

Treatment of sleep apnea improves glucose levels in prediabetes

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Optimal treatment of sleep apnea in patients with prediabetes improves blood sugar (glucose) levels and thus can reduce cardiometabolic risk, according to a study to be presented at the ATS 2013 International Conference in Philadelphia.

"[Sleep apnea](#), a condition associated with breathing disturbances during sleep is known to be associated with abnormalities in [glucose metabolism](#), but whether treatment of sleep apnea has any beneficial effects on glucose metabolism is still under investigation" said lead author Sushmita Pamidi, MD, of the Department of Medicine at McGill University in Montreal, Canada-"We have studied patients with sleep apnea and prediabetes, a condition defined as higher than normal [blood glucose levels](#) but not high enough to be considered diabetes. We found that optimal treatment of sleep apnea with continuous positive airway pressure (CPAP) for two weeks led to significant improvements in glucose levels following an oral glucose challenge without affecting insulin secretion, suggesting an improvement in insulin sensitivity."

Insulin is a hormone produced in the pancreas that regulates the metabolism of glucose in the body. [Insulin resistance](#) is a condition in which normal amounts of insulin are not adequate to produce a normal cellular insulin response to glucose ingestion. Low insulin sensitivity, a measure of how sensitive a person's body is to the effects of insulin, is associated with the development of type 2 diabetes.

As many as two-thirds of type 2 diabetic patients may be suffering from

unrecognized sleep apnea . The main treatment option for sleep apnea is CPAP, in which a machine delivers air at a specific pressure via a [breathing tube](#) connected to a facemask in order to splint the upper airway open and prevent further breathing disturbances during sleep. The breathing disturbances during sleep that result in sleep apnea have been linked to prediabetic conditions such as insulin resistance and [glucose intolerance](#) as well as type 2 diabetes and cardiovascular complications.

The current study included 39 adults with sleep apnea and prediabetes who were randomized to two weeks of either CPAP treatment or placebo tablet. Before and after the treatment period, study participants underwent an oral glucose tolerance test, a test that measures body's ability to use glucose. A unique aspect of the study is that subjects slept each night in the research laboratory, ensuring optimal adherence to CPAP treatment. Glucose tolerance, [insulin secretion](#), and [insulin sensitivity](#), all markers for the risk of diabetes, were measured. Subjects were also monitored for the quantity and quality of sleep, 24 hour blood pressure, heart rate, weight, energy expenditure and hormones affecting diabetes risk.

"Effective treatment of OSA is known to have a positive impact on a number of important health outcomes and in our study we observed beneficial effects on glucose metabolism," said principal investigator, Esra Tasali, MD, assistant professor of pulmonary and critical care medicine at the University of Chicago. This "proof of concept" study may provide essential information for designing larger multicenter clinical trials that will determine whether CPAP treatment could be a first line intervention to prevent or delay the development of [type 2 diabetes](#). Our study adds to the current literature by demonstrating that CPAP treatment of sleep apnea in patients at risk for developing diabetes may lower this risk, and an assessment for sleep apnea may be appropriate as part of the clinical evaluation of patients with [prediabetes](#)

," said Dr. Pamidi.

Provided by American Thoracic Society

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