ISRCTN39512795 https://doi.org/10.1186/ISRCTN39512795

The effect of odour exposure on appetite, appetite for smelled foods and salivation, investigated for different odours

Submission date
13/12/2012

Recruitment status
No longer recruiting

Registration date
31/01/2013

Overall study status
Completed

Last Edited
31/01/2013

Condition category
Nutritional, Metabolic, Endocrine

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] Record updated in last year

Plain English summary of protocol

Background and study aims
In view of the obesity epidemic, it is important to understand which factors determine the appetizing and/or satiating responses to food cues. It is well known that short exposure to food cues, e.g. the sight or odour of freshly baked bread or pizza, can enhance salivation and appetite feelings. On the other hand, people report to be less hungry after cooking a meal, which is exposure to sight and odour of food for a longer period of time. In this study, we want to investigate some aspects of this apparent paradox. The primary objective is to investigate the effect of exposure to several odours on appetite, appetite for the smelled food and salivation over time.

Who can participate?
Unrestrained healthy women, 18-45 yr old, BMI 18.5 25 kg / m2

What does the study involve?
Participants were expected in the lab for 6 times, around lunch time. During every visit, the response to two different test conditions was measured (two test sessions were conducted on one day), resulting in 12 sessions. The first session was a practice session to get the participants acquainted to the procedure. During the remaining 11 session, the participants were exposed to two control sessions with no odour and nine sessions with different odours. During each session, salivation, hunger, appetite, appetite for different kind of foods and food preference was measured. Each session started with baseline measurements in which participants answered the appetite questionnaire and salivation was measured, in a room with no odour present. Subsequently, each participant entered one of the test rooms that contained either one of the odours or no-odour. The participants were given instructions on a computer. The appetite questionnaire was filled out 1, 5 9, 13 and 18 minutes after entering the room and the saliva collected 0.5, 4, 8 and 17 minutes after entering the room. After 20 minutes, the participants entered another room with no odour to complete a food preference questionnaire. When finished, participants received a snack.

What are the possible benefits and risks of participating?
A fee of 90 euros was paid upon completion of the study. Compared to other studies the burden can be considered as low. No possible health benefits.
The risk associated with participation is negligible.

Where is the study run from?
Restaurant of the Future (Netherlands).

When is the study starting and how long is it expected to run for?
The start date was 2 May 2011. The duration of the trial was 8 weeks.

Who is funding the study?
Technology Foundation STW (Stichting Technische Wetenschappen) (Netherlands).

Who is the main contact?
Marielle Ramaekers
marielle.ramaekers@wur.nl

Contact information

Type(s)
Scientific

Contact name
Mrs Marielle Ramaekers

Contact details
Bomenweg 2
Wageningen
Netherlands
6703 HD
+31 (0)317 482520
marielle.ramaekers@wur.nl

Additional identifiers

Protocol serial number
NL35493.081.11

Study information

Scientific Title
Effect of orthonasal odour exposure time on appetite, appetite for smelled foods and salivation, investigated for different odours: a cross-over study

Study objectives
1. One minute exposure to food odours increases appetite, appetite for the smelled food and salivation, compared to baseline (t=0).

2. Twenty minute exposure to food odours increases appetite and salivation, compared to baseline (t=0), but decreases the appetite for smelled foods.
3. Non-food odours evoke different appetite responses than food odours.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Medical Ethical Testing Committee (METC), Wageningen University, April 2009, ref: NL35493.081.11

Primary study design
Interventional

Study design
Cross-over study

Study type(s)
Screening

Health condition(s) or problem(s) studied
Obesity

Interventions
Cross-over study with 8 odour conditions: 5 food odours, 2 odours in duplo (repeated two times), two non-food odours and no-odour (duplo). Each participant completed two sessions per day, in total 12 sessions.

Twenty minute odour exposure to eight different odour conditions: no-odour (duplo), bread odour, chocolate odour (duplo), banana odour, tomato soup odour, meat odour (duplo), grassy odour and pine tree odour. Exposure to one odour during one session.

Intervention Type
Other

Phase
Not Applicable

Primary outcome(s)
1. Appetite (on visual analogue scale) was filled out at baseline and 1, 5 9, 13 and 18 minutes after onset of odour exposure
2. Appetite for smelled foods (on visual analogue scale) was filled out at baseline and 1, 5 9, 13 and 18 minutes after onset of odour exposure
3. Appetite for smelled foods measured with food preference questionnaire was filled out 20 minutes after onset of odour exposure

Key secondary outcome(s)
Salivation at baseline and 0.5, 4, 8 and 17 minutes after onset of odour exposure

Completion date
23/06/2011

Eligibility

Key inclusion criteria
1. Women aged 18-45 years
2. Healthy, based on self report
3. Body mass index (BMI) 18.5-25 kg/m2

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Upper age limit
45 Years

Sex
Female

Key exclusion criteria
1. Smoking
2. Restrained eater
3. Lack of appetite
4. Dieting for the past 2 months
5. Change in body weight > 5 kg during last 2 months
6. Vegetarian
7. Hyper sensitivity or allergy to any food product
8. Pregnant or breast feeding during last 6 months

Date of first enrolment
02/05/2011

Date of final enrolment
23/06/2011

Locations

Countries of recruitment
Netherlands

Study participating centre

Bomenweg 2
Wageningen
Netherlands
6703 HD

Sponsor information

Organisation
Technology Foundation STW (Stichting Technische Wetenschappen) (Netherlands)

ROR
https://ror.org/057tq3593

Funder(s)

Funder type
Research organisation

Funder Name
Technology Foundation (STW) (Netherlands)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration