Bioavailability of zinc from milk and rice using a stable isotope method

Gepubliceerd: 18-11-2013 Laatst bijgewerkt: 15-05-2024

Study I: To assess the bioavailability of Zinc from milk (1), fortified milk (2), a supplement (3), and from raw milk (4). Study II: To assess the effect of milk on Zn absorption from intrinsically labelled rice

Ethische beoordeling	Niet van toepassing
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON21804

Bron
NTR

Aandoening

bioavailability, biobeschikbaarheid
absorption, absorptie

Ondersteuning

Primaire sponsor: Wageningen University
Division of Human Nutrition

Overige ondersteuning: FrieslandCampina

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Fractional absorption of Zn, as measured from isotope ratios in urine samples.

Toelichting onderzoek

Achtergrond van het onderzoek

Zinc deficiency is widespread globally. Some estimates indicate that 20% of the total world population has some degree of zinc deficiency. Zinc is one of the many essential nutrients found in milk. With a concentration of ~0.4 mg Zn per 100 g of milk, it forms an important source of Zn in dairy consuming populations such as in the Netherlands. To our knowledge, information on zinc absorption from regular dairy products and dairy containing meals in human subjects is scarce.

Doel van het onderzoek

Study I: To assess the bioavailability of Zinc from milk (1), fortified milk (2), a supplement (3), and from raw milk (4).

Study II: To assess the effect of milk on Zn absorption from intrinsically labelled rice

Onderzoeksopzet

At all test days urine samples will be collected at baseline and at at 96 ± 3 h after test meal administration.

At all test days blood samples will be collected at baseline.

Onderzoeksproduct en/of interventie

Study I:

Intake of

1. milk

2. Zn-fortified milk

3. water + Zn supplement

4. raw milk

All test meals are extrinsically labelled with 67Zn.

Study II:

Intake of

1. intrinsically 67Zn labelled rice + milk

2. intrinsically 67Zn labelled rice + Zn fortified water

Each meal will contain ~ 4 mg Zn. In between meals, subjects will receive an intravenous dose of 0.2 mg 70Zn, dissolved in 10 mL saline.

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

• Female

• Age between 18-30 years of age (boundaries included)

• Body Mass Index (BMI) between 19-25 kg/m2 (boundaries included)

• Body weight between 60-70 kg (boundaries included)

• No mineral and vitamin supplements two weeks prior to the 1st test meal and during the whole duration of the study

• Willing to abstain from blood donation during the study

• Voluntary participation

• Signed informed consent

• Willing to comply with the study procedures

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

• Any metabolic, gastrointestinal, inflammatory or chronic disease or disorder (such as diabetes, anaemia, hepatitis, hypertension, cancer or cardiovascular diseases; according to the subjects own statement)

• Continuous/long-term medication during the whole study (except for contraceptives)

• Mineral or vitamin supplements during the 2 weeks prior to 1st test meal

• Lactose intolerance

• Alcohol consumption > 21 glasses per week

• Bad venous access

• Reported weight loss or gain of > 2 kg in the last month before screening

• Reported strictly prescribed diet, vegetarian, vegan or macrobiotic

• Smoking

• Pregnant or lactating or the wish to become pregnant in the study period (a pregnancy test will be done at screening)

• Lack of safe contraception

• Earlier participation in any nutrition study using Zn stable isotopes as well as participation in any other clinical study within the last 30 days and during this study

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	Gerandomiseerd
Blindering:	Open / niet geblindeerd
Controle:	Geneesmiddel

Deelname

Nederland

Status:	Werving nog niet gestart
(Verwachte) startdatum:	06-01-2014
Aantal proefpersonen:	38
Type:	Verwachte startdatum

Ethische beoordeling

Niet van toepassing

Soort:	Niet van toepassing

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 40513
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL4051
NTR-old	NTR4267
CCMO	NL45256.081.13
ISRCTN	ISRCTN wordt niet meer aangevraagd.
OMON	NL-OMON40513

Resultaten

Samenvatting resultaten
N/A