
Dakota Diabetes Coalition is proud to offer a regular column on diabetes and related concerns every other Friday.



Dr. Johnson is a family practice doctor in Grand Forks with a special interest in diabetes -- and a special knack for writing. As a member of the Dakota Diabetes Coalition, he has generously made himself available to answer questions through our listserv. If you have comments, or questions for Dr. Johnson to address in future columns, please contact gailhand@q.com

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<http://www.ndhealth.gov/diabetescoalition/>

Diabetes and Vitamins

Watch your fats, carbs, calories, and while you're at it know your ABCs—and D!

Recently, we covered the topic of low Vitamin D levels and the role that problem may play in to developing both type 2 diabetes and cardiovascular syndromes.

Many articles have appeared over the last few years regarding this topic. It appears that ensuring adequate Vitamin D for people with type 2 -- and those at risk of developing it -- is wise.

If people do not normally consume enough Vitamin D, they can supplement their diets. In our northern climate, sometimes called the "rickets belt," we can't always count on enough sunlight to meet daily Vitamin D needs. The sun's rays do not always permeate our parkas!

But there is no single vitamin deficiency linked to diabetes. Consider Vitamin C. Even though people always point to excess calories as the culprit, people may develop type 2 diabetes due to other nutritional factors. We will examine that further.

In the July 28, 2008 edition of "Annals of Internal Medicine," a possibly similar link between low Vitamin C levels and type 2 diabetes was reported. This data came from the large EPIC-Norfolk cancer study, with nearly 22,000 enrollees. The patients were originally recruited into the study in 1993, with follow-up over several years ending in 2005.

Initially, patients submitted detailed food records. They used the same questionnaire as the well-known Nurses Health Study, which has provided numerous pieces of chronic disease state information over the years. Serum Vitamin C levels were obtained as well, which is thought to be a good biomarker of fruit and vegetable intake, which, of course, is a central component to meal planning.

The results of this study revealed an inverse relationship between serum Vitamin C levels and the subsequent development of type 2 diabetes. Those patients in the **highest quintile of serum Vitamin C level were the least likely to develop type 2** diabetes, with a relative risk of 0.38. Those who recorded the highest fruit and vegetable intake on their questionnaires also had a lower relative risk, 0.78.

In short, this study demonstrated that lower diabetes risk is associated with high serum Vitamin C levels, and to a lesser degree, high intake of fruits and vegetables. So, yes, once again, Mom was right.

As time goes by, it is certainly conceivable that dietary management of type 2 diabetes and pre-diabetes syndromes will not only focus on lower overall caloric intake, carbohydrate control, and heart healthy lower fat recommendations, but specific nutrient guidelines as well.

Although there is no specific guideline for measuring Vitamin C levels in these patients, the current minimums suggesting 5 servings a day for fruit and vegetables seems sound. And, while you're at it, take a walk outside before the blizzards strike.

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[Vitamins C and D and Diabetes, Dr. Johnson's Column #30, Sept. 19, 2008](#)