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Does viewing text through yellow or blue filters help dyslexic children to learn to read?

Submission date
02/02/2018

Recruitment status
No longer recruiting

Registration date
02/03/2018

Overall study status
Completed

Last Edited
13/11/2025

Condition category
Signs and Symptoms

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

Plain English summary of protocol

Background and study aims
Up to half of all children with reading problems find it difficult to see text clearly; letters appear to blur, glare, go double or move around, and these problems can give them headaches. These visual symptoms probably result from reduced precision of timing visual events. There are good physiological reasons for supposing that viewing text through either simple blue or yellow coloured filters may improve the brain's timing functions. We have found that we can predict which children are likely to benefit from blue or yellow or no filters. Using the appropriate filter for reading is often followed by rapid reading and spelling progress. However, there is no agreement about whether coloured filters can really help more than as a placebo. Clearly this question needs to be settled because if simple and cheap blue or yellow filters can really help reading difficulties, this low cost technique should be used wherever appropriate, in order to help a substantial proportion of the 10% of primary school children who have great difficulties learning to read. This study aims to assess the effects of blue and yellow coloured filters to see if it helps children with dyslexia learn to read.

Who can participate?
Children age 7 to 11 years with visual reading problems

What does the study involve?
Based on their visual symptoms, participants are allocated to a blue filter group or yellow filter group. Then, selected at random, the 'blues' are asked to wear either blue or placebo grey filters for 3 months, then all switch to blue. Likewise the 'yellows' are randomised to yellow or placebo grey, then all switch to yellow after 3 months. Participants use their filter when reading, and are followed up with reading history, psychometric (pen and paper tests) of their reading, spelling and general abilities together with the routine eye assessments at 3, 6 and 9 months.

What are the possible benefits and risks of participating?
The participants may benefit from improved reading from using the appropriate colour filter more than by the placebo grey filter. None of the colours are likely to harm the children in any way.

Where is the study run from?
Dyslexia Research Trust Clinic (UK)

When is the study starting and how long is it expected to run for?
September 2014 to October 2024

Who is funding the study?
Dyslexia Research Trust (UK)

Who is the main contact?
Prof John Stein (Public)
John.stein@dpag.ox.ac.uk

Contact information

Type(s)
Public

Contact name
Prof John Stein

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Additional identifiers

Protocol serial number
CUREC - YB2015, Date and Version No: 06.08.15 version 1:2

Study information

Scientific Title
The Effect of Yellow and Blue lenses on Reading and Spelling Skills

Acronym
BYLR

Study objectives

Current study hypothesis as of 24/02/2022:
Can children with visual reading problems will be helped to learn to read by viewing text through blue or yellow filters?

Previous study hypothesis:
Children with visual reading problems will be helped to learn to read by viewing text through blue or yellow filters.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Oxford University Medical Sciences Div. Research Ethics Board, 01/09/2014, ref: MSD-IDREC-C -2014-024

Study design
Randomised controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Children's visual reading problems (dyslexia)

Interventions
Based on their visual symptoms, participants are allocated to a blue filter group or yellow filter group. Then, selected at random, the ‘blues’ are asked to wear either blue or placebo grey filters for 3 months , then all switch to blue. Likewise the ‘yellows’ are randomised to yellow or placebo grey, then all switch to yellow after 3 months.
Participants use their filter when reading, and are followed up with psychometric and visual assessments at 3, 6 and 9 months.

Intervention Type
Device

Phase
Phase III

Drug/device/biological/vaccine name(s)
blue or yellow filters

Primary outcome(s)
Single word reading progress is measured using BAS reading and spelling at baseline, 3, 6 and 9 months
Visual reading symptoms are measured using visual symptoms questionnaire at baseline, 3, 6 and 9 months

Key secondary outcome(s))

Optometric status is measured using standard optometric tests at baseline, 3 months, 6 months and 9 months

Completion date
28/10/2024

Eligibility

Key inclusion criteria
1. Children with visual reading problems
2. Age 7-11
3. Male and female

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Child

Lower age limit
7 years

Upper age limit
11 years

Sex
All

Total final enrolment
68

Key exclusion criteria
Current key exclusion criteria as of 13/11/2025:

1. v. low intelligence
2. Any medical or neurological diagnosis

Previous key exclusion criteria:

1. English not first language
2. Any medical or neurological diagnosis

Date of first enrolment
01/09/2016

Date of final enrolment
28/10/2024

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Dyslexia Research Trust Clinic
14a Cross St.
Reading
England
RG1 7SN

Sponsor information

Organisation
Dyslexia Research Trust

Funder(s)

Funder type
Charity

Funder Name
Dyslexia Research Trust

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Prof J Stein, Sherrington Building, Parks Road, OX1 3PT.

IPD sharing plan summary
Available on request, Stored in non-publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes