

# Study shows that use of statins increases risk of developing diabetes by 46%

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New research published in *Diabetologia* (the journal of the European Association for the Study of Diabetes) shows that use of statins is associated with a 46% increase in the risk of developing diabetes, even after adjustment for confounding factors. The study is by Professor Markku Laakso, Institute of Clinical Medicine, University of Eastern Finland and Kuopio University Hospital, Finland, and colleagues.

Previous studies have suggested an increased risk (of varying levels) of developing [diabetes](#) associated with statin use. However, these studies have had limitations: study populations have been selective especially in statin trials which have included participants at high risk of cardiovascular disease. Therefore, the risk of diabetes in clinical trials is likely to differ from that in the general population. Very often in previous studies the diagnosis of diabetes has been based on self-reported diabetes or fasting glucose measurement, leading to an underestimation of the actual numbers of incident diabetes cases.

In this new study, the authors investigated the effects of statin treatment on the risk of type 2 diabetes and deterioration of blood sugar control in 8,749 non-diabetic men in a 6-year follow-up of the population-based Metabolic Syndrome in Men (METSIM) study, based in Kuopio, Finland. The authors also investigated the mechanisms of statin-induced diabetes by evaluating changes in insulin resistance and insulin secretion.

The participants, aged 45-73 years, were followed up for 5.9 years. New diabetes was diagnosed in 625 men with either an oral glucose tolerance test (OGTT), an HbA1c level of 6.5% or higher, or anti-diabetic medication started during the follow-up, and [insulin sensitivity](#) and secretion were evaluated.

The researchers found that, after the results were adjusted for age, body mass index (BMI), waist

circumference, physical activity, smoking, alcohol intake, family history of diabetes, and beta-blocker and diuretic treatment, patients treated with [statins](#) were 46% more likely to develop diabetes than those not treated with statins.

The risk was dose-dependent for simvastatin and atorvastatin. Statin treatment significantly increased 2-h glucose (2hPG) at follow-up, with a nominally significant increase in fasting glucose (FPG). Insulin sensitivity was decreased by 24% and insulin secretion by 12% in individuals on statin treatment.

Furthermore, decreases in insulin sensitivity and insulin secretion were dose-dependent for simvastatin and atorvastatin. And, after adjustment for all the confounders mentioned above, high-dose simvastatin was associated with a 44% increased risk of developing diabetes, while for low-dose simvastatin the increased risk was 28% and for high-dose atorvastatin the increased risk was 37%. Overall, 29% of participants were taking simvastatin, while 53% were taking atorvastatin.

The authors say, "The association of statin use with increased risk of developing diabetes is most likely directly related to statins decreasing both insulin sensitivity and secretion."

Furthermore, they stress that while the size of the study makes their conclusions reliable, the study sample was Caucasian men, so the applicability to women or people of other ethnic origin cannot be confirmed without further research.

They conclude: "Statin therapy was associated with a 46% increased risk of [type 2 diabetes](#) after adjustment for confounding factors, suggesting a higher risk of diabetes in the general population than previously reported."

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