Influence of Oral Processing Behaviour and Yogurt Properties on Satiation (Meal Termination)

Published: 11-09-2017
Last updated: 12-04-2024

The overall objective of this study is to understand how consumers adapt their oral processing behaviours in response to small texture variations of yogurts and how changes in oral processing behaviour of yogurts impact the amount of food eaten and...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON44152

Source
ToetsingOnline

Brief title
OPYO: Oral Processing Yogurt

Condition

- Other condition

Synonym
meal termination, satiation

Health condition

behaviour

Research involving
Human

Sponsors and support

Primary sponsor: Wageningen Universiteit
Source(s) of monetary or material Support: European Sensory Network

Intervention

Keyword: Food oral processing, Satiation, Texture, Yogurt

Outcome measures

Primary outcome

Amount of yogurt eaten (indication of satiation) and parameters related to oral processing behaviour (average sip size in grams, number of bites, number of swallows, number of chews (when consumption involves chewing), chewing rate (number of chews per minute), oral exposure time (period that products remains in the mouth in seconds), inter-spoon interval (period between a swallow and a subsequent spoon in seconds), total eating duration in seconds, eating rate (amount of food consumed per minute), vertical amplitude in mm (mouth opening).

Secondary outcome

Initial appetite (i.e. hunger, fullness and prospective consumption), Pleasantness/liking, Appetite after yogurt consumption (i.e. hunger, fullness and desire to eat).

Study description

Background summary

Due the current high incidence of overweight and obesity, there is high interest in academia and food industry in identifying aspects involved in food intake regulation. Getting a better understanding of the mechanisms that drive the meal termination process (satiation) may help to develop strategies that prevent overconsumption during an eating occasion. It is well known that

texture properties of foods influence the amount eaten and satiation, with liquids being consumed in higher amounts than (semi)-solids. For example, the intake of chocolate milk has been shown to be up to 30% higher than the intake of chocolate custard at an eating occasion. Most studies that investigated the effect of texture on satiation compared products with large texture variations that do not belong to the same product category. This hampered the applicability of the results by food industry and the development of healthy, texture modified foods for food intake regulation. It is not known whether smaller variations in texture within a product category (i.e. thin vs. thick yogurt) are sufficient to prolong oral processing and sensory exposure to influence satiation. We hypothesize that products can be optimized for their texture within a product category to develop foods that assist in food intake regulation.

Study objective

The overall objective of this study is to understand how consumers adapt their oral processing behaviours in response to small texture variations of yogurts and how changes in oral processing behaviour of yogurts impact the amount of food eaten and satiation. The specific objectives are: (i) To determine the influence of small texture variations within a product category (yogurt) on satiation; (ii) To investigate the influence of small, texture variations within a product category (yogurt) on oral processing behaviour; (iii) To understand how oral processing behaviour influences satiation of yogurts with small texture differences.

Study design

This is an observational study. Participants will be video recorded during the consumption (ad libitum) of 6 yogurt products with small, but noticeable, texture differences [2x3 factorial design: 2 viscosity conditions (thin/thick yogurt) and 3 added chocolate pieces conditions (small/medium/large pieces)]. Satiation will be assessed as the amount of yogurt eaten. Oral processing parameters will be extracted from the videos. Information about frequency of yogurt consumption and yogurt preference will be obtained using a questionnaire during recruitment. Liking and expected satiation capacity of the yogurts will be rated using a questionnaire after consumption.

Study burden and risks

The risk associated with participation in this study is negligible. The burden for the participants can be considered low to moderate since they have to attend 7 sessions (1 information and 6 test sessions). Each session will take 30 minutes, so total duration of the study is 3.5 hours per participant.

Contacts

Public
Wageningen Universiteit

Stippeneng 4
Wageningen 6708 WE
NL
Scientific
Wageningen Universiteit

Stippeneng 4
Wageningen 6708 WE
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

Dutch nationality, Caucasian ethnicity, born in The Netherlands
Aged between 18 and 45 years old
Regular consumer of yogurt (at least once a week)
Good general health and oral health
Normal smell and taste functions
Normal BMI of 18.5-25 kg/m2
Willing to eat the pre-test product (bread bun) and yogurts
No facial hair or willing to shave, due to facial markers (stickers) that will be placed for the video recording to determine eating behaviour
Have no dental braces or a piercing in or around the mouth (except removable piercings)
Have given written informed consent

Exclusion criteria

Allergy or intolerance for gluten, milk products or nuts
Mastication and/or swallowing problems caused by neurological problems, i.e. stroke, Parkinson, Alzheimer, Huntington.
Being pregnant or lactating
Use medication that may affect the function of taste, smell, mastication and salivation
History of eating disorders
Have followed an energy restricted diet during the last 2 months
Employee of the Division of Human Nutrition (Wageningen University)
Thesis student or intern at the chair group of Sensory Science and Eating Behaviour (Wageningen University)
Participate in another medical study

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	17-10-2017
Enrollment:	120
Type:	Actual

Ethics review

Approved WMO

Date:	11-09-2017
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

No registrations found.

In other registers

Register	ID
CCMO	NL62080.081.17