

Serious complications in people with type 1 diabetes and ongoing poor blood sugar control

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Strategies implemented in high-income countries to improve blood glucose control in people with type 1 diabetes and so reduce complications, such as heart attacks, strokes, and early death, are working, but there is much need for further improvement, according to a study from Scotland published in this week's *PLOS Medicine*.

Using information from national databases representing over 20 000 patients from 2005 to 2008, Scottish researchers led by Helen Colhoun from the University of Dundee, found that people with type 1 diabetes have 2 to 3 times the risk of heart attacks, strokes, or premature death than the general population and that this increased risk is higher in women than in men. The authors found that in those with type 1 diabetes, the risk (chance) of having a [cardiovascular event](#) (heart attack or stroke) for the first time was 2.5 higher in men and 3.2 higher in women, than in the general Scottish population. Furthermore, in those with type 1 diabetes, death rates from any cause were 2.6 higher in men and 2.7 higher in women than in the general Scottish population.

The authors also found a high number of deaths from coma in younger people with diabetes (caused by either an extremely high or an extremely low [blood sugar level](#)) and two to three extra deaths per 100 people a year in those aged 60 to 69 years with type 1 diabetes.

Worryingly, the authors also found that the majority of patients in this

Scottish dataset had poorly controlled [blood glucose levels](#), with only 13% having [HbA1c levels](#) (a test that measures the [blood sugar control](#) over the previous 3 months) in the target range. People with type 1 diabetes also had similar levels of smoking and of being overweight—risk factors of cardiovascular disease—as the general population.

The importance of tight blood sugar control for minimizing complications from diabetes has been understood for almost two decades. Therefore, there is an urgent need to understand why so few people with type 1 diabetes in settings such as that studied here have good control of their blood sugar, and what can be done to improve this situation.

The authors say: "Although the relative risks for cardiovascular disease and total mortality associated with type 1 diabetes in this population have declined relative to earlier studies, [type 1 diabetes](#) continues to be associated with higher cardiovascular disease and death rates than the non-diabetic population."

They continue: "A striking feature of the data is the very low rate of achievement of glycaemic control targets."

The authors add: "Risk factor management should be improved to further reduce risk but better treatment approaches for achieving good glycaemic control are badly needed."

More information: Livingstone SJ, Looker HC, Hothersall EJ, Wild SH, Lindsay RS, et al. (2012) Risk of Cardiovascular Disease and Total Mortality in Adults with Type 1 Diabetes: Scottish Registry Linkage Study. *PLoS Med* 9(10): e1001321. [doi:10.1371/journal.pmed.1001321](https://doi.org/10.1371/journal.pmed.1001321)

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