Enlighten the night shifts of policemen in Drenthe

Published: 22-12-2010
Last updated: 03-05-2024

Objective of the study is to test the effects of two different interventions during the nightshift on alertness and performance and on sleep quality and health complaints in general. The interventions are short exposure to light or taking a powernap...

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

Summary

ID

NL-OMON34103

Source
ToetsingOnline

Brief title
Enlighten the night shifts

Condition

- Other condition

Synonym
Circadian rhythm sleep disorder; Shift work sleep disorder;

Health condition

slaapstoornissen; circadiane ritme slaapstoornissen

Research involving
Human

Sponsors and support

Primary sponsor: Politie Academie, Programma Politie en Wetenschap
Source(s) of monetary or material Support: Programmasubsidie van Politie en Wetenschap onderdeel van de Politie academie

Intervention

Keyword: alertness, light, night shifts, powernap

Outcome measures

Primary outcome

The most important output parameters are subjective sleepiness and objective

measures of performance on a reaction time task and fine motoric skill tests.

Secondary outcome

Secondary output parameters are sleep quality, mood and health in general.

Study description

Background summary

In the Netherlands approximately 16% of the working force is involved in night shift work (CBS 2001). Working at night is not optimal. The processes in the human body have evolved to be best adapted for diurnal activity and nocturnal sleep. Unfortunately it is not always possible to work only during daytime. People working in the health and security sector work night shifts for 24-h availability in case of emergencies, and a lot of companies work through the night of economical reasons. The biological clock indicates that the preferable time to sleep is at night. In combination with long hours of wakefulness before the night shift starts, this results in people feeling sleepy and do not function properly at night. Shift work is also related to health problems in general, such as sleep disturbances, heart- and coronal diseases, gastro-intestestinal problems and metabolic syndrome. These health problems related to shift work are categorized under circadian rhythm sleep disorders. Vigilance and safety are focus points in police-work. During nights shifts both these facts are at stake. In addition the working force of the police departments suffers from an aging problem. It is well known that health problems related to shift work become more prominent with aging. Purpose of the present study is to counteract the negative effects of night shift work on

vigilance and safety and to improve health and general well being in general in policemen.

Study objective

Objective of the study is to test the effects of two different interventions during the nightshift on alertness and performance and on sleep quality and health complaints in general. The interventions are short exposure to light or taking a powernap at prescribed times during the nightshift.

Study design

Cross-over (within subject) comparison with 2 experimental and 1 control condition.

Intervention

The 3 conditions each last 4 weeks. During the control condition subjects work in their regular way, there is no intervention. During the light conditions participants expose themselves during each night shift to 1 light pulse of 5000 lux during 20 minutes in the time frame between 4 and 6 a.m. In the "powernap" condition subjects are asked to take a powernap of maximally 20 min during each night shift somewhere between 2 and 4 a.m.

Study burden and risks

The burden for the subjects consists of filling out a questionnaire on sleep, mood and health complaints after each condition (3 times 20 min). In addition the participants will wear an activity meter during the whole study of 12 weeks, 24 hours per day. This activity meter is able to measure rest-activity cycles and sleep parameters such as sleep efficiency, sleep onset etc. During each night shift subject fill out some questions on sleepiness (1 min) and perform some tests on reaction time and fine motoric skills (9 min) on a PDA 5 times per night (10 min each).
The study is not expected to bring any risks. It usually happens that people suffer from sleep inertia after taking a nap. By reducing the duration of the nap to max 20 min and by planning it in the beginning of the night, the risk of sleep inertia is kept low. Nevertheless subjects will be advised not to sit behind the wheel during the first 30 min after waking up if possible. By taking these precautions the risks for sleep inertia are estimated to be not higher then the normal risks of sleepiness during the night shift without an intervention. In the literature there is discussion about the possible role of light at night in increasing the risk for developing breast cancer in women working in night shifts. Epidemiological studies do show an increased risk after working in night shifts if women work for more then 20 years in regular night shifts. The underlying cause is not known, but melatonin suppression by

light has been proposed as one of the possibilities. We chose a high intensity light pulse to reduce sleepiness. This will shortly suppress melatonin, but because of proper timing and the short duration, melatonin will only temporarily be suppressed and will come back after turning off the light. Therefor melatonin suppression calculated over the whole night will be minimal keeping possible risks also very minimal.

Contacts

Public
Politie Academie, Programma Politie en Wetenschap

Arnhemseweg 348
7334 AC Apeldoorn
NL
Scientific
Politie Academie, Programma Politie en Wetenschap

Arnhemseweg 348
7334 AC Apeldoorn
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Policemen in corps Drenthe
Working in irregular shifts with at least 2 night shifts per 4 weeks
age between 18 and 65

Exclusion criteria

Ophthalmological problems like Glaucome, cataract etc that are a contra indication for light exposure, or will reduce the possible effects
Eye surgery during the past 5 years
use of photosensitizing medication

Study design

Design

Study type:	Interventional
Intervention model:	Crossover
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Prevention

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	29-01-2011
Enrollment:	135
Type:	Actual

Ethics review

Approved WMO

Date:	22-12-2010
Application type:	First submission
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	NL34619.042.10