

# Metabolic availability of L-lysine from milk powder using indicator amino acid oxidation technique

Gepubliceerd: 22-08-2019 Laatste bijgewerkt: 13-12-2022

Different processing of milk products will have impact on metabolic availability of amino acid

|                             |                          |
|-----------------------------|--------------------------|
| <b>Ethische beoordeling</b> | Positief advies          |
| <b>Status</b>               | Werving nog niet gestart |
| <b>Type aandoening</b>      | -                        |
| <b>Onderzoekstype</b>       | Interventie onderzoek    |

## Samenvatting

### ID

NL-OMON20970

### Bron

Nationaal Trial Register

### Verkorte titel

INSPIRE

### Aandoening

Digestion

### Ondersteuning

**Primaire sponsor:** FrieslandCampina

**Overige ondersteuning:** FrieslandCampina

### Onderzoeksproduct en/of interventie

### Uitkomstmaten

#### Primaire uitkomstmaten

Adults: true metabolic availability of L-lysine in two milk powders compared with a reference crystalline amino acid mixture

## Toelichting onderzoek

### Achtergrond van het onderzoek

Protein quality of a food reflects its ability to meet daily tissue amino acid requirements depending on the content, composition and metabolic availability of constituent amino acids. However, to ensure product quality, commercial products are subjected to varying degrees of processing, which leads to loss of bio-availability of proteins due to structural alterations of the amino acids. Therefore, in the present study, our aim is to determine and compare metabolic availability of L-lysine from two differently processed milk powders, among healthy adults (n=7) and children (n=12) using a simple, non-invasive and rapid technique called indicator amino acid oxidation method. The metabolic availability of L-lysine from the milk proteins will be estimated by comparing the indicator oxidation response to varying intakes of L-lysine from milk proteins with the response to varying intakes of synthetic L-lysine using slope ratio method. Similar concept will be applied to determine relative metabolic availability of one milk protein against the reference in the children study. Therefore, the present study will be instrumental in understanding the effect of processing on milk protein bio-availability.

### Doel van het onderzoek

Different processing of milk products will have impact on metabolic availability of amino acid

### Onderzoeksopzet

Adults: 7 study days with one week wash-out in between study days

Children: 5 study days with one week wash-out in between study days

### Onderzoeksproduct en/of interventie

Two different milk powders

## Contactpersonen

### Publiek

FrieslandCampina  
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## Wetenschappelijk

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## Deelname eisen

### Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Adults:

Apparently healthy adult male volunteers

Normal Hb > 13g/l

Age: 20-40 years

Normal BMI between 18.5 to 25 kg/m<sup>2</sup>

Physical activity level <1.5 assess nu validated questionnaire

Subject to agree to avoid smoking and alcohol consumption for the entire study duration

Subject willing to participate and adhere to the study protocol for 7 consecutive weeks

Children:

Children 6-10 years of age, both sexes

Apparently healthy

BAZ between -2SD and 1 SD

Children and parents willing to participate and adhere to adaptation diets for 5 consecutive weeks

### Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Adults:

History of smoking or taking other leisure drugs in past 3 months and/or study duration

Consumption of alcohol in the previous 24 hr and/or in study duration

History of antibiotics in last month

On iron, protein, multivitamin, and/ or any other supplementation therapy in past 3 months

Unstable weight over last 3 months

Use of medications known to affect intestinal functions and protein metabolism

Participation in any nutritional intervention study in last 3 months

History of food allergy

History of acute illness. gastrointestinal, respiratory tract symptoms of fever in the past 1 week  
diagnosed with any acute or chronic medical conditions

Children:

Any acute or chronic illnesses

Menarche

Weight loss in last 1 month

Worm infestation as assessed by stool test

History of antibiotics in last month

On iron, protein, multivitamin, and/ or any other supplementation therapy in past 3 months

Use of medications known to affect intestinal functions and protein metabolism

History of food allergy

## Onderzoeksopzet

### Opzet

|                  |                       |
|------------------|-----------------------|
| Type:            | Interventie onderzoek |
| Onderzoeksmodel: | Cross-over            |
| Toewijzing:      | Gerandomiseerd        |
| Blindering:      | Dubbelblind           |
| Controle:        | Placebo               |

### Deelname

|                         |                          |
|-------------------------|--------------------------|
| Nederland               |                          |
| Status:                 | Werving nog niet gestart |
| (Verwachte) startdatum: | 01-10-2019               |
| Aantal proefpersonen:   | 19                       |
| Type:                   | Verwachte startdatum     |

### Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

**Wordt de data na het onderzoek gedeeld:** Nee

## Ethische beoordeling

Positief advies

Datum: 22-08-2019  
Soort: Eerste indiening

## Registraties

### Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

### Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

### In overige registers

| Register       | ID                                                                               |
|----------------|----------------------------------------------------------------------------------|
| NTR-new        | NL7991                                                                           |
| Ander register | Mahidol University Central Institutional Reveiw Board : MU-CIRB<br>2019/109.1906 |

## Resultaten