Mitochondrial Coupling Efficiency, Respiration and Vitamin B2 status in Untrained and Endurance-trained Young Females

Gepubliceerd: 23-07-2019 Laatst bijgewerkt: 19-03-2025

Exercise is associated with lower vitamin B2 status

Ethische beoordeling	Niet van toepassing
Status	Werving gestopt
Type aandoening	-
Onderzoekstype	Observationeel onderzoek, zonder invasieve metingen

Samenvatting

ID

NL-OMON24874

Bron
Nationaal Trial Register

Verkorte titel
B-MCORE

Aandoening

Metabolism, vitamin B2 status

Ondersteuning

Primaire sponsor: Wageningen University & Research
Overige ondersteuning: Wageningen University & Research

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

The primary outcome is to study mitochondrial function in PBMCs from endurance-trained and untrained young females and link it to vitamin B2 status.

Toelichting onderzoek

Achtergrond van het onderzoek

Extensive endurance training puts a high energy demand on the human body. Macronutrient as well as micronutrient requirements should be met to support the generation of energy. Mitochondria generate energy by the oxidation of macromolecules, and vitamins and minerals are essential to support mitochondria during substrate oxidation. Although all B-vitamins are involved in mitochondrial function, vitamin B2 is of particular interest as it is directly involved in energy generation and ROS production. In addition, human trials have indicated that exercise is negatively associated with vitamin B2 status. We aim to investigate the role of vitamin B2 in endurance-trained individuals and its role in supporting mitochondrial function.

Doel van het onderzoek

Exercise is associated with lower vitamin B2 status

Onderzoeksopzet

N/A

Onderzoeksproduct en/of interventie

N/A

Contactpersonen

Publiek

Wageningen University & Research
Joëlle Janssen

+31 317 483 184

Wetenschappelijk

Wageningen University & Research

Joëlle Janssen

+31 317 483 184

Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

- 18-28 year old female
- BMI 18.5-25 kg/m2
- VO2max ≤ 37 mL/kg/min or VO2max ≥ 47 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

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

• Health concerns regarding respiratory and pulmonary diseases, for example COPD or (exercise induced) asthma
• (Known symptoms of) chronic diseases, for example cardiovascular disease and cancer;
• (Known symptoms of) metabolic diseases, for example type I or II diabetes or hyperthyroidism;
• (Known symptoms of) inborn metabolic diseases, for example glucose-6-phosphate dehydrogenase (G6PD) deficiency;
• (Known symptoms of) hematological disorders, for example anemia or disturbed red blood cell formation;
• Haemoglobin concentrations below 7.5 mmol/L;
• Regular smoker (defined as smoking >5 cigarettes per week);
• Lactating or pregnant;
• Following a veganistic lifestyle, i.e. excluding the consumption of animal or animal-derived food products. Vegetarians are allowed to participate in the study.
• Usage of hormonal contraceptive medications other than the birth control pill Microgynon 20/30 or a generic variant containing 0.02/0.03 mg ethinylestradiol and 0.10/0.15 mg levonorgestel. Examples include IUD contraceptives or contraceptive rings. The use of condoms or pessaria is allowed;
• Recent use (within four months) of supplements with suggestive training effects, for example creatine phosphate, EPO or anabolic steroid;

• Recent daily usage (within four weeks) of supplements containing vitamin B2 (including multivitamin supplements) and usage of vitamin B2 supplements during the study;
• Usage of recreational drugs, for example 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 previous 2 months or during the course of study;
• Current participation in other clinical trials;
• Not subscribed to a general practitioner (GP) practice;
• Employed or undertaking a thesis or internship at the department of Human and Animal Physiology.

Onderzoeksopzet

Opzet

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

Deelname

Nederland

Status:	Werving gestopt
(Verwachte) startdatum:	01-09-2019
Aantal proefpersonen:	32
Type:	Werkelijke startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

Ethische beoordeling

Niet van toepassing

Soort:	Niet van toepassing

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

ID: 48355
Bron: ToetsingOnline
Titel:

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL7891
CCMO	NL70136.081.19
OMON	NL-OMON48355

Resultaten