ECRONICON OPEN ACCESS

EC OPHTHALMOLOGY
Opinion

Should We Recommend Protection against Blue Light?

Ana Gabriela Argueta Vélez*

Industrial Engineer, Instituto Politécnico Nacional, Centro Interdisciplinario Ciencias de la Salud, UST, Universidad del Valle de México, Campus Lomas Verdes, Mexico

***Corresponding Author**: Ana Gabriela Argueta Vélez, Industrial Engineer, Instituto Politécnico Nacional, Centro Interdisciplinario Ciencias de la Salud, UST, Universidad del Valle de México, Campus Lomas Verdes, Mexico.

Received: May 09, 2018; **Published:** June 20, 2018

In my professional work as a graduate in Optometry and Industrial Engineering, I have seen multiple trends in the field, and I have focused my work on an exciting discipline which is Ophthalmic Optics.

Much more specifically, I have studied anti-reflective and anti-scratch treatments and as I mentioned before, I have seen trends develop and consolidate. However, something that has caught my attention, is the "boom" that has had the use of protection against blue light in ophthalmic lenses. These concepts have made us return to the basics, to the knowledge acquired in Physical Optics in our student days.

We may remember from physics that light is the visible portion of the electromagnetic spectrum [1], which consists of cosmic rays, at one end, and radio waves at the other. This region consists of EM radiation ranging from 380 to 760 nanometers (one billionth of a meter) in length.

White light [1] is composed of all the wavelengths in the visible spectrum. Individual wavelengths within the visible spectrum by themselves, create different color sensations as shown in table 1. These are the spectral colors.

Wavelength (nm)	Color
200 to 380	Ultraviolet
380 to 450	Violet
450 to 490	Blue
490 to 560	Green
560 to 590	Yellow
590 to 620	Orange
620 to 760	Red
760 to 1,000,000	Infrared

Table 1: *The UV, visible, and IR spectrum.*

Remember that colors with shorter wavelengths, like blue and violet, have higher frequencies [1]. Ultraviolet (UV) radiation and infrared (IR) radiation are also listed in table 1, because they are immediately adjacent to the visible portion of EM spectrum. However, they do not create the sensation of vision and are therefore not classified as light.

Our obligation as health professionals is to update our knowledge and have the necessary tools to resolve the arisen doubts in practice with the patient in the best and most accurate way. From the approach of ophthalmic optics, the manufacture of lenses (and the entire supply chain that implies this manufacture) we cannot demarcate ourselves from that job, from that obligation.

In the age we are living, our patients come to the branch with a list of requirements that the prescription glasses should cover, the patient who will use glasses for the first time is already educated, and is already informed about what he or she may require. The patient who is only renewing (according to the experience through the years) understands what the change implies and in the specific case of the protection of blue light, it is curious that many patients have already done a whole investigation on the subject.

So, where we are?

In this "boom" of the use of protection against blue light, we are clear about the concept and we have understood that the difference in generations, the use of tablets, personal computers, cell phones, has modified our habits. When we are exposed to these devices [2], we are also exposed to the blue light from them and we experience fatigue, back pain and alterations in sleep cycles, because blue light affects circadian cycles. During the day, the blue light keeps us awake and stimulates us. However, excessive exposure late at night from cell phone, tablet or computer, make it harder to get to sleep.

It is also important to mention that the biggest source of blue light is the sun [2], too much exposure to ultraviolet light from the sun increases the risk of eye diseases including cataracts, growths in the eyes and cancer.

As a health professional involved in the manufacture of ophthalmic lenses, I have read, gathered relevant information [3,4] on the subject due to the social responsibility that I have, however, what is a constant in this issue is that there are many contradictions:

- The basics of Physical Optics are clear, they match from one material, document, book to other.
- Ophthalmologists, optometrists, researchers of various disciplines agree on the damage that blue light causes on eye structures: lens, cornea, conjunctiva etc.

Commonly, the researches about Blue Light are recent (between 5 and 6 years) and there is still a lack of evidence to support this recommendation.

Under no circumstances am I demeriting the work done, the publications, etc. This material is the initial endorsement of the recommendation; however, it seems to me that the right thing to do is to keep abreast of the studies, the researches, the publication of relevant documents, papers and, meanwhile, do not recommend this protection.

I wrote this opinion based on the information I have reviewed and I think that the recommendations to the patient should focus on the moderate use of devices, use of glasses when it has been determined and form healthy habits regarding work schedules, sleeping, studying, etc.

Acknowledgement

"Dedicated to ATA who has been my inspiration through the past few months, since november".

Bibliography

1. Darryl Meister and James E Sheedy. "Introduction to Ophthalmic Optics". San Diego CA: Carl Zeiss Vision (2008).
2. Celia Vimont. "Should you be worried about Blue Light?" American Academy of Ophthalmology (2017).
3. N/A. "Blue Light – Is there risk of harm?" Canadian Association of Optometrists (2017).
4. Thomas Reiter. "Retinal Light Damage Through Prolonged Visible Light Exposure". *EC Ophthalmology* 4.3 (2016): 517-521.

Volume 9 Issue 7 July 2018