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Vitamins A and D

The Internet is both a blessing and a curse, especially when it comes to health information. It's a blessing because there's so much information, but it's a curse because there's really no truth filter. We take it for granted that someone behind the scenes is making sure there are facts to back up what's written in mainstream newspapers and magazines, but we're idiots if we put that same trust in everything we read online. People with farfetched beliefs and agendas write what they want, pepper it with research that proves their point while ignoring the rest, and then deliver it to the world. With just a little effort their website can look as good as those of well-established organizations, and that makes it more difficult for the typical reader to separate fact from fiction.

Such was the case with a recent newsletter sent by the Vitamin D Council. Within minutes, I received e-mails asking whether it was safe to take vitamin A because the newsletter said that vitamin A is toxic and will block the benefits of vitamin D. This message will examine the issue in detail.

The Newsletter

The newsletter title was "Vitamin D, Vitamin A, and Cancer: A Remarkable Paper" (1). The author was John Cannell, MD, the Executive Director of the Vitamin D Council. Dr. Cannell says that a recently published study in the *British Medical Journal* proves that vitamin A negates the benefit of vitamin D and can increase the risk of developing colorectal cancer (2).

Cannell then talks about other studies that seem to show the same negative effect of vitamin A on other forms of cancer including pancreatic, breast, and prostate cancer. He presents an argument that vitamin A, and especially vitamin A in cod liver oil, is hazardous to humans. His closing statement summarizes his attitude toward vitamin A very well: "If companies would stop selling cod liver oil and concentrated vitamin A supplements to a country whose problem is widespread subclinical vitamin A toxicity, I'd be a happier agitator." My question is whether there's really anything to be agitated about. Let's look at that "Remarkable Paper."

The Paper

The European Prospective Investigation into Cancer (EPIC) is one of the largest observational studies ever conducted with over 520,000 subjects from 23 different centers in 10 European countries. Think about collecting even one piece of data such as height. Boom—now you have 520,000 bits of data. Weight? Another 520,000. But there's strength in numbers when you want to try to tease out subtle effects. The researchers gathered nutritional information at the beginning of the study with a Food Frequency questionnaire and collected blood samples to analyze serum levels of vitamin D along with other variables. The researchers then collected data on cases of cancers reported over a period of years.

Just as Dr. Cannell suggests, there's a single sentence and a small table that talks about vitamin A ingestion and vitamin D levels. Researchers divided the serum vitamin D levels into thirds, then they looked at vitamin A intake, vitamin D levels, and the risk of developing colorectal cancer. My interpretation isn't exactly the same as his.

First, even in the group with the highest serum levels of vitamin D, the actual amount was still very low—somewhere around 30 ng/ml; new standards suggest it should be at least 60 ng/ml. In the third with the lowest serum levels of vitamin D, there was an overall increased risk of colorectal cancer with vitamin A supplementation. But the risk went down as vitamin A intake increased—from 23% greater risk for the lowest

vitamin A intake to 12% in the highest vitamin A intake. Simply put, the higher the vitamin A intake, the lower the risk of colorectal cancer.

Second, high vitamin A intake didn't cancel out benefits of vitamin D as Cannell suggests. When considering the group of subjects with the highest intake of A and the highest level of vitamin D in the blood, they had 6% less risk of developing colorectal cancer over four years.

But the real issue I have with his interpretation of the study is that he never talks about the rate of colorectal cancer in the study. How great is the risk? In an average follow-up of almost four years, there were 1,248 total cases of colorectal cancer out of 520,000 subjects. That means that the risk of developing colorectal cancer risk was 0.09% or less than one out of 1,000 people per year. That risk is so low that it renders the argument against vitamin A meaningless. The same is true for another study he cites on the risk of developing pancreatic cancer (3). The risk in that study was one out of 2,000 in a 12-year follow-up. Data on the same subjects showed that increased blood sugar, increased serum insulin, and insulin resistance also was related to an increase in pancreatic cancer (4). Which was more significant? No one can be sure because they weren't compared head to head.

The Bottom Line

When you begin an investigation with the end in mind, you can achieve that goal. If your goal was to make a case that a food, a vitamin, or even an artificial sweetener was bad, you can find the research to support that position and ignore any research that says otherwise. That doesn't mean it's a valid position, and such was the case with the Vitamin D Council newsletter. Based on the analysis of what the research papers actually say, there is no reason to be afraid of taking vitamin A. Not one of the studies actually looked at whether vitamin A supplementation diminished the benefits of vitamin D from either supplements or sun exposure.

On the other hand, many leading experts are in agreement that we have a sub-clinical deficiency in vitamin D in the United States; I covered that in my message of September 19, 2009. In short, what I recommend is that we increase our vitamin D intake to 2,000 IU per day and higher in the winter. But vitamin D is not a miracle vitamin nor can it treat diseases. We simply need enough of it so our body can do what it was designed to do: keep us healthy.

What are you prepared to do today?

Dr. Chet

References:

1. The Vitamin D Newsletter - February 2010
2. BMJ. 2010 Jan 21;340:b5500. doi: 10.1136/bmj.b5500
3. Cancer Res. 2006 Oct 15;66(20):10213-9
4. JAMA. 2005 Dec 14;294(22):2872-8.



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