Effects of acute elevation of circulating fatty acids on cardiac lipid accumulation in healthy lean young men.

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Lipids are taken up by the heart when availability is high. High plasma concentrations of free fatty acids lead to increased lipid storage in the heart.

Ethische beoordeling	Positief advies
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON22845

Bron
Nationaal Trial Register

Verkorte titel
N/A

Aandoening

possible mechanism for cardiac lipid accumulation in obesity is studied in healthy lean mean.

Ondersteuning

Primaire sponsor: none

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Cardiac lipid content after high or low free fatty acid condition.

Toelichting onderzoek

Achtergrond van het onderzoek

To test whether the myocardium is storing more lipids when free fatty acid concentration is elevated, subjects cycled for two hours in the fasted state, which is well known to lead to an increase in free fatty acid concentrations. When subjects stay fasted during recovery, free fatty acid concentration stay high. However, when glucose drinks are administered before and during the test day, the elevation of free fatty acids is completely blunted. In the two conditions (high vs low levels of free fatty acids), cardiac lipid content and cardiac function is determined.

Doel van het onderzoek

Lipids are taken up by the heart when availability is high. High plasma concentrations of free fatty acids lead to increased lipid storage in the heart.

Onderzoeksopzet

Cardiac lipid content is measured at the beginning of the test day, after cycling and after 3 hours of recovery. Cardiac function and energy status is only determined after recovery.

Onderzoeksproduct en/of interventie

Subjects cycled for 2 hours at 50% of the predetermined maximal work load in the fasted state and stay fasted during a three hour recovery period. This procedure is known to increase free fatty acid concentration. Before and after exercise and after recovery, cardiac lipid content is determined by Magnetic Resonance Spectroscopy. Cardiac function and energy status is determined at the end of the test day, after recovery. During the test day, blood samples are taken at multiple time points and fat- and carbohydrate oxidation is determined by indirect calorimetry. The same procedure is repeated with glucose supplementation to blunt the increase in free fatty acids. The two treatments (with/without glucose) were randomized.

Contactpersonen

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

1. Male sex;

2. Age: 18-35 years;

3. BMI: 18-25;

4. Stable dietary habits (no weight gain or loss of >8% of bodyweight in the last 6 months);

5. No medication.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. Known cardiovascular disease, diabetes or dyslipididemia;

2. Contra-indication for MRI (electronic implants, iron containing corpora alinea in eyes, certain hearing aids and certain artificial heart valves);

3. Weight gain/loss > 8% of body weight;

4. Medication use.

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	Gerandomiseerd
Blindering:	Open / niet geblindeerd
Controle:	Placebo

Deelname

Nederland

Status:	Werving gestart
(Verwachte) startdatum:	01-11-2008
Aantal proefpersonen:	20
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	20-07-2009
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL1807
NTR-old	NTR1917
Ander register	METC Maastricht University Medical Center : MEC 08-3-063
ISRCTN	ISRCTN wordt niet meer aangevraagd.

Resultaten

Samenvatting resultaten
N/A