Micronutrients - Vitamins: Vitamin C

Transcript

Hello and welcome to our Micronutrients presentation on Vitamin C. Vitamin C is one of those nutrients that we all hear about, know about, we hear a lot about. Hopefully, I'll be able to share some things that are different, new, different perspectives. If not, it will serve as a good review. It's really important that you're aware of your vitamin C status on a client and also you're aware of a lot of the amazing therapeutic value that vitamin C can have. We want to be able to seek out the deficiency signs. You don't have to worry too much about excess signs except they'll just start pooping a lot. You want to really know the value of vitamin C because it can be magical if used properly and the right forms.

Again, this is not medical advice. This is not intended to replace a one-on-one relationship with a qualified healthcare professional. Whenever you share information with your clients about vitamins and food and supplements, it's always from the spirit of education and helping to dig deep into what imbalances are creating their health challenges. They should always work with their healthcare professional, if they have one and if they are on any medication, for sure, with whoever prescribed that.

This is a quote from Dr. Thomas Levy in the book, *Curing the Incurable: Vitamin C, Infectious Diseases, and Toxins*. I absolutely love that book. It's loaded with information. It's probably 4 or 500 pages long. If you really want to dig deep and get into the vitamin C story and all the various studies and various uses that it's been done therapeutically, that book is a jam. He's a lawyer and a medical doctor. I just absolutely love it, and the link to that is at the end of this presentation.

Let's talk about vitamin C. What it does, we know that it's a water-soluble vitamin so that you can't overdose on it really, although people can overdose, and if you take too much, it'll cause diarrhea. Some people do get aggravated guts from taking too much, if they take the wrong type. If they take the ascorbic acid as opposed to a buffer to ascorbic acid, they can definitely get into trouble. There are some situations where vitamin C can happen in excess, and we'll talk about that later in the presentation. It's more specifically related to folks who have oxalate sensitivities, or tendancies to kidney stones.

Vitamin C is what's called the reducing agent. It's a potent reducing agent, and it readily donates electrons to recipient molecules.

These molecules have become unstable because they've lost in electron. They're often known as free radicals. They're scavenging around; vitamin C will quench those. The vitamin C donates its electrons, almost like it's the sacrificing itself so that you don't have to sacrifice your healthy tissues. If these unstable molecules went scavenging around your body, they're going to look for those electrons and can take them from your body tissue, which could cause damage to that. It's really important to have enough vitamin C, especially in people who have a lot of things that cause free radical damage.

There's 2 main actions related to what's called the oxidation reduction potential. It act as an antioxidant which protects proteins, lipids, carbohydrates, nucleic acids, all your body's stuff; protects it from free radical damage. It also helps you recycle other important antioxidants. For example, vitamin E. Vitamin E is also an antioxidant. Vitamin C by giving away some of its electrons to the vitamin E protects the vitamin E and regenerates it. When something is in its reduced form, a fully reduced form, it's got its full component, compendium of electrons. When it's in its oxidized form, it's missing some and it's unstable. You can go back and forth between reduced and oxidized, reduced and oxidized. The beauty of vitamin C is it helps regenerate other anti-oxidants and makes them renewable. It's harder to get higher levels of vitamin E than it is C because it's a fat soluble, we can't readily just dump a whole lot of it into the system, so C is a really great regenerator of vitamin E.

It's also a co-factor and we talked about this in other presentations where the certain metabolic reactions go from one chemical to the next in a pathway. There's co-factors that help that to happen. We talked about that in terms of vitamin B6 where we needed it to be able to transfer or convert the tryptophan into serotonin or tyrosine into dopamine. That was important to have B6 while vitamin C is a co-factor in a lot of different reactions, in particular, the synthesis of collagen. Collagen is a structural protein that makes up your ligaments, your joints, your bones, your gut lining. It's also important in the synthesis of amino acid called carnitine.

Carnitine is an important shuttle to get fat and burn fat and get it shuttled in and out of mitochondria. It's also an important co-factor in the development of catecholamines. One particular in catecholamine is adrenaline. You've heard me speak a lot about how the adrenals use up more vitamin C than any place else in the body. Part of that use is in the production of catecholamines, a.k.a adrenaline, noradrenaline, and norepinephrine is the other word for it. Those are some of the things that vitamin C does, and we're going to go taking a lot close look at what vitamin C does.

Let's look at some of the main functions of vitamin C. Those main functions are related to those main kinds of reactions that it does - oxidation, redox, reaction, as an antioxidant, as a co-factor and in synthesizing various chemicals and approves the immune system. We can use vitamin C very, very effectively in treating all kinds of acute infections. In fact, there's a lot of doctors that are using IV vitamin C for amazing recoveries from acute infections.

I did a lot of research on vitamin C as an IV for infection when my brother-in-law was in a hospital bout three and a half years ago. He had had lung cancer; had it removed but then developed a horrendous infection. His lung was just completely filled, and they were dosing him with antibiotics and dosing him with antibiotics.

I just started digging to see if I can convinced them to give him vitamin C intravenously to help with these infections. I found a tremendous body of literature that talked about stuff and showed pictures of lungs that were completely clouded over with infection that within three days were almost clear. It's really great in lung infection, for skin infections, for hepatitis, for all sorts of infections in the body. Vitamin c improves the immune function.

It also acts as antihistamine. Histamines are those chemicals that get activated when the body proceeds an allergen or an antigen come in, it produces the histamines to try to destroy that. Vitamin C is a potent to antihistamine along with some of the bioflavonoids that come along with vitamin C and most of the foods. Quercetin being one of the most potent antihistamine bioflavanoids. It also participates in making adrenaline which we mentioned before. Increases uptake of iron. A lot of times you hear if you're going to eat iron foods, make sure that you take vitamin C with it or make sure you take vitamin C with your iron. It helps increase the uptake. It helps to heal the connective tissue and that's related to its effect on collagen synthesis. It acts as an antioxidant which protects the body.

When you're doing a lot of exercise, you're under a lot of oxidative stress because your body's using the kreb cycle over and over again to produce energy. The kreb cycle naturally produces a lot of oxidation by-products. Vitamin C is a great antioxidant for that. It aids in wound healing, that's one of the things. When I had a surgery on my arm and I had to have a bone repaired, moved around, repaired, I said, "Would you give me IV vitamin C while I'm here?" They said, "No, we don't have it." That's crazy because I had an IV anyway because of the surgery, wouldn't it have been nice to increase my wound healing by adding vitamin C. That goes not just for surgical wounds, but any kind of wounds, sprains and strains and burns and things like that. Vitamin C tremendous for that.

It's also tremendous for mild infections. I always say if I'm on the verge of getting a cold, I will just load up on vitamin C and within like four to six hours, symptoms are completely gone. Cardiovascular health, very important for the integrity of the blood vessel linings, very important for cardiovascular strength and protection. As an antioxidant, to protect the blood vessel linings from the oxidative stress and the free radical damage that can happen.

Vitamin C has been used a lot in cancer prevention and also in cancer reversal. Dr. Tom Lodi out in Arizona, whom I've interviewed on my radio show a number of times, he uses IV vitamin C alternating with IV selenium, sodium selenite, and he has tremendous results with cancer reduction. Finally, the transported fat into cells for ATP and it's helped with carnitine.

It helps to create the carnitine to help move the fat into the cells so that the ATPT process, the kreb cycle, can act on that. Vitamin C is important for energy as well. This is just touching a tip of the ice berg of some of the stuff that vitamin C can do. I want you to understand a little bit about how it's structured and how it works.

This is the vitamin C structure. You can see that it is a ring. It has a double bond there at the bottom, but otherwise, it's just carbons and oxygens and hydrogens. Then it's got some oxygens and hydrogens off the end. If you compare it to glucose or a fructose molecules, you'll see they're very similar. In some animal species, humans are not included, I think humans and guinea pigs are the only animals that can't produce their own vitamin C. They can actually have the enzymes to help take the glucose and turn it into vitamin C. We don't have that so we have to be taking in the vitamin C. Somehow, genetically, we lost that.

Let's look at some therapeutic uses of IV vitamin C. Vitamin C infection. It can be useful for bacterial or viral, hepatitis, Lyme and other bacterial infections have all been studied and shown good evidence for therapeutic uses of high dose IV vitamin C. The dose I'd looked at when I was looking for my brother-in-law with a lung infection, that was somewhere in the neighborhood of 26 or six grams every four hours or something, or a drip. It's at least 25 grams over the course of 24 hours or sometimes more, way more than you can comfortably get through the gut. Sometimes it's up to 100.

It's been useful for arthritis. Why? Because it's anti-inflammatory and it helps to build collagen tissues so why wouldn't it be helpful for arthritis. Great for injury repair. Great for post-surgical repair and also for cancer. When you can do this with the high doses that you can get with IV, you bypass the gut discomfort that comes from super high doses in the gut, plus it gets absorbs right in the bloodstream where it's needed. You can do IV vitamin C. Some people do IM vitamin C, intramuscular injections, but the amount that you can give intramuscular is much, much smaller.

Let's talk about vitamin C and oxalates. We hear a lot about this. Oxalates are chemicals; they can create salts and can be very caustic to the body, and can get deposited in joints, can get crystallized and form kidney stones. Vitamin C can be converted to oxalates. If you look at the picture here, you've got ascorbate at the, you got the molecule there. Then it gets converted to dehydroascorbic acid, to three diketogulonic acid, to L-threose and then oxalic acid. Oxalic acid is one of the oxalates. The oxalates can be really damaging to the system. There's a lot of folks who discovered they have oxalate sensitivity, and they didn't even know it because they didn't have the typical symptoms like forming kidney stones, but they have symptoms in other parts of their body. It's been found that a lot of autistic kids have oxalate sensitivity.

What does that mean? We'll go into a lot more on oxalates in our food religions topic. We'll talk about the different types of low oxalate diet; what's the importance and all that.

I want you to have enough about it to know when you hear it that there's something to this. Oxalates are found in a lot of vegetables and nuts and seeds. Spinach and rhubarb and beet greens tend to have the highest levels of oxalates of all the food kingdom. Those oxalates will bind to calcium and can be excreted through the gut as long as they don't exceed the body's ability to do that, as long as there's enough calcium citrate, in particular, to bind it and take it out. What happens is that when people have leaky guts, then they tend to allow these oxalates to pass through into the bloodstream instead of being sucked out into the feces. That's when the problem start.

We don't really know which came first, the leaky gut or the oxalate problem. Oxalate builds up, but a lot of people can eat lots of spinach and not have a problem, and other people can't. Getting back to vitamin C, the point of the vitamin C is that it can be converted to oxalates, but it's considered that it's a slow system and at low levels of vitamin C, it's not going to get converted. Of course, unless there's a genetic tendency or predisposition. Generally, it's agreed upon that oxalates can be formed when the oxalate, when the amount of vitamin C exceeds four grams per day, and of course, you're not using it for other things. It's something to be careful about. It's people are having problems and they say they really do poorly with spinach or they have problems related to oxalates like vulvodynia, which is an unexplained pain in the vulva area, pelvic pain. A lot of times that's oxalate builds up. Somebody who has a tendency towards kidney stones.

You may want to be careful about the amount of vitamin C you give them. Not that everybody has to watch for oxalates, although oxalates in very high amount we all should be careful about because they are acids. I'm always careful about spinach and charred. I don't eat a lot of that on a regular basis. I eat it and mix in with other things because of the oxalic acid in it. It's an acid so it makes the bloodstream and thus you'll see more in your urine be more towards the acid side rather than the alkaline side. We know that most healing happens when you're in the alkaline. Cancer doesn't grow when you're in an alkaline environment, but it does in an acidic environment.

At the bottom, I gave you a link on low oxalic acid info. You can go to that site and they have charts and they have information. It's a really good resource when you're working with people who are either telling you that they have oxalate sensitivity, or you're suspecting it, or when you run one of those tests like the organic acid test, and you find that they have high oxalates. You may need to be prepared.

This is a sample of some of the very high oxalates that's from that site. You can see that beetroots, beet greens, leaks are high. Spinach is high. Sweet potatoes are high. There's a bunch of foods that you may not even think about being high like sweet potatoes. You can just use some of the fruits, mostly it's rhubarb and star fruit is high, and then some of the grains. Really grains are kind of like grasses. This gives you a list and how much has it. The site also shows you how much should you have total across a day.

If someone eats a high oxalate food, doesn't mean they're doomed for the day. They just don't eat anymore high oxalate foods unless it's something that's super, super high and they've eaten like a pound of spinach. With spinach, only one ounce is 30 grams of oxalate. Wait a minute. That's not saying how much. That's just saying it's between. It's only one ounce that's considered high oxalate. If you eat a pound of spinach, which I would sometimes do if I had spinach, that's a lot of oxalates. It's a matter of helping people, and we'll go more into that in our other modules.

Let's look at vitamin C RDA. It varies and it's just so inefficient and insufficient unless you've got somebody who's living at the top of the Himalayas and there are no stress in their life and they're eating all pristine organic food. They're meditating and the air is clean. This isn't might be good amounts. Seriously, most people need a lot more than this, because so many things get in the way of vitamin C as we'll see. These are numbers that used to be 60. I think they raised it for adults to 90. It used to be 60, so it's now up to 90, but still ... I've read that every cigarette depletes 100 milligrams of vitamin C. I remember sharing that with my mom and telling her, "Look, if you're not going to quit smoking, just at least take one vitamin C with every cigarette." She wouldn't do it because she was afraid of its side effects. That makes me just laugh in a very sad way.

What are some of the deficiency signs that you'd be looking for? You going to notice if it's severe scurvy because you're going to see subcutaneous bleeding like under the skin, you'll just see patches of blood. It's not like normal bruises like you could see around this guy's eyes. They're sunken but there's also that red. Poor wound closure. They bruise easily. Hair and tooth loss. The gums are just not holding it. The gums are so diseased, their hair starts to fall out and their teeth start to fall out. Joint pain and swelling; weakening of blood vessels, connective tissue bone, all these contain collagen so a deficiency is affecting the collagen.

That's a severe scurvy. We're not going to see that hopefully, but we will see subtle signs of the same symptoms and those are the things you want to look for. Does the person bruise easily? Do they have loose teeth? Are they having trouble with their gums, with their dentures? Are their gums bleeding? Do they keep spraining the same ankle or different ankles or different parts of their body over and over again? All these things can be suggestive of a vitamin C deficiency. Some of the early signs of scurvy, fatigue, maybe it's because they have diminished carnitine and can't get the fat into the cells and to the mitochondria. It could be from decrease and disease of catecholamine, like norepinephrine. It's a lot of reasons but early signs would be fatigue and then of course like I said, bleeding gums, frequent infections, lots of allergies, there's a lot of signs.

What about vitamin C excess? If you exceed your threshold, the excess is secreted in your feces. It causes water to be sucked out and pulled in to the intestines; out of the bloodstream and into the intestines and suddenly, you got to go. We use that, and we'll talk about the vitamin C flush in a moment, to actually tell what a person's need is.

On a regular basis, you don't want somebody to be on an excess dose of vitamin C because that won't like you very much when they're having to run to the bathroom all the time. The other problem with vitamin C excess is oxalate buildup. If somebody's sensitive and they have a leaky gut, the excess vitamin C can be converted into oxalate, and a buildup of oxalate can lead to problems. Like I said before, inflammation, joint pain, vulvodynia, and theoretically, kidney stones.

Here's something to know about: When you take vitamin B6 with large vitamin C doses, it can decrease the risk of oxalate formation because the vitamin B6 sucks the oxalate out of the system. Also, taking extra magnesium and calcium citrate with foods that are high in oxalates can help to pull the oxalates out of the system.

Here are some general signs of imbalance. This is taken directly from the chart that I gave you. Signs of imbalance would be easy bruising; hemorrhoids, that's very commonly associated with vitamin C; joint injuries; muscle weakness; the puffy gums; varicose veins, a weakened immune system; either allergies or chronic infection or both. Mucus membrane that get raw and are bleeding, like the membranes in the mouth perhaps; spongy and bleeding gums; and then LABs. If you're seeing somebody with a combination of these LABs, it may indicate a vitamin C imbalance. It's not necessarily but it could because of the involvement of vitamin C in these various reactions.

Hematocrit, which is the percentage of blood cells that are red. Alkaline phosphatase, which is a zinc dependent enzyme. If it's low, then you might have a problem with zinc, but if it's high, it could be vitamin C. Increased red blood cells; low hemoglobin. Increase the MCV and MCHC and MCH, and those are related to the size of the red blood cells and that has to do when we have folate and B12 deficiency, it can also be related to vitamin C. You could be giving somebody plenty of folate and B12 and not seeing their MCV go up, it could be the vitamin C is problematic as well.

How do we asses for vitamin C status? We can do a blood test. We rarely do that. I've never run a vitamin C blood test, although I suppose I could. They're expensive to do them individually, and if I was going to do vitamin C, I'd want to do A and D and E and the next thing you know, I might as well do a NutrEval test. You can get the urine test strips from this link: http://www.drritamarie.com/go/VitaChekCUrine. You basically pee in the cup, stick the strip in and it gives you a color kind of a code as opposed to the exact amount of vitamin C. It's not an objective or a quantitative test. White blood cells you can look at the spectrocell and the white blood cells. You can do an organic acid test. You can do a NutrEval. The one that we most commonly do is a vitamin C calibration, also known as the vitamin C flush. Let's talk a little bit about that.

There's an instruction sheet that will be on your resources page.

The vitamin C flush, you basically have a person spend half a day to a day, schedule it on a date that they don't have to go out anywhere because they don't want to run the risk of not making it to the bathroom. You basically have them start with a certain dose of vitamin C. You can have them start with a gram or half a gram, it depends. I usually start with a gram of vitamin C, then I have them do another gram every half hour, and so they get either very loose stools like urgency, like they're having a bowel movement; or I have them pump it up, bump it up and have it every 15 minutes if it goes more than an hour. 15 minutes is probably a safer to do it, if you don't know the person's status and you think they're really severely deficient. Every half hour could take a long time. You could do it every 15 minutes; take a gram; you can bump it up to two grams; and the instructions in the sheet will explain it exactly.

You're basically increasing vitamin C and increasing vitamin C; keeping track of how much you took in until the bowel movement is like having an enema, just explosive watery and then it's done. It's not a little bit of extra stool. It's not a gurgling. It's you have to get to that end state. A few people I've worked with have not gotten to that state and got all the way up to like 80 to 90 grams. Those are people that are good candidates for taking an IV of vitamin C. A few people get irritated after that. Often times, if they tend to have a sensitive gut after they've done a vitamin C calibration, I'll make sure that they take slippery elm for a couple of days and don't go back on the vitamin C for a day or two.

Once they go and you want to tell them how much vitamin C to take based on the calibration, basically you look at how much did they take up until the point that they got that watery bowel movement. Say they took 10 grams, great; 75% of that is going to be their daily dose, which will be 7.5. When they start on their vitamin C after that, one of three things can happen. Number one, that's the dose they need and they need that for several weeks to several months and they don't change it.

Number two, the body gets so excited about having all the vitamin C that it starts to use it. If you do it again a week later, two weeks later, you find that you need even more because it's like the body found all these great uses for the vitamin C, and so it's upping the metabolism. Then the third would be that you get to the point where you don't need very much anymore. You take it for a few weeks and then you notice that you start to get the loose stools again, so you drop it back, and then you get loose stools again, and you keep dropping it back. The ideal is to get to the minimum dose that you need.

Let's see how you can apply it, the therapeutic uses of it. You can do a vitamin C flush and then do oral supplementation, but make sure it's buffered. You bless me a lot and then I use the natural forms. You can't use the natural form for the flush itself, the calibration, because we just don't know how to compare. There's a lot of other stuff in those, like there's a lot of fibers in those from the plant or the berry or whatever. I don't recommend that you do it during the testing.

Afterwards, you certainly can try it, but it's probably not going to be the same amount, because if you were to have to take 15 grams of a truly natural C, you'd be taking like half or more of the whole bottle, and it could get quite costly.

You can get IV vitamin C which means you have to find a functional medicine doctor in your town or a nearby town that you can travel to, and most people don't have that. More and more they're getting that, but I've a lot of people who I wish could get IV vitamin C, but they're having trouble finding people in their area. You can get intramuscular, which like I said earlier, you cannot give as much intramuscular. You might only be able to get 500 milligrams intramuscularly.

Then there's liposomal. Liposomal is where the vitamin C is tucked away in these little liposomes, which are allowed to pass through the gut wall, intact, and go right into the chylomicrons, and then into the circulation. It's a very easily absorbed form. Generally, people don't get diarrhea from this form. The downside of liposomal is that it's very expensive. If I wanted somebody to take 10 grams of vitamin C a day, it'll cost them $10 a day. It's about a dollar a gram. Often times, what I'll do is I'll have people take a decent amount of the buffered based on what their flush says, and then maybe add a little bit of the liposomal for extra good measure.

Here's the chart, World's Healthiest Foods. You can see that there's quite a bit of vitamin C in all of these foods. If the RDA is 90, you can easily get your 90 before you even finish breakfast, so it's pretty easy to do. Then I've divided it out by herbs and spices, because people forget how much is in their herbs and spices. What's the size ... I don't have right now what the size is. You can see coriander is huge; it's loaded with it. All of these, dried tarragons, dillweed, all of these are very high in the vitamin C. Of course you're not going to eat probably all that much, and I don't see where it says how much. That's the problem with a lot of these charts, they don't always tell you how much of the spice you have to take, whether it's in teaspoon and tablespoon, it's hard to tell.

Here's some of the concentrated forms of vitamin C. Vitamin C you can find in rose hips. Look how pretty they are. In camu camu berries and you can get all of these fresh, dried and powders. Amla. Acerola cherry. Don't those look yummy? Goji berries. Those are all great ways to get it, and you can have people get those fresh or dried forms of those foods, and to start to include them on a regular basis. You might want to switch to the therapeutic doses when you see that somebody is in an acute stage, like something's coming on and say, "OK, don't mess with ... just try to get it all from those therapeutics or from those forms, the fresh forms."

How can you get your client to get more vitamin C in? It's easy. You just have them blend the fruits and the greens into smoothies. You can use them in sauces.

You can add some of the vitamin C powders that are like camu camu or Acerola or even Goji berries you can blend them in with other things to make sauces to go on top of salads and vegetables. You can add them to soups, salad dressings, nut milks, salads and elixirs. I love elixirs because that's an easy way to get them in, get a bunch of different herbs in, plus the vitamin C.

Here's some resources. This is the book I was telling you about the Curing the Incurable; the WHO Foods list of food sources of vitamin C; herbs and spices, so that will probably tell you exactly how much was in each of those. IV protocols. The Riordan Clinic has some good IV protocols. The vitamin C calibration. The liposomal vitamin C, how to make it at home. Since it's so expensive, a lot of people make it at home, depends on which you have more of, time or money.

Your action plan that you can share with you clients is eat vitamin C-rich foods every day and it's not hard to do as you saw from the list. Get them to supplement with vitamin C. A good starting dose is 1,000 milligrams three times a day. When people have allergies or low immune function or autoimmune or lots of stress, then supplement. Then determine the needs with the vitamin C calibration that's for sure, and then add extra if they need to. You can add the extra vitamin C-rich foods in spices to all your meals. You'll be surprised at how much your clients can get by taking all those steps.

That's the end of our vitamin C presentation.