Influence of macronutrient-related ambient odours exposure on (congruent) appetite and actual food intake.
Cover story (for information brochure): The influence of hunger and satiety on abilities of logic reasoning

Published: 04-07-2019
Last updated: 15-05-2024

The primary objectives of the current study are to determine the influence of unaware and passively smelled macronutrient-related odours on appetite, and actual food intake, in normal weight and unrestrained individuals.The secondary objectives of...

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

Summary

ID

NL-OMON48398

Source
ToetsingOnline

Brief title
STER study 2

Condition

- Other condition

Synonym
eating behavior; olfaction

Health condition

eetgedrag

Research involving
Human

Sponsors and support

Primary sponsor: Wageningen Universiteit
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Eating behaviour, Smell

Outcome measures

Primary outcome

The main study parameters are: change in specific appetite for foods congruent vs incongruent with the exposed odour (difference between pre and post odour exposure), and food intake (for congruent vs incongruent foods).

Secondary outcome

Secondary parameters are: food/macronutrient preference (relative preference score), and correlation between self-reported macronutrient preference and actual macronutrient intake.

In addition, influences of hunger and satiety states on psychometric performance will be explored.

Study description

Background summary

Living in an obesogenic environment, we are surrounded by food odour cues that trigger these unconscious decisions and induce us to (over)eat. Olfaction plays

an important role in eating behaviour by detecting foods, attracting our attention, and triggering our appetite. However, the effect of food odours on subsequent behavioural responses remains unclear.
Olfaction may play a role in appetite and meal initiation. Some studies have suggested that food odours increases appetite for foods with similar properties, sensory-specific appetite, and may generalize across foods within certain categories as taste and energy-density.
On the other hand, contradictory findings have been reported between the influence of odours on appetite versus actual food choice and intake. Differences in intensity, type of exposure (explicit or implicit), and awareness of the odour cue could be responsible for the lack of consistency in these findings.
Therefore, we propose a series of behavioural studies to extend the knowledge in the (macronutrient signalling) function of odours and its impact on appetite and actual food intake. We aim to disentangle the differential effects of intensity, exposure method (explicit and implicit), and awareness of the cue: Aware and actively smelling of odours (part A; NL66580.081.18) and unaware smelling by means of ambient odours (part B).
Results of part A showed that food odours influence SSA but did not affect food intake. The knowledge learned from part A was used to establish the methods in the current protocol (part B).

Study objective

The primary objectives of the current study are to determine the influence of unaware and passively smelled macronutrient-related odours on appetite, and actual food intake, in normal weight and unrestrained individuals.
The secondary objectives of the current study are to determine the influence of unaware and passively smelled macronutrient-related odours on food preferences. Also, we will determine the correlation between self-reported macronutrient preference and actual macronutrient intake.

Cover story for participants: The influence of hunger and satiety on abilities of logic reasoning. Participants will be debriefed at the end of the last test session.

Study design

The current study is a counter-balanced cross-over intervention study. Subjects will take part in an information meeting and four test sessions. In each test session, subjects will be exposed to one of the four conditions (odour representing food high in carbohydrates, protein and fat, and low in calories) and tested for behavioural measures. In each test session, subjects will be asked to rate their general and specific appetite and stress, to perform a computer-based task on food preferences (MTPRT), and some psychometric tasks (to assess logical reasoning ability; this is done to

distract subjects from the actual goal of the study). Participants will be provided with lunch to covertly measure ad libitum food intake.

Intervention

In each test session, participants will be exposed to one of the four conditions (odour representing food high in carbohydrates, protein and fat, and low in calories) for a few minutes.

Study burden and risks

This study is non-therapeutic. The risk associated with participation is negligible. The burden can be considered as low. The study includes five site visits in a non-satiated state and an information meeting (approx. total duration of 5 hours). All odours and food products are considered safe to use/consume and commercially available. The level of the questionnaires to measure your ability to reason logically is average to difficult.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

Dutch women.
Healthy and normal body weight (BMI: 18.5 - 25 kg/m^2).
Between 18 * 35 years old.
Normal sense of smell.

Normal sense of taste and colour blindness will be assessed during the screening session. However, the goal of these tasks are to distract the attention from the odour identification test. Therefore, these tasks are not considered as inclusion criteria for the real aim of the study They will be added in the files for participants information (E1/E2, E3, F1-PIF) in order to be consistent with our alternative goal .

In the last test session, participants will be performed a debriefing questionnaire on aim of the study and awareness of any odour. After subjects complete the questionnaire, they will be briefed about the actual aim of the study by the researchers. Subjects are welcomed to ask any further question.

Exclusion criteria

Restrained eaters.
Habitual smokers.
Any food restriction such as vegetarian, vegan, etc.
Any allergy, intolerance or oversensitivity to food used in this study.
Dislike of the food products used in the study (Liking <40 mm VAS).
Use of medication other than paracetamol and hormonal contraceptives.
Pregnant/have the intention to become pregnant during the experiment/are currently breastfeeding.
Reported weight loss or weight gain of more than 5 kg or following a special diet in the two months prior the study.
Staff member of the Division of Human Nutrition and Health at Wageningen University, or students currently performing a MSc thesis at the Division.
Participation in other medical studies.
Previously participated in STER study 1

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	16-09-2019
Enrollment:	34
Type:	Actual

Ethics review

Approved WMO

Date:	04-07-2019
Application type:	First submission
Review commission:	METC Wageningen Universiteit (Wageningen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

ID: 22413
Source: Nationaal Trial Register
Title:

In other registers

Register	ID
CCMO	NL69840.081.19
Other	NL7742
OMON	NL-OMON22413