

Evidence-based clinical decision- making

Catherine Suttle



Co-funded by the
Erasmus+ Programme
of the European Union

What is the best available evidence?

| Source of information | |
|---|---|
| Colleagues, opinion pieces, continuing education, marketing | Easily accessible but unknown validity |
| Research studies | Some are accessible. Take time to access and read. Further time to assess validity. |
| Systematic reviews | Freely and easily accessible. High validity. |
| Guidelines | Freely and easily accessible. High validity if evidence-based. |

What is the best available evidence?

The most reliable information we can find

| Source of information | |
|---|---|
| Colleagues, opinion pieces, continuing education, marketing | Easily accessible but unknown validity |
| Research studies | Some are accessible. Take time to access and read. Further time to assess validity. |
| Systematic reviews | Freely and easily accessible. High validity. |
| Guidelines | Freely and easily accessible. High validity if evidence-based. |

Some of your patients have heard about blue light filters and are asking about the benefits of these

| Source of information | |
|---|---|
| Colleagues, opinion pieces, continuing education, marketing | Easily accessible but unknown validity |
| Research studies | Some are accessible. Take time to access and read. Further time to assess validity. |
| Systematic reviews | Freely and easily accessible. High validity. |
| Guidelines | Freely and easily accessible. High validity if evidence-based. |

Some of your patients have heard about blue light filters and are asking about the benefits of these

| Source of information | |
|---|---|
| Colleagues, opinion pieces, continuing education, marketing | Easily accessible but unknown validity |
| Research studies | Some are accessible. Take time to access and read. Further time to assess validity. |
| Systematic reviews | Freely and easily accessible. High validity. |
| Guidelines | Freely and easily accessible. High validity if evidence-based. |

[Blog](#)[Lenses](#)[Lens types](#)[What I need](#)[About Essilor](#)[∞ FIND AN OPTICIAN](#)

Home > Lenses > **Eye Protect System**



"It aims at protecting wearers' eyes from harmful light everyday"

"selectively filter blue-violet light and contribute to preventing its harmful effects on the eye"

Some of your patients have heard about blue light filters and are asking about the benefits of these

| Source of information | |
|---|---|
| Colleagues, opinion pieces, continuing education, marketing | Easily accessible but unknown validity |
| Research studies | Some are accessible. Take time to access and read. Further time to assess validity. |
| Systematic reviews | Freely and easily accessible. High validity. |
| Guidelines | Freely and easily accessible. High validity if evidence-based. |

A controlled study

ORIGINAL INVESTIGATION

Blue-blocking Filters and Digital Eyestrain

Tatsiana Palavets, BA¹ and Mark Rosenfield, MCOptom, PhD, FAAO^{1*}

SIGNIFICANCE: Many manufacturers are currently marketing blue-blocking (BB) filters, which they claim will reduce the symptoms of digital eyestrain (DES). However, there is limited evidence to support the proposal that DES results from the blue light emitted by these devices.

PURPOSE: The visual and ocular symptoms commonly experienced when viewing digital screens are collectively termed DES. The emission spectrum of modern digital displays frequently includes a high percentage of blue light. Being higher in energy, these short wavelengths may contribute to DES. This study examined the effect of a BB filter on symptoms of DES during a sustained near-vision task.

METHODS: Twenty-three young, visually normal subjects were required to perform a 30-minute reading task from a tablet computer. The digital screen was overlaid with either a BB or neutral-density (ND) filter producing equal screen luminance. During each session, the accommodative response, pupil diameter, and vertical palpebral aperture dimension were measured at 0, 9, 19, and 29 minutes after the start of the reading task. Immediately following each session, subjects completed a questionnaire to quantify symptoms of DES.

RESULTS: The BB filter blocked 99% of the wavelengths between 400 and 500 nm. The mean total symptom scores (± 1 SEM) for the BB and ND filter conditions were 42.83 (3.58) and 42.61 (3.17), respectively ($P = .62$). No significant differences in accommodation or vertical palpebral aperture dimension were observed between the two filter conditions, although the magnitude of the mean accommodative response did increase significantly during the first 9 minutes of the task ($P = .02$).

CONCLUSIONS: A filter that eliminated 99% of the emitted blue light was no more effective at reducing symptoms of DES than an equiluminant ND filter. There is little evidence at this time to support the use of BB filters to minimize near work-induced asthenopia.



Author Affiliations:
¹SUNY College of Optometry,
New York, New York
*Rosenfield@sunysnt.edu

"A filter that eliminated 99% of the emitted blue light was no more effective at reducing symptoms of DES than an equiluminant ND filter.

There is little evidence at this time to support the use of BB filters to minimize near work-induced asthenopia"

Some of your patients have heard about blue light filters and are asking about the benefits of these

| Source of information | |
|---|---|
| Colleagues, opinion pieces, continuing education, marketing | Easily accessible but unknown validity |
| Research studies | Some are accessible. Take time to access and read. Further time to assess validity. |
| Systematic reviews | Freely and easily accessible. High validity. |
| Guidelines | Freely and easily accessible. High validity if evidence-based. |

A systematic review

OPO OPHTHALMIC & PHYSIOLOGICAL OPTICS
THE JOURNAL OF THE COLLEGE OF OPTOMETRISTS



Ophthalmic & Physiological Optics ISSN 0275-5408

The effect of blue-light blocking spectacle lenses on visual performance, macular health and the sleep-wake cycle: a systematic review of the literature

John G Lawrenson¹ , Christopher C Hull¹  and Laura E Downie² 

¹Centre for Applied Vision Research, Division of Optometry and Visual Science, City University of London, London, UK, and ²Department of Optometry and Vision Sciences, The University of Melbourne, Melbourne, Victoria, Australia

Lawrenson et al 2017

"We find a lack of high quality evidence to support using BB spectacle lenses for the general population to improve visual performance or sleep quality, alleviate eye fatigue or conserve macular health"

Professional guidance



THE COLLEGE OF
OPTOMETRISTS

[The College](#) [Qualifying](#) [CPD and CET](#) [Guidance](#) [Mer](#)

<https://www.college-optometrists.org/the-college/policy/position-statements/blue-blocking-spectacle-lenses.html>

Best evidence "does not support the use of blue-blocking spectacle lenses ..."

You're here: [Homepage](#) > [The College](#) > [Policy](#) > [Position statements](#) > Blue blocking spectacle lenses

Blue blocking spectacle lenses

The College's position on blue blocking spectacle lenses

The College's position

The best scientific evidence currently available does not support the use of blue-blocking spectacle lenses in the general population to improve visual performance, alleviate the symptoms of eye fatigue or visual discomfort, improve sleep quality or conserve macula health.

When prescribing occlusion for refractive amblyopia, should you recommend that near activities are conducted during occlusion?

| Source of information | |
|---|---|
| Colleagues, opinion pieces, continuing education, marketing | Easily accessible but unknown validity |
| Research studies | Some are accessible. Take time to access and read. Further time to assess validity. |
| Systematic reviews | Freely and easily accessible. High validity. |
| Guidelines | Freely and easily accessible. High validity if evidence-based. |

Search bar with magnifying glass icon

SAVE 10% PROMO CODE: H43

Master DALK Techniques



Healio > Ophthalmology > Pediatrics/Strabismus

Near vision activities during occlusion increase visual acuity improvement in amblyopic patients

May 18, 2009

ADD TOPIC TO EMAIL ALERTS

COMMENT

NUSA DUA, Indonesia — Amblyopic patients who perform near vision activities while occluded showed greater visual acuity improvement than those who underwent occlusion alone, a researcher said here.



Refine your academic paper for JOURNAL SUBMISSION

Get started

SAVE 10% PROMO CODE: H43

High-Yield Handbook on Cornea

Non-randomized controlled study


Outcomes of 3 hours part-time occlusion treatment combined with near activities among children with unilateral amblyopia

Abdullah G. Alotaibi, MD, Samah M. Fawazi, MD, Badriah R. Alenazy, MD, Khaled K. Abu-Amero, PhD, FRCPub.

Alotaibi et al, 2012

“Performing near activities while patching in the treatment of anisometropic, strabismic, or combined amblyopia improves the VA outcome more than patching alone.”

A randomized controlled study

 NATIONAL INSTITUTES OF HEALTH

NIH Public Access
Author Manuscript
Ophthalmology. Author manuscript; available in PMC 2009 November 1.

Published in final edited form as:
Ophthalmology. 2008 November ; 115(11): 2071–2078. doi:10.1016/j.ophtha.2008.06.031.

A Randomized Trial of Near versus Distance Activities while Patching for Amblyopia in Children 3 to < 7 years old

Pediatric Eye Disease Investigator Group*

NIH-PA Author Manuscript

“Performing common near activities does not improve visual acuity outcome when treating anisometropic, strabismic or combined amblyopia with two hours of daily patching.”

A Cochrane systematic review



Interventions for unilateral and bilateral refractive amblyopia (Review)

Taylor K, Powell C, Hatt SR, Stewart C

Authors' conclusions

Implications for practice

- For some patients with unilateral refractive amblyopia, refractive correction alone may resolve the visual deficit. At present it is not possible to determine at the start of treatment which children will fall into this category.
- A pragmatic approach to treatment may be to allow time for improvement in vision with refractive correction alone and then prescribe occlusion for any persistent amblyopia. This approach should minimise occlusion treatment.
- Concordance with prescribed dose of occlusion varies in an unpredictable fashion and it appears that higher doses are associated with greater variation in concordance.
- Current evidence suggests that the majority of children with amblyopia will benefit from three to six hours of occlusion per day. Children under the age of four may require less occlusion but the effect of age on the dose/response relationship is not yet fully understood.
- Current evidence does not suggest any benefit can be gained by the addition of close work with prescribed occlusion.

“Current evidence does not suggest any benefit can be gained by the addition of close work with prescribed occlusion”