Interaction between Visual Comfort and Thermal Comfort

No registrations found.

Ethical review	Positive opinion
Status	Pending
Health condition type	-
Study type	Interventional

Summary

ID

NL-OMON24613

Source
Nationaal Trial Register

Brief title
IVT

Health condition

Not applicable

Sponsors and support

Primary sponsor: School for Nutrition and Translational Research, Maastricht University
Source(s) of monetary or material Support: Topconsortium voor Kennis en Innovatie

Intervention

Outcome measures

Primary outcome

Thermal comfort

Secondary outcome

thermal sensation, visual perception, participants’ behaviour over the personal lighting

system, cognitive performance, heart rate, blood pressure, blood flow, gross physical activity, energy expenditure and body temperatures

Study description

Background summary

Rationale: In order to fulfil the demand of thermal comfort, current environmental design practice narrows the temperature into a small range. Expanding the temperature range offers a significant energy-saving potential and may elicit some important health benefits. Nevertheless, expanding the temperature range may compromise thermal comfort. Studies have shown that environmental factors can interact with each other to a certain extent. Especially, the indoor light can affect thermal comfort, which provides a possible mean to expand the acceptable temperature range while providing comfort.

Objective: To study the effect of individual control of the light on thermal comfort

Study design: This study is a within-subject experiment, which will include four lighting conditions. Those four lighting conditions are either with personal control of light or without personal control of light, in combination with two different initial light settings. To balance the order of the conditions, the orders are taken from a 4×4 latin square table and participants will be randomly assigned to one of the orders. During each condition, thermal perceptions, visual perceptions, physiological parameters, lighting control and cognitive performance will be measured.

Study population: 20 healthy lean participants in total aged between 18 and 40 years, BMI >18 and <27.5 kg/m2 will be included.

Main study parameters/endpoints: Difference in thermal comfort between with-control conditions and no-control conditions.

Nature and extent of the burden and risks associated with participation, benefit and group relatedness: This study carries no benefits for the subjects. It is not a therapeutic research. However, the study will lead to novel insights into the effect of personal control of light on thermal comfort and various health-related parameters such as blood pressure, heart rate and energy expenditure. The risk of COVID-19 infection is low. The major burdens consist of recurrent laboratory visits, a moderate time commitment and exposure to warmer and cooler indoor environments than usual. Furthermore, subjects are asked to regulate their eating and exercise habits one day before each measurement day of the study to limit external influences on the measurement of physiological parameters. This may be a small social and psychological burden.

Study objective

The personal control of light can compensate thermal discomfort

Study design

5 time points - one screening visit and four testing visits

Intervention

Light

Contacts

Public
Maastricht University
Wei Luo

043-3884259
Scientific
Maastricht University
Wei Luo

043-3884259

Eligibility criteria

Inclusion criteria

- Caucasian
- BMI: 18-27.5
- Age: 18-40
- Healthy
- Non-smoker
- Live in the Netherlands (or area near the Netherlands) for at least 2 months
- For female: on contraception

Exclusion criteria

- Extreme chronotype
- Cardiovascular diseases
- Diabetes or abnormal sugar levels
- Ocular pathologies

- Colour blindness
- Hypertension (systolic/diastolic blood pressure >140/90)
- Hypotension (systolic/diastolic blood pressure <90/60)
- Any medical condition requiring treatment and/or medication that might interfere with the investigated parameters.
- Presence of Raynaud’s phenomenon
- Participation in another biomedical study within 1 month prior to screening visit
- Jet lag or night shift work in the past 2 months

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Allocation:	Non controlled trial
Masking:	Single blinded (masking used)
Control:	N/A , unknown

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	06-04-2021
Enrollment:	20
Type:	Anticipated

IPD sharing statement

Plan to share IPD: Undecided

Ethics review

Positive opinion

Date:	06-04-2021
Application type:	First submission

Study registrations

Followed up by the following (possibly more current) registration

ID: 51211
Bron: ToetsingOnline
Titel:

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

No registrations found.

In other registers

Register	ID
NTR-new	NL9387
CCMO	NL76263.068.20
OMON	NL-OMON51211

Study results