



## Doctors Issue Warning About LED Streetlights

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### Story at-a-glance

- ▶ The American Medical Association (AMA) issued new guidance for communities on how to “reduce the harmful human and environmental effects of high-intensity [LED] street lighting”
- ▶ LED streetlights operate at a wavelength that adversely suppresses melatonin at night — five times more so than other types of light
- ▶ Discomfort and disability caused by the intense LED lighting may “decrease visual acuity and safety, resulting in concerns and creating a road hazard”
- ▶ Migrating birds and other wildlife may be disoriented by LED lighting at night

### By Dr. Mercola

The light-emitting diode (LED) is rapidly replacing earlier lighting technology, including incandescent bulbs and compact fluorescent lamps (CFLs). There’s good reason for this, as LEDs are far more energy efficient, longer-lasting and produce excellent light quality compared to other types of lighting.

For instance, according to the U.S. Department of Energy (DOE), LED lights use at least 75 percent less energy, while lasting 25 times longer than incandescent lighting.<sup>1</sup>

It’s estimated that compared to no LED use, widespread LED use in the U.S. by 2027 could save the equivalent electrical output of 44 large electric power plants each year, which would add up to a total of at least \$30 billion in savings, according to DOE.<sup>2</sup>

LEDs are different from incandescent bulbs in three key ways. One, they emit very little heat compared to incandescent bulbs and CFLs, which release 90 percent and 80 percent of their energy as heat, respectively.

Two, LEDs emit light in a specific direction, which make them very efficient and reduces the need for reflectors and diffusers.

Finally, LEDs contain a mix of red, green and blue light, which is usually combined to make white light.<sup>3</sup> The light is brighter, whiter and bluer than incandescent bulbs, which contain far more yellow and red light.

The “white” LED light is so bright and energy efficient that about 10 percent of U.S. municipalities are now using it for their streetlights, with more expected to follow suit.<sup>4</sup> Unfortunately, in making this change a new set of potential problems has emerged.

## **American Medical Association Gives Warning About LED Streetlights**

At the 2016 Annual Meeting of the American Medical Association (AMA), the AMA issued new guidance for communities on how to “reduce the harmful human and environmental effects of high-intensity [LED] street lighting.”

AMA Board Member Dr. Maya A. Babu said in a news release, “Despite the energy efficiency benefits, some LED lights are harmful when used as street lighting.”<sup>5</sup>

The guidance focused on high-intensity LED lighting, which emits a large amount of blue light and appears white to the naked eye. Risks noted by the AMA include risks to nighttime drivers, including:

- Worse nighttime glare than conventional lighting
- Discomfort and disability caused by the intense lighting may “decrease visual acuity and safety, resulting in concerns and creating a road hazard”

The AMA also pointed out that blue-rich LED streetlights operate at a wavelength that adversely suppresses melatonin at night — far more so even than other types of light. The AMA noted white LED lights “have five times greater impact” on circadian sleep rhythms than conventional street lamps.

This in turn, may lead to problems with sleep and related conditions. They cited “recent large surveys” that found brighter nighttime light in communities is linked with:

- Reduced sleep times
- Dissatisfaction with sleep quality
- Excessive sleepiness
- Impaired daytime functioning
- Obesity

## Residents Demand Removal of Harsh LED Lighting

Residents living in communities that have made the switch to LED have gone so far as to demand the harsh lighting be removed. Such was the case in Davis, California, where new LED streetlights were installed in January 2014.

By May that year, negative public reactions caused the city council to put the light replacement project on hold. According to the Smart Outdoor Lighting Alliance (SOLA), which promotes ecologically responsible outdoor lighting:<sup>6</sup>

*“The city received 40 comments by residents of which 36 or 90 percent were negative.*

*The complaints were focused on the new fixtures being too bright, producing too much glare and light trespass, increasing skyglow and light pollution, and resulting in potential negative impact on human health and wildlife.*

*... [T]he City of Davis should be commended for listening to the residents once the installation was started and for having the courage to remedy the problems that were communicated.”*

Ultimately, the new LED fixtures (some 1,400 that had already been installed) were replaced with lower-intensity bulbs.

A similar scenario occurred in New York City, where hundreds of people launched a petition in protest of LED streetlights, comparing them to “an emergency construction zone,” “a zombie picnic” and “the ‘Close Encounters’ mothership.”<sup>7</sup>

In response, the city has swapped out some of the lights with lower wattage LED bulbs.

## Why LED Lights’ Significant Impact on Melatonin Is a Big Deal

The fact that LED lights suppress the hormone melatonin significantly more so than other lighting is a serious issue — and here’s why. Your brain typically starts secreting melatonin around 9 or 10 p.m., which makes you sleepy.

These regularly occurring secretions help regulate your sleep cycle as well as provide other important health benefits, including helping to prevent cancer.

[Melatonin](#) acts as a marker of your circadian phase or biological timing. In a nutshell, this hormone influences what time of day or night your body thinks it is, regardless of what time the clock on the wall displays.

Melatonin is produced by a pea-sized gland in the middle of your brain called the pineal gland. In a normal night's sleep, your melatonin levels stay elevated for about 12 hours.

Then, as the sun rises, your pineal gland reduces your production of melatonin, and the levels in your blood decrease until they're hardly measurable at all. When your circadian rhythms are disrupted, such as from shift work, jet lag or nighttime light exposure, your body produces less melatonin.

Melatonin deficiency may come with some profound biological disadvantages, such as higher levels of [inflammation](#), a weakened immune system and an increased risk of cancer.

If you're exposed to LED lighting often at night (such as if LED streetlights shine in your bedroom window), it could have a profoundly negative influence on your health.

## **AMA: Light Pollution Via LED Streetlights Poses Environmental Risks**

It's not only humans that may be harmed by widespread adoption of LED streetlights. Wildlife is also adversely affected. Hundreds of bird species migrate at night, for instance, and bright LED lighting may disorient the birds and draw them toward the light.

Some birds die from colliding with buildings lit up with LED lights while others circle the buildings, seemingly unable to break away from the LED trance. Many die of exhaustion as a result.<sup>8</sup> Other species that depend on dark nighttime environments are also harmed by the bright LED lights. AMA explained:

*“ ... [P]oorly designed LED lighting disorients some bird, insect, turtle and fish species, and U.S. national parks have adopted optimal lighting designs and practices that minimize the effects of light pollution on the environment.”*

## **AMA Recommends Minimizing Use of Blue-Rich Light at Night**

Red and amber lights will not suppress melatonin, while blue, green and white lights will. The reason for this is because these are the wavelengths that are the most common outdoors during daytime hours. To protect your melatonin production, it's important to avoid the blue light wavelength after sunset.

This includes the light emitted by electronics such as your TV, computer and other electronic screens. AMA also recognized the importance of minimizing blue-light exposures, stating:<sup>9</sup>

*“Recognizing the detrimental effects of poorly-designed, high-intensity LED lighting, the AMA encourages communities to minimize and control blue-rich environmental lighting by using the lowest emission of blue light possible to reduce glare. The AMA recommends an intensity threshold for optimal LED lighting that minimizes blue-rich light.*

*The AMA also recommends all LED lighting should be properly shielded to minimize glare and detrimental human health and environmental effects, and consideration should be given to utilize the ability of LED lighting to be dimmed for off-peak time periods.”*

## **Do This at Sundown to Protect Your Health**

In the evening (around 8 p.m.), you'll want to dim your lights (whether they're LED, incandescent or CFLs) and turn off electronic devices to reduce your exposure to light that may stifle your melatonin production. After sundown, shift to a low-wattage bulb with yellow, orange or red light if you need illumination. A salt lamp illuminated by a 5-watt bulb is an ideal solution that will not interfere with your melatonin production.

If using a computer or smartphone, install blue light-blocking software like f.lux, which automatically alters the color temperature of your screen as the day goes on, pulling out the blue wavelengths as it gets late. The easiest solution, which I recently started using myself, however, is to simply use amber-colored glasses that block blue light.

I found a Uvex model ([S1933X](#)) on Amazon that costs less than \$10 and works like a charm to eliminate virtually all blue light. This way you don't have to worry about installing programs on all your devices or buying special light bulbs for evening use.

Once you have your glasses on, it doesn't matter what light sources you have on in your house. You can even wear these glasses outdoors at night if you'll be traveling in an area with LED streetlights. When you're ready to climb into bed, make sure your bedroom is pitch black. The slightest bit of light in your bedroom can disrupt your body's clock and your pineal gland's melatonin production.

It's a good idea to cover your windows with drapes or blackout shades to achieve this — especially if you have LED streetlights outside your bedroom window. If this isn't possible, wear an eye mask.