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

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

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

Ethische beoordeling	Positief advies
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	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

Children: relative metabolic availability of L-lysine in two milk powders

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

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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/m2
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. gastointestinal, 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 2019/109.1906

Resultaten