

Smart, but harmful!

Can flat screens harm the eyes?



Why do people who spend their working days sitting at a computer often feel exhausted? And why do ever more people suffer from eye problems? One cause may be the light emitted by flat TV and computer screens. Early studies point to hitherto unknown connections.

By Reinhard Gerl // Germany. www.bluelightprotect.com

In modern working life TFT flat screens have become ever more prevalent. These modern flat computer monitors and LCD TV screens use background lighting based on mercury. These are active light sources which many professional people have to face for long hours every day. Thus our eyes are subjected for longer and more frequently to the so-called mercury light.

The light spectrum of the screen - like that of energy-saving lamps - contains an unnaturally high proportion of blue light. LED displays also emit a high proportion of blue light and there is no reasonable alternative.

Early scientific research*, deserving serious consideration, suggests that a light spectrum with a high proportion of blue light may result in damage to the back wall of the eye, the macula. The sudden leap in age related macular degeneration (AMD) could be the result of increasing stress due to blue light. Macular degeneration is caused by damage to the point of sharpest vision and can result in blindness. The macula, the back wall of the eye, is especially sensitive to blue light. Currently, more than 10 million people in the United States suffer from age-related macular degeneration.

Many people working at flat screen computers complain of headaches, impaired concentration, tiredness, sleep interference and strain. Burning, weepy and red eyes, stabbing pain, blurred vision, twitching eyelids, periodic short-sightedness, double vision and changed color perception are frequent and typical problems resulting from working on computers.

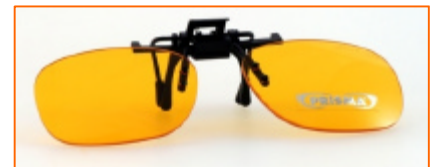
However, people who for professional reasons have to spend many hours in front of TFT flat computer screens can protect themselves from blue light by wearing spectacle lenses with a special filter. Special yellow lenses can filter out a large proportion of the harmful blue light. Computer safety glasses are now available which are specifically designed to provide optical protection from blue light. Further information regarding these special protective glasses may be obtained from Innovative Eyewear, Germany (www.bluelightprotect.com).

Source: Algvère, Peep V.; Marshall, John; Seregard, Stefan: "Age related maculopathy and the impact of blue light hazard", in: Acta ophthalmologica, Issue

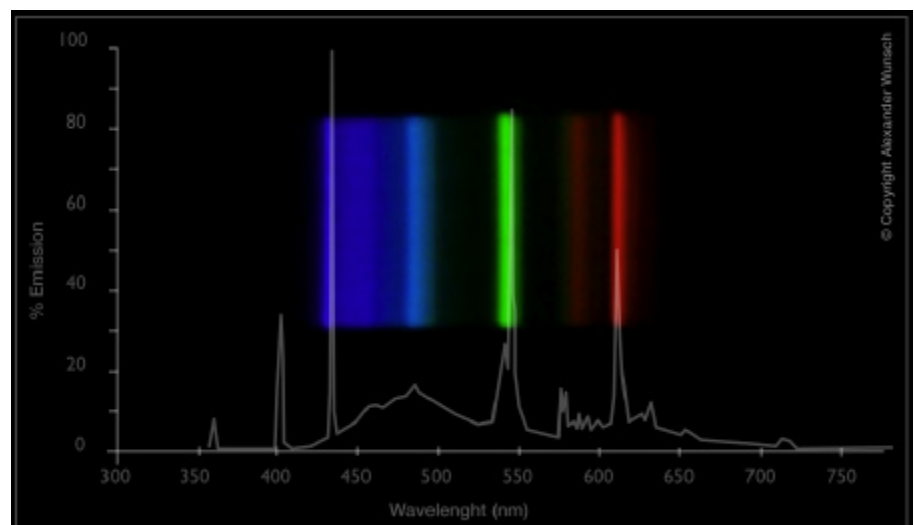
84, H.1, pp 4-15. Available online: [doi:10.1111/j.1600-0420.2005.00627.x](https://doi.org/10.1111/j.1600-0420.2005.00627.x).



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The colored strips depict the spectrum of a TFT screen which has cathode ray tubes as a background (photographed through a pocket spectroscope). It represents the spectrum already familiar from energy-saving lamps and other mercury containing light sources.

As a comparison the spectral distribution curve of an energy-saving lamp with 6500 K correlated color temperature is represented in grey. The high blue portion as well as the sharp peak at 436 nm are clearly identifiable.