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

No registrations found.

| | |
|---|---|
| **Ethical review** | Positive opinion |
| **Status** | Recruiting |
| **Health condition type** | - |
| **Study type** | Interventional |

## Summary

### ID

NL-OMON22845

**Source**
NTR

**Brief title**
N/A

**Health condition**

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

### Sponsors and support

**Primary sponsor:** none

### Intervention

### Outcome measures

**Primary outcome**

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

**Secondary outcome**

Cardiac function (by MRI) and cardiac energy status (determined by 31P-MRS).

# Study description

### Background summary

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.

### Study objective

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.

### Study design

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.

### Intervention

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.

# Contacts

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# Eligibility criteria

## Inclusion criteria

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.

## Exclusion criteria

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.

# Study design

## Design

| | |
|---|---|
| Study type: | Interventional |
| Intervention model: | Crossover |
| Allocation: | Randomized controlled trial |
| Masking: | Open (masking not used) |
| Control: | Placebo |

## Recruitment

NL

| | |
|---|---|
| Recruitment status: | Recruiting |
| Start date (anticipated): | 01-11-2008 |
| Enrollment: | 20 |
| Type: | Anticipated |

# Ethics review

Positive opinion

| | |
|---|---|
| Date: | 20-07-2009 |
| Application type: | First submission |

# Study registrations

## Followed up by the following (possibly more current) registration

No registrations found.

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

No registrations found.

## In other registers

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

# Study results

**Summary results**
N/A