

This is Dr. Daniel Weiss from Your Diabetes Endocrine Nutrition Group. My subject today is vitamin D and the risk of cancer.

First: what is Vitamin D and why is it important? As you can tell from its name vitamin D is a vitamin. This means it is a special molecule or chemical needed by the body to perform essential functions. For vitamin D these include:

- To control levels of calcium and phosphorus in the blood,
- To help maintain strong bones,
- To support the immune system and
- To assist the nerves and muscles to help in balance. By balance here, I mean balance as in being able to stand on one foot or being steady on your feet.

Now, Vitamin D has also long been thought to have effects to reduce risk of cancer. But up until recently, there was no **proof** about vitamin D having benefit in lowering the risk of cancer. The recent study I will describe is very important because most people in the United States do not get enough vitamin D. Even those people who take a multivitamin or drink vitamin D fortified milk are usually low in vitamin D so listen up! I think all

of us would like to know simple safe steps we can take to reduce our risk of cancer.

This study published in the American Journal of Clinical Nutrition in June 2007, involved 1180 women older than 55 years of age. These women had no previous history of cancer. They were randomly assigned, like the flip of a coin, to one of 3 treatments: calcium alone, calcium with vitamin D or placebo alone. Placebo is a look alike pill that is inactive. Participants in this study could not tell what they were taking, nor could those persons giving them the pills. This study was a so-called double-blind, randomized, placebo-controlled trial; this type of trial is the best way to tell whether a possible therapy works.

The study was primarily designed to test for the risk of fractures, that is, chances of breaking a bone over time. But the researchers also planned to check out whether the chance of cancers, of any type except skin cancer, was affected by treatment during the 4 years of this trial.

Most of the women, 86%, remained in the trial until the end. Those getting vitamin D received 1100 units of vitamin D3 per day. Keep in mind that most multivitamins have at most 400 units; and vitamin D in those multivitamins is usually provided in a less effective form, called vitamin D2.

In this study, Vitamin D levels (25 hydroxyvitamin) were measured in the blood of the women both before and after treatment.

After one year, the risk of cancers was clearly lower in those persons taking the vitamin D; in fact 77% lower than those in the placebo group. Levels of vitamin D rose to around 38 nanograms per ml in the group getting vitamin D. On the other hand, the level averaged 28 in the other groups.

A second important finding was that, the higher the vitamin D level with which the participant started the study, the so-called baseline level, the lower the risk of future cancer over the 4 years of the trial. This finding was seen regardless of treatment group, whether it was calcium, calcium with vitamin D or placebo.

So this study showed that, at least in women above the age of 55 years, the risk of cancers was dramatically reduced with a vitamin D3 supplement of 1100 units.

How might vitamin D reduce risk of cancer?

The answer to this is not known. But it is known that most cells of the body need vitamin D and over 200 human genes respond to vitamin D. These genes may affect cell growth, cell change and cell death.

Is there a danger of taking too much vitamin D?

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A supplement containing 1000 units of vitamin D is reasonable for most people. This pill along with a store brand, low cost, multivitamin (without minerals) should provide enough for most persons. Excessive doses of vitamin D (probably more than 10,000 units daily in adults) can cause Vitamin D toxicity resulting in medical problems.

But if your blood level of vitamin D has been measured and found to be low, you will likely need prescription strength vitamin D to get your levels up to normal. You should discuss these matters with your endocrinologist or physician nutrition specialist.

My goal in these pod casts is to bring you important new scientific findings about nutrition, diabetes and other medical issues. I want to remind you that scientific knowledge is always changing. What is known today may be seen from a different perspective or may be changed tomorrow. I will share with you my understanding of current research related to day to day decisions about your health.

Take care.

References:

Lappe JM et. al. American Journal of Clinical Nutrition 2007; 85:1586-91.

Holick M. New England Journal of Medicine 2007; 357: 266-81.