

Body mass index may predict heart disease risk for type-2 diabetic patients new study finds

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Researchers from the Intermountain Medical Center Heart Institute, in collaboration with researchers from Johns Hopkins University and the National Institutes of Health, have discovered a simple way to further predict a diabetic patient's risk for heart disease: by measuring their body mass index or BMI.

The Intermountain Medical Center Heart Institute study is part of a larger study called faCTOR-64, which is a landmark, randomized trial designed to determine if using CT scans to screen for heart disease in diabetic patients who don't have [heart disease symptoms](#) can help save lives.

As Intermountain researchers measured coronary artery plaque buildup in study participants, they discovered that a major controllable predictor of heart disease was BMI. Simply put: the greater the patient's BMI, the greater their risk for heart disease.

Researchers presented this study at the 2013 American Heart Association Scientific Sessions in Dallas.

"Our study shows there's a strong linear relationship between BMI and plaque volume and composition," said J. Brent Muhlestein, MD, lead researcher and co-director of cardiovascular research at the Intermountain Medical Center Heart Institute in Murray, Utah. "So even

being a little overweight is associated with more plaque, while being obese is associated with a lot of plaque."

Researchers say the findings are significant because heart disease causes about 75% of deaths in patients who have diabetes, but not everyone has obvious risk factors, such as smoking, high glucose levels, high cholesterol levels, or high blood pressure.

Patients with obvious risk factors can be treated, but for the patients who don't have obvious risk factors, their first indicator of heart disease is often in the form of a heart attack or stroke – or even death.

Current methods to measure plaque buildup are invasive and costly, and are not used to screen patients who don't display signs of heart disease. However, the coronary computed tomography angiography (CCTA) offers a new, and less invasive way to screen these patients for heart disease.

"It may be that in diabetic patients without any symptoms of heart disease, their BMI could be used to determine if they need a CT scan to screen for plaque buildup," said Muhlestein. "We could then develop a treatment plan for at-risk patients.

Findings from the study may also change the way diabetic patients are treated. Current diabetic management strategies include three options:

- Insulin-sensitizing medication to help the body's tissues become more sensitive to insulin and decrease glucose production
- Insulin-stimulating therapy to increase the pancreas' production of insulin
- Insulin injections

When patients are treated with insulin therapy and injections, they

commonly experience weight gain. "When you provide more insulin, it's associated in almost every study with increased weight gain," said Dr. Muhlestein.

While weight gain does not necessarily predict heart disease in non-diabetics, the findings of this study shows that weight gain in diabetics can indicate the buildup of plaque. This is significant because the degree of weight gain can be reduced by using other types of diabetic treatments, such as insulin sensitizing medication.

"Based on the findings of this study, choosing insulin sensitizing therapy, as the primary management strategy in [diabetic patients](#) may be beneficial by reducing the tendency towards elevated BMI's, said Dr. Muhlestein.

Not only will the results of this study help researchers better understand which treatments will reduce weight gain, but they will also help researchers predict who will get heart disease – which will help physicians offer better long-term diabetic treatments to their patients.

"Our goal at the Intermountain Medical Center Heart Institute, is to learn how to predict who will get [heart disease](#), so we can provide the best care possible and improve long-term outcomes – rather than waiting until a person has a heart attack or even dies," he said.

Provided by Intermountain Medical Center

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