

Years of good blood sugar control helps diabetic hearts, study finds

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Credit: Darren Lewis/public domain

Day in and day out, for years on end, millions of people with diabetes prick their fingers to test their blood sugar level. And many may wonder if all the careful eating, exercise and medication it takes to keep those levels under control is really worth it.

A major new study should encourage them to keep going for the long haul, to protect their hearts from diabetes-related damage. But it should also prompt them to work with their doctors on other ways to reduce

their cardiovascular risk.

The key finding: that keeping blood sugar levels under good control for many years can reduce the risk of suffering a heart attack, stroke, heart failure or amputation by about 17 percent.

And patients may not have to keep their blood sugar levels super-low to reap most of the cardiovascular benefit. The authors concluded that a long-term average of about 8 on the measurement called A1C hemoglobin was enough to achieve most of the benefit, but that many patients can be safely lowered to around 7.

The results are reported in the June 4 issue of the *New England Journal of Medicine* by a team from three VA hospitals, the VA Center for Clinical Management Research and the University of Michigan Medical School. They show what happened to nearly 1,800 veterans with Type 2 diabetes nearly 10 years after they signed up for a 6 year blood sugar study that randomly assigned them to either get help achieving "tight" blood sugar control, or regular care.

"Taken together with findings from other large studies, we see that controlling blood sugar in diabetes can indeed decrease cardiovascular risk, though we continue to see no effect on risk of dying during the same time period," says lead study author Rodney Hayward, M.D., of the VA Ann Arbor Healthcare System and U-M. "This finding reinforces the importance of combining good blood sugar control with control of other [cardiovascular risk factors](#) for a combined effect."

Hayward notes that for anyone with Type 2 diabetes, a growing body of research supports the idea of taking four medications to help their hearts: metformin to control blood sugar, a statin to control cholesterol and other blood lipids, a [blood pressure](#) medication, and aspirin.

This quartet of drugs, combined with diet, stopping smoking and exercise, could help millions of people stave off the heart attacks, strokes, heart failure and amputations due to poor circulation that cause so much premature death and disability among people with diabetes. They may also help prevent the other issues that can arise from the effect of diabetes on small blood vessels, including blindness, nerve pain or numbness, and kidney failure.

But striving for even lower A1C levels in all people with diabetes may not increase cardiovascular benefit enough to be worth the effort, Hayward notes - especially if patients receive newer drugs with unclear long-term safety, already take many other medications, or experience medication-related issues such as weight gain or frequent [low blood sugar](#) reactions.

"Once someone has his or her A1C around 8 percent, we need to individualize treatment to the patient, balancing his or her individual cardiovascular risk based on personal and family history, his or her age and life expectancy, smoking history and medication side effects," he says. "If you want to determine what the best A1C number is for you, and when should take another medication to lower it, you should decide with your doctor."

More about the study

The data for the new analysis came from 1,791 veterans who enrolled in the Veterans Affairs Diabetes Trial or VADT. For the new paper, the researchers dug through VA and Medicare records to find out how the veterans were doing more than five years after the study, called ended.

The finding of a statistically significant reduction in cardiovascular events—heart attack, stroke, new diagnosis of [heart failure](#) or gangrene-related amputation—among the intensive control group is similar to what

has been seen in other studies. Interestingly, the original VADT study did not find a significant cardiovascular benefit from tight glucose control after only 5 to 6 years of follow-up, and this finding only emerged after longer follow-up.

But the size of the benefit from good blood sugar control was smaller than what other studies have shown about the impact of keeping blood pressure and cholesterol under control in diabetes. That's why it's important to look at an individual's underlying [cardiovascular risk](#) and why blood pressure medications and statins are particularly important for preventing heart attacks and strokes in people with diabetes.

The researchers note that their results should not be used to justify an across-the-board A1C target of 7 for all people with diabetes. Rather, they say, any quality measure for doctors and hospitals that use A1C as a measure of [blood sugar control](#) should also take into account a patient's risk of cardiac events, of low [blood sugar](#) reactions, and what additional medications would be needed to lower A1C further.

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