

Evaluation of a novel alternative protein source to stimulate post-exercise muscle protein synthesis

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We hypothesise that mealworm protein ingestion after unilateral resistance exercise will lead to significant higher rates of muscle protein synthesis in the trained leg compared to the untrained control leg. We also hypothesise that these rates will...

Ethische beoordeling	Positief advies
Status	Werving gestopt
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON24702

Bron

Nationaal Trial Register

Verkorte titel

MEALWORM

Aandoening

Young adults, Muscle protein synthesis

Ondersteuning

Primaire sponsor: Maastricht University

Overige ondersteuning: Maastricht University

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The main study endpoint is the fractional synthetic rate (FSR) of muscle protein synthesis (myofibrillar proteins) from 0-5 hours in the post-prandial period.

Toelichting onderzoek

Achtergrond van het onderzoek

Rationale: Conventional animal-based proteins such as meat (i.e. beef, pork, lamb), poultry, fish, eggs, and dairy are considered “high-quality” sources of dietary protein as they contain all of the essential amino acids (EAA) and are highly digestible. However, the production of sufficient amounts of animal-based protein from conventional sources to meet future global food demands represents a challenge. Edible insects have been proposed as an alternative source of dietary protein that can be produced on a viable and more sustainable commercial scale and, as such, may contribute to ensuring global food security. Many edible insects represent a rich source of protein, comparable to conventional meat and fish, and provide EAA in amounts comparable to certain high quality protein sources. However, there is currently limited data on the functional capacity of insect-based protein sources. Therefore, the aim of the present study is to assess the capacity of insect based proteins to stimulate postprandial skeletal muscle protein synthesis and support protein anabolism in vivo in humans to determine their nutritional quality when compared to a more conventional animal-based protein source.

Doel van het onderzoek

We hypothesise that mealworm protein ingestion after unilateral resistance exercise will lead to significant higher rates of muscle protein synthesis in the trained leg compared to the untrained control leg. We also hypothesise that these rates will be equivalent to muscle protein synthesis after ingestion of milk protein.

Onderzoeksopzet

t=0, t=120, t=300 muscle biopsies

13 blood draws

Onderzoeksproduct en/of interventie

-Unilateral exercise bout with different protein drinks

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

- Healthy males
- Age between 18 and 35 y inclusive
- BMI between 18.5 and 30 kg/m²
- Having given informed consent

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- Use of tobacco products
- Non-steroidal anti-inflammatory drugs (NSAID) in the 4 days prior to the experimental trial

- Allergies to milk proteins (whey or casein)
- Allergies to house dust mites or crustaceans
- Lactose intolerance
- Phenylketonuria (PKU)
- Blood donation within 2 months of study initiation
- Arthritic conditions
- A history of neuromuscular problems
- Previous participation in amino acid tracer studies
- Individuals on any medications known to affect protein metabolism (i.e. corticosteroids, non-steroidal anti-inflammatories, or prescription strength acne medications)
- Diabetes
- Training more than 5 days per week

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Parallel
Toewijzing:	N.v.t. / één studie arm
Blinding:	Dubbelblind
Controle:	Geneesmiddel

Deelname

Nederland	
Status:	Werving gestopt
(Verwachte) startdatum:	20-03-2018
Aantal proefpersonen:	24
Type:	Werkelijke startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

Ethische beoordeling

Positief advies

Datum: 14-03-2018

Soort: Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 47452

Bron: ToetsingOnline

Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL6897
NTR-old	NTR7084
CCMO	NL58529.068.16
OMON	NL-OMON47452

Resultaten