

Study links stress hormone with higher blood sugar in Type 2 diabetes

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Janice Harris has Type 2 diabetes and monitors her blood sugar several times per day. A new study by researchers at The Ohio State University Wexner Medical Center finds that stress reduction is a critical part of a healthy lifestyle to help manage the disease and control glucose levels. Credit: The Ohio State University Wexner Medical Center

A new study by researchers at The Ohio State University Wexner Medical Center and The Ohio State University College of Medicine documents a clear link between the stress hormone cortisol and higher blood sugar levels in people with type 2 diabetes.

The study published online in the journal *Psychoneuroendocrinology*.

"In healthy people, cortisol fluctuates naturally throughout the day, spiking in the morning and falling at night," said Dr. Joshua J. Joseph, an endocrinologist and researcher at The Ohio State Wexner Medical Center's Diabetes and Metabolism Research Center who led the study. "But in participants with type 2 diabetes, cortisol profiles that were flatter throughout the day, had higher glucose levels."

Previous research has shown that stress and depression are two of the major causes of a flatter cortisol profile. These sustained levels of cortisol make it much more difficult to control [blood sugar](#) and manage the disease, which is why it is so important for those with type 2 diabetes to find ways to reduce stress.

"We have begun a new trial to examine if mindfulness practices can lower blood sugar in those with type 2 diabetes," said Joseph, an assistant professor in the College of Medicine. "But this isn't the only effective form of stress relief. It's important to find something you enjoy and make it a part of your everyday routine."



Endocrinologist Dr. Joshua J. Joseph examines a patient at The Ohio State

University Wexner Medical Center. Joseph led a study that solidifies the importance of stress relief for Type 2 diabetes management, finding higher cortisol levels led to higher blood sugar levels. Credit: The Ohio State University Wexner Medical Center

The relationship of cortisol with glucose levels was only observed in those with diabetes. However, Dr. Joseph and his team believe the stress hormone likely plays an important role in diabetes prevention and they continue to research the connection between [cortisol](#) and the development of diabetes and [cardiovascular disease](#).

More than 30 million Americans have Type 2 diabetes, according to the Centers for Disease Control and Prevention. With Type 2 diabetes, your body doesn't use insulin properly. Some people can manage their blood sugar levels with healthy eating and exercise, while others may need medication or insulin to help manage it.

"Most people with Type 2 diabetes know the importance of exercising regularly, eating a healthy diet, and getting plenty of rest. But stress relief is a crucial and often forgotten component of diabetes management," Joseph said. "Whether it's a [yoga class](#), taking a walk or reading a book, finding ways to lower your stress levels is important to everyone's overall health, especially for those with type 2 [diabetes](#)."

Provided by The Ohio State University Wexner Medical Center

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