Friday Favorites Do Vitamin D Supplements Help Prevent Diabetes, Cancer Mortality, and Overall Morta Transcript

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Vitamin D and the VITAL Study

"Do Vitamin D Supplements Help Prevent Diabetes, Cancer Mortality, and Overall Mortality?" The VITAL study was a randomized trial to test whether vitamin D supplementation could prevent cardiovascular disease or cancer.

It also tested fish oil and convincingly showed that the use of omega-3s is not effective in preventing cardiovascular disease, but normal-weight study participants randomized to vitamin D did end up having a lower incidence of cancer.

Over a period of five years, a 24 percent lower risk of getting cancer. But overweight or obese individuals did not. The dose used in the study, 2,000 units a day, may not have led to similar results in overweight and obese participants due to the higher vitamin D requirements of such individuals.

Cancer Risk in Normal-Weight Participants

2,000 units a day may be enough to get normal weight people up to target, but obese adults may need at least two to three times more, a dose closer to 3,000 to 6,000 units a day to reach the same blood levels.

A similar result was found in the largest ever vitamin D diabetes trial, where pre-diabetics randomized to take 4,000 units a day reduced their risk of slipping into full-blown diabetes by 29 percent, but it seemed to work only if they were not obese.

That's why, in the future perhaps, vitamin D clinical trials should be based on achieved vitamin D concentrations in the blood, rather than one-size-fits-all dosing.

Obesity, Vitamin D Dosing, and Blood Levels

For example, if you look at vitamin D concentrations achieved in breast cancer trials, regardless of which group the subjects were randomized to, there was a whopping 82 percent lower incidence rate of breast cancer for women with vitamin D concentrations greater than or equal to 60 ng/ml versus less than 20, and the higher their levels were, the lower their breast cancer risk seemed to fall.

But if you just lump everyone together, it's no longer a randomized controlled trial, and we get back to the issue of confounding, like maybe the women only had higher levels of the sunshine vitamin because they were outside jogging every day, and we know that physical activity alone may decrease breast cancer risk.

Vitamin D and Diabetes Prevention

The finding of benefit in certain subgroups of study individuals, like less cancer among those who are not overweight, or less diabetes for those who are not obese, are examples of secondary analyses, where you go back after the trial's over to see whether it may have worked in some subset, even if the intervention had flopped overall.

This isn't uncommon, but such results must be interpreted cautiously, because you can slice and dice practically any data set and come up with some sort of spurious fluke if you try hard enough.

But if you put all of the randomized controlled trials on vitamin D supplementation for the prevention of type 2 diabetes together, daily supplementation with 1,000 or more units of vitamin D does indeed reduce the risk of diabetes among pre-diabetics.

In the 3 large trials that were specifically designed and conducted for the prevention of diabetes, vitamin D supplementation reduced the risk of developing diabetes by about 10 percent overall.

What about putting all the randomized controlled vitamin D studies together for cancer prevention?

Why Subgroup Findings Need Caution

Those randomized to take vitamin D supplements were 13 percent less likely to die from cancer over the subsequent 3 to 10 years. Now vitamin D supplementation wasn't able to reduce the risk of getting cancer, but it was shown to significantly reduce the risk of dying from cancer.

I mean, it's a tiny benefit, basically taking these people's chances of dying from cancer over a span of a few years from around 24 in 1,000 to, like, 21 in 1,000, but it's a beneficial effect on lowering cancer mortality nonetheless, based on a comprehensive analysis of 10 randomized controlled trials involving more than 80,000 participants.

Note that a 13 percent reduction in cancer mortality doesn't necessarily mean you live any longer.

Pooled Trial Results for Diabetes and Cancer Mortality

Since vitamin D supplements don't help heart disease, killer number one, you would only expect your lifespan to significantly benefit if your heart disease risk is really low.

Only if you're protected from heart disease would killer number two take on a more prominent role, or if there was some other reason you were at particularly high cancer risk.

For those getting inadequate sunshine, I recommend 2,000 international units a day of vitamin D3. Daily dosing is important since taking monthly or yearly mega-doses doesn't seem to work for reducing cancer mortality.

And D3 may be preferable.

Daily Dosing and D3 Formulation Advantages

Historically, it's been suggested there's no difference in terms of effectiveness between the two types you can buy, vitamins D2 and D3, but it turns out that vitamin D3 may work better, as it can increase D levels by about 75 percent, compared to the same dose of D2, only increasing levels by about a third.

So it looks like D3 is about twice as effective at raising blood levels. Does it matter if you get powder-filled capsules, oil-based preparations, or water-based preparations of vitamin D?

Nope, they all appear to raise your D levels the same.