

Ask Leyla: Can vitamin C raise blood sugar?



Q: I am a type 2 diabetic who takes 4,000 mg of vitamin C each day. I recently heard that vitamin C can raise your blood sugar.

Is this true?

A: Vitamin C is an important antioxidant for maintaining optimal health as well as managing infection and disease. It is hard to imagine such an important vitamin could cause adverse effects in anybody.

I believe the conundrum of vitamin C raising blood sugar has several sources. A study in 2004 (*Am J Clin Nutr* 2004;80:1194-200) concluded a high vitamin C intake from supplements (just 300 mg or more) is associated with an increased risk of death from cardiovascular disease (CVD) in older women with diabetes.

I have to take issue with this conclusion because it was extrapolated from the Iowa Women's Health Study, which was designed to examine diet and lifestyle factors and the incidence of cancer and mortality, not vitamin C and its relationship to blood sugar. Fortunately, the authors responsibly note that their study had several limitations. One being there was *only* one diet and health assessment at the beginning of the study and secondly, the subjects in the study were self-reported diabetics—researchers did not validate this important criteria.

Fueling the conundrum is foods containing vitamin C, such as citrus fruit and juices, can and will raise blood sugar—especially among diabetics. Fruit intake, *let alone juice*, has to be kept in check so as not to increase blood sugar. In this setting, high blood sugar is created by the fructose in fruit rather than any vitamin C contained in it.

At the other end of the spectrum are reports that vitamin C in doses of 1,000 mg per day decrease blood sugar and improve Hemoglobin A1c in diabetes, while doses of only 500 mg did not significantly reduce blood sugar or HgbA1c (*Indian J Med Res* 2007;125(5):471-4). Interestingly, the study on older women with diabetes I cited above concluded that supplement doses of 300 mg or higher of vitamin C were associated with CVD. But according to the present study, that amount of vitamin C likely had no impact on their health. We can deduce that high blood sugar is what accelerated their CVD, among other variables such as lifestyle measures.

There are some reports that high concentrations of vitamin C can impact the accuracy of CGMs (continuous glucose monitors). It is believed by the manufacturers that

vitamin C is reacting with the chemicals and enzymes used with CGMs.

Other studies have associated low blood levels of vitamin C with higher risks for diabetes (*Arch Inter Med* 2008;168(14):1493-99). That those with the highest vitamin C levels had the most significant reductions in CVD risk in both women with diabetes and those without.

I remember Dr. Atkins telling me that type 2 diabetes should be classified as a form of cardiovascular disease. This makes sense, because those with diabetes progress *70 percent faster* to CVD than those without diabetes. High blood sugar "glycates" proteins (read: ages and rusts) that cause damage to blood vessels and oxidize the LDL required to repair them.

If I were you, I would continue taking vitamin C.

To your health!

Leyla Muedin, MS, RD, CDN

Email your questions to Questions@DrHoffman.net