

# Effect of sucrose-sweetened mixed berry puree on postprandial glucose and insulin response

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|----------------------------------------|----------------------------------------------------------------|------------------------------------------------------|
| <b>Submission date</b><br>16/04/2010   | <b>Recruitment status</b><br>No longer recruiting              | <input type="checkbox"/> Prospectively registered    |
| <b>Registration date</b><br>27/05/2010 | <b>Overall study status</b><br>Completed                       | <input type="checkbox"/> Protocol                    |
| <b>Last Edited</b><br>27/05/2010       | <b>Condition category</b><br>Nutritional, Metabolic, Endocrine | <input type="checkbox"/> Statistical analysis plan   |
|                                        |                                                                | <input type="checkbox"/> Results                     |
|                                        |                                                                | <input type="checkbox"/> Individual participant data |
|                                        |                                                                | <input type="checkbox"/> Record updated in last year |

**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**  
POFE2 4232

## Study information

**Scientific Title**  
Effect of sucrose-sweetened mixed berry puree on postprandial glucose and insulin response: A randomised, single-blind, placebo-controlled, cross-over single-centre study

**Study objectives**

The primary aim was to investigate the effect of mixed berry puree made from bilberries, blackcurrants, cranberries and strawberries on postprandial plasma glucose concentrations after a 35 g sucrose load in healthy subjects. The secondary aim was to investigate the effect of berry puree on postprandial insulin response.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

The Ethics Committee of the Hospital District of Northern Savo approved the study protocol 27 October 2009 (DNRO 106/2009)

### **Study design**

Randomised single blind placebo controlled crossover single centre study

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Postprandial glycaemia

### **Interventions**

Test meal: 150 g of berry puree made from equal amounts of bilberries, blackcurrants, cranberries and strawberries with 35 g sucrose and 120 ml of tap water.

Control meal: 250 ml of oral sucrose load with similar amounts of available carbohydrates (glucose, fructose and sucrose) than test meal.

Subjects participated in two 2-h meal tolerance tests in a random order, on separate days, with a washout period of at least 5 days. Subjects were tested at the same time of day under similar conditions and acting as their own controls. The experiment began in the morning after a 10-12 h overnight fast. Subjects were advised to consume the test meal steadily within 15 min.

The study subjects were instructed to maintain their diet, body weight and living habits throughout the study, to refrain from intensive physical activity on the day before the test days and abstain from alcohol two days before the test days, and to avoid berries and chocolate in the prior evening meal. In addition, in the evening before the test day each subject was told to consume a meal of choice and repeat that meal before the second test. Smoking was prohibited on the morning before the test and during the test meal.

### **Intervention Type**

Other

### **Phase**

Not Applicable

### **Primary outcome(s)**

Plasma glucose concentrations analysed from fingertip capillary and venous blood samples taken within 20 min before the ingestion of meal and at 15, 30, 45, 60, 90 and 120 min after starting the ingestion of meal.

**Key secondary outcome(s)**

1. Serum insulin concentrations analysed from venous blood samples taken within 20 min before the ingestion of meal and at 15, 30, 45, 60, 90 and 120 min after starting the ingestion of meal
2. Optionally, the following concentrations may be measured at the same time points:
  - 2.1. Plasma cholecystokinin (CCK)
  - 2.2. Glucose-dependent insulinotropic polypeptide (GIP)
  - 2.3. Glucagon-like peptide 1 (GLP-1)
  - 2.4. Peptide YY (PYY)
3. Body weight measured with calibrated digital scale at every study visit after 10-12 h overnight fasting

**Completion date**

03/12/2009

**Eligibility****Key inclusion criteria**

1. Provision of signed and dated consent prior to any study procedures
2. Men or women aged 18 to 70 years
3. Subject's laboratory evaluation at the screening visit must be within normal limits (with the exception of abnormalities considered as clinically insignificant in the opinion of the study physician)

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

18 years

**Sex**

All

**Key exclusion criteria**

1. Subject with type 1 diabetes
2. Subject with type 2 diabetes
3. Subject requiring antidiabetic medication
4. Subject with allergy or sensitivity to an ingredient of the test product
5. Subject with active hepatic, kidney or thyroid disease or disorder except the subjects on thyroid replacement therapy

6. Female subject who is pregnant or lactating
7. Subject with: haemoglobin < 100 g / l, fasting plasma glucose concentration > 7.0 mmol/l, plasma gamma-glutamyl transferase > 2 x upper limit of normal or plasma creatinine > 2 x upper limit of normal at the screening visit.
8. Subject with body mass index > 30
9. Subject who have had myocardial infarction within 6 months prior to screening
10. Subject with unstable angina pectoris
11. Subject who have history of temporal ischemic attack or stroke within six months prior to screening
12. Subject with malignancy within 5 years prior screening (except treated cutaneous basal cell or squamous cell cancer)

**Date of first enrolment**

28/10/2009

**Date of final enrolment**

03/12/2009

## Locations

**Countries of recruitment**

Finland

**Study participating centre**

Neulaniementie 2 L 6

Kuopio

Finland

70210

## Sponsor information

**Organisation**

Finnsugar Ltd (Finland)

**ROR**

<https://ror.org/02cnwya81>

## Funder(s)

**Funder type**

Industry

**Funder Name**

Finnsugar Ltd (Finland)

**Results and Publications**

**Individual participant data (IPD) sharing plan**

**IPD sharing plan summary**

Not provided at time of registration