Medical Xpress

Sleeping too much or not enough may have bad effects on health

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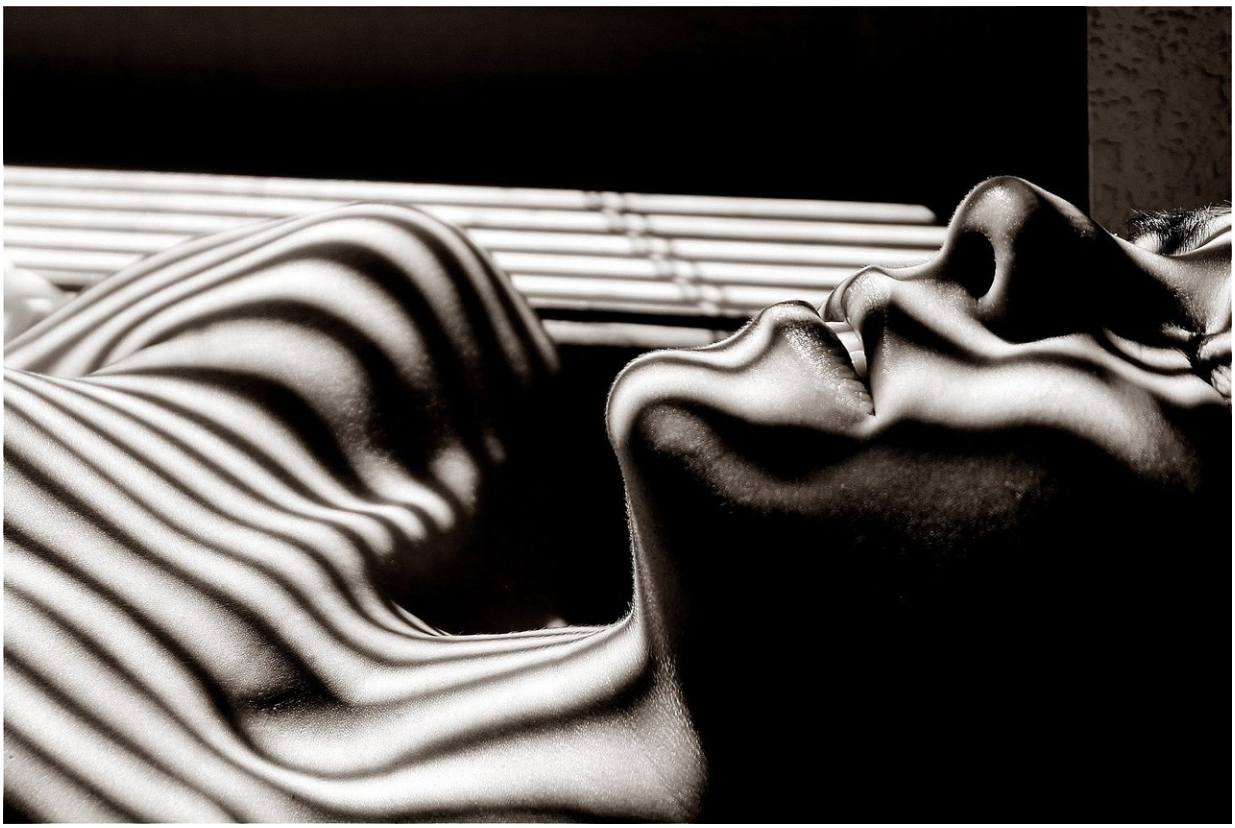

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Fewer than six and more than ten hours of sleep per day are associated with metabolic syndrome and its individual components, according to a study published in the open access journal *BMC Public Health* that

involved 133,608 Korean men and women aged 40-69 years.

Researchers at Seoul National University College of Medicine found that compared to individuals who slept six to seven hours per day, men who slept fewer than six hours were more likely to have metabolic syndrome and higher waist circumference. Women who slept fewer than six hours were more likely to have higher waist circumference. Sleeping more than ten hours per day was associated with metabolic syndrome and increased levels of triglycerides in men, and with metabolic syndrome, higher waist circumference, higher levels of triglycerides and blood sugar, as well as low levels of 'good' cholesterol (HDL-C) in women. The authors found that nearly 11% of men and 13% of women slept less than six hours, while 1.5% of men and 1.7% of women slept more than ten hours.

Claire E. Kim, lead author of the study said: "This is the largest study examining a dose-response association between sleep duration and metabolic syndrome and its components separately for men and women. Because we were able to expand the sample of our previous study, we were able to detect associations between sleep and metabolic syndrome that were unnoticed before. We observed a potential gender difference between sleep duration and metabolic syndrome, with an association between metabolic syndrome and long sleep in women and metabolic syndrome and short sleep in men."

Based on common definitions, participants were considered to have metabolic syndrome if they showed at least three of the following: elevated waist circumference, high triglyceride levels, low levels of 'good' cholesterol, hypertension, and high fasting blood sugar. The prevalence of metabolic syndrome was just over 29% in men and 24.5% in women. The authors suggest that as the prevalence of metabolic syndrome in Korea is high, it is critical to identify modifiable risk factors such as sleep duration.

The authors used data from the HEXA study, a large-scale community-based study conducted in Korea during the years 2004-2013, which included information on socio-demographic characteristics, medical history, medication use, family history, lifestyle factors, diet, physical activity, and reproductive factors for women. As part of the HEXA study, samples of plasma, serum, buffy coat, blood cells, genomic DNA, and urine were collected, and participants underwent physical examinations by medical professionals. Sleep duration was assessed by asking the question: "In the past year, on average, how many hours/minutes of sleep (including daytime naps) did you take per day?"

Although the biological mechanisms that underlie the association between sleep duration and metabolic syndrome remain unclear, several potential processes have been reported. These include elevated levels of hormones which increase appetite and caloric intake or reduce energy expenditure in people who sleep less than seven hours per day, which may lead to increased waist circumference and development of obesity.

The authors caution that the cross-sectional, observational nature of this study does not allow for conclusions about cause and effect. Estimates of sleep duration were based on self-report data rather than objective measures and may reflect 'time in bed', actual time spent asleep or time people believed they slept. Also, as the study did not distinguish between daytime naps and nighttime sleep, their impact on health could not be assessed separately.

More information: Claire E. Kim et al, Association between sleep duration and metabolic syndrome: a cross-sectional study, *BMC Public Health* (2018). DOI: 10.1186/s12889-018-5557-8