

# Does more outdoor light at night help cause macular degeneration?

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As levels of nighttime artificial outdoor light rise, so do the odds for a leading cause of vision loss, age-related macular degeneration (AMD).

South Korean researchers found that people living in areas of that country with the highest levels of streetlights and other artificial [light](#) had more than double the odds for AMD, compared to those living in areas with the lowest levels.

That risk remained even after they accounted for confounding factors such as sleep issues and depression, said a team led by Dr. Ahnul Ha, of the department of ophthalmology at Jeju National University College of Medicine.

City dwellers may be at particular danger for [macular degeneration](#), since the link between the illness and artificial outdoor light "was found solely in urban areas, where the mean outdoor-artificial-light-at-night level was three times higher than in rural areas," Ha's group reported.

They published their findings Jan. 16 in [JAMA Network Open](#).

AMD occurs when a part of the eye's retina called the macula deteriorates over time. People begin to lose their central vision, making common tasks such as driving or reading difficult.

AMD "generally affects people over the age of 60," said Dr. Matthew Gorski, an ophthalmologist at Northwell Health in New Hyde Park, N.Y. "Common symptoms of macular degeneration include blurry vision, distortion [where] straight lines appear wavy. The symptoms can be anywhere from minimal to severe, blinding vision disturbance."

In the study, Ha and her team wondered if the proliferation of artificial light at night could play a role in the disease, since it's already been linked to conditions such as obesity, heart disease, certain cancers and mental health disorders.

There's also research suggesting that artificial light might harm the retina

in various ways. Light exposure can damage sensitive retinal cells, Ha's group noted. It can also upset circadian rhythms and damage these cells, and it can trigger hormonal changes that might also be harmful.

In the new research, Ha and her colleagues analyzed data on over 126,000 South Koreans ages 50 or older. About 4,100 of them had been diagnosed with AMD.

Her group also tracked where these people lived, comparing that to satellite imagery showing [light levels](#) across South Korea at night.

People's residences were divided into four quartiles, ranked by how much artificial outdoor light they might be exposed to at night.

The main finding: Older people who lived in [urban areas](#) with the highest levels of outdoor artificial light had 2.17 times the odds of developing AMD, compared to folks living in areas with the lowest levels.

Living in an area that had even just a bit more nighttime artificial light (compared to areas with the lowest levels) was still linked to a 12% higher risk for AMD.

That suggests that as levels of artificial light rise, so do the odds for the eye disease.

Of course, a brightly lit nighttime environment might raise the odds for sleeplessness or even depression, the team noted. But the findings were unchanged even after adjusting for those factors, they said.

The risk rose with age, and men seemed to be more affected than women, the study found.

Other factors—obesity, smoking and drinking—also seemed to

strengthen the link between outdoor light at night and AMD.

For his part, Gorski stressed that the study "does not show any causality. It doesn't show or prove that outdoor light causes macular degeneration. It is the first study that does show that there may be a link."

"At this point, I am certainly not going to tell my patients to change their behaviors or to wear glasses in outdoor light at nighttime," said Gorski, who is also an assistant professor of ophthalmology at Hofstra University's Zucker School of Medicine in New York.

"I think this is just a first datapoint and additional studies are going to be needed to confirm whether these results are in fact true," he added.

His advice to people concerned about aging eyes: "I think the best treatment is prevention. So, I always tell patients smoking cessation, eating a well-balanced diet, [including] fruits and vegetables and foods that are high in antioxidants, and wearing sunglasses when you can is a good way of preventing or decreasing the risk of macular degeneration."

**More information:** Find out more about AMD at [Johns Hopkins](#)

[Su Hwan Kim et al, Nighttime Outdoor Artificial Light and Risk of Age-Related Macular Degeneration. \*JAMA Network Open\* \(2024\)](#)

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