

Can good sleep patterns offset genetic susceptibility to heart disease and stroke?

December 18, 2019 9:45 AM

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Dr. Lu Qi is director of the Tulane University Obesity Research Center at Tulane School of Public Health and Tropical Medicine.

Getting a good night's sleep could be beneficial for long-term health. A pioneering new study led by Dr. Lu Qi, director of the Tulane University Obesity Research Center, found that even if people had a high genetic risk of heart disease or stroke, healthy sleep patterns could help offset that risk. The [study](#) is published in the *European Heart Journal*.

The researchers looked at genetic variations known as SNPs (single nucleotide polymorphisms) that were already known to be linked to the development of heart disease and stroke. They analysed the SNPs from blood samples taken from more than 385,000 healthy participants in the [UK Biobank](#)

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project and used them to create a genetic risk score to determine whether the participants were at high, intermediate or low risk of cardiovascular problems.

The researchers followed the participants for an average of 8.5 years, during which time there were 7,280 cases of heart disease or stroke.

“We found that compared to those with an unhealthy sleep pattern, participants with good sleeping habits had a 35% reduced risk of cardiovascular disease and a 34% reduced risk of both heart disease and stroke,” Qi says. Researchers say those with the healthiest sleep patterns slept 7 to 8 hours a night, without insomnia, snoring or daytime drowsiness.

When the researchers looked at the combined effect of sleep habits and genetic susceptibility on cardiovascular disease, they found that participants with both a high genetic risk and a poor sleep pattern had a more than 2.5-fold greater risk of heart disease and a 1.5-fold greater risk of stroke compared to those with a low genetic risk and a healthy sleep pattern. This meant that there were 11 more cases of heart disease and five more cases of stroke per 1,000 people a year among poor sleepers with a high genetic risk compared to good sleepers with a low genetic risk. However, a healthy sleep pattern compensated slightly for a high genetic risk, with just over a two-fold increased risk for these people.

A person with a high genetic risk but a healthy sleep pattern had a 2.1-fold greater risk of heart disease and a 1.3-fold greater risk of stroke compared to someone with a low genetic risk and a good sleep pattern. While someone with a low genetic risk, but an unhealthy sleep pattern had 1.7-fold greater risk of heart disease and a 1.6-fold greater risk of stroke.

“As with other findings from observational studies, our results indicate an association, not a causal relation,” Qi says. “However, these findings may motivate other investigations and, at least, suggest that it is essential to consider overall sleep behaviors when considering a person’s risk of heart disease or stroke.”