Nutritional ABCs: Strategies for Optimizing Your Energy by Balancing Your Vitamin Intake – Overview

Transcript

Hello and welcome. Our topic for today is called Nutritional ABCs, Strategies for Optimizing Your Energy by Balancing Your Vitamin Intake. In case you haven't noticed when we look at vitamins versus minerals, they all have alphabet letters so we have the ABCs of nutrition. It actually goes all the way down to K with a few skips in between. What I want to do is give you a familiarity with what all those vitamins are, where you get them, why they are important, and give you some resources where you can get more information.

This is a quote by Linus Pauling who is one of the most famous people known for vitamin study. His big study was in the area of Vitamin C. He actually got a Nobel Prize for his work in the area of Vitamin C. There're a lot of questions about can we really get all the vitamins and minerals that we need from our food and do we really need to take supplements. We can argue on both sides of the coin, and I think the truth is that it depends. It depends on the person, the situation etc. how much and what they need to be taking.

But this is what Linus Pauling said, *I believe that you can by taking some simple and inexpensive measures live a longer life and extend your years of wellbeing. My most important recommendation is that you take vitamins every day in optimal amounts to supplement the vitamins you receive in food*.

That's why I put this quote in there because it very specifically says to **supplement** vitamins you receive in food. People get very caught up in the whole concept of supplements and taking this vitamin and taking that vitamin and want to make sure that they take a vitamin pill that has all the vitamins that they need.

That would be important if you are going without food, and for some people it is important if they are doing an extended fast for cleansing and detoxification purposes, or if you know you are going to be out on a desert island, or you are doing some sort of fast for religious purposes. But generally if you are eating real food, you are going to get a lot of vitamins from it.

The problem we run into though is in our day and age of modern food processing most people, even though they are eating food and plenty of it (because you can tell by their waistlines), they are not getting plenty of nutrients. My purpose in working with you is to help you to be able to make the proper food choices so that you need minimum amounts of supplements.

But the truth of the matter is in our modern day there are so many things that disrupt our digestion: your ability to detoxify the world, the exposure to all the things that disrupt your vitamins, medications and foods or non-foods or food-like products as I like to call them that people take that disrupt vitamins. We do need to be looking at taking additional things.

But we need to do it judiciously and just in the amounts as Linus Pauling said, to supplement what we receive in real food. So if we are not eating any real food, we are eating processed food, we are eating refined white breads and white rices and we are eating foods with hydrogenated things and extracts of whatever we don't understand and aren't really real food, that person is going to need a lot more in the way of supplements than the average person or the health minded person who is shopping the parameters of the store and eating a lot of produce.

This reminds me of a situation with my mom when she was still alive and she was smoking. She would smoke about a pack of cigarettes a day, and I was very concerned about that, and I let her know that. One day I said, did you know that every cigarette you smoke depletes your body of about 100mg of Vitamin C? I said, "Here's what I'd like you to do. I know you are not going to quit smoking as much as I'd like you to so here's a bottle of Vitamin C, and they are 100mg capsules. Every time you smoke a cigarette, just take one of these Vitamin Cs to at least replenish the Vitamin C you've just stolen away."

Of course it's not going to make up for the nicotine and the tobacco and all the carcinogens in the cigarettes, but at least it would have prevented her from creating more of a deficiency. So I gave that, and I left. She lived in New York; I lived in California; we were very far from each other.

I went back to visit a year later or six months later or whatever it was and I said to her, "How's the going with those Vitamins?" She had the bottle still there. It was opened, it looked like she might have taken one maybe, or she just opened it. I asked her why she hadn't been taking it, and you know what her answer was? She said, "I just don't know about the safety of taking vitamin supplements. I read a lot about the lack of safety, and maybe it's not safe to take supplements.

I just about fell on the floor, and I wanted to shake her to knock some sense into her. Here she is smoking cigarettes, that we know have damaging effects, but she's not taking vitamins because she's afraid of some of the dangers of taking supplements because she's read some things in her local newspaper. That's just kind of an off-beat situation, but you may find that situation with your own family members.

So I want you to understand a little bit of what's going on behind the scenes with these vitamins, and how do you choose vitamin supplements to add to your food (because I'm going to show you what foods they are in) so that you can have a healthier life, and you don't have to take so much supplementation.

By the end of our talk together what I want you to have established and learned is what each of the vitamins are and what they do. Not in detail of the 14 bio-chemical pages of pathways but to have a general idea of why they are important. I've given you a chart in here.

What foods are good sources of each of the vitamins and how do you make sure you are getting enough because there are things that interfere. Remember I just said cigarettes interfere with about 100mg of Vitamin C.

Birth control pills interfere, which are very common especially amongst our teenagers and women in their 20s who are trying not to get pregnant. What happens is when you are on birth control pills it disrupts a whole, long laundry list of nutrients. So if you were to think 'well I'm just going to get my nutrients from food,' and you are taking birth control pills, you are creating a set of deficiencies. There are several B-vitamins in particular B6, Vitamin C, some of the minerals like magnesium and zinc and a whole host of others.

It's important if you are on medication, for whatever reason if you have to be on medication, make sure you research that medication to find out what nutrients it depletes and then replace those nutrients.

We are going to talk a little bit about how and when to supplement, and of course it's a very personal decision. I can't tell you when it's appropriate to supplement or not supplement, but I can give you the pros and the cons and when it's really super important to do it and when it may not be so important and what's the difference between the natural supplements and the synthetic supplements. Are the natural supplements really better, and are they worth the extra price and how to best test your vitamin status.

Medical disclaimer: whatever I share with you is not medical information It's simply a sharing from me to you, and I want you to use it with discretion. I want you to use it by really researching on your own. If you are working with a doctor, work in conjunction with that doctor to make sure whatever we talk about isn't going to mess up whatever medication or regime you are on.

Let's talk a little bit about the word vitamin. I'm always curious about where words came from and it turns out that it actually started out as the word 'vitamine', and that's a combination word that was made up by a Polish scientist named Casimir Funk, and it comes from 'vita' meaning 'life' and 'amine' meaning 'an amine of life' like an amino acid. It was changed to 'vitamin', they dropped the 'e' when it was determined they actually were not indeed amines.

So when we look at our vitamin balloons in our ABCs, we are going to go through which of these are actually vitamins and which letters don't have vitamins associated with them. We've got Vitamin A, we've got a whole complex of B's. Not all of them are shown here, but the most important ones and the mostly recognized ones are here. We are going to give you a chart that shows you more, but some of them are kind of edgy.

So we've got Vitamin B1, B2, B3, B5, B6, B7 which is Biotin, B9 which is Folic (you may not know them as B7 and B9), and then B12. Our fat solubles are A, D, E, and K. Our water solubles are B and C. So we've got our A, B, C, D, E, we skip F, G, H, I, J, and we go to K. I'm not sure what the story is behind that. Someday I'll get interested and look that up.

Here's a resource for you. It's an awesome resource. If there's any nutrient that you want to know about you can go to http://www.whfoods.com/nutrientstoc.php. Every nutrient listed on that page is a hyperlink - meaning that you can click it and get more information.

They give you a basic description of the vitamin, a role in how it supports your health, some of your food sources, a nutrient rating chart, and it'll give you the impact of cooking, storage and processing, (Certain ones like the water solubles are very heat sensitive), the risk of dietary deficiency, and then other circumstances that might contribute.

It's got a lot of really good information, and it's a great way to learn. It's a lot easier than pulling out textbooks. I've got umpteen textbooks on my desk, and I love looking at my textbooks, but it's really great to get the concise information on these sites. So I'd highly encourage you to go there, and check it out, especially if there's a particular vitamin that you think 'I might be deficient in that one, I want to learn more.'

This is a summary chart. It's not so big so it may be a little hard to read on your screen. You will have the full-sized version of it in your slides. This is just a summary. What I've given you is the letter - A all the way down through K - and then the name you may know them as or see them as when you are getting a supplement or when you are reading about them on the Web.

The other column is notes and actions. It's what they do in your body, what they might be related to, and some notes. But it's just minute because I wanted to fit this all in one page. Way more information is on the http://www.whfoods.com/nutrientstoc.php site and I'll talk in some more detail about some of these as we go through.

You might see A as retinol or sometimes as retinoic acid or carotenoids or beta-carotene. Beta-carotene is actually a precursor to Vitamin A and not the active form of Vitamin A. It converts to Vitamin A. It's not a very efficient conversion. It's said that it maybe takes 10 beta-carotenes to really converting to one A, because that process seems to have a lack of efficiency.

There are some genetic SNPs as we call them, Single nucleotide polymorphisms. You may remember that term from our genetics course in vital, but it's basically what we think of as a genetic difference or a genetic mutation. A lot of people have a variation where they are less efficient at converting beta-carotene into Vitamin A. So you need to take a whole lot more of carotene or supplement with pre-formed Vitamin A. I discovered that I do have a minor SNP in that area, so I periodically take pre-formed Vitamin A drops.

Vitamin A is super important for mucus membranes so it's super important for places that have mucus membranes. Where might that be? - Your nose and your sinuses and your lungs and your female track and your digestive track. These are the places where Vitamin A is really important, but it's also important for your eyes. You've probably heard about the association between Vitamin A or beta-carotene and night vision.

It's also important for the immune system and the integrity of the skin. Sometimes people have really dry, flaky skin or particular kinds of skin rashes when they have a deficiency of Vitamin A. So when you take in Vitamin A in the form of beta-carotene not all of it needs to get converted to Vitamin A for it to be useful. Beta-carotene has usefulness in and of itself. It's just that you have to make sure you are getting enough of it to get Vitamin A.

I would say most people that do not have the really bad gene or the SNP, if they are eating a really good, high whole foods diet with lots and lots of veggies and lots and lots of greens and carrots and peppers and very bright colored veggies, they are going to get a good amount of carotenoids which can then be converted to retinol.

But if in doubt take some Vitamin A. The time to supplement would be if you are fighting off something. Vitamin A is really good for fighting off viruses, in particular hepatitis virus, really important for that. You can knock out hepatitis in three days around the clock, taking Vitamin A around 100 IUs which is 20 times what's the recommended daily allowance for it.

Vitamin A is a fat soluble vitamin, and there are fats soluble and water soluble. When they are fat soluble, they can be stored easily in the liver. So you don't have to make sure that you have them readily available at all times. If eat a lot of it in one day and not enough of it the next day, your body can store that. Of course it's always better to get things on an ongoing basis so you don't have to make your body work to go pull out the stores; it's more efficient.

Vitamin A is in the category of fat solubles as long as D, E and K. B and C are water soluble. Let's start with the B and we often call these the B-complex. We think of the Bs as being really important for brain function and for energy production, and they are.

Certain ones are more important than others for the energy production because they are part of a cycle called the Krebs Cycle which is how our bodies take the food form of energy which is glucose and convert it into ATP which is the cellular currency of energy.

Thiamin is super important for energy; it's part of that Krebs Cycle. It's also really important for muscle contraction, nerve contraction, and for the heart. It's a really important one to have. This is one that alcoholics tend to get deficient in because they are drinking all this alcohol and it's ripping away some of these B-vitamins.

There is a fat soluble form of thiamin called benfotiamine. This is basically very tiny particles of thiamine mycelized down so that they can easily penetrate right into the cell walls. It's been used a lot therapeutically in doses of upwards of 150mg three times a day as an approach to healing the lining of the intestine when people have leaky gut, so it's part of that protocol.

Vitamin B2 also called riboflavin and the active form of riboflavin is riboflavin 5 phosphate. Let me just touch a little bit on the active versus non-active forms of vitamins. When we take vitamins in foods or in supplements, oftentimes they are in a form that our bodies can't use directly, and your body needs to activate it. Sometimes it's adding methyl groups, which is a carbon hydrogen combination, CH3, and it adds that to it.

Sometimes they add phosphates as in the case of riboflavin where it's riboflavin 5 phosphates. Phosphates are added to the fifth atom in there. It makes it more active, and that's the form that the body uses. It's said that if you are supplementing and you take activated forms, you are much more likely to get that vitamin used right away.

Riboflavin is also part of the Krebs cycle, and it's really important for red blood cell manufacture as well as for vision. You can read in much more detail about this when you go into the WH Foods page.

Niacin, let me talk about niacin. You might also see niacin stated as nicotinic acid or niacinamide, and they are just different forms of niacin. Niacin is B3, and it's a really good vassal dilator which means that it causes blood vessels to dilate. What that means to you if you take niacin as a supplement any amount more than 100mg usually, and you take it down with water, expect within about 15 to 20 minutes you are going to start to feel your face feeling warm and flushed. If you take a lot of it, it can start to really burn almost like really bad sunburn. That can last to up to an hour, in some cases longer, depending on the dosage you take and how good you are at clearing.

Niacin is often taken for that response as a vassal dilator. Where do you think that might be useful? People with heart problems, with cardiac problems, with blood vessel closures, high blood pressure caused by a narrowing of the blood vessels; it helps to dilate the blood vessels and more freely flowing with the blood supply to an area. So that uncomfortable feeling that you may get would be related to vassal dilation.

People like to take other forms of niacin and not get that. They get a lot of the benefits of niacin, but they generally don't get some of the cardiovascular effects unless they actually take the flushing niacin. But if you will see if you go to buy supplements, something called non-flushing niacin, and that's usually something more like niacinamide.

It's important for energy as well, part of that Krebs Cycle. It's important for nerve function; it's important for circulation and the heart. It's also got some involvement with glucose uptake in the insulin receptors. In some studies it shows that increasing niacin can actually make the insulin resistance better, and in some cases it shows that it doesn't. It actually can make it worse so whenever I have anybody asking that, I always tell them be careful. If you want to supplement with niacin, and you have insulin resistance or Type II diabetes, play with it and see if it maintains healthy blood glucose. So those are real vitamins; B1, B2, and B3. I'm starting to look into what B4 is, and there're a lot of folks who are colloquially calling any one of these compounds B4. It varies from where you read it.

Choline, Adenine and Carnitine: Choline is an important nutrient. It was always thought to not be an essential because your body can make it, and indeed it can, but sometimes your body can't make enough because you don't have enough of the raw materials, and choline is really important for cell membranes. It's a precursor to phosphatidylcholine which is a phospholipid which is a very important part of your cell membrane.

Adenine is actually a nucleotide so part of the DNA. Carnitine is important for shuttling fats across the cell membranes. They are not officially part of the B complex, but a lot of people have called them B4.

Pantothenic acid on the other hand is a true B vitamin, B5. It's important for making something called coenzyme A. This is an important part of the Krebs Cycle so it means that pantothenic acid is super important for energy production. It's also super important for adrenal function and for sex hormone function. When you look at a chart that shows the conversions between the various hormones that are secreted by the adrenals, the very top hormone in that cycle is called pregnenolone, and this comes from cholesterol. So even though people think cholesterol is this evil bad guy, cholesterol is actually super important for your hormones.

In order for that cholesterol to get converted to pregnenolone and then feed into your other hormones like testosterone and cortisol and DHA and estrogen and progesterone, you need to have enough coenzyme A, and the pantothenic acid is super critical for that.

That's why if you look at adrenal stress protocols for repairing your adrenals, what happens is pantothenic acid is listed as a critical nutrient. It's usually used in very high doses like 500mg three times a day to get that adrenal cycle restarted.

Another super important B-vitamin that you are going to see a lot and hear a lot especially in the areas of hormones and neurotransmitters is Vitamin B6. Most of the vitamin supplements that you see will say pyridoxine hydrochloride or pyridoxine HCL. The active form is Pyridoxal-5-Phosphate, and the amounts that you need to take of the activated form are a lot less than you need to take of the non-activated form.

I actually use Vitamin B6 supplementation with people who have hormone things going on. It's important in estrogen metabolism; it's important in the whole conversions between the various hormones and in the adrenals.

But also Vitamin B6 is super important for neurotransmitter functions, and neurotransmitters being those chemicals that are secreted by your brain to transmit messages from one part of your brain to the other, and then from the brain into the nervous system. So you get to experience life, you get to think, you get to breathe, you get to move because of that transmission.

There are all sorts of neurotransmitters there. Some of the most well-known ones are dopamine and serotonin and GABA. P5P is a very important core factor for the creation of serotonin and dopamine and a little bit for GABA. So it's really important. B6 is also important for protein synthesis so it's used in what's called transaminase enzymes.

You may not what transaminase enzymes are but if you've ever gotten a blood test and you've seen things like SGOT or AST or ALT or SGPT depending on how old blood is, those are actually B6 dependent enzymes. A lot of people when they look at a blood test they think that person has a problem with their liver because their liver enzymes are high but if your liver enzymes are really low it might suggest you have a B6 deficiency. B6 is really super important for protein synthesis.

Biotin is B7, but it's usually not called B7. It's quite interesting in the world of vitamins how some of them are called by their numbers and some of them are called by their names. Pantothenic acid is usually not called B5; it's more and more frequently becoming called that.

B1, B2, B3 you see them interchanged a lot; thiamine, riboflavin, niacin; but very few people call B6 anything but B6; and very few people call biotin anything other than biotin. They generally don't call it B7. Biotin is super important for hair. It's also important for nerves, cell and muscle integrity.

There are a lot of things that biotin does for you, but its biggest claim to fame is hair. Some folks even say that it can help to turn your grey hair, black again. I don't know about that. I know that people have done that using wheatgrass juice and de-stress mechanisms and lots of whole sprouted foods, but biotin does help to thicken the hair. When people are having difficulties with hair falling out, oftentimes biotin is one of the nutrients that often come into play.

Inositol, Vitamin B8, you rarely see this, but some people call it Vitamin B8. It's very loosely considered to be a B vitamin. Inositol is super important. It's not necessarily required that your body can't make it so that's why it's not technically a B vitamin, but sometimes if you don't have the right raw materials, you don't make enough.

It's important to have inositol to calm your nervous system down. So at the end of the day when you are ready to go to sleep, if you are deficient in inositol, you may not be able to fall asleep easily. Also myo-inositol, a form of inositol is used for women with PCOS, Poly Cystic Ovarian Syndrome.

PCOS is a syndrome where women have too much testosterone, insulin resistance and end up with symptoms like acne, facial hair and infertility. So inositol in the form of myo-inositol is super important for that. If that's of interest to you, you know people suffering from that, you may want to do a little bit of research on myo-inositol, loosely considered to be a B vitamin important for the nervous system.

B9 is a very important one, and again we don't usually call folate, B9. Folate we call folic acid, folate, metholfolate, folinic acid; those are different names for it. Most commonly you are going to see it listed as folic acid.

In reality if you want to get real technical folic acid is actually the synthetic form. And I'm going to scare you away from synthetic form of folate. Some of the others you may be able to get away with, maybe not but with folate it's super critical that you don't use the synthetic form which is folic acid.

So I would encourage you to go through your vitamins and read the labels and make sure they don't have folic acid in them. If they do, you call the manufacturer and say, what's the form of the folic acid? If they say it's metholfolate then you are okay. But if they say oh it's just folic acid, I don't know what form it is, it's just folic acid that means it's synthetic and it's been shown to interrupt a lot of different pathways in the body.

And it actually gets in the way of the metholfolate which is the active form. Folic acid, a form of folate, actually can become un-metabolized because of the way it's processed in a cycle called the methylation cycle. What happens is when you have too much folic acid, even a little bit if you got a genetic SNP in that area, and you get a buildup of folic acid, it actually can affect the blood-brain barrier, and that's serious stuff. We don't want anything messing with our blood-brain barrier.

Folate has really important functions, red blood cells production, how much more critical can we get than that and DNA repair. That's the major functions, a lot more than that but that's the major functions. If you are choosing a vitamin supplement, when you look at the folate, you want to make sure that you are looking at metholfolate. It's really, really critical.

And if you have anything that's not, then I want you to go ahead and dump it, really, seriously. How much can it cost, $20, $30 most of those synthetic forms are cheap. Just throw them away, it's not good for you.

Next, is Vitamin B10, again it's not something that anybody really has heard of or looked at but there's a number of websites which talk about B10 as—and it's a very hard one to say—Pteroylmonoglutamic acid. It's said to be good for skin pigmentation. It's actually a form of folate; it helps in the DNA repair and cellular reproduction.

It is not really a B-complex. It is thought to be essential to the body, but it can be produced usually from folate by the breakdown and fermentation of gut bacteria. Also it's said to have some anti-inflammatory reactions, but again not technically or truly a B-vitamin but classified there sometimes, as is B11.

I was shocked to be able to fill in the whole chart. I was like, okay this is cool. Again, it's not technically a vitamin, loosely categorized but Salicylic acid. It is found in white willow bark which is a plant that has anti-inflammatory properties. Salicylic acid in the form of acetylsalicylic acid is what is in aspirin.

It's something that is important for a calming inflammation in the body. Your body generally can make it or get it from food sources. It's roughly classified and sometimes considered to be Vitamin B11.

B12, you've all heard of B12, it's a critical one, like folate is responsible for red blood cells production and maturation. Red blood cells when they are formed are actually quite large, much larger than their adult counterparts. It's the opposite of what we are as humans, right? The red blood cells are very large and then as they mature they get smaller.

So we know that there's a B12 deficiency, or we suspect that there's a B12 deficiency whenever you do a blood count and you see a high percentage of the blood cells are large. That would be reflected in a parameter in the blood called MCV, Mean Corpuscular Volume. It basically just means the size of your red blood cells. Cobalamin, which is Vitamin B12, and folate are both responsible for that maturation.

I should say that cobalamin comes in many forms. The cheapest one, the one that is in most of your supplements, and the one you should avoid is cyanocobalamin. So it's the cobalamin connected with a cyanide molecule. You don't want that in your body. Cyanocobalamin, is really cheap and not a good one.

If you are taking supplements, you want to look at methyl form. A lot of folks have methylation issues, about 40% of the population, maybe more have methylation issue so that's important. Some people don't tolerate too many methyl groups, and we go with things called hydroxyl B12 or adenosyl B12. They come in, in different pathways.

The most useful form for the body is generally methyl, but again there are certain genetic profiles that make it difficult to utilize too many of the methyl groups so you have to be careful with that. So if you've tried methyl cobalamin and you've found some negative effects with it, switching to something like hydroxyl or adenosyl can be helpful. So that's B12, very important for DNA repair in your nervous system.

Vitamin C we talked about at length in an hour-long presentation we did just a few months ago and it's super important for your immune system for collagen repair, for hormonal issues, for adrenals. It's so, so important throughout the body, and we will refer you to that presentation for a lot more.

Vitamin D, again we did a whole hour plus talk about it, cholecalciferol. It's important for immune system, for autoimmune conditions, for thyroid, for repairing leaky gut, repairing leaky brain barrier, for skin integrity, for mood. It's been linked to depression when it's low. Vitamin D is a very important one.

Vitamin D has numbers like Vitamin D2 and Vitamin D3. They are not as distinct as the B's, B's are actually like each one is an individual nutrient in and of itself. The Ds are just different formats of the same Vitamin D2 and D3. D2 tends to be more of a plant source and D3 tends to be more of an animal source. They pretty much have similar functions. It's said that the D2 is not as potent as the D3.

Then we have our good friend, Vitamin E, tocopherols. What you are going to see a lot on vitamin supplements is alpha-tocopherol or delta-tocopherol or beta-tocopherol. If you are looking for supplements, you want to look for the mixed tocopherol so you have a variety of them because that's how food comes in nature.

Vitamin E is an antioxidant. It helps to protect cell membranes from oxidation by free radicals. It helps with the integrity of the blood vessel lining. There are so many things that Vitamin D is good at, it's a lubricant so it's good for the integrity of the skin. I've seen hemorrhoid creams or hemorrhoid suppositories made of Vitamin E. So it's a really good for skin and repair. It's a great antioxidant.

Finally we have Vitamin K. You might see it called phylloquinones or you might see it called ubiquinone. Ubiquinone is just a very tiny sized molecule of Vitamin K. Basically it's big claim to fame is clotting.

What you are going to hear a lot with Vitamin K is when you have some relatives who are on anticlotting medication like Coumadin, and their doctors have told them do not eat green leafy vegetables or cut down on your green leafy vegetables. Why do they say that? Because green leafy vegetables are amongst your best sources of Vitamin K. There are huge amounts in there.

What happens is when somebody is on an anticoagulant, and they are taking a lot of Vitamin K, they are going to have increased clotting which is the anticoagulant so you are going to have a synergistic effect. So they are afraid if somebody takes the K and takes the anti-clotting medication like Coumadin that the person is going to bleed out, that they are going to not clot enough.

My response to that is always well wouldn't you rather get them on as many greens as you can and then decrease the amount of medication down to the minimum dose? I haven't found very many MDs that are knowledgeable enough or willing to do that. But know that it's an anticoagulant, it helps to keep the blood nice and fluid and thin so that you don't get big clots, very important. They give kids drops of Vitamin K when they are born in a lot of the conventional hospitals.

Alright, so that's in a nutshell the ABCs so now we are going to look a little bit more at where you find these nutrients and then how do you know if you need to supplement.