Prolonged muscle protein synthetic response to the ingestion of a large amount of protein

No registrations found.

Ethical review	Positive opinion
Status	Pending
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON22927

Source
NTR

Brief title
BBQ-studie

Health condition

Not applicable

Sponsors and support

Primary sponsor: Not applicable
Source(s) of monetary or material Support: Not applicable

Intervention

Outcome measures

Primary outcome

Myofibrillar protein synthesis rates

Secondary outcome

Whole-body protein kinetics and metabolism, plasma metabolites (e.g. glucose and insulin), 1-13C-phenylalanine incorporation

Study description

Background summary

Exercise and protein intake are the main stimuli for muscle protein anabolism. Protein dose-response studies have shown that the ingestion of ~20-25 g protein maximizes muscle protein synthesis rates at rest and following exercise. However, these studies have only assessed the anabolic response over a relatively short 4 h period. However, little is known about the time course of the muscle protein synthetic response to the ingestion of a large amount of protein. We hypothesize that the ingestion of a large amount of protein (i.e 100 g) results in a prolonged muscle protein synthetic response as compared to a moderate amount of protein (i.e. 25 g) that is currently suggested to maximize the muscle protein synthetic response.

Study objective

The ingestion of a large amount of protein will results in a higher muscle protein synthetic response over a prolonged period when compared to the ingestion of a moderate amount of protein

Study design

Acute tracer study (12-h interventional period).

Intervention

0 g protein
25 g protein
100 g protein

Contacts

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Eligibility criteria

Inclusion criteria

- Male
- Aged between 18-40 years
- Healthy
- 18.5 ≤ BMI 30 ≤ kg·m-2

Exclusion criteria

- Smoking
- Sports/exercise > 4 sessions/week
- Lactose intolerant or allergies to milk protein
- A history of neuromuscular problems
- Use of anticoagulation medication
- Recent (<9 months) participation in amino acid tracer (L-[ring-2H5-phenylalanine, L-[ring-2H2]-tyrosine, and [1-13C]-leucine infusion) studies
- Individuals on any medications known to affect protein metabolism (i.e. corticosteroids, non-steroidal anti-inflammatories, or prescription acne medications).
- Strict vegetarian (because of standardized Aviko meal)
- Injury or condition that would limit the participant from performing the resistance exercise.

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Single blinded (masking used)
Control:	Placebo

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-06-2019
Enrollment:	36
Type:	Anticipated

IPD sharing statement

Plan to share IPD: No

Ethics review

Positive opinion

Date:	25-04-2019
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	NL7700
Other	METC MUMC : METC19-012

Study results