

# Study compares rate of death following diabetes diagnosis among normal weight and overweight adults

August 7 2012

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Participants in a study who were normal weight at the time of a diagnosis of diabetes experienced higher rates of total and noncardiovascular death compared with those who were overweight or obese at diabetes diagnosis, according to a study in the August 8 issue of *JAMA*.

"[Type 2 diabetes](#) in [normal-weight](#) adults is an understudied representation of the metabolically obese normal-weight phenotype that has become increasingly common over time. It is not known whether the 'obesity paradox' that has been observed in [chronic diseases](#) such as [heart failure](#), [chronic kidney disease](#), and hypertension extends to adults who are normal weight at the time of incident [diabetes](#)," according to background information in the article

Mercedes R. Carnethon, Ph.D., of the Feinberg School of Medicine, Northwestern University, Chicago, and colleagues conducted a study to compare mortality between participants who were normal weight and overweight/obese at the time of new adult-onset diabetes. The study consisted of a pooled analysis of 5 [longitudinal studies](#) with a total of 2,625 participants with new diabetes. Included were men and women (older than 40 years of age) who developed incident diabetes based on fasting [glucose](#) 126 mg/dL or greater or newly initiated diabetes medication and who had concurrent measurements of [body mass index](#) (BMI). Participants were classified as normal weight if their BMI was 18.5 to 24.99 or overweight/obese if BMI was 25 or greater. Half (50

percent) of the participants were women, 36 percent were non-white.

The proportion of adults who were normal weight at the time of incident diabetes ranged from 9 percent to 21 percent (overall 12 percent).

During follow-up, 449 participants died: 178 (6.8 percent) from cardiovascular causes and 253 (10.4 percent) from noncardiovascular causes; 18 causes of death were unidentified. In the pooled sample, total mortality and cardiovascular and noncardiovascular mortality were higher in normal-weight participants as compared with rates among overweight or obese participants. Following adjustment for certain variables, the researchers found that [participants](#) with normal-weight diabetes experienced a significantly elevated total mortality and noncardiovascular mortality. While cardiovascular mortality was elevated, the association was not statistically significant.

"These findings are relevant to segments of the U.S. population, including older adults and nonwhite persons (e.g., Asian, black), who are more likely to experience normal-weight diabetes."

The researchers write that mechanisms to explain their findings are unknown. "However, previous research suggests that normal-weight persons with diabetes have a different genetic profile than overweight or obese persons with diabetes. If those same genetic variants that predispose to diabetes are associated with other illnesses, these individuals may be 'genetically loaded' toward experiencing higher mortality. Future research in normal-weight persons with diabetes should test these genetic hypotheses, along with other plausible mechanisms to account for higher mortality, including inflammation, the distribution and action of adipose tissue, atherosclerosis burden and the composition of fatty plaques, and pancreatic beta-cell function."

In an accompanying editorial, Hermes Florez, M.D., M.P.H., Ph.D., and Sumaya Castillo-Florez, M.D., M.P.H., of the University of Miami

Miller School of Medicine, and Miami Veterans Affairs Healthcare System, write that "the article by Carnethon et al addresses an emerging challenge regarding diabetes and weight status."

"This could be a wake-up call for timely prevention and management to reduce adverse outcomes in all patients with type 2 diabetes, particularly in those metabolically obese normal-weight at diagnosis, who may have a false sense of protection because they are not overweight or obese. Standards of diabetes care recommend weight loss for all overweight or obese individuals who have diabetes. Low carbohydrate, low-fat, calorie-restricted, or Mediterranean diets may be effective weight-loss strategies in these individuals. The additional benefits of increased physical activity and behavior modification strategies may lead to the successful implementation of weight management and healthy living programs for all patients with diabetes. It is important to understand how diabetes duration relates to the benefits of intentional weight loss, as well as the clinical consequence associated with sarcopenic obesity and bone loss in older adults with or at high risk for diabetes."

**More information:**

*JAMA*. 2012;308[6]:581-590.

*JAMA*. 2012;308[6]:619-620.

Provided by JAMA and Archives Journals

Citation: Study compares rate of death following diabetes diagnosis among normal weight and overweight adults (2012, August 7) retrieved 5 May 2024 from <https://medicalxpress.com/news/2012-08-death-diabetes-diagnosis-weight-overweight.html>

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