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The effects of snack consumption during two months on body weight

Submission date	Recruitment status	[_] Prospectively registered
14/05/2009	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
17/06/2009	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
03/06/2020	Nutritional, Metabolic, Endocrine	

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
NL22403.081.08; METC-WU / 08/04

Study information

Scientific Title
The effects of two months of snack consumption during a meal or in between meals on energy balance: a randomised parallel 2 x 2 factorial single-centre trial

Acronym

Snack study

Study objectives
There is controversy about the influences of snack consumption on energy balance. Short term intervention studies demonstrate no energy intake compensation, which suggests that eating in between meals result in higher daily energy intake. Epidemiological studies however, do not show a clear relation between snack consumption and overweightness.

The aim of the current experiment is to investigate the long term effects of moments of snack consumption on compensation behaviour and energy balance in a free living situation. In addition, we will focus on the effects of energy density on energy balance.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Medical Ethical Testing Committee (METC), Wageningen University (t.a.v. Prof. CPGM de Groot), Department of Human Nutrition, approved in May 2008 (ref: NL22403.081.08)

Primary study design
Interventional

Study design
Randomised parallel 2 x 2 factorial single-centre trial

Study type(s)
Other

Health condition(s) or problem(s) studied
Obesity, overweight

Interventions
Snacks are consumed either with a meal or between meals and the snacks have either a low (less than 4 kJ/g) or high (greater than 12 kJ/g) energy density. Subjects consume the snacks daily for 8 weeks. The energy content of the snacks in each study group is 25% of the participant's daily energy needs.

Intervention Type
Other

Phase
Not Applicable

Primary outcome(s)
Change in weight after two months of intervention. The change in weight will be compared between the 4 groups. Body weight is assessed in week 1 and in week 8 on a digital scale to the nearest 0.01 kg. Body weight is also assessed twice a week during the 8 weeks of intervention to keep track of changes over time.

Key secondary outcome(s)

1. Observed energy intake on two days in week 1 and on two days in week 8
2. Body composition assessed with air displacement plethysmography on one morning in week 1 and on one morning in week 8
3. Level of physical activity is assessed on 7 days in week 1 and 7 days in week 8 by means of an activity diary and by a pedometer

Completion date
03/12/2008

Eligibility

Key inclusion criteria
1. Age: 18 - 35 years
2. Body mass index (BMI): 18.5 - 23 kg/m^2
3. Healthy men and women

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Total final enrolment
82

Key exclusion criteria
1. Weight change of greater than 1 kg in last three months
2. Smoking
3. Following an energy restricted diet during the last six months
4. Gastro-intestinal diseases
5. Diabetes, thyroid diseases, or any other endocrine disorders
6. Lack of appetite for any (unknown) reason
7. Restraint eating (men: score greater than 2.26; women: score greater than 2.80 on Dutch Eating Behaviour Questionnaire (DEBQ), norm table of 2005)
8. Participation in a different study, performed by the Department of Human Nutrition

Date of first enrolment
06/10/2008

Date of final enrolment

03/12/2008

Locations

Countries of recruitment
Netherlands

Study participating centre
Wageningen University
Wageningen
Netherlands
6700 EV

Sponsor information

Organisation
Wageningen University (Netherlands)

ROR
https://ror.org/04qw24q55

Funder(s)

Funder type
Research organisation

Funder Name
Dutch Nutrition Centre (Netherlands)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
	results				

Results article	Study website	01/02/2010	03/06/2020	Yes	No
Study website		11/11/2025	11/11/2025	No	Yes