

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

No registrations found.

Ethical review	Not applicable
Status	Pending
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON21804

Source

NTR

Health condition

bioavailability, biobeschikbaarheid
absorption, absorptie

Sponsors and support

Primary sponsor: Wageningen University
Division of Human Nutrition

Source(s) of monetary or material Support: FrieslandCampina

Intervention

Outcome measures

Primary outcome

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

Secondary outcome

- Zn status in blood

- Inflammation markers(C-reactive protein (CRP) and á-glycoprotein (AGP)) in blood.

Study description

Background summary

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.

Study objective

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

Study design

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.

Intervention

Study I:

Intake of

1. milk
2. Zn-fortified milk
3. water + Zn supplement
4. raw milk

All test meals are extrinsically labelled with ^{67}Zn .

Study II:

Intake of

1. intrinsically ^{67}Zn labelled rice + milk
2. intrinsically ^{67}Zn 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 ^{70}Zn , dissolved in 10 mL saline.

Contacts

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Eligibility criteria

Inclusion criteria

- 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

Exclusion criteria

- 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

Study design

Design

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

Recruitment

NL	
Recruitment status:	Pending
Start date (anticipated):	06-01-2014
Enrollment:	38
Type:	Anticipated

Ethics review

Not applicable	
Application type:	Not applicable

Study registrations

Followed up by the following (possibly more current) registration

ID: 40513
Bron: ToetsingOnline
Titel:

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

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

Study results

Summary results

N/A