Anabolic properties of potato derived protein

Published: 08-03-2018
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To assess the anabolic response to plant based protein intake.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON46600

Source
ToetsingOnline

Brief title
Potato Protein / POTATO

Condition

- Other condition

Synonym
Muscle growth, Muscle protein synthesis

Health condition

This study will evaluate the skeletal muscle anabolic response to protein consumption

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Maastricht
Source(s) of monetary or material Support: Ministerie van OC&W,Alliance for Potato Research & Education,Alliance for Potato Research & Education (APRE)

Intervention

Keyword: Muscle protein synthesis, Potato protein

Outcome measures

Primary outcome

Primary study parameters include muscle protein synthesis rates based on mixed muscle and myofibrilar protein bound [U-13C6]-phenylalanine enrichments.

Secondary outcome

Secondary endpoints will include plasma amino acid, glucose and insulin concentrations as well as whole-body protein synthesis, breakdown, oxidation, and net balance.

Study description

Background summary

More than half of the total a mount of dietary protein that is consumed by humans worldwide is of plant origin, with plant based proteins providing up to 80% of dietary protein consumed in less developed regions. Overall it is assumed that plant based proteins are less potent in stimulating post-prandial muscle protein synthesis. However, the anabolic properties of the main plant based protein sources have hardly been assessed. This project will investigate the anabolic response to plant based protein intake and a key reference protein.

Study objective

To assess the anabolic response to plant based protein intake.

Study design

Parallel group, randomized, double blind.

Intervention

The post-prandial muscle protein synthetic response after ingestion of protein intake following resistance exercise will be evaluated.

Study burden and risks

The burden and risks involved in participating in this experiment are small. Insertion of the catheters in a vein is comparable to a normal blood draw and the only risk is a small local hematoma. Muscle biopsies will be obtained under local anaesthesia by an experienced physician, but may cause some minor discomfort. The discomfort is comparable to muscle soreness or the pain one has after bumping into the corner of a table. During the experimental trial 15 blood samples (160mL total) will be obtained. The total amount of blood collected is less than half the amount of a blood donation and will be completely restored in approximately 1 month. The stable isotope amino acids tracers that will be infused intravenously during the experimental trial are produced according to GMP standards and are safe for human use. In order to administer this infusion, a catheter will be
placed in an antecubital vein, this might result in a small local hematoma. There is no risk associated with the DEXA scan. The radiation dose emitted during a DEXA scan is 0.001 mSv. This is a very low exposure compared to the total background radiation in the Netherlands, which is ~2.5 mSv/year. Performing exercise will pose little risk as the possibility for adverse health events will be evaluated during the screening and subjects will be closely monitored throughout the exercise sessions.
It will take the participant ~30-45 min a day to properly fill out the food and activity logs.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

- Male
- Aged 18-35 y inclusive
- BMI 18.5 * 27.5 inclus ive
- Healthy recreationally active males

Exclusion criteria

- Allergies to milk proteins
- Lactose intolerance
- Smoking
- Diagnosed diabetes
- Diagnosed metabolic or intestinal disorders
- A history of neuromuscular problems
- Arthritic conditions
- Any medications known to (or may) affect protein metabolism (i.e. corticosteroids, non-steroidal anti-inflammatories, or prescription strength acne medications).
- Participation in structured progressive (resistance) exercise program
- Previous participation in a 13C amino acid tracer study within the last 1 year
- Excessive alcohol use (>3 consumptions per day)
- Drugs use in the last 3 months (or the test day needs to be scheduled minimal 3 months after last drugs use)

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Active
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	17-04-2018
Enrollment:	32
Type:	Actual

Ethics review

Approved WMO

Date:	08-03-2018
Application type:	First submission
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

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

No registrations found.

In other registers

Register	ID
CCMO	NL63936.068.17
Other	Protocol will be registered at NTR after approval by the METC