

Daylight therapy as a novel treatment for myopia (short-sightedness)

Submission date 09/05/2024	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
Registration date 13/05/2024	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
Last Edited 28/10/2025	Condition category Eye Diseases	<input type="checkbox"/> Individual participant data

Plain English summary of protocol

Background and study aims

Myopia, also known as short-sightedness, is a common vision problem which results in blurred distance vision. This usually occurs because the eye grows too long. It can be corrected with normal glasses or contact lenses but often progresses (worsens) over time, particularly throughout childhood until late teenage years. This is a concern as myopia can be associated with eye complications in later life.

The number of children with myopia has more than doubled in the UK over the past decade. Myopia management treatments which may reduce the rate of progression (worsening) include specialised contact lenses and spectacles. However, some children get a better effect on their myopia progression than others. Furthermore, treatments are costly (£300-500 per year) and are privately paid for by parents until myopia stabilises in the late teenage years.

Time spent outdoors helps prevent myopia from occurring, most likely due to exposure to bright sunlight which helps regulate the body clock. In the UK, the climate varies considerably throughout the year and by region. These climatic challenges are likely to influence how often a child can spend outdoors on a daily basis. In particular, more northern parts of the UK, including Scotland, experience a wetter climate and there are significantly fewer daylight hours in the winter months. This makes spending more time outdoors difficult and increases the risk of UK children, particularly in Scotland, becoming myopic.

Currently, the total financial cost to the parent for specialised myopia management contact lenses and spectacles is significant and there is no guarantee that treatment will be effective. Light therapy may provide a more affordable, non-invasive alternative to these expensive treatments. In particular, it may provide an alternative treatment for myopia management in countries where climate limits the time spent outdoors. This study aims to investigate the potential benefits of morning light therapy in reducing myopia progression in children living in Scotland.

Who can participate?

Healthy children with myopia (short-sightedness) up to -10D and who are aged 7-12 years.

What does the study involve?

Children will be randomly assigned to either a treatment group or a control group. The treatment group will be provided with a SAD lamp (<https://www.lumie.com/products/vitamin-l>).

The control group will not receive any myopia management treatment but will continue to wear their normal spectacles. Using a control group in this type of study is important. By comparing the rates of myopia progression between the treatment and control groups, the researchers can determine the effectiveness of light therapy.

The study involves two visits to the Vision Centre at Glasgow Caledonian University over a 6-month period. At these visits, machines will be used to measure the length of the eye and how much myopia the child has and to take a photograph of the eye. Questionnaires will be used to collect information on lifestyle and genetic risk factors for the worsening of the myopia and on the tolerability of the lamp. Halfway through the study, the questionnaires on lifestyle risk factors and tolerability of the lamp will be completed.

What are the possible benefits and risks of participating?

Children assigned to the treatment group will receive a SAD lamp which may help slow down the progression of their myopia and reduce the risk of them developing a higher level of myopia in the future.

The possible risks associated with this study are minimal. As the study involves using cyclopentolate eye drops, participants may experience some minor side effects such as blurred vision and light sensitivity. Cyclopentolate drops are used routinely in optometry practices and are considered safe to use in children.

Light therapy is considered safe to use for both adults and children. Mild side effects may include temporary eye strain.

Where is the study run from?

Glasgow Caledonian University (UK)

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

November 2022 to September 2024

Who is funding the study?

The Carnegie Trust for the Universities of Scotland (UK)

Who is the main contact?

Dr Stephanie Kearney, Stephanie.kearney@gcu.ac.uk

Contact information

Type(s)

Public, Scientific, Principal investigator

Contact name

Dr Stephanie Kearney

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Additional identifiers

Protocol serial number
RIG012527

Study information

Scientific Title
Broad spectrum light therapy as a novel treatment for myopia

Study objectives
Morning broad spectrum light therapy slows myopia progression in children

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 12/06/2023, Health and Life Sciences Ethics Committee (Cowcaddens road, Glasgow, G4 0BA, United Kingdom; +44 (0)141 331 8518; HLSEthicsLifeSciences@gcu.ac.uk), ref: HLS/LS/A22/074

Study design
Single-centre non-blinded randomized trial

Primary study design
Interventional

Study type(s)
Efficacy, Safety, Treatment

Health condition(s) or problem(s) studied
Myopia

Interventions
This is a prospective randomised controlled trial with a 1:1 allocation of intervention and control (light therapy vs no light therapy). There is no placebo group, rather, there will be a group of children not provided with the intervention and these children will be observed. Participants will be invited to attend the Vision Centre at Glasgow Caledonian University for two visits over a 6-month period.

The intervention group will receive one SAD lamp per child to use once daily in the morning for 30 minutes at 20 cm (<https://www.lumie.com/products/vitamin-l>) for 3 months.

The child and parent will attend the Vision Centre GCU both prior to and after the intervention period for a face-to-face appointment (Visit 1 and 3). Additionally, halfway through the intervention period, questionnaire data will again be collected. This will be completed remotely with guidance from the researcher with the parent and child either by phone or online (Visit 2).

Children will be randomly selected for light therapy using the method of minimisation (Altman D 2005). The control group will be matched by age, ethnicity, refraction and parental myopia to the intervention group. The control group will continue to wear their normal refractive correction (spectacles) and will be monitored.

Intervention Type

Device

Phase

Phase II

Drug/device/biological/vaccine name(s)

Seasonal affective disorder lamp: the 'Vitamin L' lamp (Lumie)

Primary outcome(s)

Axial length measured using biometry at baseline and 6 months

Key secondary outcome(s)

1. Refractive error measured using cycloplegic autorefraction at baseline and 6 months
2. Salivary melatonin measured using a commercial ELISA kit at baseline and 6 months
3. Tolerability measured using participant questionnaire at baseline, 3 months and 6 months

Completion date

08/09/2024

Eligibility

Key inclusion criteria

1. Healthy children aged over 7 years and younger than 13 years
2. Minimum amount of -0.50 D spherical equivalent refraction (SER) of myopia
3. Best corrected distance visual acuity of at least 0.3 logMAR in each eye (healthy level of vision)

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Child

Lower age limit

7 years

Upper age limit

12 years

Sex

All

Key exclusion criteria

1. Myopia level of -10D or greater in either eye
2. Astigmatism of 4D or greater in either eye
3. Presence of significant ocular comorbidities
4. Amblyopia in either eye
5. Allergy to cyclopentolate eye drops
6. Use of atropine eye drops in the previous year
7. Taking melatonin supplements
8. Travelled across more than one time zone in the past month

Date of first enrolment

08/08/2023

Date of final enrolment

08/08/2024

Locations

Countries of recruitment

United Kingdom

Scotland

Study participating centre

Glasgow Caledonian University

City Campus

Glasgow

United Kingdom

G4 0BA

Sponsor information

Organisation

Glasgow Caledonian University

ROR

<https://ror.org/03dvm1235>

Funder(s)

Funder type

Charity

Funder Name

Carnegie Trust for the Universities of Scotland

Alternative Name(s)

The Carnegie Trust for the Universities of Scotland

Funding Body Type

Private sector organisation

Funding Body Subtype

Other non-profit organizations

Location

United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study will be available upon request from Dr Stephanie Kearney (stephanie.kearney@gcu.ac.uk). Anonymised, non-identifiable data on ocular biometry, refraction, risk factors and tolerability will be shared. No identifiable information will be shared. Randomised IDs will be used for participant-level data.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		29/09/2025	28/10/2025	Yes	No
Participant information sheet			10/05/2024	No	Yes
Protocol file	version 2.3		27/08/2024	No	No