Nocturnal muscle protein synthesis after neuromuscular electrical stimulation in elderly men.

No registrations found.

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

Summary

ID

NL-OMON21940

Source
NTR

Brief title
ES-PROvernight

Health condition

Sarcopenia, muscle mass, protein, Neuromuscular electrostimulation

Sponsors and support

Primary sponsor: Prof. LJC van Loon
Maastricht University
Department of Human Movement Sciences
Source(s) of monetary or material Support: fund = initiator = sponsor

Intervention

Outcome measures

Primary outcome

Primary parameter of this study will be overnight incorporation of stable isotope amino acids

from the intrinsically labeled drink.

Secondary outcome

Secondary parameter of this study will be plasma amino acid enrichment after ingestion of the intrinsically labeled protein.

Study description

Background summary

Rationale:

With human aging there is a gradual but progressive decline in skeletal muscle mass, termed sarcopenia. While the underlying cause of sarcopenia is likely to be multifaceted, a primary factor is that elderly individuals frequently experience short periods of muscle disuse following limb immobilization or bed-rest (due to injury or illness) causing rapid muscle loss. Feasible strategies for maintaining muscle protein synthesis rates in elderly individuals, and thus having the potential to attenuate the loss of muscle mass during disuse need to be pursued. Local neuromuscular electrical stimulation (NMES) in combination with additional intake of protein offer such a potential strategy but, as yet, remains relatively unexplored.

Objective:

To test the hypothesis that ingesting a nocturnal bolus of protein in combination with NMES stimulates muscle protein synthesis in elderly more than ingesting protein without NMES.

Study design:

Prospective, single blind, intervention study.

Intervention:

Consumption of a 40 g bolus of intrinsically L[1-13C]-phenylalanine labeled casein protein and 70 min of one-legged NMES.

Endpoints:

Enrichments of muscle tissue after ingestion of an [1-13C]-phenylalanine intrinsically labeled casein drink.

Study objective

Is overnight incorporation of [1-13C]-phenylalanine amino acids higher in muscle tissue in combination with NMES than in unstimulated skeletal muscle?

Study design

Overnight (i.e. the morning after ingestion of the stable isotope drink and NMES). Method of measurement is massaspectrometry.

Intervention

Consumption of a 40 g bolus of intrinsically L[1-13C]-phenylalanine labeled casein protein and 70 min of one-legged NMES.

Contacts

Public
B. Groen
[default]
The Netherlands
+31 (0)6 10475964
Scientific
B. Groen
[default]
The Netherlands
+31 (0)6 10475964

Eligibility criteria

Inclusion criteria

1. Written informed consent;

2. Age ≥ 65 years;

3. Male.

Exclusion criteria

1. Type II diabetes;

2. All co morbidities interacting with mobility and muscle metabolism of the lower limbs (e.g. arthrosis, arthritis, spasticity/rigidity, all neurological disorders, paralysis, hip/knee surgery);

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

4. Use of NSAIDs and acetylsalicylic acid;

5. Patients suffering from PKU (Phenylketonuria);

6. Presence of implantable cardioverter defibrillator and/or pacemaker;

7. Performed regular resistance type exercise in the past 6 months;

8. Use of any tools to assist during walking (cane/ crutches/ walker);

9. (Partial) foot/ leg amputation.

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Non controlled trial
Masking:	Single blinded (masking used)
Control:	N/A , unknown

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-05-2013
Enrollment:	12

Type:	Anticipated

Ethics review

Positive opinion

Date:	15-04-2013
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	NL3786
NTR-old	NTR3952
Other	ABR / METC MUMC : 44582 / 13-3-024;
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Study results

Summary results

N/A