Effect of aroma quality on ad libitum food intake at different viscosities

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Primary Objective: Investigation of the effect of the quality of aroma on ad libitum food consumption, taking into account the multimodal integration between aroma and viscosity.Secondary Objective(s): Investigation of the effect of viscosity on ad...

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

Summary

ID

NL-OMON35146

Source
ToetsingOnline

Brief title
SenSation

Condition

- Other condition

Synonym
corpulence, overweight

Health condition

etiologie van obesitas

Research involving
Human

Sponsors and support

Primary sponsor: Wageningen Universiteit
Source(s) of monetary or material Support: NWO-STW,CSM,Danone,koninklijke friesland campina,Unilever

Intervention

Keyword: ad libitum food intake, aroma quality, sensory-specific satiation, viscosity

Outcome measures

Primary outcome

amount of food consumed

Secondary outcome

food choice test:

- explicit liking

- explicit wanting

- implicit wanting

- food preference (freqency)

Monitored during the experiment:

- fullness

- hungre

- satiation

- thirst

- desire to eat

- desire to eat something savory

- desire to eat something sweet

- pleasantness of eaten food product

Study description

Background summary

It is commonly known that the problems concerning obesity and overconsumption are increasing. Highly satiating products that induce an early meal termination might be one of the solutions to fight obesity. During food consumption the first processes that play a role are sensory processes and these are suggested to play a role in the decision to terminate a meal.
From literature and non published results it is known that ad libitum food intake and satiation feelings can be altered by manipulating the aroma delivery. This study focuses on the investigation of the influence of the quality of the aroma on the ad libitum food intake at two different viscosities. With aroma quality we mean type of flavour like for example strawberry, tomato or chocolate.
Much of our knowledge about food is acquired incidentally. This knowledge guides food choices and food intake. Some aroma*s are very common in products with a high energy density and therefore also associated due to learning with energy dense products, while other aroma*s are common mostly in low energy dense products. We hypothesize that aroma*s associated with energy dense products increase satiation and accordingly decreases consumption, in comparison with aroma*s associated with low energy dense products.
Also multimodal integration between the aroma and viscosity might increase satiation and decrease food intake. Multimodal integration is the enhancement of sensory signals when congruent stimuli from different sensory modalities are being perceived. Because both creaminess and thickness are being associated with more calories, we expect an enhanced satiation when these stimuli are combined in one product. Therefore, we hypothesize that adding creamy notes to a thicker tomato soup will increase satiation and decrease food intake more than when adding creamy notes to a thinner tomato soup.

Study objective

Primary Objective:
Investigation of the effect of the quality of aroma on ad libitum food consumption, taking into account the multimodal integration between aroma and viscosity.

Secondary Objective(s):
Investigation of the effect of viscosity on ad libitum food consumption, independent of eating rate and eating effort.
Investigation of the effect of the quality of aroma on several food choice

parameters, namely explicit liking, explicit wanting, implicit wanting and forced choice, taking into account the multimodal integration between aroma and viscosity.
Investigation of the effect of the quality of aroma during ad libitum intake on self-reported ratings (fullness, satiation, hunger, thirst, desire to eat, appetite for something savoury, appetite for something sweet and pleasantness of eaten food product) , taking into account the multimodal integration between aroma and viscosity.

Study design

50 participants are recruited to participate in this study. They have to come 5 times to the test location during 5 separate test days with a minimum time span of 5 days.

On each test day participants:
1. have to rate the liking and wanting of 16 food products shown on pictures and choose 120 times between two food products on pictures (before and after the ad libitum intake)
2. have to rate fullness, satiation, hunger, thirst, desire to eat, appetite for something savoury, appetite for something sweet and pleasantness of eaten food product (11 times during the experiment)
3. have to consume the test food to satiation, while the aroma is delivered retronasally through a suction catheter that is connected to an Olfactometer. During this part of the test the participants receive instructions on a computer screen telling them about the moment when the soup is pumped into their mouth (by a peristaltic pump), when to swallow and when to fill in questions.

In this study 4 different test conditions will be compared against each other. They differ in the quality of the aroma that is delivered to the nasal cavity with the Olfactometer (with and without cremy notes) and in viscosity (low, high).

The conditions will be randomised across all subjects in a within-subject crossover design.

Intervention

Intervention with aroma. Test condition without creme aroma and low viscosity is placebo.

Study burden and risks

The study is non-therapeutic to the participant. This risk associated with participation is negligble. Compared to other studies the burden can be

considered medium because of the invasive suction catheter and nose spray that could result in stress and a running nose. A minor risk of the insertation of the suction catheter to the nasal cavitity is nose bleed.

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

healthy
18-45 year old
BMI 18.5-26
healthy appetite
unrestrained eater

Exclusion criteria

dieting during past 2 months
intollerance or allergic to one of the ingredients

Study design

Design

Study type:	Interventional
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	15-02-2009
Enrollment:	50
Type:	Actual

Ethics review

Approved WMO Date:	17-02-2009
Application type:	First submission
Review commission:	METC Wageningen Universiteit (Wageningen)
Approved WMO Date:	11-03-2010
Application type:	Amendment
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	NL25454.081.08