

>> Okay, continuing on with Vitamin A. Again, it's very important for the immune system. They have a lot of antioxidant effects, and I was leaving off the last part of the podcast saying that it can help prevent breast cancers, bladder, lung, skin cancers. Again, if you have enough over your lifetime, right? These diseases are cumulative. For men, Lycopene, which is a type of carotenoid found in tomato products, like tomato sauce and ketchup, this particular antioxidant, or carotenoid, helps prevent prostate cancer. Again, it helps prevent. You can't do everything wrong and have some Vitamin A and help you don't cancer. So that's why the cancer, you know, to help prevent cancer, you want to get up to 10 servings of fruits and vegetables a day. The more the better, right? The more prevention, the more protection. Sources, I don't test you on sources unless I specifically tell you that. But with the exception for Vitamin A, you do need to know that carotenoids are in vegetables and fruit, and Vitamin A is in the animal products, like butter and fish, okay? You can always Google and find sources. By the way, on your [inaudible] health assignment, if you are deficient, all the vitamins and minerals you're deficient on, you need to list a couple of food sources so you can get those sources from these notes. Most Americans meet the [inaudible] for Vitamin A, but we do see a deficiency in kids who don't eat enough vegetables, older adults, who, say, have problems chewing, maybe dental problems, they don't eat vegetables a lot. Alcoholics don't typically eat a lot of vegetables or healthy diet. If you have liver disease, it can affect the ways that we store it. And if you don't digest and absorb your fat well, like I mentioned earlier about being on some type of medication. Here's your sources. Again, your book goes through the sources. But as you can see, sweet potatoes, spinach, mangoes, any of these bright-colored fruits and vegetables have a lot of Vitamin A, particularly the carotenoids. Vitamin D, real important vitamin. It is also considered a hormone. I think that was a test question as well. It's considered a hormone because it affects so many cells and genes actually in our body. Your skin converts cholesterol to Vitamin D through the Sun, and I'll show you how that works in a little bit. You can get Vitamin D from Sun exposure. You only need five or ten minutes a day, a little bit more if you're dark-skinned. But even with that, I mean, living in sunny California, a great majority of Americans are deficient. The only way to know if you're getting enough Vitamin D is to get a blood test. And we'll go over that in a little bit. This is how we convert, when you have cholesterol under your skin, and the Sun hits it through different processes in the liver and kidneys, you convert the cholesterol under your skin into Vitamin D. Now, why do we need Vitamin D? Yes, it helps you absorb calcium. And again, definitely know that it does help you absorb calcium. So if you try to prevent osteoporosis, you do need Vitamin D to help absorb it. But it decreases your risk of cancer. There's like 12 different cancers that they've identified so far that decrease, it will decrease your risk if you have enough Vitamin D. And again, the only way to know that is to get a blood test. It should be part of your yearly blood test. But Vitamin D is real important for your immune system. It strengthens your immune system, thereby, decreasing your risk of cancer. It's also been shown to be very effective at preventing colds and flus. It's been shown to be as effective, if not more, than

a flu shot, without the side effects. Again, though, you have to take enough of it on a daily basis and have your blood tested to see if you're taking enough. It's also been shown to help reduce your risk of getting Alzheimer's and various other diseases like heart disease and Multiple sclerosis and a whole lot more. Here, your blood levels, what research shows is the optimal level is 50 to 70 in your blood. If it's less than 50, you are deficient. And if you try to stay healthy, you want to be between 50 and 70. Again, it's a simple blood test. If you have cancer or heart disease, then you want between 70 and 100. You don't want to take more than 100. Most people, to get, from what I've read, the research shows to get into this 50 to 70 range, most people need to take at least 2, 3, 4, even 5,000 international units a day of Vitamin D. Again, I can't make a general statement because it depends on what your current level is. But if your level is down to 20 or 30, yes, you're probably going to need about 4 to 5,000 international units a day. And remember, you need to take this with fat, because it is fat-soluble. But if you've taken Vitamin D supplements, you must take Vitamin K, and I'll talk about why in a little bit. So again, it helps strengthen your immune system. Please know this for the quiz. It helps prevent Rickets. Rickets we don't see that much anymore, but Rickets was a problem back in the 1950s and 60s and 70s in breast-fed infants who didn't get enough Sun. They were Vitamin D-deficient. Because breast milk is far superior to formula, but it does not contain much, if any, Vitamin D. And all breast-fed infants must get a Vitamin D supplement. And as you can see here, they sell a liquid supplement for infants. So if you're breastfeeding, because your breast milk does not have Vitamin D, they have to get it, or, for one thing, their immune system can be impaired. And again, Vitamin D helps prevent not just colds and flus, but it helps prevent diabetes, Type 1 and 2, Multiple sclerosis, so many different cancers. So you really want your kids getting a good head start to life with Vitamin D. Hopefully your pediatrician has told you to take this. But back years ago, breastfed infants who were not given Vitamin D were getting Rickets. Rickets is a bone-softening disease. So when they start—they weren't absorbing their calcium, when they started walking, their legs bowed out, and they had like bowleggedness, and it looked like this. And, you know, it just stays with them for life. Now most pediatricians are telling mothers to give the Vitamin D, so we don't really see this much. It's a very inexpensive vitamin. Make sure it's a D3, because that's the most absorbable form. By the way, milk has very little Vitamin D, and it's added to the milk, and it's Vitamin D2 they add, which is the synthetic form, which is not as absorbable by your body. But we don't get it much in food. Egg yolks do have some. Again, they fortify milk. Fish has some. But we normally don't eat fish every day. So most Americans are deficient. And particularly if you're using sunblock, I'm not saying don't use it, but I'm not saying to use it either. But sunblock, if you're wearing sunblock, you will not absorb the rays to convert Vitamin D, the cholesterol in Vitamin D. If you've had gastric bypass surgery, you are pretty much not absorbing most fat-soluble vitamins, as well as fat. So you definitely would need to supplement. Again, here are your sources. You can look at that. Moving on to Vitamin E, Vitamin E is a very potent antioxidant, which, as you

know, helps prevent diseases. If you're deficient, your cell membranes can break down. And if you recall from Chapter 6, that's how toxins and other chemicals can get in to the cell and damage your DNA. It is helpful for your immune system functioning. It can help prevent heart disease and cancer because it's an antioxidant. Again, you can look at sources, but nuts and seeds and eggs, the egg yolk are great sources of Vitamin E. When you fry vegetable oils, which have Vitamin E, it destroys the Vitamin E, and, of course, it's unhealthy to fry in vegetable oil anyway, because it can make toxic compounds, which increase your risk for heart disease and cancer. We went over that before. Again, most of us are pretty efficient in Vitamin E. And if you smoke, that destroys the Vitamin E as well. If you're on a low-fat diet or you're not absorbing enough fat due to fat—due to medication, or if you've had a gastric bypass, you would be deficient. Now, please know this slide for the quiz. Too much Vitamin E will interfere with Vitamin K's role. Vitamin K's main role, as you'll see in a minute, is to help clot your blood, meaning if you cut yourself, Vitamin K makes substances that help clot your blood so you don't bleed out, you don't hemorrhage. But Vitamin E is a natural blood thinner. It thins your blood, like the fish oil supplements we've talked about in Chapter 5. Too much fish oil supplements or too much Vitamin E as a supplement can interfere with Vitamin K's role, and basically will thin your blood too much. So you want to be careful if you're taking Vitamin E, how much you're taking, and definitely you do not take it if you're on an anticoagulant medication, which is a blood thinner. Most of you probably are not, but just so some of you know. So just like with fish oils are natural blood thinners, so is Vitamin E. So you just want to be careful how much you're taking. Now, Vitamin K, I said, you have to take this if you're taking Vitamin D, and I'll show you why. We make a very small amount in our intestines. But most of us are deficient. Why do we need Vitamin K? There's two kinds, K1 and K2. One type of Vitamin K1 we need to clot your blood, which I just talked about, and that is why all newborn infants born in the United States, you can see here, are given a Vitamin K injection before they leave the hospital, because their body is not up to the intestines. The bacteria there is not built up enough to make Vitamin K. And they can fall and bleed to death. So they're all given some Vitamin K so that you activate their blood clotting factors. But also Vitamin K, the K2 type, helps absorb your calcium. So in other words, the Vitamin D helps you absorb the calcium to begin with into your—from your digestive system into your blood. But you don't want the calcium staying in your blood. You want it in your bones. And the problem is, if you're taking—a lot of people take a lot of calcium without the Vitamin K. And when you take so much calcium, particularly the Vitamin D, you're absorbing a lot of calcium, but then it can tend to calcify your arteries, leading to, you know, plaque in your arteries. It can also calcify in other tissues. So you must take the Vitamin K so it gets out of your blood and puts it in the bones where you need it. I know a lot of people, I've been taking calcium for years, and they say, well, my blood, my bone scan shows I'm still low in calcium and low bone density. I've been taking calcium for years. But if they don't take the Vitamin K2, they will not be getting the blood, the calcium out of the blood and into the

bones. So definitely if you're taking D, you really want to be taking Vitamin K. This is the—here's the red blood cells, and here is the blood clotting factors that Vitamin K helps you make. Keep in mind that bacteria in your intestines do tend to make some of the K1, but if you take antibiotics, the antibiotics destroy the good and the bad bacteria, and that includes some of the bacteria that make Vitamin K. So after a course of antibiotics, you might be a little deficient. And once again, it is a fat-soluble vitamin. And so if you're taking a flat-blocking drug, or you've had gastric bypass, you could be deficient. So here are your sources. Again, I won't test you on that, but just for your own self, egg yolks, once again, very, very healthy. They have a lot of the vitamins and minerals we're talking about. And kale and all of the greens have a lot, quite a bit of K. Okay, so let's start with the water-soluble vitamins. Once again, if you take these, let's say a multivitamin, you take too much of the water-soluble vitamins, basically you're going to urinate any excess. We don't store these at all. But because we don't store them, we can become deficient quite quickly. Like I mentioned earlier, we do tend to lose a lot by the way we cook our vegetables. So using a steam basket will help. Don't let the water touch the vegetable. Just put a little bit at the bottom of the pan. You can buy these at Target or Walmart for a couple bucks. You can stir-fry, or steaming is the best way to cook vegetables lightly, let them still have a crunch to them. So the more you cook, again, you destroy the vitamins and nutrients. Now, the B vitamins, there's many B vitamins. We're going to go through them all. But please know this from the quiz. They all function as coenzymes. A coenzyme helps enzymes in your body, be it many hundreds of enzymes in your body, enzymes that help convert brain chemicals. We have enzymes to help you digest your food. We have all kinds of enzymes that are needed. And to function, they must have these B vitamins. So they help enzymes work. They also, mostly B vitamins help us get energy, or ATP from our food. So here is an example. Here is your enzyme. Here is the coenzyme B vitamin. And together, now the enzyme can work. If you're deficient in the B vitamin, the enzyme won't work.