# Measuring the glycemic index and insulin index of dairy products

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| **Ethical review** | Approved WMO |
| **Status** | Recruitment stopped |
| **Health condition type** | Glucose metabolism disorders (incl diabetes mellitus) |
| **Study type** | Interventional |

## Summary

### ID

NL-OMON32241

**Source**
ToetsingOnline

**Brief title**
GI en II bepaling van zuivelproducten

### Condition

- Glucose metabolism disorders (incl diabetes mellitus)

**Synonym**
diabetes, obesity

**Research involving**
Human

### Sponsors and support

**Primary sponsor:** Universiteit Maastricht
**Source(s) of monetary or material Support:** zuivelstichting

## Intervention

**Keyword:** dairy produts, glycemic index, insulin index

## Outcome measures

### Primary outcome

Glycemic index and insulin index

### Secondary outcome

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# Study description

### Background summary

At the moment GI is one of the main targets of nutritional research to explain its role in the rising levels of obesity. Since fat intake has probably decreased over the last couple of years while prevalence of obesity did not, the focus of research has been changed towards the carbohydrate intake and in particular high GI carbohydrates like sugar. Readily digestible carbohydrates give higher postprandial blood glucose and insulin concentrations than do less digestible carbohydrates. McCarron et al (1984) pointed for the first time on the inverse relation between dairy intake and more in particular calcium intake and body weight. Dairy products have a very low GI and except for cheese, all diary products have shown potent insulinotropic properties [6]. The International table of glycemic index from Foster and Powell et al (2002) included analyses of dairy products. However the GI of some common used Dutch dairy products is missing and also the II is nog measured in these products. Before setting up experimental studies with different GI and II diets, inclusive dairy products, it is necessary to analyze some typical Dutch dairy product on GI and II.

### Study objective

The presently proposed study aims to investigate the effects of different dairy products, which are frequently used in the Netherlands and not yet analyzed, on Glycemic Index and Insulin Index in humans. This will be investigated by analyzing postprandial venous blood samples for glucose and insulin concentrations.

### Study design

Different dairy products will be selected and given in the fasted state to the subjects. Subjects will come to the testing laboratory in the morning, after 10- to 14-hour overnight fasts, and consume in random order four of the test meals.
The GI and II of these foods will be determined according to standard and accepted protocols. To calculate the GI and II the test foods will provide the same amount of available carbohydrates (25 gram). For each test, subjects will come to the university in a fasting state, which means that they will receive instructions not to eat from 22:00 the evening before, while only water or tea will be allowed in the morning before blood sampling. At arrival, an indwelling cannula will be inserted into an anticubital vein for the withdrawal of blood samples. Blood (5 mL) will be sampled immediately before ingestion of the experimental meal (0 min), and 15, 30, 45, 60, 90 and 120 postprandially. Samples will be coded and will be destroyed after publication of the results. Maximum storage however will be five years. Only the main investigators (MJMM and WHMS) have access to the code. Samples from one subject will be analyzed for glucose and insulin within one run at the end of the study under strict quality control. Plasma will be obtained by low-speed centrifugation within one hour after venipuncture and stored as appropriate.

### Intervention

The GI of some Dutch dairy products was missing; therefore 8 Dutch dairy products will be analyzed in this study. Experimental products that will be tested are dairy products including semi-skimmed milk, buttermilk, soft curd cheese, custard, breakfast drink, yogurt drink, and dairy drink. As reference, a glucose solution will be used. Each person consumes 4 times a dairy product and 2 times the glucose drink at the 6 test days.

### Study burden and risks

The dairy products are obtained from the convenience store, therefore totally safe. Also a hematomme could occur after taken the blood-samples.

## 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

BMI lower than 30, healthy volunteers

## Exclusion criteria

BMI higher than 30, lactose intolerance

# Study design

## Design

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| Study type: | Interventional |
| Intervention model: | Crossover |
| Allocation: | Randomized controlled trial |
| Masking: | Open (masking not used) |
| Control: | Active |

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| Primary purpose: | Other |

### Recruitment

NL

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|---|---|
| Recruitment status: | Recruitment stopped |
| Start date (anticipated): | 26-05-2008 |
| Enrollment: | 24 |
| Type: | Actual |

## Ethics review

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| Approved WMO Date: | 14-05-2008 |
| Application type: | First submission |
| Review commission: | METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht) |

## 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 | NL22524.068.08 |