

Study finds time-restricted eating may reduce diabetes-related hypertension

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A new University of Kentucky College of Medicine study suggests that time-restricted eating may be able to help people with Type 2 diabetes reduce nocturnal hypertension, which is characterized by elevated blood pressure at night.

The study published in *PNAS* June 22 found that time-restricted eating, a routine in which eating is restricted to a specific window of time during each day, helped prevent and improve [diabetes](#)-related nocturnal hypertension in mice.

Study authors Ming Gong, Ph.D., M.D., professor in the Department of Physiology, and Zhenheng Guo, Ph.D., professor in the Department of Pharmacology and Nutritional Sciences, are hopeful their findings will mean time-restricted eating could offer similar benefits for people.

"We are excited about these findings and the implications they could have in future clinical studies," said Guo. "In addition to [lifestyle changes](#) like diet and exercise, time-restricted eating could have a healthy impact on people with Type 2 diabetes."

Normally, [blood](#) pressure falls at night and increases upon awakening, in line with the body's circadian rhythm. In some hypertensive patients, the typical nighttime decrease does not occur. This "nondipping" blood pressure is prevalent in patients with Type 2 diabetes and is associated with increased events of cardiovascular disease.

The study found that imposing time-restricted feeding prevented diabetic mice from developing nondipping blood pressure. The practice also effectively restored the disrupted blood pressure circadian rhythm in mice that already had nondipping blood pressure.

Researchers restricted the mice's access to food to eight hours during their typical active awake times every day. When [food availability](#) was increased to 12 hours, the practice was still effective in preventing and treating nondipping blood pressure. Guo says this is evidence that the effects were caused by the timing of feeding and not [calorie restriction](#).

In addition to the study's significance for future clinical research in

people, Gong says it's adding to scientists' understanding of the causes and mechanisms of nondipping blood [pressure](#) in diabetes, which is currently not fully understood.

"There are already many studies that show the health benefits of time-restricted eating, particularly for metabolic issues," Gong said. "This is the first basic science research focused on how it impacts nondipping [blood pressure](#) related to diabetes and it reveals that the daily timing of food intake could play a critical role."

More information: Tianfei Hou et al, Time-restricted feeding protects the blood pressure circadian rhythm in diabetic mice, *Proceedings of the National Academy of Sciences* (2021). [DOI: 10.1073/pnas.2015873118](https://doi.org/10.1073/pnas.2015873118)

Provided by University of Kentucky

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