

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

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		<input type="checkbox"/> Protocol
<b>Registration date</b> 31/01/2013	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
<b>Last Edited</b> 31/01/2013	<b>Condition category</b> Nutritional, Metabolic, Endocrine	<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> 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 / m<sup>2</sup>

### 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?

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## Contact information

### Type(s)

Scientific

### Contact name

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## Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers

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

**Study design**

Cross-over study

**Primary study design**

Interventional

**Secondary study design**

Randomised controlled trial

**Study setting(s)**

Other

**Study type(s)**

Screening

**Participant information sheet**

Not available in web format, please use the contact details below to request a patient information

**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 measure**

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

**Secondary outcome measures**

Salivation at baseline and 0.5, 4, 8 and 17 minutes after onset of odour exposure

**Overall study start date**

02/05/2011

**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/m<sup>2</sup>

**Participant type(s)**

Patient

**Age group**

Adult

**Lower age limit**

18 Years

**Upper age limit**

45 Years

**Sex**

Female

**Target number of participants**

20

**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)

**Sponsor details**

Postbus 3021

Utrecht

Netherlands

3502 GA

**Sponsor type**

Research organisation

**Website**

<http://www.stw.nl/en>

**ROR**

<https://ror.org/057tq3593>

## Funder(s)

**Funder type**

Research organisation

**Funder Name**

Technology Foundation (STW) (Netherlands)

## **Results and Publications**

**Publication and dissemination plan**

Not provided at time of registration

**Intention to publish date****Individual participant data (IPD) sharing plan****IPD sharing plan summary**

Not provided at time of registration