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

No registrations found.

| | |
|---|---|
| **Ethical review** | Not applicable |
| **Status** | Pending |
| **Health condition type** | - |
| **Study type** | Interventional |

## Summary

### ID

NL-OMON26123

**Source**
Nationaal Trial Register

**Brief title**
n-3 PUFA and muscle protein synthesis

**Health condition**

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

### Sponsors and support

**Primary sponsor:** McMaster University
**Source(s) of monetary or material Support:** fund = initiator = sponsor

### Intervention

### Outcome measures

**Primary outcome**

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

**Secondary outcome**

1) Muscle and blood lipid composition before, during, and after fish oil supplementation

2) Plasma markers of inflammatory state before, during, and after fish oil supplementation

3) Insulin sensitivity as assessed by oral glucose tolerance test following the ingestion of 75 g glucose before and after 4 weeks of fish oil supplementation

# Study description

### Study objective

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

### Study design

Before and after 4 weeks of n-3 PUFA supplementation

### Intervention

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.

# Contacts

**Public**
Department of Kinesiology - McMaster University

Stefan Gorissen
[default]
Canada
+1 905 730 5894
**Scientific**
Department of Kinesiology - McMaster University

Stefan Gorissen
[default]
Canada
+1 905 730 5894

# Eligibility criteria

## Inclusion criteria

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

## Exclusion criteria

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

# Study design

## Design

| | |
|---|---|
| Study type: | Interventional |
| Intervention model: | Crossover |
| Allocation: | Non-randomized controlled trial |
| Masking: | Open (masking not used) |
| Control: | N/A , unknown |

## Recruitment

NL

| | |
|---|---|
| Recruitment status: | Pending |
| Start date (anticipated): | 01-06-2016 |
| Enrollment: | 13 |
| Type: | Anticipated |

# Ethics review

Not applicable
Application type: Not applicable

# 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 | NL5740 |
| NTR-old | NTR5885 |
| Other | N/A : 2016-1646-GRA |

# Study results