Zinc For Healthy Hormones and Immune Function

Transcript

Dr. Ritamarie: Hello and welcome. The topic of today is zinc. Before we begin, I just want to make sure that you're aware that what I'm sharing with you today is not meant as a diagnosis of any condition, and it's not meant as a treatment of disease. It's meant as education from my knowledge to you, and it's not supposed to replace the care of a medical practitioner. If you do have any illnesses or you're under the care of a medical practitioner, on any medications, of course, make sure that anything you start or change in your health program is okay with this treatment that you're already on.

Zinc is an essential nutrient for us. It's one of the minerals. It's one of the minerals that we need in larger amounts versus trace minerals. We have the major minerals like things like magnesium and calcium and zinc and iron, whereas the trace minerals are those that we require in very small amounts. In general, the recommended dose or a supplement that you would have of a particular minerals is stated in milligram dose, that's in mg, that's usually considered one of the major minerals, and the trace minerals are usually what we require in microgram doses, and that's mcg. That's a good way to tell them apart.

Zinc is one of the major minerals. It's important for approximately a hundred different enzymatic reactions in the body. What I mean by that is enzymes are what make the reactions in your body go. They, we'll call it, catalyze the reaction. If you didn't enzymes, then you wouldn't be able to take bio-chemicals and transfer them to other chemicals, and that's important in the process of repair and building and hormone creation and immune system function and neurotransmitter function and a whole host of other things.

We're going to be going through today why zinc is important, where you can find zinc in your diet, what some of the things that we know about factors, that interfere with the zinc absorption and the zinc utilization in the body, and we're going to talk about signs and symptoms so that you can kind of go through a checklist.

It's a really important nutrient, and, as I said, it's a cofactor for various enzymes in the body.

Let me just take an aside and explain to you, what does that mean, a cofactor? Vitamins and minerals, really that's what their role is in the body. They help to make those enzymatic processes go faster. You have a process which takes point A to point B, let's just say that takes the food form fat that you get, an omega-3 fat that you get in your flax seeds and chia seeds and hemp seeds and walnuts, and it converts it to a kind of a fat [inaudible 00:03:13] and that gets converted to a fat called EPA, eicosapentaenoic acid.

You don't need to remember these things, but you will see these in various and sundry articles that you might see online or in the health food store on packages, this is a high omega-3, high in EPA and DHA. EPA and DHA are really important for our brain chemistry, and we'll have a whole other talk to go into all of the details about that. DHA is also very important for insulin.

Well, zinc is an important cofactor, one of many, actually, that processes that makes the enzyme called delta-6 desaturase go faster. What does that mean? Well, that means that the more of the fat that you take in as flax seed or chia seed or hemp seed, that gets converted to EPA and DHA, the more effective your fatty acid balance is going to be. That's a very slow enzyme, zinc is one of the catalysts, one of the things that make it go faster.

What happens if you're deficient, in zinc or any other nutrient, for that matter? It means that that reaction, that enzymatic reaction that is critical for life function, goes slower, and that explains in zinc's case, as a cofactor, why some of the things that you see as signs and symptoms of zinc deficiency are related to slowing down of function.

For example, a few of the functions that zinc is responsibility for is the repair of skin, and so when you end up, and nails as well, so when you end up with a zinc deficiency, you may have slow wound healing, you may have brittle or marked-up nails that don't grow efficiently. Now, I'm going to give you some things that zinc is involved with. It doesn't mean that zinc is the only nutrient involved. Of course, to have good skin and hair and nails, you have to have good protein stores, and there are a number of other minerals that go into that as well.

Zinc is one of those nutrients that's hard to get for a number of reasons, and I'll show you what those are. One of the reasons is that in order to pull and extract the zinc from the food, you need to have strong stomach acids.

Your stomach acid is what's produced in your stomach once you start eating. Now, there's acid in your stomach at all times, but the level of acid increases when a meal comes in, in particular a meal that is high in protein. Your stomach acid is super important for you to digest your protein. It's also super important for you to be able to extract the mineral from the carrier molecules that they are attached to in your food sources and for that matter in your supplement sources.

Here is [inaudible 00:06:25] where we have what we call a catch-22, and that means that in order to have good zinc status, you need to have good stomach acid, because you need to be able to extract the zinc from the food. I'll tell you a couple of ways you can bypass that supplementally with particular types of supplements, but we'll get there in a little while. The catch-22 comes in because in order to have good stomach acid, zinc is required to make that. It's a cofactor for an enzyme that's involved in the production of stomach acid. You've got this situation where if you have a zinc deficiency you can't absorb zinc. You're like, "Okay, what do I do? You're going to tell me all these foods and supplements that contain zinc, how do I handle it?"

Well, the way you handle it is particular forms of zinc that are already ionized and broken down into small particles so that when you take the zinc you take them in a liquid form. You take it in a liquid form, if you can tolerate the taste, which you should be able to if you're zinc deficient, we'll get to that in a bit, I'll discuss it. But if you can tolerate the taste, you swish it in your mouth for a while, so that the receptors and the blood vessels underneath your tongue can absorb that zinc directly into the bloodstream because it's in a form that the bloodstream can accept. It's already ionized.

The other way that the zinc gets in when you take ionized liquid zinc is right through mucus membranes. If you're taking it on an empty stomach, not with other foods ... It's okay to take it with other minerals or other supplements, but not with other foods because it gets smooshed in and then it has to go through the digestive tract. What happens is the mucus membrane that lines, somewhat the esophagus, but it passes through the esophagus pretty darn quick, but once it gets into the stomach, those mucus membranes in there can allow the ionized zinc to pass through and go directly into the bloodstream.

If you've heard me speak before about taking minerals, you know that I very frequently recommend, if you can get them, get liquid forms of the minerals, because those help you to get the minerals in your system and bypass this catch-22 situation of low zinc leads to low zinc, right? That's the stuff you want to be able to avoid.

What else with zinc? What else is zinc? Well, zinc is involved in taste. People who don't have good zinc status, they will be having difficulty with taste. They may say that the food just doesn't taste as good or the food tastes weird. We actually use that property of zinc to do some testing, and it's a test that you can do at home and I'll share that with you in a little while.

Let's talk about some of the things that zinc will do for you. I have a list of the areas, and I just am listing the most important, the top ones, there are certainly other functions that zinc's involved with. It's been calculated it's somewhere in the neighborhood of 90 different enzymes that it's involved with.

Let's start with the RDA for zinc. What does RDA mean? Well, the recommended daily allowance. We know that those RDAs are not always the amount that you need for optimal health, but it's certainly the amount that you need to prevent overt deficiency. The RDA for zinc is approximately 15 to 20 milligrams per day, depending on your age, your sex, and where you are in your lifestyle in terms of are you pre-menopausal, post-menopausal, pregnant, nursing. Your zinc requirements can go up for pregnant and nursing women.

A very good source for you to go to learn about not only the RDAs of the various groups but the sources of zinc, would be WH Foods. You've all heard me talk about that before if you've been on calls with me before. It's a pretty amazing website. It's basically a huge database of all of the different nutrients and all of the foods that they go to and all of the foods that they're a part of, and it helps you to choose foods and avoid foods that interfere with the particular nutrients. So WH Foods, W as in whole, H as in hole, the other "hole," foods.com.

All right, so the RDA is 5 to 15 to 20. Why is it important and what body functions? Well, as we talked about, zinc is important for your tongue for taste buds. It is important for your digestion, very important for stomach acid. It's also very important for the making of enzymes by your pancreas, those digestive enzymes that you need to break down your food. It's also important, as we said, in the skin and the hair and the nails, it helps those cells to reproduce effectively and repair.

It's very important in the sex organs. Extremely important in the endocrine system in general, meaning the glandular system, the system that produces hormones in your body, but very important in the sex glands. It's been found that decreased zinc can lead to infertility, and it has to do with both male and female infertility. Zinc is important for the production of testosterone and other male hormones like DHEA. It is also important for protecting the prostate against cancer and abnormal growth.

It's important for, in females, it's important for the proper maturation of an egg. It's important for the utilization, the proper utilization, and balance between estrogen and progesterone and the various co-, not cofactors, but metabolic by-products of estrogen metabolism.

There have been studies that have shown that increasing zinc reduces the risk of prostate cancer, and it along with some other fatty acids and herbs are considered a functional medicine in a holistic approach to prostate cancer. But why wait until you get prostate cancer? Better off making sure that you are zinc adequate, and we'll talk about ways to make sure that you're zinc adequate in a little bit.

What else? Growth of eggs, I talked about that. Because of the effects on progesterone and estrogen and the balance between estrogen and progesterone and the balance between the estrogen metabolites, zinc is important in breast cancer prevention. If you are deficient in zinc, you are at higher risk of breast cancer. It doesn't necessarily have to be just females, while it's most common in females, a small percentage of men can get breast cancer when they have too much of the female hormones in their body.

Zinc is important for some of those enzymes that convert the male hormones into female hormones, and it's part of the brake that should be going on that prevents too much conversion from male hormones to female hormones, and that goes for males and females. You don't want females to have too much estrogen. I'm sure you've read lots of things in the news and such that excess estrogen contributes to cancers like breast cancer.

Another thing that people don't realize about zinc is that it's an antioxidant and is very important for inflammation. Studies on cardiovascular disease have found that when people have deficiencies of zinc, they have higher levels of something called C-reactive protein, and C-reactive protein is a very potent inflammatory agent that is said to and studies have proven to damage the blood vessel lining. It also leads to inflammation in other parts, and is very commonly elevated in auto-immune disease, which is an inflammatory process where your body is attacking itself and creating inflammation.

Zinc is an important part of the antioxidant systems in your body, and the anti-inflammatory system. It's not something that's well-known for its anti-inflammatory capabilities because it's not a potent anti-inflammatory on its own.

When you have raging fires of inflammation like joint pain and gastritis and all, zinc alone is not necessarily what you would be looking at, but you would be looking at combining with say some other antioxidants and herbs like ginger and turmeric.

Our good friend insulin. You've heard me talk about insulin a lot, because insulin's important for blood sugar maintenance. Insulin is the little carrier that helps to transport sugar from your bloodstream, glucose from your bloodstream, into the cells, and without proper insulin and without proper receptivity of the cells to insulin, then the blood sugars get too high, which increases your risk of all sorts of things. Like peripheral neuropathy, numbness and tingling in your feet. Retinopathy, meaning damage to your retina in your eye, which can lead to blindness. Thickening of your cell membranes and in particular in the endothelium of the blood vessels, which is the lining of the blood vessel.

It's important to insulin in a couple of ways. Zinc, number one, helps with the binding and the production of insulin in the pancreas. Number two, it helps the receptors on each cell to be more sensitive to insulin. If you've been in the B4 Be Gone program with me, you know that we talk a lot about things like magnesium and chromium. Those are the primary nutrient deficiencies that lead to insulin resistance or lack of sensitivity in the cells to insulin, but zinc is way up there with it, and as you know that that's on my list of ancillary and secondary nutrients doesn't mean it's not important, and it may be the most important one for you, but overall chromium and magnesium tend to be more commonly associated with insulin resistance.

Zinc deficiency is also a problem in insulin resistance. Remember, what are some of the signs and symptoms that you may not like that say that you might have insulin resistance? Belly fat, right? Brain fog. Fatigue and burnout, right? Increased blood pressure. Increased heart rate. All sorts of things like that. Those are not fun, and it could be related to zinc deficiency. It's a very common deficiency, zinc is.

I'm going to talk about a few more of the functions, and then we'll get into specific deficiency symptoms, and then how you prevent the deficiency.

As an antioxidant, I mentioned that it was an antioxidant, zinc can help counteract the effect of excess iron. For many years, people were overdosing on iron because they were anemic, and their doctor said, oh, just take these monster pills with iron in them ... People were taking like 60 to 90 milligrams of iron, when the RDA is somewhere in the neighborhood of 20, 25.

What happened was they discovered that iron, it's not a matter of, oh yeah, the more iron the better, the more energy you're going to have, no.

All of these nutrients follow what's called the Goldilocks principle, especially in minerals. Vitamins you can get into higher doses and megadoses, but with minerals we generally don't go into megadoses because of the Goldilocks principle. Too little, you've got a series of signs and symptoms. Too much, you've got a series of signs and symptoms. You need to get the amount just right, but just right for who? Just right for you. It's a matter of figuring out, based on signs and symptoms and some testing that I'll teach you about in a little while, how much zinc your really need.

Interesting to note that the amount, that the safe range of minerals, is much tighter and narrower, more narrow, than the safe range for vitamins. For example, with vitamin C the RDA is set at 100 milligrams a day. People have been known to take up into the hundreds of grams a day, which is a thousandfold increase. You can have somebody who needs 500 milligrams of vitamin C and somebody else who needs 100,000 milligrams. You see that there's a wide range, and it has a lot to do with various systems in the body. We've talked a lot about vitamin C, but other nutrients, other vitamins, are like that too. B vitamins, you often see a 60 milligram dose of B vitamins, B complex, but the RDAs for those are somewhere in the neighborhood of under 10, generally speaking, so that's a big difference.

With minerals we don't see that. If calcium, the recommended daily allowance of calcium is around 1,000, 500 to 1,000 depending on age and size and sex and the way you are in your cycle, again, but the high end, you never see a calcium supplement with more than 1,000, and it's never recommended to take more than 1,000 to 1,200 milligrams of calcium, and we'll do another whole talk on calcium because there's so much controversy that surrounds that, so we're just saying the general rule of thumb.

Like zinc, you'll see zinc capsules in the neighborhood of 3 to 30 milligrams, maybe up to 50, but generally speaking the highest dose I've ever prescribed to anybody was 30 milligrams of zinc two times a day, and it was because they had really severe overt deficiency, and that was just for a short period of time. I just want to warn you, be careful with overdosing with minerals, thinking, "Oh, I must need this, I'm going to just take a massive amount." That's why I like the liquids and the [inaudible 00:21:23] being able to take it in the smaller amounts because they're ionized.

The other thing that zinc has been shown to do is to help with detoxifying heavy metals in the brain, helping to draw out those heavy metals from the brain, which is really important if you've had exposure, especially if you've had mercury fillings in your teeth or if you've worked in an industry where you're exposed to heavy metals. There's a lot of ways that you can be contaminated. Lead pipes, for example. All kinds of things. Copper pipe, copper fittings. There's all sorts of ways that you can be contaminated with heavy metals or with minerals, when they get in excess they act like heavy metals. Zinc is an important chelating substance. It means it can attach itself and draw those heavy metals out towards the brain stem in the brain, so that's one thing.

Another thing that's good news, especially if you're a parent or a teacher, is that zinc deficiency can lead to ADD. It can lead to imbalances to neurotransmitters in the brain. It can impair memory and focus. If you're got a kid that you're dealing that's your own, your niece, your nephew, your neighbor's kid, your kid at school, you're a teacher, then looking at the nutrients. Zinc is not the only nutrient in ADD and attention and memory, but it is an important one and it's one that's very commonly deficient. Sometimes these kids can be helped by simple changes to their diet, getting them off of the junk, getting them a little bit of B vitamins and probiotics and zinc, and you've got a new kid on your kids. Keep that in mind if you're a teacher or parent or a concerned aunt or neighbor.

The other thing, because of the way that zinc helps to balance the fatty acids in the brain and helps with neurotransmitter balance, in particular dopamine, zinc deficiency contributes to depression. Oftentimes, people go to the doctor with depression, and what happens is they're handed a prescription for Zoloft or Prozac or one of the designer neurotransmitter reuptake inhibitors, and you don't really get good results because you're not addressing the root of the problem. Zinc deficiency can be very, very important when it comes to proper brain function.

That's the major functions. There's others as well. Those are the major functions.

I want to talk to you about [inaudible 00:23:52] zinc absorption and utilization in your body.

One is the mineral copper. Zinc and copper are both required. They're nutrients that we don't make in our body, obviously, we have to get them from outside, but they have to be in the proper ratio. If you take too much copper or you're exposed to too much copper in the environment, it disrupts your [inaudible 00:24:19] and throws things off.

Vice versa, the same thing, if you take too much zinc or you're supplementing with zinc and not supplementing with copper, you can throw the ratio off in the other direction and get copper deficiency symptoms. What I would say is, if you are taking a copper supplement or a multi-vitamin that has copper in it, make sure that you're also taking enough zinc. That's one of the things.

Another thing that can be problematic with zinc and create problems and create deficiencies is various [inaudible 00:24:51] and the most notorious would be acid blockers. If you're having reflux and the doctor prescribes you to get either an over-the-counter or prescription antacid, that will interfere with your zinc absorption. It will also interfere with your protein absorption. It will also interfere with your other mineral absorption.

The other thing, like TUMS, that are taken for antacid, years ago it was discovered, well, there's a lot of calcium in a TUMS, so people started recommended, of course it was probably prompted by the drug companies, but it was recommended to take TUMS as a calcium supplement. Well, the ironic thing is that TUMS is an antacid, and in order to absorb calcium and zinc and your other minerals, you need to have good solid stomach acid. The irony is that most people that are prescribed these acid blockers actually are making too little stomach acid, which can have similar symptoms to too much and it takes an astute practitioner to differentiate those.

The other common interference factor with zinc is alcohol. If you drink alcohol in excess, and everybody's definition of in excess is a little bit different. My personal in excess is if you drink it more than a couple of times a year, it's in excess, because of all of the areas that it is problematic. Now, the little bit of alcohol that might be in a tincture that you might be taking for an herbal tincture, it's very little, it's not a big deal. We're talking sitting down and having a glass of whiskey or a couple of glasses of wine and that sort of thing, and that can interfere with your zinc absorption. It also messes up your stomach acid and your brain and your liver, so [inaudible 00:26:42] candida, so if you want reasons not to drink alcohol, I can give you a lot.

The other thing that's really super important is so many women are on birth control pills or perimenopausal women are on hormone replacement therapy, and those excess estrogens in those products can interfere with the utilization and the absorption of zinc.

Finally, there's this one that most people do not want to hear, but a food interference factor are grain. Grains are high in something called phytic acid.

Phytic acid binds zinc and other minerals, and so you're not, even though zinc is high in things like your beans and your grains, there's not as much in your beans, there's not as much phytic acid, but the grains for sure, you're going to have a decreased absorption of zinc. While those foods supply decent amounts of zinc, they're also binding it [inaudible 00:27:37] not that great for it.

I'm not saying that you shouldn't eat grains. Some grains are different, like sprouted quinoa, for example, is a lot different than whole-wheat bread or white bread. Keep in mind that if you are zinc deficient and you're eating a lot of grains, you may want to look at cutting back on it.

Foods that contain zinc. I don't like to hear the list of foods that are highest in zinc because they're foods I don't eat. Meat, seafoods, oysters, dairy, highest doses. But you can get good sources of zinc in your greens, your green leafy vegetables are very high in zinc, and they vary from one to another. Again, go to whfoods.com, and you can look up which ones are the highest in zinc and which ones don't have quite as much.

The lentils and legumes do have fair amounts of zinc, and if you sprout them first or [inaudible 00:28:32] before you cook them, if you cook them, or just eat them sprouted as in the case of you can do mung beans and adzuki beans and lentil, sprouted [inaudible 00:28:41] then you're going to get decent amounts of zinc. Black beans are particularly high.

Let's talk about deficiencies of zinc and how they come about and how you can test yourself. Some of the studies that I read long ago and a piece really stuck in my mind. They did an experiment with rats, and they took a mama rat and they deliberately deprived her of zinc throughout her pregnancy, and they measured the signs of zinc deficiency and you've heard all of the signs of zinc deficiency that we've talked about. When her baby was born, it was zinc deficient. No surprise, right? That's not rocket science.

However, they took that baby rat, and they fed those rats, that generation of rats, they fed them a zinc sufficient diet, and they made sure that they had enough zinc and that there were no markers of zinc deficiency present in any of these animals. They had babies, and guess what? Their babies were born zinc deficient. That was a surprise, like, okay, so the zinc deficiency was not circumvented throughout that pregnancy. Then they, that generation of rat babies grew up, and they were fed a zinc sufficient diet their whole life, and no signs or no overt signs of zinc deficiency, and sure enough their babies were born with zinc deficiency.

It took four generations of replenishing before the babies were born zinc, okay with zinc. What that says is, your zinc status has a lot to do with your grandma and your mama's zinc status. If your mom was smoking cigarettes and drinking alcohol while she was pregnant with you, or she was otherwise zinc deficient, eating her white bread and lots of grains and not getting high zinc foods, you were born zinc deficient, and the way that you need to maintain your zinc status, it may not be enough to just eat the foods. You may need to supplement that a lot. Again, we'll talk more about [inaudible 00:30:51] and what my favorite supplements are in just a bit.

It's an interesting study that shows that we are passed on not just the genes of our parents, but the environmental factors. If you want to have healthy babies or if you have children who are getting into that reproductive age, caution them, share with them, the importance of it. We know that if you [inaudible 00:31:17] by what you eat, what you breath, how you feel, how you think, and what your stress level is like. It's really fascinating stuff.

Let's talk about testing for zinc deficiency. You can't just take your blood and see how much zinc is in your blood, because it's not a functional test, it doesn't really tell you how much zinc there is. There are tests where you can test the white blood cells, the leukocytes, and there's a type of test for cells which actually goes deep into those. It's a very expensive test that only tests for a bunch of different things, and it's around $600, so it's not a test that everybody's going to run out and do right away.

Are there other functional tests for zinc? Well, in addition to monitoring symptoms and signs, which you'll have a chart for you to do your little own checklist and get a score, there's another way, and it's the zinc taste test. It's sometimes called the zinc tally, it's sometimes called the zinc assay. In any case, it's the zinc taste test. What you're doing is taking a liquid solution of zinc sulfate and swishing it in your mouth for up to 30 seconds.

If you put this in your mouth, and it immediately tastes awful, you are welcome to spit it out. No problem. It means your zinc status is good. If you swish it around in your mouth and it just pretty much tastes like water the whole time, you are very zinc deficient. If you swish it in your mouth and after a few seconds, ten seconds or so, five seconds, ten seconds, you start to notice a tiny little taste and it's slightly metallic, and you notice this, then it says that you're zinc deficient, but not quite as zinc deficient as the person who doesn't taste it at all.

The beauty is you can actually test the efficacy of your supplementation, effectiveness of your supplementation, whether you're on the right dose, by having this taste tester around and testing yourself on a regular basis. Maybe every two to three weeks, you test. When I first start people on the zinc, I'll have them test probably after two to three weeks. Then after that, we can go on a scheduled test that's more or less somewhere in that range, maybe even once a month. But basically have them do that and supplement their zinc and then test.

If you start taking zinc and after three weeks you're not starting to taste it a little bit, then that suggests that you're not taking enough and you can up your dose. If you continue to taste it and suddenly, to do the taste test, and suddenly you say, "Wow, I taste the zinc." Somebody, a couple of people said that the other day, and are like, "I'm starting to taste the zinc, wow, this is cool," that means that you're starting to replenish. If you just barely taste it, you're going to keep doing. But if you taste it and it's really gross when you put it in your mouth, it means you have enough.

What I want to caution you about, it means you have enough today. It doesn't mean you stop taking zinc and you're great for the rest of your life. This is where the fun comes in, because this is where you can determine the maintenance dose of zinc. You tasted it, it tastes awful. My recommendation is usually, stay off of it for a week, taste it again in a week. If you taste it again in a week and you barely taste it, it means that once a week is a little bit too infrequently for you to be supplementing. Then I'll have somebody, say, okay, take it every other day, and then see how [inaudible 00:34:58] at the end of the week. If that's okay, then you go to every third day, every fourth day, every fifth day.

Some people just need to take it once a week and probably because there mom was zinc deficient, right? They're just not getting enough from food. Could be also they don't have good stomach acid, it could be that they have the other interfering factors in there. There are a number of other medications that you wanted to look up, zinc and medication, so if you're on any medications and you're not sure what the downside of that is, you can look it up. You can definitely look it up.

That's how you test your zinc status, and I'm a big fan of doing it that way. As I said before, my favorite supplements for zinc are liquid ionized form. One is Trace Minerals Research, and that's one that I had been taking and recommending, until my SHINE Conference and one of my speakers, who's also one of my clients, is a chemical engineer, and she was talking about the hazards of various chemicals that are used as preservatives.

She just ran on and on about how sodium benzoate and potassium benzoate are not good preservatives to take.

They're thought of to be innocuous, and they can be innocuous unless they combine with vitamin C, and then they form benzene, and benzene's a highly toxic chemical. If you already have some of these products, or you have a zinc that has sodium benzoate or potassium benzoate from Trace Minerals Research, make sure that you take it completely empty stomach, that you're not putting it into a stomach that already has C in it, and you're not putting it out. The best is to avoid it altogether and get one that doesn't.

[inaudible 00:36:47] is another like ionized, very small particles, easy to absorb, colloidal minerals, and then there's some other kind of minerals. I'm not sure about those, I haven't done much research. The concern I have is when you look at the doses, they're all like these minuscule doses, and they claim it's because they're well-absorbed.

I'd rather go with something that has a lot of science backing it, and I know that ionized minerals do. It's the best way to get them. It's the best way to get them. If you want to take them, you can take them all together, you put them in a little cup with some water in there, and then you drink them down, easy way to start your day. The thing is, minerals get absorbed best when you do add a little bit of vitamin C to them.

That's another reason for not getting the Trace Minerals ones that have the sodium benzoate, and I also found out that the BodyBio ones which I'm using as tasters because they have a really cool taste test kit, I don't generally use them as supplementation, but they do have, again, one of them has sodium benzoate and one of them has potassium benzoate, so I'm just going to be more cautious, and I always recommend people do put a little bit of vitamin C or a little bit of lemon juice or something that has ascorbic acid in it that will help you get those minerals absorbed better, so all the more reason to stick with the ones that are pure, so it was Good State and you can get them on Amazon.

Other forms, people ask me about pills. You can take capsules. I totally don't recommend tablets because the binders and the casing agents and the lubricant they put on interfere with absorption, so why do that? If you do a capsule, you still have to rely on your body for breaking down the cellulose capsule, and then those nutrients then require stomach acid in order to break them apart and get them in the system, so it goes through more of the digestive process, versus when you take liquid minerals and you take them on an empty stomach, they get absorbed right there in your mouth, esophagus, and stomach itself.

Very little of it actually passes down through the rest of your system, so you get it in you very quickly, so that's my recommendation.

Other forms of zinc that have been shown to be effective have been zinc citrates and zinc picolinate. When people need really super high doses of zinc, for whatever reason, like they're not responding, and there are also situations in the hormonal labs that I look at where you do need higher doses, sometimes I'll say, well, just take it, take zinc picolinate, and take this higher dose for a while, but still take the liquid at the same time and see if that helps. Sometimes it does, sometimes it doesn't. People just don't want to take so much of the liquid.

That's all getting into very specific clinical uses of it. For you, I would say, look to see, because there is a sign that I have, "Zinc deficiency, how do I know?" Well, do the zinc taste test, look at your signs and symptoms, see if there's some of those that you are [inaudible 00:39:41] about, look at the interference factors, the various medications, especially acid blockers, copper levels, do you have copper pipes in your house, how much cereal grain are you eating, how much alcohol are you drinking, and are you on birth control pills or other forms of hormonal replacement?

If you have prostate enlargement, you're probably deficient in zinc. If you're a male and you're starting to get what my son calls moobs, male boobs, that's a sign that your male [inaudible 00:40:10] hormones are out of balance and that suggests it's a sign that you're probably zinc deficient. If you have wounds that don't heal, that you would cut and then wait for six months for these things to go away or feel over, that's a sign of deficiency. If you've had any kind of surgery and you were taking a long to repair, that's a sign to zinc deficiency. [inaudible 00:40:33] zinc deficiency. [inaudible 00:40:35] zinc is important for the turnover of small intestinal cells.

As you can see, there's just a lot of areas, and the risks of zinc deficiency, you know, the increased risk of cancer like I said before because of [inaudible 00:40:49] proliferative and it affects the [inaudible 00:40:53] protein and the anti-inflammatories and it's an antioxidant, so risk of cancer is high, especially those hormonally-related cancers because they're so intimately connected. Vision problems can be related to a zinc deficiency because it's so important to the retinas, a very high concentration is in the retina, [inaudible 00:41:10] have enough.

You've got a lot to go on. It's a really important nutrient. It's very, very commonly deficient. I would say, of all of the people that I test with the zinc palate test, zinc taste test, I would say 90% or more turn up to be zinc deficient.

When I first started testing it, my signs were very deficient. I couldn't taste it at all. After a few months of supplementation with the liquid I ended up getting to the point where it just tastes gross, so I backed off and just started taking it less frequently.

Now I take it every now and then, and I test it fairly regularly, I'll see if I need it, and especially if I'm in an environment where my immune system might be compromised, there's a lot of people around me that are sick, that's the kind of thing that I will make sure that I test my zinc [inaudible 00:42:00] if I need it. The other thing you might not be aware of is that you can take it in a lozenge form and suck it. When the zinc gets released in your mouth and down into your throat is very soothing to sore throats and the very beginning stages of a cold or a flu when you combine it with vitamin C and make sure you [inaudible 00:42:21] etc.

That's all I have about zinc. It's a fascinating nutrient. We go into way more of the chemistry when I talk to practitioners in my nutritional endocrinology training programs. But that's it for zinc, so I'll open up the line for questions if anybody has.

The very first question is from Layla, and it's a good question. She says that, "In Dr. Neal Barnard's book from February 2013, Power Foods for the Brain, he discusses the increased risk for Alzheimer's when using supplemental zinc. He discussed vitamins, zinc, and a couple of other minerals [inaudible 00:42:57] I'm worried about [inaudible 00:42:59] understand the importance of zinc levels to help correct my adrenal and thyroid issues, not to mention plant omega-3 conversion. Please, what are your thoughts about my dilemma? Thank you."

I would say, my thoughts on this, Layla, is, I will be honest, first of all, if too much, so excess zinc and excess minerals and metals, can be found in plaques and they can have a negative effect, so it's finding the right dose for you. If you use my testing and supplementation description that I gave you today, which is test your zinc levels and test them on regular basis, if it starts to go too high, you back off to the point where you're sufficient but you don't go too high, so that's the deal.

Tonn says, "Are the white spots on fingernails related to zinc deficiency?"

Yes, the white spots can be. It can be related to other things as well. B13 deficiency. It can be that you're a carpenter and you bang your nails a lot with hammers, you bang your nails a lot and they get damaged. That's a sign.

If you also have dry skin and the wounds that don't heal and you don't digest your food real well and so there's other signs, then it could be very well be correlated. Whenever we're looking at particular signs, there's not just one sign that's a hallmark for that deficiency. We're looking at clues, and we're looking at putting it all together.

Tonn also says her vitamin B complex contains folate, is that okay?

You want to make sure, I would call them. Usually, when it says folate, it can be anything. What you want to do is take a B complex that contains methylfolate. 5-methyltetrahydrofolic acid. Another way that it might be listed is quatrefolate, which is a very highly absorbable form of methylfolate. If it just says folate, I'm a little concerned, but if it says, folic acid, stop it, because folic acid itself, the synthetic, is not good. If it says folate, I would be making some calls to the company and finding out what form of folate is that, and if they say, "Okay, it's 5-methyltetrahydrofolic acid," or "It's methylfolate," then [inaudible 00:45:13]

"Should zinc, chromium, and B vitamins be taken on an empty stomach or with food?"

I find that they get best absorbed and they have almost an immediate effect if you take them in liquid form and you take it on an empty stomach. That's my opinion, that's my experience. Everybody's a little bit differently. If you find out that it works better for you, that you get nauseous when you take stuff on an empty stomach, then by all means take a small amount of food with it, but it definitely, for the reasons I explained today, the zinc, the chromium, the ionic minerals and also liquid B vitamins are going to be best absorbed when you take it on an empty stomach.

Susie says she's consumed [inaudible 00:45:52] protein every day for several years. Any other recommendations to detox blood cadmium and tungsten?

Well, you've got your zinc. There's something called modified citrus pectin, MCP, and there's a Dr. Eliaz, ELIAZ, that has a really good write-up of how to do that and how to remove that. If you're concerned, you can certainly get a heavy metal test, and that can be a hair analysis or it can be a stool or a urine analysis, to see if you've got high levels of those in there.

Problem with them is if you test just your blood, then you may not be seeing high levels of those metals, because they get sequestered, they get stored away in our fatty tissue. Generally speaking, when you want to see if the metals are high, like say stored in your brain, or your bones, then you would do what's called a challenge test.

You would actually take a chelating agent, and there's some, DMSA is a common one, you take it orally, and then you collect your urine and test it after that, and there's a certain amount of levels that are considered normal and abnormal.

The other thing I would recommend is ... Let's see ... The issue with lead is it very commonly stores in the bones, it's a common source of osteoporosis and people don't know about it. That's basically, and liver support, things like [inaudible 00:47:20] and if you go to Dr. Eliaz's site, he describes that in great detail all of the different supporting nutrients that you can use to go through the metal detox, and I would certainly recommend that you do that.

There's also things you can do with suppositories, EDTA suppositories. That's a little stronger, and unless you've actually had a test done and shown that you have very high levels, I would do the modified citrus pectin. The thing about modified citrus pectin is it's not going to suck it out of stores as quickly as EDTA or DMSA, so people have ... Your brains are sensitive. You don't want suddenly to be taking a chelating agent that's dumping high levels of heavy metals into your bloodstream and then affecting your brain, like they're sequestered away for a reason. Those are the things I would recommend.

Nancy wants to know, "Where do you order mineral test kits?"

If you have, want to get the whole mineral test kit, which has all of them, those are from BodyBio, but Emerson Ecologics has it if you want to order the full kit. The other, if you want to just get the zinc, there's a couple of brands that have the specific ones that are titrated for testing. One would be Premier Research Labs. Another would be Metagenics. [inaudible 00:48:33] has one, and Biotics Research has one. Those all have those taste testers that you can purchase.

Speaker 2: Designs for Health was another one I found.

Dr. Ritamarie: Okay. They have ionic, they have testers, or they have the ionic minerals?

Speaker 2: They call it Zinc Challenge.

Dr. Ritamarie: Zinc Challenge, okay.

Speaker 2: It's a zinc sulfate monohydrate.

Dr. Ritamarie: Okay, yeah, and it's typically zinc sulfate that you want to use in the tasters.

Speaker 2: "About two weeks ago, I started taking Chlorella, it is 520 grams. I was taking one pill a day. Could this be making me sick? I stopped taking it a couple days ago, I'm sensitive to taking new vitamins, should I take it one pill every two days?"

Dr. Ritamarie: I would recommend that you go off of it completely, go off of it for a week, and then start it up again. If you start it up again and then you have this feeling of being sick, then I would say that the Chlorella, which is a very strong chelating agent, is actually pulling toxins out of storage more than rapidly than your body can actually eliminate them. Now that being sick is just your body's way of eliminating it, so I would say slow down on it and find the rate for you. First I would go off of it for a whole week, and then try adding it back and seeing what's the right amount for you, if that's the case.

Speaker 2: She also asks, "Can you an overall overview if one wants to do a water fast for five years, or a green juice/smoothie fast to reset things. Is a green smoothie as good as a green juice fast? During the fast do I take my DHA mag chrome vitamins?"

Dr. Ritamarie: Yeah, we did talk, I think I remember answering this question, and I think it's a little off-topic for today, and would take a little bit longer to answer, but we'll find out, if that is still the case, we could do it on the next Q&A call. I think that fasting, it's very complex. You just don't want to do it on your own and unless you really know what you're doing, and with the limited amount of time we have today I don't have enough time to get into it.

Speaker 2: Right. Then she asks a couple of other questions, I do believe you may have asked ... When I say sick, I mean the common cold, she just goes on to that ...

Dr. Ritamarie: Yeah, yeah, yeah, I did answer that, but I just thought it was worth mentioning it because of the zinc connection.

Speaker 2: Right, and that's why I thought it might be relevant, too.

Dr. Ritamarie: Yeah, absolutely.

Speaker 2: Carol asks, "Your recommendation of the best bio-available supplement, I fall asleep quickly," let's say she's three-part, also, so what's your, for bio-available iron?

Dr. Ritamarie: Well, again, ionized, and this Good State has an iron, too, so ionized is good. I know that, again, we're bringing up Garden of Life, but Garden of Life Vitamin Code has a good raw iron. It's called raw iron, and it's got a lot of cofactors.

That's a really well-utilized and effective one. I've given it to people and tested their stuff a month later.

However, I really like to go with food. There's an herb called yellow dock, and yellow dock has good levels of iron in it. Yellow dock helps your body to produce more stomach acid, to help absorb the food better, and it also has other minerals. Overall, I think you can get away with doing it with the herb yellow dock. Again, I had a person who did it for six weeks, and she went back and retested her iron and it had doubled in six weeks. She didn't take any other supplemental iron other than the yellow dock.

For iron, yellow dock would be my top choice. That's the herb, you can get it as a tincture, you can get it as a powdered herb, you can make it into tea, it's great in smoothies, etc.

Then also they can ask me how much. On the tincture, I would follow the directions on the bottle, and it also depends on how deficient you are. If you're very, very deficient, and you retest your iron in six weeks and it's not going up, then I would say you want to take more. Depending on how deficient you are. I would say, as far as the powdered stuff, if you're adding it to smoothies, start with a teaspoon, and you might be able to go up to two or three.

Speaker 2: There's a couple of other questions from people that aren't on the topic. Do you want to keep it to the topic?

Dr. Ritamarie: No, let's keep to the topic because the Q&A call is more to the topic. I think the iron was somewhat related, right, because it's similar, it's a mineral, etc, but I think we should keep to the topic. That's what these are intended for.

Speaker 2: Okay. Well, okay, we're probably out of questions, then, because most of these under ... Here's one, "Many vitamins have mag stearate, I think it's a flow agent, I've heard that this can be bad for you. Is this a legitimate concern?"

Dr. Ritamarie: Well, the mag stearate, here's the way I look at it. If there's a supplement, if there's a particular blend that I absolutely really want to be using, and it's the only form it has, and I check with the company, it's only a tiny bit, then I will use it. One of the tests I will do is I'll put one of them in a glass of water and add some apple cider vinegar or just put it in apple cider vinegar, and if it doesn't dissolve, then it's likely that the mag stearate is interfering with it.

Mag stearate is controversial. We know for sure that it slows down the absorption of the nutrients because it coats all of the particles with this stearic acid, which is a fat.

Generally from vegetable source, although it can be from animal source, but most of them that are out there are from vegetable sources. So it slows down the absorption. If you already have impaired fat digestion, your taking a supplement that's coated in fat is just a little bit counter-intuitive. That's where I'm coming from there.

Now, there are some folks, like the guys at Premier Research Labs, who will just claim that it's a poison, and I haven't really seen a lot of evidence that it's severely dangerous. I asked my client who was the speaker at SHINE and talked to us about sodium benzoate, and she didn't really have anything, said she'd never come across anything dangerous about it, but she does avoid it just because of the absorption issue.

Speaker 2: Great, and I think that most of the other questions, I can ask you a couple that might be ...

Dr. Ritamarie: Well, there's a few more here on the thing, so why don't we get these first, and then I think we'll be out of time by then.

Speaker 2: Great, okay.

Dr. Ritamarie: Susan wanted me to repeat the brand for modified citrus pectin, and that would be ... I don't know the brand, per se, but if you go to Dr. ELIAZ, do a Google search on Dr. ELIAZ, and when you go there, look for, he has a protocol, a PDF document that you can download that has a protocol for heavy metal detox.

Rhona said we did answer, so yeah, we did answer her question.

Nancy says that Hippocrates sells EIDON ionic zinc, which is pure but expensive, and Hippocrates is known for it's purity in supplements. Can't seem to find it on Amazon right now, but the eidon [inaudible 00:55:44] is much cheaper on Amazon than Hippocrates. That's the thing about Amazon. They do tend to have better prices than most places, and if you're on Prime you get the free shipping, so I hate to take business away from Hippocrates because they do great work, but, I mean, we do have to watch out for own pocketbook sometimes.

That's it. I think we're good. I think that the [crosstalk 00:56:10] call will be in two weeks.

Speaker 2: Yeah [inaudible 00:56:10] question, a similar question.

Dr. Ritamarie: Are there any other questions that seem like really like would be important to answer right away?

Speaker 2: No, I see "Will dandelion tea or capsules stimulate acid production before a meal?" I think that would be relevant.

Dr. Ritamarie: Yeah. Yeah, that's one of the bitters that is considered to take as an acid [inaudible 00:56:30] I see a hand up, I see Maya has her hand up, so Maya, go ahead.

Maya: Hi. I just want to question, seeing that you had mentioned it was important to keep the balance between zinc and copper and other minerals, is it better to take that good, say they have like a multi-mineral mix, like a trace mineral mix, or is it better to just take the isolated zinc unless you test for all of your minerals?

Dr. Ritamarie: I would say, let me look at it, I want to look at the amounts, because oftentimes the multiples won't give you the amount that you really are deficient. Sometimes it works well.

Maya: Yeah, they don't, they just give you an amount amalgamated, not each individual component.

Dr. Ritamarie: Oh, it doesn't say. Yeah. I would say, if you have a known zinc deficiency, like in your case where insulin resistance is an issue, I would say that you're probably better off doing the zinc, and the kind of rule of thumb is generally for every say 25 to 30 milligrams of zinc you take, you should take 1.5 of copper.

Maya: Okay. Okay.

Dr. Ritamarie: You can order the liquid copper as well.

Speaker 2: Okay.

Maya: Okay, thank you very much.

Dr. Ritamarie: You're welcome. Thank you all for being here. Great questions, great conversation, and we'll talk to you again real soon. Bye, bye now.