Reported unexplained weight loss or gain of >4 kg in the month prior to screening;
14. Inappropriate veins for cannula insertion;
15. Not having a general practitioner or health insurance;
16. Having a history of medical or surgical events or disease that may significantly affect the study outcome, particularly physiological disorders, metabolic or endocrine disease and

gastrointestinal disorders; and/or
17. Any conditions which, in the opinion of the investigator, might create undue risk to the subject or interfere with the subject's ability to comply with the protocol.

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Single blinded (masking used)
Control:	Placebo
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	27-09-2012
Enrollment:	24
Type:	Actual

Ethics review

Approved WMO

Date:	25-09-2012
Application type:	First submission
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)

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	NL41767.058.12