

Physica Radio Field Notes

Dr. Stephen H. Atkins

Well, Good afternoon everyone! It's Wednesday, it's lunchtime and that means it's time for 'Field Notes'. My name is Dr. Stephen Atkins and I am your host for this weekly recurring lunchtime segment. I want to thank you for being here. It is always a pleasure of mine to be here and I'm looking forward to today's topic!

I got a lot of emails about last week's topic on minerals and I thought I would follow that up this week with Vitamin C. I had made the comment that humans are one of three mammals on the planet that don't make their own Vitamin C....guinea pigs, fruit bats and humans. A lot of people were really intrigued by this and didn't know that information so I thought I would talk a little bit more about Vitamin C today.

Vitamin C is probably the most common vitamin used by everyone around and it comes in a couple of different forms. Vitamin C or L-ascorbic acid or simply ascorbate, has many different roles. You know the biological role of ascorbate is basically to act as a reducing agent, meaning that it donates specific electrons to enzymatic and non-enzymatic reactions.

Vitamin C can be reduced in the body by glutathione and also by NADPH (nicotinamide adenine dinucleotide

phosphate-oxidase) dependant enzymatic actions.

The presence of glutathione in all cells and extra cellular fluids helps maintain ascorbic acid at a reduced rate in the body. Vitamin C as ascorbic acid is a common enzymatic co-factor in mammals and is used for the synthesis of collagen. Ascorbate is, as I say, a powerful reducing agent capable of readily scavenging a number of reactive oxygen species or ROS's.

Vitamin C is absorbed in the body by both active transport and simple diffusion. You have a sodium dependant transport and a sodium ascorbate co-transporter and then there is also a hexon-transporter and these are the 2 transporters required for absorption. These transporters import the reduced form of ascorbic acid across the cell membrane and are involved in Vitamin C transport to every tissue of the body. The only exception would be the red blood cell that has lost that protein during the maturation cycle. It is very common that people say, "Your body only absorbs so much and you pee the rest out". That's because the body's maximal store of Vitamin C is largely determined by the renal threshold for the blood.

There are many tissues that maintain Vitamin C concentrations far higher than

the blood. These biological tissues that accumulate over 100 times the level in the blood plasma of Vitamin C are the adrenal glands, the pituitary, the thymus, the corpus luteum and the retina. There are also those tissues that contain 10-50 times the concentration present in the blood plasma; for example, your brain, spleen, lungs, testicles, lymph nodes, liver, thyroid, the small intestinal mucosa, leucocytes, the pancreas, the kidney and the salivary glands.

I hope you are beginning to see the scope and range and the centralized importance of this core vitamin and as Dr. Cass often says during his classes, "I trust you are starting to make correlations and draw implications for your patients..."

Ascorbic acid is oxidised or broken down in the body by the enzyme L-ascorbate oxidase and the ascorbate that is not directly excreted in the urine as a result of the body's saturation or destroyed by other body metabolism functions, is oxidised by this enzyme and then the body removes it. High levels of Vitamin C have been correlated with a *decreased* risk of many types of different diseases some of which are cardio vascular disease, ischemic heart disease and notably, to increase life expectancy!

You know, Vitamin C is essential to a healthy diet as well as being a highly effective anti-oxidant, acting to lessen oxidative stress and is a substrate for ascorbic peroxidase.

Remember, Vitamin C acts as an electron donor for vital and specific enzymes. There are many different forms of enzyme co-factors that Vitamin C is involved with and these include the functions like the synthesis of collagen, carnitine and many neurotransmitters. It is also involved in the synthesis and catabolism of tyrosine (hence the thyroid component!) and the metabolism of microsomes.

During biosynthesis ascorbates, acting as a reducing agent, donates select electrons to prevent oxidation to keep iron and copper atoms at their reduced states. So when Vitamin C, as an electron donor, it provides the means whereby hydroxylation of the proline and lysine synthesizes collagen hydrolyzation and hydrolation to allow the collagen molecule to assume its triple helix structure. This indicates so clearly the essential role that Vitamin C plays in the development and maintenance of scar tissue, blood vessels and cartilage.

Carnitine is essential for the transport of fatty acids into the mitochondria of the cell and for ATP generation. It participates in the biosynthesis of norepinephrine from dopamine and adds an amide group to polypeptide hormones to increase their stability as well as modulating tyrosine metabolism. So what's the point here? When there are more free radicals in the body than anti-oxidants this condition is called Oxidative Stress and we hear about this from Dr. Cass a lot. This has an impact on cardio vascular disease, hypertension, any chronic inflammatory disease and

things like diabetes. Also in critically ill patients and in individuals with severe burns they really need a lot of anti-oxidants. Vitamin C features strongly in these conditions.

On the tail side, Vitamin C can also be used as a *pro-oxidant*. Now this is very, very popular in cancer and I do a lot of work with that. This is very important and I want you to listen very carefully to this.

If you can raise the Vitamin C level to 400 mcg per decilitre, Vitamin C goes from an anti-oxidant to a pro-oxidant. What this means is that this reaction generates a lot of super oxide molecules and creates an environment that doesn't allow anaerobic organisms or anaerobic situations to occur.

We all know that cancer is a very metabolically anaerobic kind of state, so this is why it is very widely used in cancer therapy. It has a huge impact on the immune system in that Vitamin C is found in very high concentrations in our immune cells, however they are quickly consumed by the body during any kind of infection. It is not really known how this interacts with the immune system, but people generally believe that they modulate the activities of phagocytes and the production of cytokines and lymphocytes and a number of cell adhesion molecules and monocytes.

Vitamin C also acts as very natural anti-histamine, because it prevents the histamine release and increases the detoxification of histamine in the body. I use a ton of this stuff when it's allergy time!

When it comes to dietary sources people always ask me, "Hey, how can I get the most amount of Vitamin C in my diet?" I think it was Royal Lee who said, 'Food contains things known and unknown and are generally thought to be the best source of vitamins'. You can also find Vitamin C present in certain cuts of meat, especially liver. However, the richest source of dietary Vitamin C is found in fruits and vegetables and in the Kakadu Plum and get this, highest concentrations are found in the Camu Camu fruit. Just as an aside Dr. Cass is developing (and it is coming out very shortly) a liposome form of Vitamin C that is actually made from Camu Camu and tapioca. Dr. Cass said that there are only a few really clean sources of Camu Camu these days and typically ascorbates are added to them to give them additional marketing advantages. He was telling a few of us at the last Academy session that he has found an exceptionally clean source from a South American enclave that is part of the Rudolph Steiner school of biodynamic gardening. You've got to hand it to Dr. Cass and his fierce dedication to go more than just the nine yards to source quality ingredients. That time of dedication and integrity is such a rare thing these days as you well know! I am really looking forward to this remedy when it comes out! I'm sure Physica Energetics will let us all know when that is available.

Vitamin C is absorbed by the intestines using the sodium/iron dependant channel. It is transported through the intestine via both the glucose sensitive and glucose

insensitive mechanism. It is interesting, that people who have a high sugar diet or consume large quantities of sugar, slow the absorption of Vitamin C in the intestines. As you know, when there is a high level glucose in the body, it also slows absorption.

Here's a fascinating paradox; if you ever do a finger stick on someone who has had a high dose of Vitamin C, it will look like the blood sugar level is very, very high, but since Vitamin C's molecular structure is very close to that of glucose it gives a false reading on a blood sugar stick. People may think that they're going to go into a diabetic reaction but they don't. And that's the reason why. It's a false reading.

As I said, the Kakadu Plum and the Camu Camu have the highest sources of Vitamin C found in plants. Camu Camu comes in at about 2800 mg per 100 g and Kakadu Plum comes in around 1053 mg per 100 g. A lot of people think oranges have a very high dose of Vitamin C and they only come in at about 53 mg per 100 g. Interestingly, you get a much higher dose if you consume things like chilli peppers, red peppers and parsley. They come in at 244 mg, 190 mg and 130 mg respectively. As far as animal sources go, calf's liver and beef liver have the highest and things like goat and cow's milk have the absolute lowest amount of Vitamin C.

So is there a way to test people to see what their demands of Vitamin C are? Well, there actually is. You know I'm a big fan of

functional testing. I do a lot of it in my office and I do a test for Vitamin C that uses a reagent to note how long it takes to de-colourize and based on that you can determine the Vitamin C level of the body. I'll be teaching this in the upcoming Functional Terrain Analysis classes I'll be doing. Stay tuned!

When I see patients who have any chronic ill condition or any chronic imbalance in the body or adrenal dysfunction, these people's Vitamin C levels are always low. So there really is a great way to determine the body's need for Vitamin C and this is done through what is called the Vitamin C Recalibration Flush.

I started using this in the early 1990's and I continue to use it today. I first learned about this when I was working with a physician in the city who had just come back from Europe where he learned this from several European biological doctors who had been using this Vitamin C Recalibration Flush to reset the body.

It involves creating a short term of diarrhea for the purpose of flushing out imbalanced bacterial colonies, parasites, heavy metals and other toxins using pH buffered ascorbates, dosed to bowel tolerance.

What I would like to say here however, is immediately following any kind of flush it is important to re-establish and re-colonize the healthy symbiotic bacteria in the GI tract; which will then result in a healthier system and it will make the terrain inhospitable for pathogens.

I love using the Alkalize-C for this. It was perfectly formulated to contain the balanced component of minerals that are needed to assist in replenishing the potential loss of minerals when you do this. Alkalize C is a 4 gram Vitamin C powder that typically won't give you diarrhea as it is buffered and doesn't fall into the category of bowel tolerance Vitamin C products. In other words you can dose this pretty high without worrying about bowel tolerance. However we're going to up the voltage on dosing and as a result we're going to not only go to a temporary diarrhea but also front load a substantial whack of Vitamin C which changes everything for the patient.

Now if people feel that they get gas or a feeling of fullness when they are doing this, it may be due to their rushing to complete the procedure. Always tell people to take their time with this. Room temperature liquid is best for absorption and if cramps occur during this procedure, it might be due to too little fluid being used to dissolve the Vitamin C powder.

By the way, a quick way to reduce the parasitic load in someone's bowel is with a Vitamin C Recalibration Flush. You do a Vitamin C Recalibration Flush first and then you replant the right-spinning probiotic and I always use the Flora Syntropy for that! This is non-negotiable or you will create problems I assure you.

Vitamin C Recalibration Flush reduces the cellular waste and gives the right-spinning probiotics a greater opportunity to establish

residence once all the waste is removed. So how do you do it?

Well, here's the procedure. You dissolve ½ a teaspoon, which is 2 g of the Alkalize-C powder in about 2-4 oz of water. Absolutely DO NOT use juice, as the acid or pH of the juice will not act conversely to alkalize the nature of the buffering system of the powder. So please use water and it should be spring water of course!

Once you mix the Vitamin C in the water wait for a few minutes, (it is typically 2 minutes), you want the effervescence to settle down and then drink the whole glass of Alkalize-C.

Now the amount you need to do this with will depend on the individual status health of the person, generally the more unbalanced or unhealthy the person is, their demands of Vitamin C go up greatly.

So you are going to do this every 15 minutes, until a watery diarrhea appears and then you stop the consumption of the liquid. Because Alkalize-C is buffered it might take several applications to have this happen. This is a very good thing as it provides the patient with a larger dose of Vitamin C than they normally need.

Now you really need to devote a whole day to this I might add and have someone do it at home, (it's not the kind of thing you want to do in the doctor's office) and you want to do that because loose stools may continue for a short while after this flush. Another reason for Flora Syntropy!

So here are some dosing suggestions for various types of patients.

For a healthy person use a ½ teaspoon every 15 minutes; for a moderately healthy person use 1 teaspoon every 15 minutes; and a person who is really unhealthy I use 2 teaspoons every 15 minutes. And as I say, you are going to do this until a watery diarrhea comes out, or just water comes out of the rectum.

Here's how you figure out the patients optimal daily dose.... Let's say it took 10 grams to achieve the desired result. 75 % of that number is the optimal dose. Therefore the patient would then take 2½ grams three times daily.

Now ideally when you are having the person make up the Vitamin C flush, don't have them make a huge batch and just drink it every 15 minutes. Have them make it as they need it, because Vitamin C can rapidly oxidize. After the flush you absolutely MUST re-establish and re-colonize the body's immune bacteria. I mentioned this before, I use the Flora Syntropy and I use pretty large quantities for 72 hours beginning the day following the flush. So let's say someone weighs 150 lbs, I'll give them 6 caps before a meal 3 times daily and maybe even 12 caps at bedtime. I know this sounds like a lot but you REALLY need to re-establish the flora in the GI tract. I think I've made my point!

I also use Wild Oregano Oil, 2 softgel capsules 3 times a day for 3 days and then 1 capsule 3 times a day until the whole bottle

is finished. The Wild Oregano Oil will help clean up any persistent pathogens. You know of course that you can take this with food. For heavy metal and chemical detoxifications considerations, I put people on a pretty high dose of the Laminaria and I also keep people on ReHydrate and SpectraLyte. You can also think about using the BioCell Salts too. Don't forget to support the kidneys with Solidago Intrinsic and Kidney Milieu and of course one of the BioToxicosis Lymph remedies and Drainage Milieu. Remember the Lymph 1, 2 and 3 are specific to ECM drainage and clarification... Dr. Cass will often add Drainage Milieu as a mesenchymal clarifier. That's a good distinction that we were considering at the last Academy class. Got that? Good!

Anyways, that is about all the time we have right now.... *in a New York minute!*

Hopefully this will get you started or at least remind you of what you may have already known, but forgotten.

I'm Dr. Stephen Atkins and this has been Field Notes and I'll see you next week.