

# A study to evaluate whether light therapy can help people with dementia to sleep better

<b>Submission date</b> 16/12/2015	<b>Recruitment status</b> Stopped	<input type="checkbox"/> Prospectively registered
		<input type="checkbox"/> Protocol
<b>Registration date</b> 11/01/2016	<b>Overall study status</b> Stopped	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
<b>Last Edited</b> 26/02/2019	<b>Condition category</b> Mental and Behavioural Disorders	<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Two out of three people with dementia have problems with sleep. This can cause stress and influence decisions to move the person into a care home. Medications prescribed for sleep disturbances may have negative side effects and we cannot be sure they work. Non-drug methods are recommended, but we are not sure they work either. A hormone released from the brain determines when people fall asleep. If someone is exposed to bright light, the brain stops the release of this hormone and this can disrupt sleep. Without this regular cue to stay awake, a person may naturally sleep at different times of the day. Exposure to enough light may become difficult with age and worsening dementia. Giving bright blue/white light to help people stay awake during the day may help reduce problems with sleep at night. There have been some studies, but because of weaknesses in the way the research has been carried out, they have not led to a conclusion on treatment.

We will test if a light box used during the day helps people with dementia sleep better at night. This is difficult research to carry out, but we think it can be done. Our group includes experts with experience in this type of research. However, we want to make absolutely sure that we can do the study in the way that we plan before we start. Therefore, we will start with a small study and ask only 6 people to take part. This will tell us whether we can recruit enough people, whether they use the light box in the way we prescribe and whether we can carry out all our planned assessments. After we have tried our plans in the small study we will not be able to comment on whether light treatment works, but we will be able to say whether it would be worthwhile to ask more people to take part. We will then finalise our plans for a larger study.

### Who can participate?

People with Alzheimer's type dementia and an irregular sleep wake pattern.

### What does the study involve?

Each participant is given a light box to use each day in their own home. Over the 9 weeks, the participants are given two different light boxes at two different times. One is an active bright blue/white light box and the other is an inactive dim red light box. The order in which the person receives the different light treatments is determined by chance. We compare how people sleep during the two periods to see if either of the light boxes is better. To measure sleep, participants wear a device that looks like a watch to record their movement in bed. This is a good

way of recording people's sleep behaviour. If the treatment works, we would expect people to sleep for longer at night during the period they are regularly using the bright blue/white light box, in comparison to the period they are using the dim red light box.

What are the possible benefits and risks of participating?

Participants may benefit from improvements of their sleep, mood, ability to think and remember clearly, quality of life, and feelings of self-determination. Participants may also experience improvement in their ability to go about their everyday activities, including social activities. Further benefits could include a reduced need for medication and less stress and distress. Aside from the time commitment of participating, potential side effects include headaches, dry mouth, mild agitation or irritability.

Where is the study run from?

Surrey & Borders Partnership NHS Foundation Trust (UK).

When is the study starting and how long is it expected to run for?

December 2015 to June 2016.

Who is funding the study?

University of Kent (UK).

Who is the main contact?

Dr David Lowery

## Contact information

**Type(s)**

Public

**Contact name**

Dr David Lowery

**ORCID ID**

<http://orcid.org/0000-0002-0730-3130>

**Contact details**

Centre for Health Services Studies  
2nd Floor George Allen Wing  
Cornwallis Building  
University of Kent  
Canterbury  
United Kingdom  
CT2 7NF

## Additional identifiers

**EudraCT/CTIS number**

**IRAS number**

ClinicalTrials.gov number

Secondary identifying numbers

2.6.2

## Study information

### Scientific Title

Disturbances of Sleep in Dementia (DOSID): a pilot randomized controlled cross-over trial to evaluate the efficacy and explore the mechanisms of bright full spectrum light as a therapy for sleep disturbances in people with dementia

### Acronym

DOSID

### Study objectives

Bright full spectrum light therapy will effectively improve objectively measured sleep behaviour (actigraphy). This hypothesis predicts light therapy will: increase total night time sleep (sleep duration); reduce the duration of time spent awake in bed after the initial onset of sleep (sleep efficiency) and reduce daytime napping.

Bright full spectrum light therapy will effectively improve subjective reported sleep quality (Leeds Sleep Evaluation Questionnaire [LSEQ]). This hypothesis predicts that participant's scores on the LSEQ will decrease with the use of light therapy.

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

London - Bromley Research Ethics Committee under the auspices of the NHS Health Research Authority, 1. 20/11/2015, ref: 15/LO/1350

### Study design

Randomised controlled double-blind cross-over trial

### Primary study design

Interventional

### Secondary study design

Randomised cross over trial

### Study setting(s)

Community

### Study type(s)

Treatment

### Participant information sheet

Not available in web format, please use the contact details below to request a patient information sheet

## **Health condition(s) or problem(s) studied**

Irregular sleep wake disturbance in people with dementia

## **Interventions**

We will evaluate the efficacy of a full spectrum bright light box (~10,000 Lux; ~460nm) as a therapy for sleep disturbances within a cohort of community dwelling people with dementia by means of a randomised, controlled, double-blind, cross-over trial with two treatments: active bright light box (A), or a control dim red light box (B). In addition to treatment as usual, participants will be randomly allocated to one of two treatment sequences (AB or BA).

## **Intervention Type**

Device

## **Primary outcome measure**

Sleep behaviour (actigraphy), measured at Baseline, Week 3, Week 6 (Baseline 2), Week 9

\*This study is a cross-over trial, so has two baseline assessments.

## **Secondary outcome measures**

1. Dim Light Melatonin Onset (saliva)
2. Neuropsychiatric Inventory (NPI)
3. Mini-Mental State Evaluation (MMSE)
4. Leeds Sleep Evaluation Questionnaire (LSEQ)
5. Zarit Caregiver Burden Interview (ZBI)

Measured at Baseline, Week 3, Week 6 (Baseline 2), Week 9

\*This study is a cross-over trial, so has two baseline assessments.

## **Overall study start date**

01/12/2015

## **Completion date**

01/06/2016

## **Reason abandoned (if study stopped)**

Participant recruitment issue

# **Eligibility**

## **Key inclusion criteria**

1. Alzheimer's type dementia
2. Irregular sleep wake pattern

## **Participant type(s)**

Patient

## **Age group**

Adult

## **Sex**

Both

**Target number of participants**

6 (pilot only)

**Key exclusion criteria**

1. 'Severe' dementia
2. Sleep apnoea
3. Eye disease
4. Abnormal visual acuity
5. Parkinson's disease
6. Restless leg syndrome
7. Periodic limb movement
8. History of light-induced migraine or epilepsy
9. Using photosensitising medication
10. Trans-meridian travel or shift work
11. Bipolar affective disorder

**Date of first enrolment**

07/12/2015

**Date of final enrolment**

07/04/2016

**Locations****Countries of recruitment**

United Kingdom

**Study participating centre**

Surrey & Borders Partnership NHS Foundation Trust

United Kingdom

KT16 0 AE

**Sponsor information****Organisation**

University of Kent (UK)

**Sponsor details**

Registry

University of Kent

Canterbury

England

United Kingdom

CT2 7NZ

**Sponsor type**

University/education

**Organisation**

Surrey & Borders Partnership NHS Foundation Trust

**Sponsor details**

18 Mole Business Park  
Randalls Road  
Leatherhead  
England  
United Kingdom  
KT22 7AD

**Sponsor type**

Hospital/treatment centre

**Organisation**

University of Kent

**Sponsor details****Sponsor type**

Not defined

**Website**

<http://www.kent.ac.uk/>

**ROR**

<https://ror.org/00xkeyj56>

**Funder(s)****Funder type**

University/education

**Funder Name**

University of Kent

**Alternative Name(s)**

The University of Kent

**Funding Body Type**

Private sector organisation

### **Funding Body Subtype**

Universities (academic only)

### **Location**

United Kingdom

## **Results and Publications**

### **Publication and dissemination plan**

In 2016 we plan to publish the protocol in a peer-reviewed journal.

### **Intention to publish date**

### **Individual participant data (IPD) sharing plan**

### **IPD sharing plan summary**

Data sharing statement to be made available at a later date

### **Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">HRA research summary</a>			28/06/2023	No	No