The effect of supplementation with fish oil rich in omega-3 polyunsaturated fatty acids on exercise performance

Published: 10-11-2015
Last updated: 20-04-2024

Primary Objective: To determine the effect of omega-3 PUFAs on exercise performance.
Secondary Objective: To determine the effect of omega-3 polyunsaturated fatty acids supplementation on performance determining variables, such as VO2max, VO2 at the...

Ethical review	Approved WMO
Status	Pending
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON42826

Source
ToetsingOnline

Brief title
Effect of omega-3 supplementation

Condition

- Other condition

Synonym
-

Health condition

Geen aandoeningen

Research involving
Human

Sponsors and support

Primary sponsor: Vrije Universiteit
Source(s) of monetary or material Support: STW,Koninklijke Nederlandse Roeibond,Koninklijke Nederlandse Schaatsenrijdersbond,NOC-NSF,Plantina Nederland - The Ortho Company BV

Intervention

Keyword: endurance, physiology, rowing, Speed skating

Outcome measures

Primary outcome

The main study parameters are exercise performance (time trail) and the

underlying performance-determining variables (VO2max, VO2 at the ventilatory

threshold, anaerobic capacity, and gross efficiency) which are determined pre

and post intervention.

Secondary outcome

In addition to the exercise tests, blood samples and ultrasound measurements

will be taken pre- and post-intervention.

Study description

Background summary

In sports in which both a high peak power and a high maximal sustainable power is required, like in speed skating and rowing, oxygen supply is limiting concurrent improvement of both traits. Hypoxia during strenuous exercise is associated with oxidative stress and muscle damage which causes muscle protein degradation rather than hypertrophy. We hypothesize that for athletes to improve their peak power and endurance capacity myoglobin (Mb) concentration in their muscle cells needs to be increased. Recent evidence suggests that supplementation of omega-3 polyunsaturated fatty acids (PUFAs) stimulates expression of myoglobin particularly in hypoxic conditions. We hypothesize that in rowers and speed skaters supplementation of omega-3 PUFAs will concurrently improve the maximal anaerobic and aerobic performances. In speed skaters the

effect will be larger than in rowers.

Study objective

Primary Objective: To determine the effect of omega-3 PUFAs on exercise performance. Secondary Objective: To determine the effect of omega-3 polyunsaturated fatty acids supplementation on performance determining variables, such as VO2max, VO2 at the ventilatory threshold, anaerobic capacity, and gross-efficiency (GE).

Study design

A double-blind randomized placebo-controlled parallel group (rowers and speed skaters) design will be used to study the effect of omega-3 polyunsaturated fatty acids on exercise performance.

Intervention

One group receives twice daily 2 capsules with an omega-3 supplement (Trimare fish oil, 1000 mg per capsule containing 600 mg omega-3) for six weeks. The placebo group will receive twice daily 2 capsules corn oil supplement (1000 mg per capsule) for six weeks as well.

Study burden and risks

Subjects will come to the lab for testing eight times: two times for blood sampling and completing questionnaires, and 6 times for the exercise tests which will take 30 minutes to 2 hours. The expected risk of emergencies is extremely low. Some side effects may occur and give some discomfort but these are deemed minor given de dose of supplements. If the results show that omega-3 supplementation improves muscle function this may have a major impact on the success of the athletes* performances in competitions such as the Olympic games.

Contacts

Public
Vrije Universiteit

Van der Boechorststraat 9
Amsterdam 1081 BT
NL
Scientific
Vrije Universiteit

Van der Boechorststraat 9
Amsterdam 1081 BT
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Rowers
- Male or female
- Member of the Dutch National Rowing Team or the talent team of the Dutch Rowing Team.
- Aged 18-45.
- Rated as low risk participant, based on the anamnesis form (see protocol; chapter 14.1).;Speed skaters
- Male or female
- Speed skater of the track selection Haarlem, regional talent centre Haarlem, marathon speed skating team Haven Amsterdam/SKITS or being an elite international speed skater.
- Aged 18-45 year.
- Rated as low risk participant, based on the anamnesis form (see protocol; chapter 14.1).

Exclusion criteria

A potential subject who meets any of the following criteria will be excluded from participation in this study:
- Use of omega-3 PUFA supplements in the month prior to the start of the study
- No low risk classification based on the anamnesis form (appendix 1; chapter 14.1).
- Use of blood thinners.
- Low blood pressure (diastolic < 60 and/or systolic < 90 mmHg) combined with regular dizziness in rest or during daily activities.
- Pregnancy

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Placebo
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-10-2015
Enrollment:	100
Type:	Anticipated

Ethics review

Approved WMO Date:	10-11-2015
Application type:	First submission
Review commission:	METC Amsterdam UMC

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
CCMO	NL54282.029.15