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Drivers of eating behaviour during chronic overconsumption

Submission date	Recruitment status
14/09/2010	No longer recruiting
Registration date	**Overall study status**
27/01/2011	Completed
Last Edited	**Condition category**
15/03/2013	Nutritional, Metabolic, Endocrine

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

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
BB/G530141/1

Study information

Scientific Title
Drivers of eating behaviour during chronic overconsumption: role of food hedonics (liking and wanting) and peptide biomarkers on satiation and satiety

Study objectives

The aim of this study follows on from the findings of our previous BBSRC grant (BBS/B/05079: The impact of physical activity on appetite control). Participants are involved in two concurrent sub-studies. Study 1, looks at changes at energy balance over the duration of the intervention. Study 2 looks at the kinetics of gut peptides after consumption of breakfast. During the exercise intervention in study 1, a proportion of participants are expected to show compensatory increases in energy intake which will offset the energy deficit. This relative overconsumption is safe because it does not result in significant weight gain, but does confer other health benefits such as increased fitness, lowered blood pressure, resting heart rate and reduced waist circumference (a marker of visceral fat).

The principal objective of the study is to characterise and compare those participants who lose the amount of weight predicted by their exercise expenditure (based on measured changes in their fat and lean mass) with those participants who do not lose the amount of weight predicted.

The outcomes of the study will yield important information about the processes that underpin eating behaviour during a prolonged elevation in food intake (relative overconsumption) in response to an increase in energy expenditure from exercise.

Ethics approval required
Old ethics approval format

Ethics approval(s)
UK National Health Service Research Ethics Committee Leeds (West) approved on the 20th January 2009 (ref: 09/H1307/7)

Primary study design
Interventional

Study design
SIngle centre medium term (12-week) experimental controlled study

Study type(s)
Other

Health condition(s) or problem(s) studied
Overweight, obesity

Interventions
Supervised exercise to expend 500 kcal 5 times/week for 12 weeks. Assessments at week 0, week 6 and week 12. No exercise overweight/obese and lean comparators.

Intervention Type
Other

Phase
Not Applicable

Primary outcome(s)

Study 1:
Change in energy balance from week 0 to week 12 measured by the product of the energy cost of a unit change in fat mass by the observed change in fat mass and summing it with the product of the energy cost of a unit change in lean mass by the observed change in lean mass.

Study 2:
Rise and fall in concentration of gut peptides assayed from the participants blood samples in the four hour period following consumption of breakfast.

Key secondary outcome(s)
Study 1:
1.1. Cardiovascular fitness at week 12 will be measured by VO2 maximal test of aerobic capacity
1.2. Resting heart rate and Blood pressure at week 12 will be measured by an integrated digital blood pressure and heart rate monitor with inflatable cuff
1.3. Resting metabolic rate at week 12 will be measured by Gas Exchange Measurement
1.4. Substrate oxidation at week 12 will be measured by indirect calorimetry
1.5. Eating behaviour at week 12 will be measured by intake of test meals designed to vary in macronutrient composition (20:65:15 and 35:50:15, % carbohydrate:fat:protein) and quantitative ratings of hunger and satiety by questionnaire

Study 2:
Quantitative ratings of hunger and satiety by questionnaire.

Completion date
29/10/2015

Eligibility

Key inclusion criteria
1. 18 - 55 years old
2. Sedentary lifestyle (no leisure-time physical activity in previous 6 months)
3. Body Mass Index (BMI) between 27 - 38 kg/m2 or 18 - 23 kg/m2 (lean control)
4. Signed consent given
5. No objection from participant's GP

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Key exclusion criteria

1. Inability to fully comply with intervention or study procedures
2. Insufficient English language skills to complete all questionnaires
3. Pre-existing injuries or conditions that could be aggravated by regular physical activity
4. Medication that could influence accumulation or expenditure of energy
5. Cardiac problems (arrhythmia, Congestive heart disease)
6. Uncontrolled hypertension
7. Genetic syndromes associated with obesity
8. Presence of untreated hypothyroidism
9. Recent body weight change (± 2 kg in previous 3 months)
10. Currently following weight loss regime
11. Food allergies or aversions

Date of first enrolment
28/01/2008

Date of final enrolment
29/10/2015

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Institute of Psychological Sciences
Leeds
United Kingdom
LS2 9JT

Sponsor information

Organisation
University of Leeds (UK)

ROR
https://ror.org/024mrxd33

Funder(s)

Funder type
Research council

Funder Name
Biotechnology and Biological Sciences Research Council (BBSRC) (UK) - (ref: BB/G530141/1)

Alternative Name(s)
UKRI - Biotechnology And Biological Sciences Research Council, Agricultural and Food Research Council, Biotechnology & Biological Sciences Research Council, BBSRC, BBSRC UK, AFRC

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	08/06/2011		Yes	No
Results article	results	01/02/2012		Yes	No
Results article	results	01/01/2013		Yes	No