The Impact of Fish Oil Supplementation on Muscle Growth in Older Men

Gepubliceerd: 18-05-2016 Laatst bijgewerkt: 18-08-2022

4 week n-3 PUFA supplementation will enhance daily muscle protein synthesis rates in older men on a standardized diet.

Ethische beoordeling	Niet van toepassing
Status	Werving nog niet gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON26123

Bron
Nationaal Trial Register

Verkorte titel
n-3 PUFA and muscle protein synthesis

Aandoening

Loss of skeletal muscle mass and strength with aging, also termed sarcopenia

Ondersteuning

Primaire sponsor: McMaster University
Overige ondersteuning: fund = initiator = sponsor

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Daily muscle protein synthesis rates assessed using D2O before and after 4 weeks of fish oil supplementation

Toelichting onderzoek

Doel van het onderzoek

4 week n-3 PUFA supplementation will enhance daily muscle protein synthesis rates in older men on a standardized diet.

Onderzoeksopzet

Before and after 4 weeks of n-3 PUFA supplementation

Onderzoeksproduct en/of interventie

The experimental trial consists of two 5-d phases separated by 4 weeks of supplementation. Muscle protein synthesis will be determined during the last 2 d of each 5-d phase. For each phase, dietary intake will be controlled to provide an energy balanced diet containing 1.0 g of protein per kg body weight per day equally distributed over breakfast, lunch, and dinner. Participants will be instructed to refrain from vigorous-intensity physical activity (running, fast cycling, competitive sports, carrying heavy loads, etc.) and refrain from alcohol consumption for 3 d prior to and during the 2 d of measuring muscle protein synthesis. Participants will wear an accelerometer to monitor physical activity on the day before and the 2 d of measuring muscle protein synthesis. On day 3, a blood and saliva sample as well as muscle biopsy will be obtained in the fasted state and participants will then consume 150 mL deuterated water (D2O). The subsequent day (day 4), another saliva sample and muscle biopsy will be obtained to assess body water and muscle protein deuterium enrichments. An oral glucose tolerance test (OGTT) will be performed to assess insulin sensitivity. 48 h after D2O consumption, a saliva sample and the third muscle biopsy will be obtained to determine muscle protein synthesis rates.

On day 6, daily n-3 PUFA supplementation will be initiated. Participants will consume 5 g of n-3 PUFA-enriched fish oil capsules per day containing 3.5 g EPA and 0.9 g DHA. One blood sample per week will be obtained to assess blood lipid composition and plasma markers of inflammatory state. After 4 weeks of supplementation, the 5-d phase will be repeated.

Contactpersonen

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

1) Male

2) Age 65-80 y

3) BMI between 18.5 and 30 kg/m2

4) Generally healthy as assessed by medical questionnaire

5) Willing and able to provide informed consent

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1) Medical, orthopedic, or psychiatric concern that, in the opinion of the investigators, would compromise the ability to comply with the study requirements

2) History of cancer within the last 5 years, except basal cell carcinoma, non-squamous skin carcinoma, prostate cancer or carcinoma in situ with no significant progression over the past 2 years

3) Significant orthopedic, cardiovascular, pulmonary, renal, liver, infectious disease, immune disorder, or metabolic/endocrine disorders or other disease that would affect protein metabolism

4) Current illnesses which could interfere with the study (e.g. prolonged severe diarrhea or regurgitation)

5) Subject participated in a study of an investigational product less than 60 days or 5 half-lives of the investigational product, whichever is longer, before enrollment in this study

6) Excessive alcohol consumption (>21 units/week)

7) Smoking

8) Prior gastrointestinal bypass surgery

9) History of bleeding diathesis, platelet or coagulation disorders, or antiplatelet/anticoagulation therapy

10) Use of corticosteroids, testosterone replacement therapy (ingestion, injection, or transdermal), or any anabolic steroid

11) Participation in an exercise program

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	Niet-gerandomiseerd
Blindering:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland

Status:	Werving nog niet gestart
(Verwachte) startdatum:	01-06-2016
Aantal proefpersonen:	13
Type:	Verwachte startdatum

Ethische beoordeling

Niet van toepassing

Soort:	Niet van toepassing

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL5740
NTR-old	NTR5885
Ander register	N/A : 2016-1646-GRA

Resultaten