Sleeping with the Lights on Spells Trouble

By: Nicole Brechka, Today's Practitioner

Sleeping in the dark may make you healthier, according to a new study in the *Proceedings of the National Academy of Sciences*. Researchers found that just one night of exposure to moderate room light negatively affects cardiometabolic health.

The sleep study involved 20 subjects, 10 of whom slept in a dim light room on Night 1 and then a moderate light room on Night 2. The other half slept two nights in a dim light room. The results were surprising: compared to dim light, those who were exposed to moderate room light had increased heart rate and sympathetic nervous system activity during their entire sleep period, said senior author Phyllis C. Zee, MD, PhD.

Moreover, participants from the moderate light room showed increased insulin resistance the next morning. Interestingly, there were no measurable differences in melatonin levels.

Other research in this area showed an association between bedroom light exposure and obesity in women. In another study, light in the room increased the odds of type 2 diabetes among an elderly population.

"The effects of light exposure at night, particularly during sleep, on cardiometabolic function could have implications for those living in modern societies where indoor and outdoor nighttime light exposure is increasingly widespread and where concerns regarding cardiometabolic health are also on the rise. Thus, it is plausible that decreasing exposure to indoor nighttime light during sleep could have beneficial effects on cardiometabolic health. Future studies using a larger sample size and a randomized cross-over design to study the effects of varying light wavelengths, duration, and intensities are needed to confirm our findings and potential ecological translatability."

Conclusion

Ambient nighttime light exposure is implicated as a risk factor for adverse health outcomes, including cardiometabolic disease. However, the effects of nighttime light exposure during sleep on cardiometabolic outcomes and the related mechanisms are unclear. This laboratory study shows that, in healthy adults, one night of moderate (100 lx) light exposure during sleep increases nighttime heart rate, decreases heart rate variability (higher sympathovagal balance), and increases next- morning insulin resistance when compared to sleep in a dimly lit (<3 lx) environment. Moreover, a positive relationship between higher sympathovagal balance and insulin levels suggests that sympathetic activation may play a role in the observed light-induced changes in insulin sensitivity.