

# Metabolic effects of morning light.

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Type 2 diabetes is a major threat to human health. Disruption of the circadian timing system is associated with metabolic changes. Disturbance of the daily light and dark rhythm could contribute to this phenomenon and effects metabolic pathways. We...

|                             |                       |
|-----------------------------|-----------------------|
| <b>Ethische beoordeling</b> | Positief advies       |
| <b>Status</b>               | Werving gestopt       |
| <b>Type aandoening</b>      | -                     |
| <b>Onderzoekstype</b>       | Interventie onderzoek |

## Samenvatting

### ID

NL-OMON25124

### Bron

Nationaal Trial Register

### Verkorte titel

SUNRISE

### Aandoening

glucose metabolism

## Ondersteuning

**Primaire sponsor:** Academic Medical Center (AMC), Department of Endocrinology and Metabolism

**Overige ondersteuning:** Academic Medical Center (AMC), Department of Endocrinology and Metabolism

## Onderzoeksproduct en/of interventie

## Uitkomstmaten

### Primaire uitkomstmaten

To investigate the effect of morning light exposure on postprandial glucose excursions and expression of metabolic and clock genes in adipose tissue.

# Toelichting onderzoek

## Achtergrond van het onderzoek

N/A

## Doel van het onderzoek

Type 2 diabetes is a major threat to human health. Disruption of the circadian timing system is associated with metabolic changes. Disturbance of the daily light and dark rhythm could contribute to this phenomenon and effects metabolic pathways. We hypothesize that morning bright light exposure decreases postprandial glucose excursions.

## Onderzoeksopzet

Frequent plasma measurements of glucose, insulin, C-peptide, free fatty acid and triglyceride. Adipose tissue biopsy at one timepoint. Continuous measurement of heart rate variability and skin temperature.

## Onderzoeksproduct en/of interventie

Subject will be admitted in the evening and receive a standard meal in normal room light. They sleep for 8 hours in the dark. From wake-up time they consume a standard liquid in bright or dim light.

# Contactpersonen

## Publiek

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## Wetenschappelijk

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## Deelname eisen

### Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

1. Age 18-55 years;
2. Male sex;
3. BMI 18-25;
4. Fasting plasma glucose <5.6 mmol/L;
5. Habitual wake-up time between 6:00 and 9:00.

### Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. Medication interfering with glucose metabolism or neuronal synaptic transmission;
2. Gastro-intestinal or metabolic disease that will interfere with digestion or metabolism;
3. Neuropsychiatric illness including severe depression;
4. Epilepsy;
5. Hypertension;
6. Ophthalmological abnormalities.

## Onderzoeksopzet

## Opzet

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

## Deelname

|                         |                       |
|-------------------------|-----------------------|
| Nederland               |                       |
| Status:                 | Werving gestopt       |
| (Verwachte) startdatum: | 11-03-2013            |
| Aantal proefpersonen:   | 8                     |
| Type:                   | Werkelijke startdatum |

## Ethische beoordeling

|                 |                  |
|-----------------|------------------|
| Positief advies |                  |
| Datum:          | 25-02-2013       |
| 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  | NL3718 |

**Register**

NTR-old

Ander register

ISRCTN

**ID**

NTR3881

METC AMC : 2012\_341

ISRCTN wordt niet meer aangevraagd.

## Resultaten

**Samenvatting resultaten**

Versteeg RI, Stenvers DJ, Visintainer D, Linnenbank A, Tanck MW, Zwanenburg G,

Smilde AK, Fliers E, Kalsbeek A, Serlie MJ, la Fleur SE, Bisschop PH. Acute

Effects of Morning Light on Plasma Glucose and Triglycerides in Healthy Men and

Men with Type 2 Diabetes. J Biol Rhythms. 2017 Apr;32(2):130-142. doi:

10.1177/0748730417693480. Epub 2017 Mar 20. PubMed PMID: 28470119; PubMed Central

PMCID: PMC5423535.