

Is the extra expense for blue-light filtering glass in spectacles worth it?

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Background

As technology use has increased, the length of time we spend looking at laptop screens, computer monitors, tablets, and smartphones has concomitantly increased. Concerns have been voiced with regard the amount of blue light emitted from these devices. However, studies have shown that even during extreme long-term viewing the blue-light emission from devices is much lower than blue light emitted naturally from a clear blue sky.² Computer users often report visual symptoms such as eyestrain, headaches, ocular discomfort, dry eye and blurred vision.³ Despite the lack of a biological mechanism to support the claim many blame the emission of blue-light from screens as a potential cause for these symptoms. Blue-light filtering lenses are now marketed as a way of reducing blue-light exposure. This Cochrane review looked at whether using these lenses would reduce the symptoms associated with screen use.

Clinical bottom line

There is currently no evidence to support the use of blue-light filtering lenses. Blue-light filtering lenses do not reduce visual fatigue or discomfort.¹ There is also disagreement as to whether blue light filtering lenses lower critical flicker-fusion frequency (CFF) or affect sleep quality.¹ Studies where participants or outcome assessors were adequately blinded showed no difference for sleep quality but those with no blinding did show differences for the subjective finding of sleep quality.¹ In addition, the majority of studies looking at sleep quality were also undertaken in populations that suffered from disturbed sleep patterns such as participants with bipolar disorder, participants with depressive disorders and those with an insomnia diagnosis. This means results potentially cannot be generalised to the population as a whole ([Table 1](#)).¹

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Table 1. Outcomes for blue-light filtering lenses vs non-blue-light filtering lenses.

Outcome measured	Success	Evidence	Caveat
Visual fatigue or discomfort	Blue light filtering lenses made no difference to visual fatigue.	This evidence is of low quality and is based on 166 participants from three studies.	Four studies reported adverse events which included increased depressive symptoms, headache, lower mood, and pain or discomfort from wearing the glasses across the study intervention arms. In the control arms, reported adverse events were hyperthermia and discomfort from wearing the glasses.
Critical flicker-fusion frequency (CFF)	It is unknown whether blue-light filtering lenses change CFF as there was inconsistency in reported trial results. The larger trial showed no difference in CFF but the smaller trial showed a difference between those with high level blue-light filtering lenses comparative to non-blue light filtering lenses.	This evidence is of low quality and is based on 156 participants from two studies.	
Subjective sleep scores	It is unknown whether blue-light filtering lenses change sleep patterns as there was inconsistency in reported trial results. Three trials including 90 participants showed no difference in sleep quality for those with blue-light filtering lenses comparative to non-blue light filtering lenses. But the remaining three studies with 60 participants did show improvement in self-reported sleep quality.	This evidence is of very low quality and is based on 148 participants from six studies.	

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