

# Light during sleep for older adults is linked to obesity, diabetes, high blood pressure

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In a sample of older men and women ages 63 to 84, those who were exposed to any amount of light while sleeping at night were significantly more likely to be obese, and have high blood pressure and diabetes

compared to adults who were not exposed to any light during the night, reports a new Northwestern Medicine study.

Light exposure was measured with a wrist-worn device and tracked over seven days.

This is a real-world (not experimental) study demonstrating the prevalence of any [light exposure](#) at night being linked to a higher obesity, [high blood pressure](#) (known as hypertension) and [diabetes](#) among older adults.

It was published June 22 in the journal *Sleep*.

"Whether it be from one's smartphone, leaving a TV on overnight or light pollution in a big city, we live among an abundant number of artificial sources of light that are available 24 hours of a day," said study corresponding author Dr. Minjee Kim, assistant professor of neurology at Northwestern University Feinberg School of Medicine and a Northwestern Medicine physician. "Older adults already are at higher risk for diabetes and cardiovascular disease, so we wanted to see if there was a difference in frequencies of these diseases related to light exposure at night."

Study investigators were surprised to find that less than half of the 552 study participants consistently had a five-hour period of complete darkness per day. The rest of participants were exposed to some light even during their darkest five-hour periods of the day, which were usually in the middle of their [sleep](#) at night.

Because this was a cross-sectional study, investigators don't know if [obesity](#), diabetes and hypertension cause people to sleep with a light on, or if the light contributed to the development of these conditions. Individuals with these conditions may be more likely to use the

bathroom in the middle of the night (with the light on) or may have another reason to keep the light on. Someone with foot numbness because of diabetes may want to keep a night light on to reduce the risk of falls.

"It's important for people to avoid or minimize the amount of light exposure during sleep," said co-senior author Dr. Phyllis Zee, chief of sleep medicine at Feinberg and a Northwestern Medicine physician.

Zee and colleagues are considering an intervention study to test whether a restoration of the natural light-dark cycle improves health outcomes such as cognition.

Zee offered tips to reduce light during sleep:

- Don't turn lights on. If you need to have a light on (which older adults may want for safety), make it a dim light that is closer to the floor.
- Color is important. Amber or a red/orange light is less stimulating for the brain. Don't use white or blue light and keep it far away from the sleeping person.
- Blackout shades or eye masks are good if you can't control the outdoor light. Move your bed so the outdoor light isn't shining on your face.

### **Who are the study participants?**

The study participants were originally enrolled in the Chicago Heart Association Detection Project in Industry (CHA), a public health program and epidemiologic study conducted in 1967–1973 to identify high-risk adults for heart diseases in workplaces throughout the Chicago area. The study included a detailed examination of known risk factors for heart disease.

Almost 40 years later (2007-2010), Zee and Dr. Martha Daviglius, now adjunct professor of preventive medicine at Feinberg, conducted a separate study ("Chicago Healthy Aging Study (CHAS)") with 1,395 survivors of the original CHA study who agreed to participate. They underwent another detailed examination of blood pressure, weight, height, cholesterol, glucose and other known risk factors for heart disease. In addition, they wore the actigraphy device on their non-dominant wrists for seven days and filled out a daily sleep diary. Slightly more than half of the actigraphy devices used had the capacity to measure light, which constitute the basis of this new study.

Other Northwestern authors include co-senior author Kathryn Reid, Thanh-Huyen Vu, Matthew Maas, Rosemary Braun and Michael Wolf.

**More information:** Minjee Kim et al, Light at night in older age is associated with obesity, diabetes, and hypertension, *Sleep* (2022). [DOI: 10.1093/sleep/zsac130](https://doi.org/10.1093/sleep/zsac130)

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