The effect of training status on muscle energy metabolism in young males

No registrations found.

Ethical review	Positive opinion
Status	Pending
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON22088

Source
Nationaal Trial Register

Brief title
MCAP

Health condition

Ageing, Sarcopenia, Mitochondrial Function

Sponsors and support

Primary sponsor: prof. dr. Jaap Keijer
Wageningen University and Research
Human and Animal Physiology

Source(s) of monetary or material Support: NWO

Intervention

Outcome measures

Primary outcome

The primary objective of this study is to measure mitochondrial capacity using NIRS in order to verify if NIRS can be used to analyse differences in training status in a normal student

population.

Secondary outcome

• To measure mitochondrial capacity in gastrocnemius and the wrist flexor muscles to compare which measurement site correlates best to measurements of whole body oxygen consumption.

• To study the correlation between muscle-recovery to pre-exercise state, expressed as Tc measured using NIRS, and whole body-recovery to pre-exercise state, expressed as EPOC measured using indirect calorimetry.

• To critically asses the use of the PBMCs as a functional biomarker and assess correlations with whole body and skeletal muscle mitochondrial capacity.

• To investigate to which extend physical activity questionnaires can be used to reliably estimate VO2max in young and healthy and generally comparatively fit) males

Study description

Study objective

Mitochondrial capacity measured using different, non-invasive techniques can be used to analyse mitochondrial capacity in future studies

Study design

Cross-sectional study design

Intervention

Cross-sectional study design in which subject will be selected on training status.

Contacts

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Eligibility criteria

Inclusion criteria

• 18-28 year old male

• BMI 18.5-25 kg/m2

• VO2max ≤ 47 mL/kg/min or VO2max ≥ 57 mL/kg/min

• Performed a valid VO2max test (In order for the test to be considered valid two out of three of the following conditions should be met: 1) The maximal heart rate is within 10 beats of the predicted maximum (220 – age) 2) A plateau in in VO2 was reached; VO2 fails to increase with 150 mL/min, despite an increase in work load 3) Respiratory exchange ratio (RER) ≥ 1.00 has been achieved) and is has a

Exclusion criteria

• Health concerns regarding respiratory and pulmonary diseases, such as COPD, (exercise

induced) asthma and cardiovascular disease.

• (known symptoms of) Metabolic diseases, such as type I or II diabetes,

• Regular smoker (defined as smoking >5 cigarettes per week)

• Haemoglobin concentrations below 8.0 mmol/L

• Recent usage (within four months) of supplements with suggestive training effects, such as creatine phosphate, EPO or anabolic steroids.

• Usage of recreational drugs, such as marihuana, amphetamines and cocaine during the study (starting after first screening day)

• Suffers from (sport) injury that hampers maximal exercise performance

• Blood donation during the course of study

• Current participation in other clinical trials

• Employed or undertaking a thesis or internship at the department of Human and Animal Physiology

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Single blinded (masking used)
Control:	N/A , unknown

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-09-2017
Enrollment:	16
Type:	Anticipated

Ethics review

Positive opinion

Date:	26-05-2017
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 45254
Bron: ToetsingOnline
Titel:

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
NTR-new	NL6296
NTR-old	NTR6470
CCMO	NL60823.081.17
OMON	NL-OMON45254

Study results