

Mitochondrial Capacity in Young and Elderly Males

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Ageing decreases mitochondrial capacity

Ethische beoordeling	Positief advies
Status	Werving gestopt
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON22045

Bron

NTR

Verkorte titel

MCAGE

Aandoening

Sarcopenia

Ondersteuning

Primaire sponsor: NWO, TIFN

Overige ondersteuning: NWO,, TIFN

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The main study parameter is mitochondrial capacity, measured as the rate of recovery of muscle oxygen consumption after exercise measured using NIRS in the vastus lateralis, gastrocnemius and tibialis anterior.

Toelichting onderzoek

Achtergrond van het onderzoek

Ageing is associated with a decline in muscle mitochondrial function. Measuring muscle mitochondrial function is challenging and to routinely assess mitochondrial function in response to exercise and dietary interventions, practical, non-invasive and robust measurements are needed. Near-infrared spectroscopy (NIRS) is a novel technique that allows to non-invasively measure mitochondrial capacity in the human muscle. Although the technique is promising in measuring mitochondrial function during ageing, it is yet to be established how age-related changes in mitochondrial function differ between different muscle types. The primary objective of this study is to measure mitochondrial capacity using NIRS in young and older healthy males in three different muscles (vastus lateralis, gastrocnemius and the tibialis anterior) to give insights on how age-related changes in mitochondrial function differ between different muscle types.

Doel van het onderzoek

Ageing decreases mitochondrial capacity

Onderzoeksopzet

-

Contactpersonen

Publiek

Human and Animal physiology
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Wetenschappelijk

Human and Animal physiology
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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Young

- Male, 19-25 years
- BMI 18.5-27 kg/m²
- Normal activity levels: 1-2 hour per week engaged in a structured exercise session

Elderly

- Male, 65-71 years
- BMI 18.5-27 kg/m²
- Normal activity levels: 1-2 hour per week engaged in a structured exercise session
- Short physical performance battery score >6

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- (known symptoms of) Metabolic diseases, e.g. type I or II diabetes,
- Health concerns regarding respiratory and pulmonary diseases, e.g. COPD, (exercise induced) asthma and cardiovascular disease.
- Impaired physical performance (defined as short physical performance battery score < 6)
(Only for elderly group)
- Contraindications for electrical stimulation, e.g. cardiac pacemaker
- Contraindications for muscle biopsy, e.g. usage of anticoagulants (low dose aspirin allowed)
- Regular smoker (defined as smoking >5 cigarettes per week)
- Vastus lateralis skinfold >30mm
- Haemoglobin concentrations below 8.0 mmol/L
- Usage of recreational drugs, e.g. marihuana, amphetamines and cocaine during the study (starting after first screening day)
- Recent usage (within four months) of supplements with suggestive training effects, e.g. creatine phosphate, EPO or anabolic steroids.
- Current or recent (<2 weeks) participation in other clinical trials

Onderzoekopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Parallel
Toewijzing:	N.v.t. / één studie arm
Blinding:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland	
Status:	Werving gestopt
(Verwachte) startdatum:	01-09-2018
Aantal proefpersonen:	40
Type:	Werkelijke startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

Ethische beoordeling

Positief advies	
Datum:	24-04-2019
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 45934
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL7695
CCMO	NL65872.081.18
OMON	NL-OMON45934

Resultaten