

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 products, 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 dairy products have shown potent insulintropic 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 not 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 antecubital 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 hematoma 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

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

Primary purpose: Other

Recruitment

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

Ethics review

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