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These Streetlights Are Great For The Planet — But Horrible For Your Health

Doctors are voicing concerns about LEDs' effect on sleep.



By Sarah DiGiulio



PATRICK STRATTNER/GETTY IMAGES

Tree-lined streets, good schools, quiet road and low-intensity streetlights...

That last one may not have made it on your checklist for finding your last home, apartment or condo, but doctors now say it probably should have.

Even though they save energy, some light-emitting diode (or LED) streetlights are too bright and may actually be putting your health and security at risk, according to [new](#)

recommendations from the American Medical Association, the largest professional association of doctors in the U.S.

The benefits of LED lights include a lot of energy and cost savings. They use up to 50 percent less energy than conventional lights. And the lifetime of LED lights is two to four times that of older, non-LED lights, which means lower maintenance costs for cities that need to change a street's lightbulbs when they go out.

But the bottom line from the AMA is that high-intensity LED streetlights that emit too much blue light can actually throw off sleep patterns of the people living in those neighborhoods *and* make nighttime glare on roads worse than conventional lights.

“Despite the energy efficiency benefits, some LED lights are harmful when used as street lighting,” Maya A. Babu, an AMA board member, said in press release.

None of the authors of the AMA recommendations were answering questions on the topic, according to the press office.

‘A Strip Mall In Outer Space’

“It feels like I’m in a strip mall in outer space,” Brooklyn resident Jolanta Benal told The New York Times last year, complaining about the bright LED streetlights in her Windsor Terrace neighborhood.

New York City is spending \$75 million to retrofit its more than 250,000 street lights to be energy-efficient LEDs, the Times reported. The new lights are expected to save the city \$6 million in energy costs and \$8 million in maintenance each year.

But lights like these could also be costing residents like Benal a lot of sleep.

The retrofitted streetlights were designed to prevent glare, according to a spokesperson for the city's Department of Transportation. But the current blue light allowance for the new street lights is higher than the new AMA recommendations call for.

“The problem is that if people are not exposed to darkness in the evening then they have a problem going to sleep,” Maurice Ohayon, director of the Stanford Sleep Epidemiology Research Center, told The Huffington Post.

Ohayon and his colleagues recently looked at the sleep habits and sleep quality of more than 15,800 people. They found that people who were exposed to more nighttime light were nearly twice as likely to be dissatisfied with their sleep as those living in areas with less light.

Those exposed to more light at night also reported sleeping less at night and having more fatigue during the day.

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As that exposure to light happens over and over again, our circadian rhythms (the body’s internal clock) get disrupted. And beyond affecting sleep, disordered circadian rhythms are linked to higher rates of chronic diseases, including obesity, heart disease, depression and some cancers.

In the same way that blue light from a smartphone or computer screen suppresses melatonin production in the brain (the body’s signal for sleep), it’s the blue light in LEDs that causes trouble, Clete Kushida, a neurologist and sleep specialist at Stanford Sleep Medicine Center, explained in a KBCW video.



Blame Light Color And Intensity

There is actually no such thing as a “white” LED light, Stephen Quick, an architect and urban designer, told HuffPost.

LED lights that appear white, like the ones used in streetlights are made up of a combination of amber, red, green and blue light, said Quick, an adjunct professor of architecture at Carnegie Mellon University who was not involved in writing the AMA's recommendations.

Quick and his colleagues took a deep dive into the research on cost-saving benefits and potential health, safety and aesthetic concerns of LED lights for a report for the city of Pittsburgh in 2011. The report was used to help Pittsburgh finalize its plan to replace its 40,000 streetlights.

That research, like the new AMA recommendation, suggested that a neutral color light with about an even mix of blue and the other colors be used for streetlights, Quick said. “Think incandescent light — neither warm nor cool [in color]. It’s soft, but it doesn’t have the cool qualities that you’d see in a fluorescent light.”

Quick said that the Pittsburgh report’s recommendations did allow for slightly more blue light than the AMA.

Brighter But Not Safer

The other potential problem with LED streetlights that are too bright, according to the AMA's recommendation against them, is glare.

“A lot of people believe that the brighter the lights, the safer they are,” Quick said.

But LED light is directional — meaning it gets emitted in a specific direction, unlike conventional lightbulbs, which put out light and heat in all directions.

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When the lights are lower consistently, we don’t have the glare problem we do when they’re really bright.

—Stephen Quick, Carnegie Mellon University

Because the light is not diffused, LEDs create a “glare zone” for drivers at certain angles that can be worse than conventional streetlights, Quick said.

The new AMA recommendations encourage “proper design, shielding and installation” to help mitigate glare.

Quick also said that dimming the lights would help reduce glare. “The higher the intensity, the more glare from the bounced light or the direct light,” he said. “And when the lights are

lower consistently, we don't have the glare problem we do when they're really bright.”

The Cost Of Evolving Standards

The AMA's new recommendations may call for some rethinking of current green building standards and projects.

The U.S. Green Building Council — the group that runs LEED, the most widely used green building certification program in the world — does not support one specific type of streetlight over another, Theresa Backhaus, a site technical specialist for LEED, told HuffPost via email.

“We encourage lighting design to take all considerations into account for the health, safety and welfare of people and the environment,” she said.

USGBC's Light Pollution Reduction Credit was created precisely to reduce the harmful effects of light pollution, she said. The credit is one that buildings and development projects can meet to earn one of LEED's four rating levels.

That credit requires projects to use lower lighting levels for “sensitive areas,” such as residential zones and nature preserves, but does not specify a limit on the amount of blue light that can be used.

The good news is that most LEDs, especially newer ones, are made with dimming controls, Quick said — so the intensity of the light can be adjusted fairly easily.

Changing the color balance of the lights can be a lot more difficult.

Sometimes it's possible to replace just the LED themselves, Quick said, but sometimes the whole fixture needs to be replaced. “And that gets costly.”

The takeaway is that there's nothing inherently bad about the LED lights themselves. “We save a tremendous amount of energy by using them. We also save a lot of money in maintenance costs,” Quick said.

But getting the color and intensity right is important. “The best procedure right now is for cities to be cautious and know what they're buying,” he added.

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