Micronutrients - Vitamins: Introduction to Vitamins

Transcript

Hello. Welcome to our micronutrients module, and we're going to start off with an introduction to vitamins. The micronutrients module includes vitamins and minerals. The way that this is presented is in separate parts for each of the nutrients so we've got the intro part we're in now and then following that, you'll get one separate video for each section.

As usual, before we begin and also to remind you that whenever you're presenting something to your clients and even when you're giving them a menu plan or a list of nutrients that you think that are good for them always have some disclaimer on it that this information is not intended to replace a one on one relationship with a qualified healthcare professional.

It's not intended as medical advice, it's intended as education to help people to improve their diet, their lifestyle, their nutritional status so that their body can come into balance and be the healer. When people start to call you the healer or ask you if there's a cure for, you always say, well, my job is to help you get into balance.

My job is to dig deep and find the underlying causes of why you're out of balance, and help you to restore balance. If you're under the care of a medical practitioner, if you're on any medications, please be sure and run all these information by that practitioner to make sure that it's okay for you. Let's get started with vitamins with the history of the word vitamin.

It's actually derived from the word vitamine which is the way that it used to be called, and that's a combination word made up by Polish scientist Casimir Funk. It comes from vita, meaning life, and ‘Amine’, meaning nitrogen-containing compounds AKA amino acids, thus it's called the ‘amine’ of life.

However, while science evolved and they dug deeper, they discovered that vitamins were not amino acids and they didn't have these amine groups. That they were individual chemicals in different structures, so they decided to stick with the vitamin but they took the ‘e’ off, so it's vitamin as opposed to vitamine. Pro-vitamins are inactive precursors and as we go through, we'll be talking about some of the areas where there's a pro-vitamin, which is what we might have in our food that gets converted inside the body through a series of chemical reactions into the actual active vitamin.

A good example is what's called beta-Carotene which is beta-Carotene a part of the Carotenoid family, we're going to go through that is actually a pro-vitamin A. Okay, so it's a precursor to vitamin A so actually two vitamin As stuck together that have to be cleaved to create vitamin A. We've got two categories of vitamins. We've got water-soluble vitamins and fat-soluble vitamins.

The water-soluble vitamins generally, obviously they decide in water and because they dissolve in water and most storage forms in the body are not water, we don't really store water in the body except in small ways. They are not generally stored in the body. An exception to this is vitamin B-12 does have storage form that's in the liver, but most of them, like vitamin C, the D vitamins, those are not stored in the body.

They're excreted via stool or urine. Generally speaking if the body has excess, you see it come out in the stool or urine. In the case of Vitamin C, you see diarrhea result from excessive intake, we can't store it. Okay. We can have storage forms in organs and glands that use it but we don't store it, so we have to replenishing the water soluble vitamins on a day by day basis.

They're generally non-toxic in large amounts and there are some exceptions to that and it's usually very large amounts. What you'll see with the water soluble vitamins is when we do therapeutic interventions for particular things, like vitamin C for example and sometimes like the B vitamins. Vitamin B6, vitamin B1.

The doses that we give therapeutically are often even thousands of times higher than what the body might actually need under ideal situations. They're easily destroyed by heat so when we cook foods that have vitamin C for example, the more you cook it, the more you're going to see destruction of the vitamin C and the less vitamin C there is.

The water soluble vitamins, the foods containing them, it's really important to be eating them fresh and raw, and you'll see with vitamin C, there's a lot of citrus containing, it's a lot of it in the citrus fruits, and citrus fruits just don't do well with heating. The fact soluble vitamins on the other hands aren't destroyed by cooking, they are stored in the liver and fatty tissue.

That is why they can be toxic in excess because you can build up large stores of these and then you can have toxic effects. For example, vitamin A, build up of vitamin A can be toxic in their certain situations and we'll talk about that when we talk vitamin A about what the toxicity symptoms are. You don't see a lot in terms of toxicity symptoms for the water soluble vitamins but you do see it for the fat solubles.

Dietary fat helps the body to assimilate these. If you just take vitamin D or vitamin A or vitamin E or vitamin K without other fats in the diet, you won't get as good an absorption and assimilation as you would if you had it even with just a little bit of fat.

What you see a lot of times is a vitamin E capsule that in addition to the vitamin E in there, it has a little bit of say soy bean oil, which is not ideal or sunflower oil, olive oil.

Okay, we have that like our vitamin D liquid usually have some olive oil as a carrier. The ones that are fat solubles, the vitamins that we're going to go over are vitamin A, vitamin D, vitamin E, and vitamin K. What are the functions of vitamins? Well, they are co-factors for a number of metabolic reactions.

What that means is they, like say to get, to turn an amino acid into a neurotransmitter, there's a metabolic reaction and there's extra groups of chemicals that need to be lapped on or taken off. The vitamins often acts co-factors for these. An example of that would be say vitamin B6 is a co-factor for converting the amino acid tryptophan into the neurotransmitter, serotonin.

That's one of the ways that they're used in the body. They're also used as antioxidants. Antioxidants are basically free radical scavengers. We'll look a little bit more about what that process is. Basically like A, E, and C are very well-known antioxidants. They help prevent the tissue in the body from being damaged by runaway electrons.

The other functions of the vitamins taken is blood cell formation. For example, vitamin B12 and folate, very important in the maturation of blood cells. Vitamin K, important in clotting factors. They're also important for brain health, not only as co-factors as we mentioned through vitamin B6, as co-factors for conversion from one chemical to the other, but also in protecting the brain, in protecting the fatty sheets around the brain tissues.

They're important for hormone balance. Example, another example is good old vitamin D6, very important for neurotransmitters and hormones. Also important for breaking down the hormones. For example, in the liver when we have methylation and acetylation, and a variety of different detox pathways. The vitamins are critical.

They're also critical for energy in the mitochondria. If you have gone through our module on the cellular metabolism and energy. We talked about the kreb cycle. You'll see a lot of the B vitamins especially as co-factors in helping the body to create energy. Vitamins are important for digestion. Things like vitamin A, protecting the mucus membrane lining.

B1, being important for helping to regenerate that. There's other examples, we'll go through as we go through the individual vitamins. The mucus membrane protection and that's especially important of the fat soluble vitamins. In particular vitamin A, but also vitamin D, very important for maintaining the integrity of mucus membranes, and the gut, leaky gut can result from low levels of the vitamins that are needed to protect it.

Finally, I have listed the immune system. This is not a comprehensive list and as we go through each of the vitamins individual segments, we will go through the specific functions that they have. Immune systems, real important.

Vitamin A, vitamin E, vitamin C, some of the B vitamins, really important in maintaining the integrity and the structure of the immune system.

This is a quote from Linus Pauling, who got a Nobel Prize for his research in the area of vitamin C, who's a big proponent of high dose vitamin C supplementation. He said I believe that you can by taking some simple and inexpensive measures live a longer life and extend your years of well being. My most important recommendation is that you take vitamins every day in optimum amounts to supplements the vitamins you receive in your food.

This is a list. It's a list of the vitamins, it's also a list of their names, their common names and some of their not-so-common names. Their common forms is found in food and some of their activated forms as the body needs. I've listed the vitamins by letter and then the actual names, the chemical names, and then a few notes, just a little bit of a summary of their actions.

This is not comprehensive at all because that's what the each of the presentations on the individual vitamins is for. Vitamin A are retinol, retinal and carotenoids. Carotenoids are like beta-Carotene, the pro-vitamin A, the pre-cursors, the retinol and retinal are active forms. Just a summary of what it does, like I said we're going to way more detail.

It protects mucus membranes, and is especially important for the eyes and the vision. Has some work in the immune system and also in skin. Vitamin B1, thiamine is there's a form called Benfotiamine, and that is a fat soluble form. Studies have shown that in some situations, when you're supplementing, Benfotiamine is more effective, more efficient and more readily absorbed.

Vitamin B1 is important for energy in the kreb cycle, heart, muscle and nerve function. It's also important for the lining, the mucus lining of the digestive tract. Vitamin B2, riboflavin, the activated form is riboflavin 5 phosphate. In a lot of cases when supplementing that, especially in someone who has compromised nutrition or compromised genetics, if you've looked at their SNPs and say woah, they've got a lot of problems at their SNPs.

You might be better off giving them the activated form riboflavin 5 phosphate. Again part of the kreb cycle. Important for red blood cells and also part of the vision. Vitamin B3, also known as niacin, but there's nicotinic acid and niacinamide, there's the non-flush niacin forms which they've taken out the constituents that cause vasodilation and we'll talk more about that when we talk B3.

Again with energy, neurofunction, circulation and heart. A lot of times people will take niacin or niacinamide supplements to help lower their cholesterol and protect the heart. Vitamin B4, it's not really a vitamin. It's listed often times with the vitamins and when you see it, you'll see it listed as the variety of different things so I included it for completeness.

You might see it listed a choline, adenine, or carnitine. They're not really vitamins but they have vitamin-like properties with the cell membranes, with membrances and in the neuromuscular. Vitamin B5 is an official vitamin, pantothenic acid and it's really important one in the production of coenzyme a, important in adrenal health, in helping the body to convert from the cholesterol molecule into pregnenolone, which is the precursor of all the steroid hormones. It's important in skin.

Vitamin B6, pyridoxine. The activated form is pyridoxal 5 phosphate and that's basically where there's a phosphate put on at the 5 prime or the 5 indicator. When you look at the cellular structure. I'm going to look more in detail about that, like where these little extra phosphates and things are when we go into those vitamins in detail. We've got brain and nerve. Hormones, protein synthesis, that includes neurotransmitters.

Also important and we're going to look at that later is in the binding with oxylates to excrete them and binding with estrogens to get them out of the body. Biotin is usually, it's not usually known as B7 but it is B7, it's usually known as biotin. It's interesting that some of the vitamins are generally well known by their letter names, some of them are well known by their names and not their letters names, and some of them it interchanges.

Biotin is one of those that most people don't call it B7, we call it biotin. Very important for hair and for the metabolism. Again, B8, not really a vitamin, inositol, it's loosely considered a B vitamin. We see inositol used a lot to help people sleep, to calm things down, also myo-inositol is used a lot in working with people with insulin resistance and PCOS has some good promise there.

Vitamin B9, we usually call it folate, the activated methylated form is methylfolate, also folinic acid. You will see it called folic acid, that's the synthetic form. As we talk more about B9 and folate, we're going to show you how it's really important not to use the synthetic form of folate because it can interfere with the metal forms. It's important for red blood cell production, DNA repair and the brain. You can see it's really critical.

A lot of people have a defect or gene difference called a SNPs, single nucleotide polymorphisms called MTHFR, you might have heard that. It's very popular these days on the Internet. An MTHFR basically is a defect that doesn't allow for the methylation of folate and can create a lot of problems with anemia, red blood cell production and also with repair of DNA.

B10, you probably have never heard of this, but it's actually a form of folate, and it's a form that protects your skin. It's Pteryl-mono-glutamic acid. Again, this is just really nitpicky stuff. I just wanted, I like to including all the numbers, and I wanted to have you see that there are things associated with all the B numbers but there are some that we just use.

For example, there's B11, which is not really a B vitamin at all, and that's called salicylate. Then we have vitamin B12, which is cobalamins, methylcobalamin, hydroxocobalamin, adenosylcobalamin, and also cyanocobolamin. Cyanocobolamin is the unfavored son. Basically, it's the one that actually contains cyanide, it's a synthetic form. It's the most popular form in supplements, which is why you really need to caution your clients to be very careful when they're choosing B12 supplements.

When we go into B12, we'll go into a lot more detail about how to choose and how to know and how to be careful. We got through the Bs, a lot of Bs. Next is vitamin C, also called ascorbic acid. You might see it called buffered ascorbate, that's usually when there's minerals attached to it so that the acid, the ascorbic acid is not so caustic to the teeth.

That's really important for collagen formation, for the immune system, and so much more as we'll see in our vitamin C module. Vitamin D, also called cholecalciferol, it has way too many actions to list, it's important for depression, for leaky gut, for brain function, for the immune system, for skin, on and on and on and on, the vitamin D goes. We'll go into that in a lot more detail.

The thing with Vitamin D is that there's different forms, a plant based form which is ergocalciferol. The animal-based form which is D3, and we'll talk about all the ups and downs of those when we get there. Vitamin E, tocopherol, and there's mixed tocopherols, there's alpha-tocopherol, beta-tocopherol, gamma-tocopherol.

When you get a vitamin E supplement, again you're going to have to be really careful when you're coaching people through the vitamin E, because a lot of the supplements just have for tocopherol. You end up with imbalances and actually some of the studies that had negative side effects of vitamin E were just single tocopherols, so that's important. Tocotrienols are actually components of the brand of a lot of the vitamin E containing foods, and those are important antioxidants.

Then K is the quinones, there's Phylloquinone, there's menaquinones, there's the kind that are coming from plants, the kind of Ks that are coming from animal sources and then there's the synthetic source, and that's important for clotting as well as bone health. What do you need to know about your vitamins? It's the ABCs of vitamins, it's the alphabet soup of vitamins.

With the things you're going to have to know to effectively coach your clients is how do you look for deficiency signs? What happens when excess is consumed so you can caution them and also how to look for overdoses. How to help your clients choose the best food sources? When to supplement? How to choose the right supplements?

Factors that help and hinder absorption so the interaction between nutrients and other chemicals and other factors in their life.

When are you going to use lab testing to determine status, and what are those lab tests. Let's start by looking at some deficiency signs. Again, we'll go into way more detail about these deficiency signs when we go to the individual nutrients.

There's kind of a, it's a screening process that you're doing as you're chatting with a person and asking them about their main complaint but then looking at what other things they have going on. These are signs that they may have a deficiency of vitamins. We have given you in the additional material section, a chart and that chart will list all the vitamins and some of the signs and symptoms you can look for in analyzing a person to see if they have a problem.

In addition to the physical signs and their symptoms, it's things like labs, that's a really, really useful chart for you. Deficiency signs, hormone imbalances, that could be thyroid imbalances, it could be adrenal imbalances, it could be digestive upset, it can be related to hormone imbalance, it can be sex hormone, it can be blood sugar, any number of hormone imbalances. When people have more than one, we often start to suspect underlying nutrient imbalances.

Fatigue for sure. Iron and vitamin B12 and folate, and a lot of the vitamins can result in fatigue. Digestive upset, people who get bloated or gassy or have food allergies related to poor digestion that can also be signed that they have underlying vitamin deficiencies or excesses. Immune system problems, people that get sick all the time.

People that have autoimmune conditions. Allergies, and that could be hypersensitivities like the immediates, like the hives and the runny eyes and weepy nose and all that or it could be or asthma or it could be delayed food allergies. Other things can be depression and a lot of the vitamins, the B vitamins in particular and D can lead to depression.

Anxiety, if you've got deficiencies of vitamins that are important for producing gaba for example or serotonin, the person might have some anxiety. Skin issues, breakouts, could be hives are the obvious from allergies but it could be eczema, psoriasis, chronic skin problems, depigmentation, can all be signs that the person has an underlying nutrient deficiency.

Asthma, very important one to look for nutrient deficiencies. Neuropathies, meaning the numbness and the tingling and the lost of sensation in the feet and the hands. There's a lot of those are associated with diabetes and imbalances there. Finally inflammation, again, this is an exhaustive list. Nutrient deficiencies, vitamin deficiencies in particular can lead to any or all of these signs.

If you're working with somebody and you're doing an intake, and you see that they have multiples of these signs, then it's a clue that you want to start looking a little bit deeper at their vitamin mineral status. I highly recommend that you do the vitamin assessment pages and we've given you those in our module on the, I think in the history.

You can see some of the questions we ask, you can modify mind, you can make up your own, you can do some research and add to, or take away from.

You can make a little short screening questionnaire, you can do a longer one. I highly recommend that whether it's on paper and pen or your observation in talking with them that you do a good assessment for signs of vitamin, mineral deficiency. While you're getting familiar with this, and even not, just it's always good to have cheat sheets, and that document that I've given you can be a cheat sheet, that you can copy, you can print out for each of your clients.

Then as you're going through and doing the history, just circle and check off some of the symptoms and signs you're seeing for them and see if any of them stack up to push you toward suspecting a particular nutrient imbalance versus an overall general nutrient imbalance.

How do you know when to supplement? When not to supplement? Is it necessary? I want to believe that we can get everything we need from food but unfortunately because our food supply has been tampered with, because the soils have been depleted, because we're eating on the run and under stress, and there's environmental factors that causes to need more certain nutrients.

There's genetic factors, I've resigned myself to the fact that there's a need to supplement and it doesn't mean that somebody has to take every vitamin and mineral known to mankind as a supplement but you can make a decision based on how they're presenting and what their diets like and what their stress levels are like, or which supplements they're most likely going to be needing.

I'm calling it an insurance policy for an already healthy diet although a lot of folks want to make it a replacement for a healthy diet. They want to go in and just, well, I don't eat right, I eat a lot of white flower, so I'm just going to take B vitamins to make up for it. Yes, indeed it's a good idea, but what your job really is to help them and guide them towards making the decisions about having the healthy diet, and then using the supplements to supplement.

That's what the word is, to supplement. It can't make up for everything because there are still undiscovered constituents in the food we know we're going to find. We constantly finding new things. I don't believe that we've actually identified every single chemical constituent and every vitamin and that you could take a person and design a diet that's strictly the synthetic supplemental food and actually have them have a very healthy life.

We can probably keep them alive and keep then functioning, but I think for ideal functioning, we need to have the food constituents. Just really wanted to reinforce that, that may be something you already believe and feel, but it's easy to get caught up in what vitamin should I give them because they have a lousy diet.

Yes, indeed it's important and we want to take it a step further to be also coaching them. When they have symptoms of deficiency. You absolutely want to get the diet changes happening, and get them on those nutrients, as soon as you can, because the food alone. When they're on a really deficient diet, food alone can make huge strides, but it could take a lot longer than they have to actually replenish those nutrients.

You may be giving very high doses of certain nutrients when you first start working with somebody who has a long standing deficiency and has had really bad habits. You would win them down or off or move to more towards a general multi. You want to also look at adverse conditions that they're on. Specific conditions will deplete vitamin source.

If a person has a cold, they're going to need more certain vitamins to help them replenish their stores for all of the vitamins that are being diminished as a result of the immune system fighting off bacteria or germs or viruses. After an injury, absolutely need more of the things that help us to form better collagen, amino acids, good stores of protein, sometimes protein powders.

In addition to the vitamins that help like vitamin C, super important and the bioflavonoids that often come packaged with vitamin C. Under signs of infection and also in conditions where there's a disease and autoimmune disease or cancer, whatever. We need extra of the vitamins. Do not let people use it as a substitute for eating well.

Not really to make up for deliberate binges. Yeah, they happen sometimes, right, you get off-track, the cat dies, the car accident happens, the kid comes home failing school and you go on a binge. Yeah. Have the vitamins to make up for those binges, but the best thing is to find other emotional outlets. When you are with people, that's a big ... When I say deliberate binge. I'm just going to go on a binge today, and I'm just going to load up on B vitamins tomorrow.

It's just not, it's just not a conscious way to live. Let's talk about hierarchies of ways to supplement. I like to start with whole food concentrates. I put a picture on the slide of something called vita-mineral rush. It's a liquid form of vitamins that have the Bs, and the Cs, and the Ks, has everything in it from food concentrates, very pure, low dose, not super physiologic doses.

Not necessarily good if you're trying to have a therapeutic effect or you're trying to deal with an acute situation but a great way to do on a daily basis, I take this maybe not every day but when I remember a few days a week. Liquid vitamins from whole food concentrated sources are the better absorbed.

The whole food concentrates can be in the form of powders, they can be in the form of capsules. I like powders that can be dissolved in water or green juice. Next I will go to capsules without excipients, and then tablets that don't have binders and preservatives.

That's my hierarchy. When I say whole food concentrates, maybe I'm talking like amla berries or camu camu for vitamin C, they're actually very concentrated sources.

I can actually eat those whole food concentrates in the form of a powder, a freeze-dried powder. There's a lot of those. They're called super foods by a lot of folks. Those are my top choice, if you can get it from whole food concentrates. Juices, spirulina, things like that. Next would be liquid vitamins and then powders and capsules and tablets. Tablets are my least favorite and sometimes we go with them.

All right. Ingredients to avoid in the supplements. This is critical because if you go to the average grocery store, health food store even or the Wallgreens, the pharmacies. They have a lot of very inexpensive supplements and people just go for what's cheap. A lot of these have very very damaging ingredients in them.

For example, hydrogenated oil. We don't ever want to be eating hydrogenated oil. We know that that is associated with damage to blood vessel lining and damage to the immune system. If you have people coming in to see you and they have this big bag full of supplements they're taking, you very gently talk to them about the importance of good quality supplements, not wasting their money on supplements that have toxic and damaging ingredients.

What happens is you sit down with them and this might not be on the first visit, you want to gain rapport, you have a conversation with them. You talk. Then on the next visit, maybe you have them bring in their supplements and if you're working with them remotely, you get them give you the names of the supplements and you can look them up online or you can have them photocopy or scan in the labels, so that you can read what's in them.

You want to avoid things obviously with hydrogenated oil. Talc is real common in those cheap ones, and talc is associated with cancer. Sugar, a lot of them have sugar or dextrose or corn syrups or other sorts of sugars. A lot of them have artificial sweeteners, aspertames, splenda, things like that. It's amazing what they put in some vitamins.

FD&C colors, yellow, dye number, whatever, marine, balloon, number whatever. Those things are awful and should not be used. Why do we have to have pretty vitamin capsules, I don't get it. Why do we have to have vitamin capsules that are pretty. We don't. Don't allow your people to get away with that. Stearates, a lot of vitamin companies, most vitamin companies use vegetable stearates or magnesium stearates.

We'll go through a slide on exactly what those are, but I avoid those if I can. Every now and then there's a formulation that is really unique that I really like for someone. I check with the company, find out how much the stearate is, I'll do some checks to make sure the thing dissolves in apple cider vinegar, some kind of acid or get in HCL capsule, put it in water, add the vitamin to it, make sure that that HCL can actually break down that capsule and then I'll give it to them.

The exception of the breakdown is actually things that are designed to bypass the stomach acid, and those are things that are supposed to be absorbed further down. In general, you don't want something that's not going to be able to be dissolved by your body. Sodium benzoate. The sodium benzoate is in a lot of the liquids.

When sodium benzoate or any kind of benzoate, potassium benzoate, benzoate is in the benzoic acid, any of those. When it's in the presence of vitamin C, it can convert to benzene which is one of the highest most potent carcinogens we know. I'd avoid those. When I was taking these liquid mineral, it had sodium benzoate in it, and I was adding a little vitamin C to it, to help, to give a little bit more acid to help with the absorption and then I found out about this so I've banned from my existence any of the sodium benzoate containing vitamins.

Then titanium dioxide may or may not be problematic, but it's actually used to coat the skin. It's one of the sunscreens. I'm not a big fan of titanium dioxide in my supplements. I like just the supplements. Sometimes because they're so little of the active ingredient, they may add some other things as a binder. Some of them add leucine or isoleucine, which are just branch chain amino acids which would be used by your body as energy.

Be really careful and help your clients to read those labels. Let's talk about magnesium stearate, there's a lot of controversy over this. I've talked to several companies, vitamin companies about it. Foreign and premier research are adamant that magnesium stearate is the vein of vitamin supplements that it gets in the way of absorption and that it should never be consumed.

I talked to somebody at designs for health for example, and he used to be at metagenics and he said he didn't believe that, he thought that was a lot of hype so that those companies could charge more for their supplements and bad mouth other companies. Who do we believe? I think that you've got to think about it and make a decision for yourself.

It's a lubricant and it's put in the vitamins, either in the capsule itself or in the tablet or coated around the capsule so that it doesn't stick to the equipment being used. It makes it easier, faster, cheaper for the manufacturer to make their supplements. The safety of it is controversial, there was one study that linked it to creating a suppressed immune system.

Premier research lab does a lot of talk about it, being toxic, being linked to cancer, I haven't found a considerable amount of research with that. I think that the safety is controversial. Others, some studies do show that it creates a biofilm in the body that locks absorbing other nutrients. That's the piece I'm concerned about, and it's also the part of it.

If the capsule itself is coated or there's stearate in the capsule that it's not going to be as available to the digestive enzymes to break it down, especially of somebody who has impaired fat absorption, somebody who no longer has a gall bladder, who has low levels of the lipase, who has had an intestinal bypass surgery, where they're bypassing most of their digestive processes.

The jury is out on it. I personally avoid it. Every now and then like I said if something has it in it and I don't have any other choice at the moment, I'll use it or recommend it to someone. In general, I try to stay away from it. Let's talk the old synthetic versus natural vitamins. The synthetics may actually be cold heart derivatives.

If you are going to take a synthetic vitamin, check in with the company, how do you makes these? Where are they coming from? The naturals tend to be lower in potency however. For example, vitamin C. If I feel like a cold is coming on and I want to zap it out quickly, I don't go for camu camu, I don't go for amla, for a vitamin C source or acerola.

I go straight to the buffered ascorbate in very high doses in order to get rid of it or liposomal in a higher dose and it works. I haven't actually tested in a situation like that to see how much and if I loaded up on the natural forms. Mainly because I'm a little nervous that it won't work, and then I'll end up getting the cold.

It's a little bit selfish and I'm not willing to sacrifice my health in terms of science. I just go for what I know works. It's possible that you could take enough of the health force nutritionals, truly natural C or amla berries or camu camu or acerola, rose hips, but I don't know. They're lower in potency and the idea being and touted by the companies that make the natural forms is that, does it ...

It's because it's absorbed better in the body, because it has all the co-factors, that may be very well be true. When I'm going for therapeutic dose, I usually go for the buffered ascorbic in terms of vitamin C. This a potential for GMOs and the synthetics who you don't know what the sources are. Again, if you are going with the synthetic vitamin, make sure you know the source, make sure it's checked in with the company.

You also maybe created using Formaldehyde, okay, that's a problem. Some of the synthetics actually compete with the natural and cause adverse effects like folic acid, so I don't recommend anybody to take synthetic folic acid. I'm not so strong on the vitamin E, the Ascorbyl palmitate or other palmitates and we'll talk about what the more on that. I try as best possible to recommend the natural forms. It's not a 100% rule. For me, anyway, you may find differently.

Here's an example of some whole foods vitamins. These are from sun warrior, they have for him and for her, they're multi-vitamin. Yeah. Just multi-vitamins.

I think they have a little bit of mineral in them as well. They are very good sources. They have asparagus in them and they have all kinds of vegetables, kale, broccoli, et cetera, and they're in concentrated forms.

Those are great. For me, I like these as insurance policies. I personally like their liquid form which I showed you earlier, because I just like liquid rather than capsules but you're going to be working with a lot of different people and some of them are going to really like the capsules form, it's convenient. When you're traveling, you just, throw a bunch of capsules in a zip lock bag and on you go.

Whereas if you're taking liquids, it's a lot harder especially with airplane travel. This is just an example of what the vita-mineral rush looks like. I showed you that earlier. This is how much of all the things it has in it. It's basically, the vitamins B1, 2, 3, 5, 6 and 9 are from a certified organic blend of Holy Basil, and Lemon extracts.

The iodine, iron, molybdenum, chromium and all trace elements are from organic mineral plant source. Probably a fulvic acid deposit. This is what it has in it, and it's all natural which is really nice, and I basically, I don't even measure. I just take it and square it into a cup of water at the beginning of the day, great for insurance policy. Again, not necessarily great for replenishing known deficiencies.

Let's shift gears now that we've talked about the supplementation and all that. Let's talk about testing vitamin status. The first sign is the symptoms that you can absorb and record on questionnaires. We've given you score card resources, I've also given you that paper that's about three or four pages long that you can print and just check off based on your conversation with the person.

There's exam findings and I've listed those two in that form that you have. For example, the angular cheilosis it's called, this little source that keep happening in the corners of the mouth, often times associated with B1 or other B vitamin deficiencies. A lot of bruising. You look at somebody and why do you have all these bruising or varicose veins can be related to vitamin C.

There's specific things that you can look for, related to the specific vitamins. Then there's lab testing. You can do direct measurement which has it's ups and downs. It's better for some than others. You can also do functional assessments. Let's look more closely at that. Functional test for vitamin status.

Well, these are just a few, we'll go into more details on these, in each individual nutrient. You've got MCV, Mean corpuscular volume, that's a measure on the CBC, the complete blood count. When we do our module on blood chemistry analysis, you'll learn all about that. That can be indicative of a vitamin B12 or a vitamin, a folate deficiency. Okay, so we look at that. It can also be indicative of an iron deficiency, not a vitamin but it's a nutrient.

Low MCV, possibly low iron. High MCV, possibly B12 or folate. I'm saying possibly because it's not a direct correlation. The gold standard for measuring B12 is not serum B12, as a lot of people think, but it's a chemical called methylmalonic acid which is a toxic chemical that builds up when you don't have enough vitamin B12, so that's an awesome one, very specific for B12 also.

There's also Homocysteine which is a measure that you can do on a blood test, and that's not specific for any one vitamin but it's suggestive of either B12, B6 or folate deficiency. There's a lot of supplements on the market that are Homocystex or whatever, that have these three nutrients in them. Probably many of them have vitamin C in there as well because that helps with the absorption as well.

Another test that can be done is organic acids and those are done, those can be assessments for all of your vitamins or each of your vitamins can be assessed that way. Basically, organic acids are intermediate build up products that happen as a result of various metabolic actions in the body. We go through that in our functional assessments modules, so that we have a module, specifically on the organic acid test on how to read it and when to do it.

The organic acids are these metabolic products that build up and so if there's this, a blockage in a particular pathway because you don't have enough of the co-factor, remember we talked co-factors earlier, say you don't have enough B6 to move that chemical to its next state, you're going to have a build up of those particular chemicals, and particular build ups mean, suggest particular vitamin or mineral deficiencies.

There's a whole lot more that you'll get out of organic acids, that's just an overview, that's a functional way to test for the vitamins as opposed to looking at somebody's serum where we don't really know when we look at somebody's serum, their blood whether that level of B12 is actually enough to do all that they need based on their genetics, their exposures, their traumas, et cetera.

The organic acid test can be ordered through Genova or Metametrix and you can go on direct labs to order that. It also can be ordered from great plains and great plains allows you just order it directly. It allows clients to just order it directly. You could just tell them where to go, give them a link, have them deal with the charges and everything.

When the test results come back, they could give it to you or you could setup a practitioner account with them and have the test results gone through you and then they pay you. There's another test which is cool, called neutroval. It has some similarities to the organic acids, actually includes organic acids in it. That's by Genova/Metametrix. That will look at the vitamins and minerals in whatever their best way to look at them is.

There's Spectracell. Spectracell actually looks at each of the vitamins and minerals and antioxidants as well in the white blood cells. It looks for the status of the white blood cells, that's touted as one of the better test for overall nutritional imbalance. A lot of my colleagues and a lot of functional medicine practitioners do that on every client. It is an expensive test. It's in the $500 range, maybe even $600.

You'll have access in the resource area on the site, there will be access to links to all of these as resources. Let's look at direct test for vitamin status. Vitamin D commonly done, it's a good test. We generally do 25 hydroxyvitamin D but you can also do 125 dihydroxyvitamin D. Both of those are done in the blood.

We probably should have had a semicolon between those to make it easier to read. There's two different types of test. The inexpensive one, it's around $50 so it's not so inexpensive. It's 25 hydroxyvitamin D. Then the 125 is actually the precursor to that and it's done in some cases when we're just not seeing the results that we think we should by vitamin D supplementation or in the case of metabolic defects.

Vitamin A, you can test that in the blood, it's not commonly done, it's not that cheap to do but it can be a good one to do if you're not sure. If you want to check the status of your supplementation. It's not something I generally do right upfront and maybe we should start doing that more. Vitamin E, same way, you can do them in a blood.

Vitamin C, there are urine strips that you can do and then a vitamin C presentation, I'll give you a link to where you can get those urine strips, and it basically look dip sticks, you pee in a cup, you take the strip out, you text it in, and it will give you a subjective, not really a quantifiable but a color, I think they call it a colorometry, where you look at that and you say oh it looks like the vitamin C is low or high or non existent.

It can be tested in the blood but it's not commonly done and it's not considered real accurate except in the case of severe deficiency like scurvy. Vitamin B12, you can test it in the blood, I don't recommend it because it doesn't really give you an idea of how active, you might have inactive metabolites of vitamin B12.

It might not be in the methylated form where it's actually going into the processes. I think that methylmalonic acid and Homocysteine or much better and MCV or much better indicators of vitamin B12 status. The cool part about B12, is that you can look at it in many ways. You can look at the blood and you can look at MCV and you can look at Homocysteine, and you can look at methylmalonic acid, and that gives you a broader, bigger picture.

Folate can be measured in the blood but again it's not that accurate because it combines folic acid and the methyl activated, so you don't really get a full assessment as to what the folate capability is.

There are some other test we do and when we do our neutrogenomics module, we'll go through how to look at methylation factors in the blood to see what's going on in the different forms.

B6 can be measured in the blood. Again, I don't do it all that often, but it can certainly be done, especially when you're supplementing someone with B6 and you're not seeing improvement, it may give you a clue. The same thing with vitamin B1. You can do all these in the blood, not commonly done but except for vitamin D which is really awesome.

K, you can't really measure in the blood but we usually use for K, we look at things like the fibrin and prothrombin and things like that which are related to clotting. Here's a way that you can get a lot more information about the vitamins. They go into a lot of detail but they also have charts, so it's a really great way. My favorite way to look for food sources.

Nutrient ranking chart, impact of food and storage, and all that. Really nice. I actually bought their book because I was looking through their site and sometimes it was, I wanted to have multiple things up. I bought the book for $40 on Amazon, it's a big thick, inch and a half or two inch thick book. It's great to be able to go to that site and look up the charts.

Not every bit of their information is necessarily as detailed or researched as possible but it's a nice place to look. That concludes our vitamin overview, our introduction and next up we're going to go through each and every one of those vitamins in order and we'll have a presentation that goes into much more depth about them.