Speed limits: Food intake and eating behaviour of ultra-processed and unprocessed foods

No registrations found.

Ethical review	Not applicable
Status	Pending
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON23484

Source
NTR

Brief title
Vogue

Health condition

Obesity

Sponsors and support

Primary sponsor: Wageningen University
Source(s) of monetary or material Support: Wageningen University

Intervention

Outcome measures

Primary outcome

Daily energy intake

Secondary outcome

Energy intake rate, oral processing characteristics

Study description

Background summary

Rationale: Foods that can be eaten at a fast rate - with low mastication effort - lead to shorter orosensory exposure (OSE) per unit of food consumed. This results in a decreased satiation response and higher subsequent food intake. Recent research has shown that participants on a ultra-processed diet have an higher caloric intake and gain body weight compared to those on an unprocessed food diet. In this study the ultra-processed vs. unprocessed meals were classified according to the NOVA classification and matched on caloric content and palatability. The NOVA classification, classifies foods based on the physical, biological and chemical processes that occur after foods are separated from nature, and before they are consumed or used in the preparation of dishes and meals.
It is unclear whether the found increase in food intake of ultra-processed foods is due to industrial processing or because of a difference in eating rate at which the (ultra-)processed foods can be consumed.
Objective: The objective of this study is to determine the independent and additive effects of industrial food processing (according to the NOVA classification) and eating rate on satiation.
Study design: The study has a 2x2 randomized crossover design. All participants receive 4 treatments and are their own control.
Study population: Healthy adults (n=60) between 18-55 years old with a BMI between 18.5-27 kg/m2.
Intervention: Participants will join 4 test days during which they receive 3 main test meals (breakfast, lunch, dinner) and in-between meals snacks according to one of the 4 diets. The 4 diets of this study are: 1) unprocessed, slow eating rate 2) unprocessed, fast eating rate 3) ultra-processed, slow eating rate 4) ultra- processed, fast eating rate. During eating and before and after eating the weight of the plate will be measured to determine intake. Additionally, participants will be recorded on video to determine eating behaviour (number of bites, chews and oral processing duration). The order in which participants will receive the diets will be randomized. The evening before and during each test day participants will keep a food and exercise diary.
Main study parameters/endpoints: The main study outcomes are food intake during the three main meals and during snack time. Secondary outcomes are, eating behaviour characteristics measured by video (eating rate (g/min and bites/min), number of chews (chews/bite and chews/gram), bite size (gram/bite), oral processing duration (seconds), appetite (hunger, fullness, desire to eat, desire to eat sweet, desire to eat savoury, prospective consumption) and sensory characteristics (liking (taste + smell), desire to eat the meal, expected satiation, sweet, savoury, smoothness, chewiness, thickness) of the meals.
Nature and extent of the burden and risks associated with participation, benefit and group relatedness: The risk associated with participation is small and the burden can be considered as moderate. Only commercially sold food items are used in this study. The knowledge obtained may be used to develop products or strategies that enhance healthy choices and

eating behaviour and consequently help prevent overweight and obesity. We consider the knowledge obtained and possible implications of this study to outweigh the individual burden.

Study objective

Foods that are consumed quicker, with a faster energy intake rate, will lead to higher daily energy intake, independent of food processing level.

Study design

Each intervention day, energy intake from breakfast through dinner

Intervention

Participants will join 4 test days during which they receive 3 main test meals (breakfast, lunch, dinner) and in-between meals snacks according to one of the 4 diets. The 4 diets of this study are: 1) unprocessed, slow eating rate 2) unprocessed, fast eating rate 3) ultra-processed, slow eating rate 4) ultra- processed, fast eating rate. During eating and before and after eating the weight of the plate will be measured to determine intake. Additionally, participants will be recorded on video to determine eating behaviour (number of bites, chews and oral processing duration). The order in which participants will receive the diets will be randomized. The evening before and during each test day participants will keep a food and exercise diary.

Contacts

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Eligibility criteria

Inclusion criteria

• Between 18-55 years old at the day of inclusion
• Able to understand and speak English fluently or without difficulty (self-report)
• BMI 18.5-30 kg/m2 – measured by the researchers at the end of information meeting (after signing informed consent)
• Good general health and appetite (F1 questionnaire self-report)
• Commonly (5 out of 7 week days) eating three meals a day every day around approximately the same times.

Exclusion criteria

• Difficulties with swallowing, chewing and or eating in general
• Suffering from an endocrine or eating disorder, gastrointestinal illness or illness of the thyroid gland, respiratory disease or diabetes.
• Having taste or smell disorders (self-report)
• Braces (not including a dental wire) or oral piercing
• Smoking
• Consuming on average more than 21 glasses of alcohol per week (21)
• Not willing to stop using drugs during the study period (from inclusion till last test session)
• Use of medication that may influence study outcomes (self-report)
• Allergies or intolerance to any ingredient of the test meals or snacks
• Not willing to eat the test food because of eating habits or believes.
• Following a vegetarian or vegan diet
• Lactose intolerant
• Men having facial hair such as a beard as facial movements cannot be analysed.
• Followed an energy restricted diet during the last 2 months
• Gained or lost 5 kg of body weight over the last half year
• High restrained eater according to the Dutch Eating Behaviour Questionnaire
• Signed up for participating in another research study
• Employee of Human Nutrition department of Wageningen university
• Thesis student or intern at the chair group of Sensory Science and Eating Behaviour Human Nutrition (WUR).
• Intensive exercising more than 8 hours per week
• Low score (< -1) for liking the test foods on a nine point likert scale based on pictures of the food items.
• Unfamiliar with the test foods (self report).

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Randomized controlled trial
Masking:	Single blinded (masking used)
Control:	N/A , unknown

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-03-2020
Enrollment:	60
Type:	Anticipated

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Not applicable

Application type:	Not applicable

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
NTR-new	NL8348
Other	SEC Wageningen University : SEC WUR 2020-11

Study results