Blue light

Guidance for ABDO Members

Blue light filters attenuate ultra violet and blue violet light, but their use, and in particular, marketing claims surrounding these products, has become controversial in recent times. This paper responds to members' needs for current research based information and guidance on the topic.

Does blue light damage the eye?
In animal studies research has found an association between blue light or visible light and retinal damage, but study on humans can only estimate blue light damage as in the normal course of daily life eyes are exposed to light across the spectrum.

Is blue light an increasing threat?
Our use of lighting is changing dramatically: over the last 10 years we have seen an increase in use of LED (light emitting diode) and fluorescent lighting, as well as white light LEDs in the backlit displays of tablets, smartphones and computers. These light sources are relatively higher sources of blue light than traditional incandescent light bulbs. Despite that, they emit significantly less blue light than natural daylight.

Despite the fact that these devices are well within international safety limits, research has suggested that excessive exposure to visible blue light can cause eye strain. It may also augment sleep dysfunction.

Are there health benefits from blue light filtering lenses?
It has been suggested that blue light filters should be incorporated in intraocular lenses (IOLS) to more closely mimic the crystalline lens which increasingly attenuates blue light transmission as it ages and yellows. Hence there may be clinical situations where a blue light filtering IOL is recommended to prevent or slow the progression of age related macular degeneration, but currently there is insufficient evidence to support this.

Is there evidence to use blue light filters on spectacle lenses?
There is currently insufficient evidence to generally recommend blue light filters in prescription spectacle lenses, whether it is for reducing eye fatigue, enhancing sleep, or preserving macular function in the general population. Possible harm also needs to be considered, such as alterations to colour perception and circadian rhythm. While there is no reason to think blue light filters in spectacle lenses have a negative effect while being worn, the balance of probabilities based on current research points to them not having a beneficial effect either.

What should I advise my patients?
If you, as an individual ABDO member, want to exercise professional judgement to recommend blue light filtering spectacle lenses for your patients, it would be appropriate to be able to make a case containing strong evidence from a number of robust studies to support this.

ABDO would advise, based on current research, that when dispensing blue light filtering lenses, members avoid any claims relating to eye health or circadian cycles effects.

What is the future for blue light filters?
Members should monitor technological advancements and to be aware of product availability in the work place so you can recognise the features, advantages and benefits and determine suitability for the patient presenting.

There is a lack of quality clinical research at the present time, but research is ongoing into both the effects of blue light and blue light filters.

ABDO will keep this subject under review and if the evidence appears to change will issue further guidance.

FURTHER READING - See next page

Further reading

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