# Neuroimaging of childhood obesity: a case control study

Published: 16-08-2010
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To demonstrate differences in neuronal structure and neuronal function in brain regions that control eating behaviour between obese and normal weight adolescents.

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| **Ethical review** | Approved WMO |
| **Status** | Recruiting |
| **Health condition type** | Appetite and general nutritional disorders |
| **Study type** | Observational non invasive |

## Summary

### ID

NL-OMON39380

**Source**
ToetsingOnline

**Brief title**
Neuroimaging of childhood obesity

### Condition

- Appetite and general nutritional disorders

**Synonym**
adiposity, corpulence

**Research involving**
Human

### Sponsors and support

**Primary sponsor:** Leids Universitair Medisch Centrum
**Source(s) of monetary or material Support:** Danone Research

### Intervention

**Keyword:** (f)MRI, Childhood obesity, Eating behaviour

## Outcome measures

### Primary outcome

1. Structural MRI of brain areas involved in eating behaviour

2. Functional MRI resting state

3. Functional MRI passive visual stimulus, emotional inhibition and backward

masked stimulus

### Secondary outcome

Not applicable

# Study description

### Background summary

The prevalence of overweight and obesity among children is alarming high. Childhood obesity is associated with serious health risks. Obesity is the result of a disturbed balance between energy intake and expenditure. The brain is the central regulator of energy balance. Brain areas that play crucial roles in eating behaviour are the hypothalamus, the mesolimbic dopamine system and the prefrontal cortex. Several imaging studies have revealed the complexity of the human brain mechanisms related to eating behaviour. The exact neuropathophysiological mechanisms underlying obesity are unclear. This (functional) magnetic resonance imaging ((f)MRI) study might be helpful to disentangle these mechanisms underlying childhood obesity, a predictor of adult obesity. In addition, these results might offer the opportunity to develop novel therapeutic targets.

### Study objective

To demonstrate differences in neuronal structure and neuronal function in brain regions that control eating behaviour between obese and normal weight adolescents.

### Study design

Case-control study

### Study burden and risks

After comprehensive explanation (written and oral) to participants, (f)MRI scanning will be no burden and acceptable to these adolescents as described in the notice *Toetsingskader niet-therapeutisch MRI-onderzoek bij minderjarige en wilsonbekwame proefpersonen* from The Central Committee on Research Involving Human Subjects (CCMO, 2004) (www.ccmo.nl).

## Contacts

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## Trial sites

### Listed location countries

Netherlands

## Eligibility criteria

**Age**
Adolescents (12-15 years)
Adolescents (16-17 years)

### Inclusion criteria

Obesity (cases) and normal-weight (controls) BMI conform cut-off points according to Cole (2000)

12-16 years old
Caucasian origin

### Exclusion criteria

Obesity due to medical cause (excluding using standard protocol)
Unremovable metal devices
Weight-loss intervention program during study participation

## Study design

### Design

| | |
|---|---|
| Study type: | Observational non invasive |
| Intervention model: | Other |
| Allocation: | Non-randomized controlled trial |
| Masking: | Open (masking not used) |
| Control: | Active |
| Primary purpose: | Basic science |

### Recruitment

NL

| | |
|---|---|
| Recruitment status: | Recruiting |
| Start date (anticipated): | 01-12-2010 |
| Enrollment: | 40 |
| Type: | Actual |

## Ethics review

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|---|---|
| Approved WMO Date: | 16-08-2010 |
| Application type: | First submission |
| Review commission: | METC Leids Universitair Medisch Centrum (Leiden) |
| Approved WMO Date: | 04-10-2011 |

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| Application type: | Amendment |
| Review commission: | METC Leids Universitair Medisch Centrum (Leiden) |
| Approved WMO Date: | 05-06-2013 |
| Application type: | Amendment |
| Review commission: | METC Leids Universitair Medisch Centrum (Leiden) |
| Approved WMO Date: | 20-11-2013 |
| Application type: | Amendment |
| Review commission: | METC Leids Universitair Medisch Centrum (Leiden) |

# 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 |
|---|---|
| CCMO | NL31540.058.10 |