

Anabolic properties of potato derived protein

No registrations found.

Ethical review	Positive opinion
Status	Recruitment stopped
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON29643

Source

Nationaal Trial Register

Brief title

POTATO

Health condition

Muscle protein synthesis

Potato

Milk

Sponsors and support

Primary sponsor: Maastricht University (MUMC+)

Source(s) of monetary or material Support: APRE (The Alliance for Potato Research & Education)

Intervention

Outcome measures

Primary outcome

Muscle protein synthesis rates

Secondary outcome

Secondary outcome parameters include the early and late muscle protein synthetic response. Whole-body protein metabolism (synthesis, breakdown, oxidation, and net balance). Plasma amino acid concentrations

Study description

Background summary

More than half of the total amount 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. With exception of soy protein, and a single study on wheat protein in healthy older men, there are no studies that have quantified the anabolic response to the ingestion of other plant based protein sources in vivo in humans. Greater sustainability and low cost of plant based protein sources provide us with many opportunities in the emerging markets. These notions likely explain the increasing interest in the potential of using plant-based protein sources in sports nutrition supplements. Previous studies indicate that potato tuber protein is superior to most major plant proteins, with its nutritive value approaching (87-94%) that of egg white. However, how well potato protein is able to support muscle protein synthesis and muscle reconditioning following exercise in humans remains unknown. Therefore, the objective of this study is to investigate the anabolic properties of potato protein ingestion at rest and following a single bout of exercise in healthy young males.

Study objective

We hypothesize that ingestion of potato protein increases muscle protein synthesis rates at rest as well as during recovery from exercise in young healthy males. We hypothesize that the muscle protein synthetic response to the ingestion of potato protein does not differ from the ingestion of milk protein.

Study design

Bilateral muscle biopsies at: 0, 120 and 300

Blood drawn at: -180, -120, -60, 0, 15, 30, 45, 60, 90, 120, 150, 180, 210, 240, 300.

Intervention

Single leg exercise, Milk versus Potato protein

Contacts

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Eligibility criteria

Inclusion criteria

- Male
- Aged 18-35 y inclusive
- BMI 18.5 – 27.5 kg/m² inclusive
- Healthy recreationally active
- Having given informed consent

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 a 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

Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	17-04-2018
Enrollment:	24
Type:	Actual

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Positive opinion

Date: 18-04-2018

Application type: First submission

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
NTR-new	NL6964
NTR-old	NTR7152
Other	NL63936.068.17 : METC173053

Study results