

# Study indicates that statins may protect against microvascular complications of diabetes

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The development of common diabetes complications that can lead to blindness and amputations could be reduced by taking statins, indicates new research published in *The Lancet Diabetes & Endocrinology*.

It is well established that [statins](#) via cholesterol lowering effectively reduce the risks of heart attack and stroke in people with type 2 diabetes, but whether statin use affects the development of small blood vessel (or microvascular) complications, such as eye, nerve, and [kidney disease](#) in individuals with diabetes is not known.

"Since high levels of blood glucose, the hallmark of diabetes, are linked with microvascular disease, and since statins are suspected of raising glucose levels, we tested the hypothesis that individuals taking a statin before a diagnosis of diabetes might be at increased risk of developing microvascular complications", explains study author Professor Børge G Nordestgaard, Chief Physician in Clinical Biochemistry at Copenhagen University Hospital in Denmark. "Surprisingly, the results showed that statins decreased rather than increased risk of these complications."

Using whole-country data from Danish clinical registries, the investigators examined whether statins reduced the incidence of microvascular complications in more than 60 000 individuals selected at random from all patients with diabetes in the entire national population who were aged 40 years or older and diagnosed between Jan, 1996 and

Dec, 2009. The microvascular outcomes of 15 679 patients who had used statins regularly before their diabetes diagnosis were compared with 47 037 patients who had not used statins prior to diagnosis.

Results showed that over a median follow-up of 2.7 years (maximum 13 years), people who used statins were 34% less likely to be diagnosed with diabetic neuropathy (nerve disease that can lead to foot problems that require amputation), 40% less likely to develop diabetic retinopathy (damage to the retina that can lead to [blindness](#)), and had a 12% reduced risk of gangrene compared to those who had not received statins. However, the risk of diabetic nephropathy (kidney disease) was similar between the groups. Statin users were also slightly more likely to be diagnosed with [diabetes](#), as shown in previous studies.

According to study co-author Dr Sune F Nielsen from Copenhagen University Hospital in Denmark, "We found no evidence that statin use is associated with an [increased risk](#) of microvascular disease. Whether or not statins are protective against some forms of microvascular disease, a possibility raised by these data, and by which mechanism, will need to be addressed in studies similar to ours, or in mendelian randomisation studies, but preferably in randomised controlled trials."

Writing in a linked Comment, Dr David Preiss from the British Heart Foundation Cardiovascular Research Centre at the University of Glasgow in the UK says, ""Statins act by reducing circulating LDL cholesterol and, to a lesser extent, triglycerides. But if statins do protect from microvascular damage, their effect might have little to do with lipid modification. Fibrates are other lipid-modifying agents which have shown promising results for lowering the progression of retinopathy, but this appears to be due to direct anti-inflammatory effects in the eye rather than lipid modification. Statins also have anti-inflammatory effects which might slow the progression of [microvascular disease](#) in the eye or kidney. For now, however, any benefit of statins on [microvascular](#)

[complications](#) remains unproven."

**More information:** *The Lancet Diabetes & Endocrinology*,  
[www.thelancet.com/journals/lan ... \(14\)70173-1/abstract](http://www.thelancet.com/journals/lan... (14)70173-1/abstract)

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