

# Investigating oral processing in relation to taste and texture of (semi-)liquid foods

Published: 20-12-2011

Last updated: 19-03-2025

The primary objective of this study is to identify specific oral processing movements and/or patterns that occur during consumption of (semi-)liquid foods, with respect to taste and texture related properties (e.g. taste intensity and viscosity),...

<b>Ethical review</b>	Approved WMO
<b>Status</b>	Recruitment stopped
<b>Health condition type</b>	Other condition
<b>Study type</b>	Observational invasive

## Summary

### ID

NL-OMON35715

### Source

ToetsingOnline

### Brief title

Chew it!

### Condition

- Other condition

### Synonym

obesity, overweight

### Health condition

overgewicht en obesitas

### Research involving

Human

## Sponsors and support

**Primary sponsor:** TI Food and Nutrition

**Source(s) of monetary or material Support:** Top Institute Food & Nutrition

## Intervention

**Keyword:** chewing behaviour, fat content, fat perception, oral processing, sugar content, taste perception, viscosity

## Outcome measures

### Primary outcome

Tongue and jaw movements will be measured by means of articulography (EMA); sensors will be placed on the face and on the tongue to monitor spatial and temporal movement.

### Secondary outcome

Electromyography (EMG) will assess muscle contraction and muscle force needed to process the foods. Moreover, the subject will be videotaped during the tasting sessions in order to synchronize the measurements in time. Last, sensory attributes will be rated by the subjects.

## Study description

### Background summary

Currently several fat-reduction and sugar-reduction strategies are used to decrease the energy density of foods, some are accepted by the consumer and some are not. We hypothesize that the successful strategies have specific effects on foods that are able to mimic fat- and sugar related sensations. However, no data is available on specific oral processing movements or patterns that are used to perceive taste and texture of products. Knowledge of these movements/patterns might bring the development of fat-reducing and sugar-reducing strategies to a higher level.

### Study objective

The primary objective of this study is to identify specific oral processing movements and/or patterns that occur during consumption of (semi-)liquid foods, with respect to taste and texture related properties (e.g. taste intensity and viscosity), and the sensory perception thereof (e.g. rated taste intensity and thickness).

## **Study design**

The experiment is observational. Within the sessions we make within person comparisons between products and rated attributes. Each subject will participate in three sessions spaced one week apart. The first session will include measurement of spontaneous eating behaviour. The second session is set up to evoke a broad range of oral movements. The third session is specifically focussed on fat perception and involves measurements while subjects are rating fat specific attributes. The last session is preceded by a short training in which subjects are trained to recognize and rate fat-related attributes.

## **Study burden and risks**

The study is non-therapeutic to the participant. The risk associated with participation is low. The invasiveness can be considered as low. All three measurement sessions will last about 2-2.5 hours. In total the study will take about 10 hours within 4 weeks.

## **Contacts**

### **Public**

TI Food and Nutrition

PO Box 557  
6700 AN Wageningen  
NL

### **Scientific**

TI Food and Nutrition

PO Box 557  
6700 AN Wageningen  
NL

## **Trial sites**

## Listed location countries

Netherlands

## Eligibility criteria

### Age

Adults (18-64 years)

Elderly (65 years and older)

### Inclusion criteria

- Adults: 18-50 years
- Normal weight: BMI 18.5 - 25.0 kg/m<sup>2</sup>
- Apparently healthy (self-reported by the participant)
- Successful screening session including the EMA measurement (see section 6.3.1 of the protocol)

### Exclusion criteria

- Regular smoker > 1 cigarette per day)
- Aversion or dislike for the foods under study (score<3 on a 5-point scale)
- Current participation in other experiments
- Having followed an energy-restricted diet during the last 2 months
- Hypersensitivity (allergy and/or intolerance) for food products under study
- Use of anticoagulants
- Hypersensitivity for latex
- Experienced discomfort or difficulties with swallowing or chewing
- Wearing a pace maker
- Wearing braces, that limit oral movements
- Mouth/tongue piercings

## Study design

### Design

**Study type:** Observational invasive

Masking: Open (masking not used)

Control: Uncontrolled

Primary purpose: Other

## Recruitment

NL  
Recruitment status: Recruitment stopped  
Start date (anticipated): 06-02-2012  
Enrollment: 30  
Type: Actual

## Ethics review

Approved WMO  
Date: 20-12-2011  
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: 25079  
Source: NTR  
Title:

### In other registers

Register	ID
CCMO	NL38196.081.11
OMON	NL-OMON25079