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Evaluation of the effects of the Lili lamp on the reading performance of a sample of dyslexic children

Submission date
11/12/2025

Recruitment status
Recruiting

Registration date
29/05/2026

Overall study status
Ongoing

Last Edited
29/05/2026

Condition category
Mental and Behavioural Disorders

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background of the study and aims
Dyslexia is a neurodevelopmental disorder linked to brain dysfunction. Its prevalence varies from country to country. To date, it is on the rise, probably due to improved diagnosis and better training of clinicians who treat these patients. Imaging studies (MRI) have reported abnormal processing of visual perception, particularly in the middle temporal lobe of the extrastriate areas, supporting the hypothesis of a visual abnormality in the magnocellular pathway (M cells) in dyslexic individuals. Other studies have shown alterations in the magnocellular system in dyslexia and highlighted the role of this system in the development of normal vision.
Lapeyre et al. (2024) measured sentence reading speed and text comprehension in 23 young adults with dyslexia using the Lili lamp (with a variable flicker frequency between 60 and 120 Hz) and found no effect of lighting conditions on reading accessibility or comprehension, except in the most severely impaired readers, who showed a slight 7% increase in the index. Although significant, this improvement should be interpreted with caution. Furthermore, it should be noted that the small (albeit effective) improvement provided by pulsed lighting in these severely impaired readers was immediate, whereas current effective interventions for dyslexia, such as phonics training, typically show modest gains and require dozens of hours of practice.
The study is based on the hypothesis that the use of the Lili lamp, at school as well as at home over 28 days by dyslexic children, improves, among other, their reading speed and text comprehension.
The main objective is to compare the change in reading speed between day 0 and day 28 in dyslexic subjects using the Lili lamp in ON mode with the change in reading speed in dyslexic subjects using the Lili lamp in OFF mode.
Secondary objectives include measuring the effect of the use of the Lili lamp over 28 days on (i) eye movement patterns (ii) text comprehension (iii) reading fluidity (iv) oralization capacity (v) oculomotor pattern (vi) visual exploration strategy.

Who can participate?
8 to 12-year-old school children.

What does the study involve?
The study involves (i) tests realized on day 0 (ii) the use of the Lili lamp over 28 days in school and at home and (iii) tests realized after 28 days of use of the lamp.

What are the potential benefits and risks of participating?
The benefits could be an improvement in all or some of : (i) eye movement patterns (ii) text comprehension (iii) reading fluidity (iv) oralisation capacity (v) oculomotor pattern (vi) visual exploration strategy (vii) reading speed.
There is no risk identified.

Where is the study run from?
The study is run from various locations in France (schools, speech therapists and Hôpital Robert Debré).

When is the study starting and when is it expected to end?
June 2025 to June 2027

Who is funding the study?
Lili for Life (France)

Who is the main contact?
Maria-Pia Bucci, maria-pia.bucci@cnrs.fr

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
2025-A00595-44

Study information

Scientific Title
Measuring the effects of the use of the LILI lamp, on day 0 and over 28 days, with the use of a lookalike placebo lamp, on dyslexic children from 8 to 12 years old

Acronym
CHILDYSLIGHT

Study objectives
The use of the LILI lamp over a period of 28 days contributes to an increase in the speed of reading as well as to an improved comprehension of documents read.

Secondary objectives:
1. Compare on day 28 the reading speed of dyslexic children using the Lili lamp in OFF mode and then in ON mode.
2. Compare on day 28 the reading speed of dyslexic children using the Lili lamp in ON mode and then in OFF mode.
3. Compare on day 0 the reading speed of dyslexic children using the Lili lamp in ON mode and in

OFF mode.
4. Compare the oculomotor pattern of dyslexic children using the Lili lamp in ON mode and in OFF mode on day 0 and day 28.
5. Compare the text comprehension of dyslexic children using the Lili lamp in ON mode and OFF mode on days 0 and 28.
6. Compare the reading fluency of dyslexic children using the Lili lamp in ON mode and OFF mode on days 0 and 28.
7. Compare the reading ability of dyslexic children using the Lili lamp in ON mode and OFF mode on day 0 and day 28.
8. Compare the oralization ability of dyslexic children using the Lili lamp in ON mode and OFF mode on day 0 and day 28.
9. Compare the visual and attentional exploration strategy of dyslexic children using the Lili lamp in ON mode and OFF mode on days 0 and 28.
10. Assess the children's feelings on days 0 and 28.
11. Assess the satisfaction of the children and their parents or guardians on day 28.

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 12/05/2025, Comité de protection des personnes Ile de France IV (Hôpital Saint-Louis - Porte 1 du Carré Historique - 1, avenue Claude Vellefaux, Paris, 75010, France; +33 (0)1 42389288; cpp.iledefrance4@orange.fr), ref: 25.01226.000509 // 2025-A00595-44

Study design
Multicenter prospective interventional comparative double-blinded randomized controlled study

Primary study design
Interventional

Study type(s)
Efficacy, Quality of life

Health condition(s) or problem(s) studied
Alleviation of dyslexic children’s reading difficulties

Interventions
The effect of the LILI lamp is measured before and after a 28-day period of use. There is an active group and a placebo group. The subjects are randomized following the block-balancing randomization method. The placebo is the Lili Lamp in “off mode”. In “off mode” the lamp functions exactly like a normal lamp and does not deliver the individually adjusted flickering-light.

Intervention Type
Device

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Lili lamp

Primary outcome(s)
1. Reading speed measured using an eye-tracker (seconds) at baseline and day 28

Key secondary outcome(s))
1. The oculomotor pattern including the number of errors, the number of pro- and retro-saccades, the number and duration of fixations, and the number of saccades performed to return to the line, measured using an eye-tracker at baseline and day 28

2. Text comprehension measured using answers to questions about a text. It will be assessed following the reading aloud (1 min) of an excerpt from a battery of specific tests to examine lexical processing in children. at baseline and day 28

3. Reading fluency measured using the number of words read incorrectly and the number of linking errors following the recording of the reading of the same test (microphone) at baseline and day 28

4. Reading ability measured using reading a list of words (regular, irregular, and pseudowords). It will be measured using the score on each list, the reading time per list, and the nature of the errors made at baseline and day 28

5. Oralization ability measured using a rapid image and letter naming test. It will be measured by the time taken to complete the test and the number of errors made in rapid naming at baseline and day 28

6. Visual and attentional exploration strategy measured using the barrage test. It will be measured by the total number of items correctly found and the time taken to complete the test at baseline and day 28

7. The feelings of the children and their parents or guardians measured using a questionnaire at baseline and day 28

8. Participants' satisfaction with the use of the Lili lamp measured using the System Usability Scale at day 28

Completion date
30/06/2027

Eligibility

Key inclusion criteria
1. Male or female
2. Aged 8 to 12 years
3. Whose native language is French
4. Diagnosed with dyslexia (DSM 5, APA. 2013)
5. With normal or corrected vision (≥8/10 in each eye)
6. Affiliated to the French social security system
7. Whose legal guardians have signed an informed consent form

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Child

Lower age limit
8 years

Upper age limit
12 years

Sex
All

Total final enrolment
0

Key exclusion criteria
1. Children who refuse to participate in the study
2. Children with comorbidities (other neurological disorders and/or autism spectrum disorders, dyspraxia, etc)
3. Children with visual impairments (amblyopia, strabismus, etc)
4. Children undergoing psychotropic treatment
5. Children with epilepsy

Date of first enrolment
04/06/2025

Date of final enrolment
01/06/2027

Locations

Countries of recruitment
France

Study participating centre
Institut Saint Dominique
44, Rue Verte
Rouen
France
76000

Study participating centre

École Immaculée Conception
22, rue de Gournay
Meru
France
60110

Study participating centre
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Study participating centre
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10 rue du Cimetière St Rieul
Senlis
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60300

Sponsor information

Organisation
Lili for Life

Funder(s)

Funder type
Not defined

Funder Name

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 Maria-Pia Bucci (maria-pia.bucci@cnrs.fr)

IPD sharing plan summary
Available on request