Protein feeding prior to sleep as a dietary strategy to improve post-exercise recovery and muscle mass in young and elderly men.

No registrations found.

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

Summary

ID

NL-OMON27673

Source
NTR

Brief title
ProSleep

Health condition

1. Sport recovery enhancement
2. Sarcopenia

Sponsors and support

Primary sponsor: TI Food & Nutrition
Maastricht University Medical Centre+
Source(s) of monetary or material Support: TI Food & Nutrition

Intervention

Outcome measures

Primary outcome

The primary outcome is muscle protein synthesis fractional synthetic rate (FSR). By taking a muscle biopsy prior to and just after sleep, muscle enrichments of amino acid tracer can be measured and used to calculate rate of muscle protein synthesis (FSR). Amino acid tracers will be provided by intravenous (IV) infusion and by intrinsically–labelled protein.

Secondary outcome

The secondary outcome is amino acid absorption and digestion kinetics. The use of intrinsically labelled protein and blood draws allows us to assess the rate of appearance of the tracer in the plasma as a measurement of amino acid absorption and digestion.

Study description

Background summary

Muscle protein synthesis rates are stimulated during periods of increased plasma amino acid availability. Sleep is a post-absoptive period in which there is decreased plasma amino acid availability. Protein provision prior to sleep may improve overnight muscle protein synthesis rates by increasing plasma amino acid levels.

Study objective

Protein feeding prior to sleep improves post-exercise recovery and muscle mass in young and elderly men.

Study design

Muscle biopsies for muscle tracer enrichments will be taken just prior to sleep (24:00) and just after sleep (7:00).

Plasma samples will be taken throughout the night to assess plasma amino acids. In total, 152 ml of blood will be drawn.

Intervention

Elderly subjects are randomized into groups ingesting incremental protein amounts prior to sleep.

All young subjects perform a bout of resistance exercise before ingesting incremental amounts of protein prior to sleep.

Elderly subjects are randomized into groups ingesting incremental protein amounts prior to sleep (20 gram of protein, 40 gram of protein, 20 gram of protein + 1,5 gram leucine or placebo).

A separate arm is evaluating the effect of resistance exercise and ingestion of 40 gram of protein prior to sleep.

Young subjects are randomized into groups ingesting incremental protein amounts prior to sleep (30 gram of protein, 30 gram of protein + 2 gram of leucine or placebo).

A separate arm is evaluating the effect of ingesting 30 gram of protein prior to sleep.

All experiments will commence at 17:30 and will be finished at 7:30 the next morning.

Contacts

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Eligibility criteria

Inclusion criteria

1. Males;

2. Age: Between 18-35 or 65-85 yr;

3. BMI: 18.5-30 kg/m^2;

3. Recreationally active (≥ 1 time/wk).

Exclusion criteria

1. Smoking;

2. Type 2 diabetic;

3. Use of medications known to affect protein metabolism (i.e. corticosteroids, non-steroidal anti-inflammatories, or prescription strength acne medicationsAll co-morbidities (or a history of) interacting with mobility and muscle metabolism of the lower limbs (e.g. artrosis, arthritis, spasticity/rigidity, all neurological disorders and paralysis);

4. Use of anticoagulants, blood diseases, allergy for lidocain;

5. Patients suffering from PKU (Phenylketonuria);

6. Allergies to milk proteins (whey or casein);

7. Female;

8. For the elderly subjects: participation in any strength training program for the last 3 months.

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	08-03-2013
Enrollment:	98
Type:	Anticipated

Ethics review

Positive opinion

Date:	07-03-2013
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 36991
Bron: ToetsingOnline
Titel:

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

No registrations found.

In other registers

Register	ID
NTR-new	NL3723
NTR-old	NTR3885
CCMO	NL42489.068.12
ISRCTN	ISRCTN wordt niet meer aangevraagd.
OMON	NL-OMON36991

Study results

Summary results
N/A