

"There are number things that should be considered," said Marshall.

(1) Radiation action spectra are not absolutes and the wave breaks between the UV and visible are not in themselves absolutes. Action spectra tend to be Gaussian.

*(2) While people accept the potential hazards of ultraviolet and protect eyes with specific filtration in for example in intraocular lenses there has never been a clinical trial demonstrating efficacy. I.e. there is no evidence-based medicine. However, few if any ophthalmologist will put a lens in without a UV block. **But remember no evidence of efficacy.***

*(3) Short wavelength blue light is more hazardous than any other portion of the visible spectrum and is taken into account with special calculations in all the world's laser/light protection documents. **The so-called blue light hazard peaks at 441 nm.** This initiates two forms of light damage based on two different absorption systems. Type I is very Low level exposures over very long periods depend upon absorption within the photoreceptor cells and type II is short exposures dependent upon absorption in the retinal pigment epithelium. **There is no doubt among safety experts under certain circumstances short wavelength blue is hazardous to the retina.***

*(4) Blue light is attenuated in the normal eye by progressively accumulating yellow pigment in the cornea and more importantly the lens and the luteal pigment (peak absorption 448 nm, i.e. proximal to the peak of the blue light hazard) in the macular. Remember also there are no "blue photoreceptor cells" in the foveola. **From an evolutionary standpoint in terms of vision short wavelength blue is not a requirement for good visual acuity, remember Fovial tritanopia!***