

Sleeping with open or closed curtains

Published: 13-12-2013

Last updated: 22-04-2024

We aim to assess the effect of sleeping with open or closed curtains on sleep quality and sleep loss and circadian phase of melatonin.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Interventional

Summary

ID

NL-OMON41249

Source

ToetsingOnline

Brief title

Sleep and curtains

Condition

- Other condition

Synonym

sleep loss, sleep quality

Health condition

sleep loss

Research involving

Human

Sponsors and support

Primary sponsor: Rijksuniversiteit Groningen

Source(s) of monetary or material Support: 2nd level funding by STW Perspectief 2010 program (project number P10-18)

Intervention

Keyword: Curtains, Sleep, Social jetlag

Outcome measures

Primary outcome

Sleep timing and sleep quantity from sleep diaries (subjective) and actimetry (objective; sub-group only).

Secondary outcome

Sleep quality from subjective sleep diaries, and light exposure assessed from sleep diaries. In addition, secondary objective parameter in this study in a sub-sample of 20 participants is melatonin concentration in saliva. The start of the rhythm will be measured: dim light melatonin onset (DLMO). A shift in DLMO is interpreted as a shift in the endogenous circadian pacemaker.

Study description

Background summary

Sleep is a basic human need and essential for good health, quality of life and performing well during the day. The timing of sleep is regulated by a homeostatic process (sleep pressure increasing with time awake) and circadian process. The latter is synchronised (entrained) to the 24-hour light-dark cycle by light. The relationship between external (social) and internal (biological) time is called phase of entrainment. People that differ in this trait have different chronotypes. The distribution of chronotypes is (almost) bell-shaped, with few extreme chronotypes at both ends. Chronotype is assessed via the Munich Chronotype Questionnaire (MCTQ) based on calculating the mid-point of sleep on free days (MSF) and workdays (MSW), with the MSF being corrected for sleep deficit accumulated across the workweek (MSF sleep corrected, MSFsc). Social jetlag is quantified as the difference between MSF and MSW, and is a marker for circadian rhythm disruption and chronic physiological stress, which is positively correlated with smoking and body mass index (BMI). The modern 24/7-society ignores that sleep timing is individual, affecting sleep quality and quantity, leading to sleep deprivation and directly impacting recuperation

and long-term health. About three quarters of the general population rely on their alarm clocks on workdays, which especially concerns later chronotypes with early work schedules. From controlled laboratory studies, there is ample evidence showing the detrimental effects of sleep deprivation on health and performance, with consequences that would be catastrophic in real life - especially in e.g. shift-work occupations. These studies also show that the thresholds for the effects of sleep deprivation are hard to identify by an individual, meaning we need solutions that provide individuals with ways to better acknowledge their state of sleep loss. One solution to this problem would be to delay sleep on workdays until it matches sleep on free days, meaning to fully taking account of an individual's chronotype. Such strategy would require delaying working hours, an approach of obviously little success for plenty social reasons and constraints. The alternative solution is to advance sleep onset on workdays using controlled light exposure, so as to allow for longer sleep duration and to decrease the workweek daily sleep loss. We hypothesise that a continuous earlier sleep onset across weeks and months on workdays will result in an advance of sleep onset also on free days.

Study objective

We aim to assess the effect of sleeping with open or closed curtains on sleep quality and sleep loss and circadian phase of melatonin.

Study design

The study takes 30 days in total. During the first 14 days we ask participants to only complete the sleep diary (less than 5 minutes). The 16 following days participants will be asked to follow the protocol: if sleeping usually with curtains closed then sleep with curtains open & if usually sleeping with curtains open then sleep with curtains closed. Once per week participants also complete the online version of the the MCTQ (e.g. every Sunday). In a sub-group of 20 participants we will assess endogenous circadian phase of melatonin from saliva samples and daily rest/activity profiles using actigraphy.

Intervention

For 16 days sleeping with open curtains (if usually closed) or sleeping with closed curtains (if usually open).

Study burden and risks

We do not expect any adverse effect from participating in our study.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adults (18-64 years)

Elderly (65 years and older)

Inclusion criteria

Healthy men and women between 18 and 45 years of age
Chronotype (MSFsc) of greater than 4 (meaning a sleep mid point at 04:00 a.m.)
Social jetlag = difference between mid-sleep on workdays and days off of minimum 2 hours
Habitual sleep duration on free days between 6 and 10 hours
Bed partners agree to the study protocol
Written informed consent

Exclusion criteria

Sleep disorders, e.g. sleep apnoea, narcolepsy, restless legs, primary insomnia

Mood disorder; because of the possibility of depressive mood as co morbidity in late chronotypes we will set the criterion for exclusion based on depressive mood on a BDI-II rating equal to or higher than 16 (indicating severe dysphoric or depressed mood)
Two or more time zones crossed 1 month before study participation
Shift-work during 5 years prior to participation
Recent eye surgery (last year), glaucoma or other eye disease
History of chronic diseases, and/or use of chronic medication for 3 months or longer before study participation
Alcohol or drug problems (based on answers to the General Questionnaire)
The use of sleep and photosensitizing medication

Study design

Design

Study type:	Interventional
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Other

Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	14-02-2013
Enrollment:	100
Type:	Actual

Ethics review

Approved WMO	
Date:	13-12-2013
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)
Approved WMO	

Date: 23-06-2015
Application type: Amendment
Review commission: METC Universitair Medisch Centrum Groningen (Groningen)

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	NL45405.042.13