

# Female sex not a protective factor against heart disease in type 1 diabetes

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Constrictions of the coronary blood vessels is a possible consequence of type 1 diabetes, and one that can eventually lead to myocardial infarction or heart failure. Generally speaking, women are afflicted by coronary artery disease later than men, but if a woman has type 2 diabetes, the advantage is negated. A new report by researchers from Karolinska Institutet, Gothenburg University and Uppsala University in Sweden published in the journal *Diabetes Care* now shows that this also sometimes applies to type 1 diabetes.

There are few studies analysing the extent of [coronary artery disease](#) with [coronary angiography](#) in people with type 1 diabetes, most of which were conducted in the 1970s, 80s and 90s on seriously ill patients, revealing extensive constrictions of the coronary artery. Last year, researchers at Karolinska Institutet, Gothenburg University and Uppsala University conducted a large-scale study including all patients in Sweden – just short of 2,800 in number – with type 1 diabetes who had undergone coronary angiography between 2001 and 2013. The patients, 42 per cent of whom were woman, had had diabetes for an average of 35 years and had a mean age of 58. One fifth of the patients had normal coronary [arteries](#), one fifth had one constricted artery, and about half had more than one.

"Our results were partly a pleasant surprise," says Viveca Ritsinger, specialist in [internal medicine](#) and researcher at the Department of Medicine at Karolinska Institutet in Solna. "We'd thought that more of the patients would have had extensive coronary artery disease after such

a long time with diabetes, but one reason is the for many years ongoing careful diabetes care we have in Sweden, whereby we're better able to maintain normal sugar levels soon after disease onset and closely monitor other risk factors for cardiovascular disease."

In a follow-up study on the same patient group, the researchers have now identified for the first time sex differences in extent of coronary artery disease in type 1 diabetes. They found that the women had slightly less extensive coronary artery disease, but there was no difference in mortality compared to the men over a seven-year follow-up time. They did find, however, that the women had a higher risk of death than women without type 1 diabetes, and that this risk was slightly above the corresponding risk in men.

"We know that generally speaking women develop coronary artery disease later and less extensively than men," says Dr. Ritsinger. "Women with type 2 diabetes can, however, become afflicted earlier than women without diabetes. Our finds suggest that this also applies to women with type 1 diabetes."

The fatality rate was in direct proportion to the number of arteries affected for both sexes.

"So it's important that we need to keep a close watch on the risk factors for coronary artery disease in people with type 1 diabetes," explains Dr. Ritsinger. "Preventive treatments for coronary artery disease, such as drugs that reduce blood lipids and blood pressure, should be considered at an early stage after onset."

"You have to keep in mind that the patients in our study were diagnosed a long time ago and that the results are not representative for those who are diagnosed today", says Anna Norhammar, specialist in internal medicine, cardiology and clinical physiology and researcher at the

Department of Medicine at Karolinska Institutet in Solna. "However, it is of value to know that there might be an increased risk for coronary artery [disease](#) also for [women](#) with type 1 [diabetes](#), so that [patients](#) can be offered preventive therapies."

**More information:** Characteristics and Prognosis in Women and Men With Type 1 Diabetes Undergoing Coronary Angiography: A Nationwide Registry Report. *Diabetes Care* 2018 Feb; dc172352. [doi.org/10.2337/dc17-2352](https://doi.org/10.2337/dc17-2352)

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