The impact of gender, inactivity, and obesity on muscle mass building and muscle mass maintenance.

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1. The postprandial muscle protein synthesis rate is smaller in females as compared with males. 2. Short-term physical inactivity reduces basal and postprandial muscle protein synthesis rates. 3. Basal and postprandial muscle protein rates are...

Ethische beoordeling	Positief advies
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON23856

Bron
NTR

Verkorte titel
The GIO study

Aandoening

aging, muscle protein synthesis, gender, inactivity, obesity

Ondersteuning

Primaire sponsor: Maastricht University
Overige ondersteuning: Top Institute Food and Nutrition (TIFN)

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Basal and postprandial muscle protein synthesis rates.

Toelichting onderzoek

Achtergrond van het onderzoek

The main objective of the present project is to assess the impact of gender, physical inactivity, and obesity on basal and postprandial muscle protein synthesis rates. This will be investigated in three different substudies:

Substudy A: The impact of gender on basal and postprandial muscle protein synthesis.

Substudy B: The impact of physical inactivity on basal and postprandial muscle protein synthesis.

Substudy C: The impact of obesity on basal and postprandial muscle protein synthesis.

Basal and postprandial muscle protein synthesis will be studies by means of stable isotope methodology and intrinsically labeled milk proteins.

Doel van het onderzoek

1. The postprandial muscle protein synthesis rate is smaller in females as compared with males.

2. Short-term physical inactivity reduces basal and postprandial muscle protein synthesis rates.

3. Basal and postprandial muscle protein rates are blunted in obese as compared to lean individuals.

Onderzoeksopzet

Subjects participate in a screening session and a single test day. During the test day, frequent blood samples and muscle biopsies will be taken for the assessment of basal and postprandial muscle protein synthesis. Basal muscle protein synthesis will be assessed over a 2-hour period, and postprandial muscle protein synthesis will be assessed over a 5-hour period.

Onderzoeksproduct en/of interventie

Substudy A: During a single test day, subjects will undergo continuous intravenous tracer infusions of labelled amino acids, and subjects ingest a beverage containing 25 gram intrinsically labelled milk protein. Blood plasma samples and muscle biopsies will be collected during the test day.

Substudy B: Five days of unilateral knee immobilization will be followed by a single test day. During the test day, subjects undergo continuous intravenous tracer infusions of labelled amino acids, and subjects ingest a drink containing 25 gram intrinsically labelled milk protein. Blood plasma samples and muscle biopsies will be collected during the test day.

Substudy C: During a single test day, subjects undergo continuous intravenous tracer infusions of labelled amino acids, and subjects ingest a drink containing 25 gram intrinsically labelled milk protein. Blood plasma samples and muscle biopsies will be collected during the test day.

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Subgroup A:

-Males and females

-Aged between 30-55 years

-BMI 19-25 kg/m2

Subgroup B:

-Male

-Aged between 18-35 years

-BMI 19-30 kg/m2

Subgroup C:

-Male

-Aged between 30-55 years

-BMI >35 kg/m2

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

Subgroup A:

-Currently smoking cigarettes or tobacco

-Allergies to milk proteins (whey or casein)

-A history of neuromuscular problems

-Diagnosed impaired renal (kidney stones, nephritis, nephritic syndrome, end-stage renal disease) or liver function (acute or chronic hepatitis, alcoholic liver disease, liver cirrhosis)

-Use of medications known to affect digestion and/or absorption (antacids, H-2-receptor

blockers, proton pump inhibitors, NSAID’s) 7 days prior to the experimental test-day.

-Use of anticoagulants, blood diseases, allergy for lidocain

-Use of medications known to affect protein metabolism (i.e. corticosteroids, non-steroidal anti-inflammatories, or acne medications).

-Type 2 diabetes (exclusion when: fasting glucose level >7.0 mmol/L, or 2-h glucose level>11.1 mmol/l, or HbA1c >6.5%.

Subgroup B:

-Currently smoking cigarettes or tobacco

-Allergies to milk proteins (whey or casein)

-Arthritic conditions

-History of neuromuscular problems

-History of deep venous thrombosis (DVT) or pulmonary emboli (PE).

-Diagnosed impaired renal (kidney stones, nephritis, nephritic syndrome, end-stage renal disease) or liver function (acute or chronic hepatitis, alcoholic liver disease, liver cirrhosis)

-Use of medications known to affect digestion and/or absorption (antacids, H-2-receptor blockers, proton pump inhibitors, NSAID’s) 7 days prior to the experimental test-day

-Use of anticoagulants, blood diseases, allergy for lidocain

-Use of medications known to affect protein metabolism (i.e. corticosteroids, non-steroidal anti-inflammatories, or acne medications).

-Type 2 diabetes (HbA1c >6.5%).

Subgroup C:

-Allergies to milk proteins (whey or casein)

-A history of neuromuscular problems

-Diagnosed impaired renal (kidney stones, nephritis, nephritic syndrome, end-stage renal disease) or liver function (acute or chronic hepatitis, alcoholic liver disease, liver cirrhosis)

-Use of anticoagulants, blood diseases, allergy for lidocain

-Use of medications known to affect protein metabolism (i.e. corticosteroids, non-steroidal anti-inflammatories, or acne medications).

-Diagnosed type 2 diabetes, and/or use of blood glucose lowering medication.

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Parallel
Toewijzing:	N.v.t. / één studie arm
Blindering:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland

Status:	Werving gestart
(Verwachte) startdatum:	01-03-2013
Aantal proefpersonen:	62
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	04-07-2013
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 41407

Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL3898
NTR-old	NTR4060
CCMO	NL42551.068.12
ISRCTN	ISRCTN wordt niet meer aangevraagd.
OMON	NL-OMON41407

Resultaten

Samenvatting resultaten
N/A