



November 14, 2009 – Grand Rapids, MI

## Too Much

Recently a reader asked: “With the emphasis on more vitamin D, how much is too much? Not just vitamin D but all the fat-soluble vitamins.” The concern really isn’t about how much we get from foods—it’s more about supplements. Let’s take a look at each fat-soluble vitamin and see how much is too much.

### Defining the Tolerable Upper Intake Level

The Institutes of Medicine (IOM) is an independent agency responsible for setting the Dietary Reference Intake (DRI) for all vitamins and minerals. The DRI includes four measures:

- Estimated Average Requirement (EAR)
- Recommended Dietary Allowance (RDA)
- Adequate Intake (AI)
- Tolerable Upper Intake Level (UL)

For this message, I’m going to focus on the upper intake level or UL. It’s defined as the highest daily intake level of a nutrient that is likely to pose no risks of adverse health effects to almost all individuals in the general population. It’s not a recommended level of intake, nor is it a level that’s desirable to attain according to the IOM. It’s not necessarily dangerous to exceed the UL in the short-term, but regularly exceeding the UL has the potential to cause problems.

### Vitamin D

Vitamin D is the hot nutrient right now. I’ve talked a lot about sub-clinical deficiencies, so I won’t go into it again, but the UL for vitamin D is currently 2,000 IU per day. At best, it’s ultra-conservative, and the sub-committee from the IOM is examining it right now to establish new DRIs. Research shows that people taking 10,000 IU of vitamin D3 for over eight weeks showed no negative effects. It doesn’t become toxic but rather is stored for the times that we don’t get enough sun, which in Michigan is right now.

That raises the question: does chronic sun exposure cause vitamin D to increase to toxic levels? No, because the heat of the sun is thought to degrade vitamin D as it’s formed. Vitamin D toxicity is very unlikely. Still, 2,000 IU per day seems to be appropriate at this time unless advised to take more by a physician.

### Vitamin A

The UL for vitamin A is 10,000 IU per day. The key thing to remember is that this applies only to actual vitamin A or retinol—it doesn’t apply to beta-carotene, which has no UL.

What’s the big deal? Read carefully the label of the supplement you take. It may say that a specific percentage of the vitamin A in the supplement is actual retinol and the rest is beta-carotene. If your body needs vitamin A, it will convert the beta-carotene to vitamin A; if it doesn’t, the beta-carotene will act as an antioxidant. But the only amount that counts toward the UL in the supplement is the actual retinol, not the beta-carotene.

Vitamin A as retinol can build up to toxic levels and affect liver function; some of the values on your liver function test may become elevated. It will happen for some people at different levels of vitamin A intake than for others. If it does, back off on your vitamin A intake or convert to an all-natural beta-carotene.

## Vitamin E

Vitamin E is one of the real champion antioxidants—it can be very beneficial for your immune system. The UL is set at 1,500 IU per day for natural vitamin E (d-alpha-tocopherol) or 1,100 IU for synthetic vitamin E (dl-alpha-tocopherol). Those levels are well above the RDA of 30 IU per day. Most supplements contain 100 to 400 IU vitamin E.

The primary concern with vitamin E is its interactions with medications, especially blood thinners such as Coumadin, and its effects during chemotherapy. The logic makes sense, but there are no studies to support either concern—they're based on test-tube studies or theoretical models. There's really no reason to take the UL for vitamin E long-term because vitamin E is fat-soluble, but there's also no reason to fear taking vitamin E. A daily supplement of 200 to 400 IU of natural vitamin E should be safe and give you the immune benefits you seek.

## Vitamin K

Vitamin K is the vitamin that helps your blood coagulate. There's no UL established because researchers have never found a negative effect when taken in large amounts. However, if you're on a blood thinner, your physician will want you to eliminate vitamin K from your diet and your supplements. In talking with many physicians over the years, what they really want is for you to be consistent in your K intake. That means if you like a spinach salad, eat it every day. Likewise, if your supplement contains vitamin K, you must take it regularly. Your physician can adapt the medication to your diet and supplement intake, but your intake must be consistent.

## The Bottom Line

I hope that this clarifies how much of the fat-soluble vitamins may be too much. It's not an exact science because some of us process vitamins differently than others do, but I hope it eases some of your concerns about overdosing on vitamins when you eat a healthy diet and also take supplements regularly. For those of you who don't eat a healthy diet, just take the supplements—they're the least of your problems.

My philosophy about supplementation is simple: know why you're taking a supplement in the amounts you're taking them or don't take them at all. If you want to know whether you need specific vitamins or minerals, check out the The Vitamin & Mineral Hand-Scored Assessment available at [drchet.com](http://drchet.com). With just 31 questions in a spreadsheet format, it's a quick and easy way to determine whether you have any nutritional deficiencies. Once again I'm offering a special price on the two-pack so you and a friend or family member can try it for the introductory offer of \$2.89, or as always you can order 10 for \$10—both prices include shipping. The special will be available for only a limited time, so make sure you order yours today. Seriously, can you think of an easier way to improve your health?

What are you prepared to do today?

**Dr. Chet**

Reference: <http://dietary-supplements.info.nih.gov/factsheets>

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