

Carnitine status in fit and pre-frail/frail elderly compared to healthy young individuals

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We hypothesize that declined intramuscular carnitine levels are associated to declined mitochondrial function and, subsequently, to the frailty score. We suspect that prefrail/ frail elderly will have the lowest intramuscular carnitine levels and...

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

Samenvatting

ID

NL-OMON26053

Bron

NTR

Verkorte titel

Fitaal

Aandoening

Elderly, Frailty, Carnitine, Mitochondrial dysfunction

Ouderen, Kwetsbaarheid, Carnitine, Mitochondriale dysfunctie

Ondersteuning

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Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Intramuscular carnitine levels and carnitine derivatives

Toelichting onderzoek

Achtergrond van het onderzoek

Ageing is associated with increasing physical disabilities and prevalence of frailty, which negatively affects quality of life. In addition, ageing is also associated with a decrease in intramuscular carnitine levels. Simultaneously, intramuscular mitochondrial content and function decline. There are three studies describing the decline in intramuscular carnitine levels during ageing, but none of these studies did measure if frailty status is associated with the degree of decline in carnitine status and mitochondrial function. In this study we are going to test the hypothesis that declined intramuscular carnitine levels are associated to declined mitochondrial function and, subsequently, to the frailty score.

Therefore the main objective is to compare the intramuscular carnitine status of prefrail/frail elderly with fit elderly and young individuals. The secondary objectives are; 1) determine if intramuscular carnitine status is associated with carnitine levels in PBMCs; 2) compare lean mass, physical function, muscle function/strength, cognitive function and mitochondrial function in skeletal muscle and PBMCs between fit and pre-frail/frail

elderly, by using the healthy young individuals as a reference group.

Doel van het onderzoek

We hypothesize that declined intramuscular carnitine levels are associated to declined mitochondrial function and, subsequently, to the frailty score. We suspect that prefrail/frail elderly will have the lowest intramuscular carnitine levels and mitochondrial function compared to the fit elderly and healthy young individuals, whereas fit elderly will have higher intramuscular carnitine status and mitochondrial function compared to pre-frail/frail elderly, but lower compared to healthy young individuals.

Onderzoeksopzet

All parameters will be measured within two weeks.

Onderzoeksproduct en/of interventie

A blood sample and muscle biopsy. In addition, participants will perform several physical and cognitive tests and fill in questionnaires.

Contactpersonen

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

Healthy young subjects

- 20-30 years of age
- BMI of 20-25 kg/m²

Healthy fit elderly

- 75 years or older
- Fried score = 0

Pre-frail/frail elderly

- 75 years or older
- Fried score of 1 or more

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

- Contra-indication for DEXA-scan, e.g. metal splinters
- Contra-indication for muscle biopsy, e.g. use of anticoagulants.
- a significant medical or surgical event or hospitalization within the previous three months
- currently or the last three months treated by a medical specialist
- diagnosed with cardiac failure, COPD or anaemia
- diagnosed dementia and not having access to a daily caregiver and not able to make their own trade-off, which will be assessed at our discretion. The potential subjects have to be able to reproduce what is said;

- diagnosed with cancer or receiving cancer treatment
- not able to understand the Dutch language
- Diagnosed neuromuscular disorders
- taking carnitine supplements
- current participation in other research
- usage of the following medications:
 - o Systemic corticosteroids
 - o Fibrates
 - o Valproic acid
 - o Emetine
 - o Zidovudine

Additional exclusion criteria for the young individuals:

- Pregnant and nursing women
- Diabetes Mellitus type I and II
- Limited amount of performing sports, not more than 5 times a week

Onderzoeksopzet

Opzet

Type:	Observationeel onderzoek, zonder invasieve metingen
Onderzoeksmodel:	Anders
Blinding:	Open / niet geblindeerd
Controle:	N.v.t. / onbekend

Deelname

Nederland
Status: Werving nog niet gestart
(Verwachte) startdatum: 16-01-2017
Aantal proefpersonen: 78
Type: Verwachte startdatum

Ethische beoordeling

Positief advies
Datum: 14-11-2016
Soort: Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 43161
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL5943
NTR-old	NTR6124
CCMO	NL58289.081.16
OMON	NL-OMON43161

Resultaten