Ralph Holsworth: Nattokinase Enzyme Treatment

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Moderator: University of Health Sciences in Kansas, and a BS from the University of Texas in El Paso. He had a varied career. 1977-1980 he was Nuclear Power Plant Propulsion Operator for the US Navy. He was Director of Clinical and Scientific Research for Essentia Water in '99-2001, and served at an honorarium professor at the University of Colorado Springs in 2001. He's been a research assistant involved in clinical research with oral systemic enzymes as an adjunctive treatment in cancer treatment at the Cancer Treatment Center of Tulsa. He was on the scientific advisory board of Transformation Enzyme Company from '95-'97. He was formerly with the EPA, and he is involved assessing superfund sites and reclamation sites, and is a member of EPA's Hazardous Material Emergency Response Team in Houston.

He's authored several publications related to antioxidant properties of electrolyzed water and nattokinase, a fibrinolytic enzyme. That is what he's going to be talking about today, mostly. He is also serving as Lieutenant Commander for the US Public Health Service, assigned to the Apache Reservation in Dulce, New Mexico.

I give you Ralph Holsworth.

Ralph: Thank you. It's quite an honor to be here this evening. Through Jim and Mike Kirk I've learned a lot about the group here. I just want to tell you, before I forget it, I really appreciate your passion, your willingness to learn and go forward with going beyond what your doctor doesn't or does tell you in trying to find the truth in health sciences. I applaud you.

Are we running here?

I'd like to show you a five minute DVD. Very short. It introduces the protective adaptation theory of atherosclerosis. It doesn't negate anything that I've heard this evening. It just provides another aspect of what's going on in the body as we look towards the etiology of atherosclerosis, arteriosclerosis, and, in general, cardiovascular disease. If I may, I'll just play this intro five minute DVD, and then I'll initiate my Powerpoint presentation. Thank you.

DVD: When a healthy infant enters the world, his heart pumps more efficiently than it ever will throughout his lifetime. His arteries are soft and flexible. His blood pressure is low. His blood is thin and flows easily. The effects of time, lifestyle, and the environment have not yet begun to take their toll. Like water flowing in a gentle brook, an infant's heart streams smoothly, and with little effort, through his arteries with each heartbeat. The arteries expand and easily absorb the contractile force of the heart, which keeps the blood moving forward in a laminar flow.

But time is not kind to the arterial system. As the years pass, the child grows taller. His blood pressure must rise to perfuse the larger, erect body of an adult. As he eats animal fats, and is exposed to environmental stresses, his blood gets thicker. As a result, his heart must work ever harder.

Like a steam heating system, the circulatory system is a closed system. The arteries must absorb all of the stress from the laboring heart. A vicious cycle begins. As the heart works harder, arteries in certain regions of the system are over-stretched, almost to the point of rupture. The most vulnerable arteries are those located near the heart. Acting as shock absorbers, the proximal aorta, and the arteries feeding the heart and brain, absorb the impact of ejected blood as it is punched into the arterial system by the now forcefully contracting left ventricle. These arteries begin to be stretched to their limits.

Arteries in the lower extremities also become more stretched, but for a different reason. The pull of gravity on the blood in the legs of a person standing upright adds to the already increased pressure in the arterial system. To protect themselves from further stressing and possible rupture, the arteries in these vulnerable regions begin to thicken, stiffen, and harden. In other words, they adapt. As the arteries get tougher, they become less compliant, drastically changing how the blood flows through these regions.

To continue to maintain life sustaining perfusion, blood flow becomes turbulent. The turbulent flow sets the stage for the initiating event that causes atherosclerosis. With turbulent flow, eddies form with the arterial bifurcations, changing direction with each contraction of the heart. The back and forth flow of the blood is abrasive, like sandpaper. The intima of the artery adapts to this assault by forming a callus to protect itself from injury.

At the same time, the blood flow dividers and arterial bifurcations are subjected to yet another type of injury. This is high shear stress, which occurs with every heartbeat only at the peak of systole. These high velocity bursts pound on the intimal surface of the flow divider wearing it away. The intima adapts to this attack, forming its own type of callus to protect itself.

Think of these calluses as the normal physiological response of the intima to mechanical injury. Nature has programed the epidermis, and other cells in the body, to protect themselves from repetitive injury in their own ways. The arterial system is no exception. These calluses eventually develop into what medical science calls early atherosclerotic plaque. Each callus, a bump in the arterial wall, further disturbs the blood flow and creates more turbulence in the non-compliant regions. This sets into motion the end stage of the deadly cycle of atherosclerosis.

In a distortion of the original adaptive process, the callus grows as this cycle accelerates. The increasingly turbulent blood flow instigates the buildup of more and more plaque. How fast the plaque grows, and what shape it takes, depends on the composition of the blood, genetics, lifestyle, and environmental stresses. Most often, the final event is plaque rupture or dissection, that almost instantly stops all blood flow. A stroke, heart attack, or amputation follows. The chain of events that force the heart to overwork, and to function so inefficiently, has again claimed another victim. One of the 16 million Americans afflicted with cardiovascular diseases.

Ralph: I introduced this, because a lot of things that we've been speaking about, Stan introduced as far as insulin and hypoglycemia, the different increases in triglycerides with dietary, SAD, standard American diet, etc. These tend to affect tremendously the hemorheology of the blood flow. Case in point, HDL will actually make your blood viscosity go down. The thickness of the blood will actually decrease. That's advantageous to have an elevated HDL. The triglycerides, the LDLs, as Stan referred to, actually increase your blood viscosity, the thickness of the blood. Those are some of the things that I'll be bringing into our discussion this evening. Feel free to bring your questions into this here.

Excuse me. That's for the delay there.

Tonight's discussion I'd like to present is nattokinase, which is a pro-fibrinolytic enzyme. I'll go into the history of that. Then I'll relate that with the chronic inflammatory stages, and how that increases hypercoagulability states increased, or hyperviscous syndrome, where you have increased blood thickness, as well how crosslinked fibrin is involved in this process, as well as any chronic inflammatory process as well.

Everyone is very familiar with the tragedy of heart disease, cardiovascular. Each and every one of us is probably touched by this tragedy in one way or another, by relatives or own personal. Although there's over two million people die either arterial or a venous occlusion …

Female: Can you read that? Because it's almost impossible to read the red.

Ralph: Oh, I apologize. Would the lights help with that contrast? [crosstalk 00:10:40] Is that much better?

Male: That's better.

Ralph: I'll make a note of changing the color. Thank you.

More than two million people will die either from a venous or arterial occlusion. It's an inadvertent blood clot, wherever it occurs in your body. Whether it's your leg, we call it a blood clot DVT; or whether it's a heart attack; or whether it's in your brain, we call it a stroke. None the less, this is almost four-fold greater than the number of people that actually have consequences from the cancer, not to belittle cancer at all. The incidents of the serious thrombosis there are estimated at almost 3.4 million occurrences annually.

In bringing in essential hypertension, essentially, orthodox medicine doesn't have a clue as to what's causing it, but also essentially doesn't have any good ways of treating it. I want you to remember, we always want to treat the patient not the numbers. The spirit behind controlling essential hypertension, or hypertension in general, is to prevent the comorbidity or the mortality behind that, which again is inadvertent blood clots. We see that as far as stroke and heart attacks predominately,

but also I'll present this evening that the essential hypertension is also giving you clues as to what's going on with the blood, the viscus state of that. It's also telling you the difference between systolic and diastolic, we call the pulse pressure. Perhaps a number we need to pay more attention to, because that's telling us how much work that heart's doing: the work of the heart with that greater pressure gradient.

I'm sure everyone in this group, they see The War on Strokes, they see Newsweeks, Times articles, and they're like, "What took you guys so long?" This is old news to everybody in this group. The only thing I'd like to throw into the intellectual kettle tonight, if you will, is that think of these chronic inflammatory processes, whether it's chronic infectious processes, insults by sugar, hyperinsulinemia, all those. What's going on with the physics of the blood, the hemorheology. I think, looking at the blood vessel and realizing that arterial, our plumbing, it's really the fluid in the plumbing that dictates the structure of the pipes, if you will.

All our medications for hypertension/cardiovascular disease, for the most part .. I think of one drug without an exception … are directed at our plumbing. We look at it as purely a geometric problem. You have an occlusion, heart attack, go in there and roto root it out. Same philosophy with Drano, just pour it down the pipes, get the clog out. All I'm suggesting this evening, let's treat the fluid, the blood, and see how that modifies the actual vessel.

Yes sir, Stan.

Stan: A question: you talked about the differential.

Ralph: Yes sir.

Stan: Okay. What about 150/100 versus 120/70? Same differential.

Ralph: Correct.

Stan: Are they equivalent in pumping difficulty?

Ralph: Honestly, the higher ones are going to be … You still have your Delta P across your pump, is 50 millimeters of hydrogen, but the fact that it's elevated … I'll get into that a little bit later when I go into the protective adaptation theory and discuss that. That's a good point.

We see all the different things. This slide here summarizes the essential bacteria and platelets going through initial injuries. We get an acute inflammatory process, whether it's a car wreck, or a cut, or an acute infectious disease, and it puts us into a chronic infectious, and then sometimes even the chronic inflammatory processes.

One other thing of course, they don't mention here, is that you can have sterile inflammatory processes. In other words, if your blood is too thick, you can have a physical impairment or injury occurring to your vasculature because of the increased

viscosity. In other words, the blood is much thicker than what the arterial vasculature was designed to carry.

So the clot plot thickens, as we're young, and then it thickens as we become older. Again, this is crosslinked fibrin red blood cells. This is a crenulated RBC on its way out. It's probably 119 days old. I'll go into that. But these become abrasive, these become sandpaper. Think of it as sand blasting. I'll go into the theory there, the protective adaptation theory. Because blood is a non-Newtonian fluid. When the heart applies pressure or energy into it from systole diastole, it's changing five-fold. Your blood changes its blood viscosity, the thickness, five-fold every beat of your heart and then thickens.

I had the great fortune to meet Dr R. Kensey. He's a number, if you ever had the unfortunate incident of having a heart cath, the Kensey/Nash Plug is the plug to put in your femoral artery to stop bleeding after that procedure.

What he introduced to me was the protection adaptation theory that he published in 1994. Basically, in medical school, I was perplexed as to sex, gender was a risk factor, cigarette smoking, cholesterol, obesity. All these things. I never understood any centralizing or common denominator throughout this. What made sense to me, and more importantly, the supporting documents that Dr Kensey was able to provide me. He's just finished his other copy, finalized The Origins of Atherosclerosis, which goes into the protective adaptation theory. The fact that the cholesterol, the obesity, diabetes, developing middle age, all those increase your blood thickness. Actually, the whole blood viscosity, which is BWV, actually has the highest correlation with cardiovascular disease.

These were all researched articles that were done independently. In other words, each researcher, multi/different sites. Basically, you're looking at the whole collection of data all indicate back to the fact that the increased blood viscosity is very central in producing the arterial atherosclerosis.

Yes sir.

Male: What actually makes the viscosity? Is it just fibrin? What's going on that makes the viscosity?

Ralph: Well there's a lot of different things: increased triglycerides will increase your blood viscosity, LDL, oxidize particular. We look look at AGEs, advanced glycation end-products. Diabetes, in general, have a very thick blood. Basically, there's a number of different agents that are viscogenic, or make the blood thick. Chronic inflammatory. We look at C-reactive protein, which is an acute phase protein that's suggesting that you have inflammation in your vasculature. That also increases your prediction value of your lipids by two-fold. I have one slide that will pull that all together for us, which is the next one, so very timely.

On the bottom x-axis we have shear. Shear is basically just energy. Once you impart energy, it describes how well things flow. During a high shear flow, we have things passing by each other very quickly. Very similar to the blood that's getting injected into your aorta during your contraction of your left ventricle. During low shear, this would be during diastole, this is when your heart is actually feeding itself. The coronary arteries are actually feeding the myocardium. I'd like to point out, that's actually when the blood is its thickest. If you think about it, the myocardium is getting fed at probably one of the worst points, as far as the blood flow or viscosity issues are in the blood. That's when it's the thickest.

Here's a number of different things, as far as sticky platelet, the rouleaux formation, C-reactive protein, triglycerides, cholesterol. What you can see is that it affects the blood and very specific shear zones. This is why, I think, there's just as many people with a cholesterol below 150 who have heart attacks as there are with it greater than 150 that have heart attacks. Obviously, cholesterol in and of itself is not a determining factor as who's going to have a blood clot or not.

I present this because it shows the multifactorial portion of that. If you look at the Framingham study, females, there is not one menstruating female who had any cardiovascular disease. A menstruating female will lose 500-1,000 cc of blood a year. Her population of red blood cells are 85% younger. That means they're smooth, and that they're not bumping into the endothelial lining and scarring it. It's more of an elastic route. There's not damage incurred. I think that's one of the major differences here with men. Once women, for whatever reason, stopped having their menses, then within two years, they catch up with men, as far as their risk factors for cardiovascular disease.

Yes.

Male: Does a man who gives blood frequently have a reduced rate of a heart attack?

Ralph: Excellent question. Yes. The studies on phlebotomy and blood donation, there's a 90% decrease in acute MIs and strokes in men who frequently give blood. Because what it does is, again, over here, you see hematocrit weighing in at the high shear, and that's where it's going to decrease the blood viscosity significance. That's an excellent point. I encourage all my patients, particularly men, to donate blood for that reason.

This is just showing you the changes of the viscosity. There's literally a five-fold difference there. During diastole it's 20 times the thickness of water, your blood is. Then during systole, when we're injecting it out of the aorta, it's similar to ketchup. Ketchup is a non-Newtonian fluid. I didn't bring one, but if you take ketchup, just hold it up, it doesn't move. Put a little energy or shear into it and it moves, because it's a shear thinning fluid. That just shows you some of the difference there. Even during systole, our blood is still four times thicker than water.

That brings us into natto. Four years ago, I did my due diligence. I researched enzymes. I knew Karl Ransberger, with Mucos Pharmaceutical. I had been very fascinated with enzymes, because they allowed me to do things in medicine: steroids. This crowd knows the limitations of pharmaceuticals. Having said that, it gave me, and a new medical student, some news tools that I could take, or armamentarium, to help patients, particularly with autoimmune diseases.

Four years ago, Amano Enzyme introduced this enzyme, nattokinase. I became fascinated with it. Then I traveled over to Japan and met Dr Sumi. Dr Sumi was actually at the University of Chicago in the '80s. He was trying to take urokinase, which is an enzyme that we were using, I guess, back in the '80s, I wasn't a doctor then. It was done intravenously to break up blood clots. He was trying to develop a route that we could swallow it.

In that process, I think he did two no nos in scientific research: (1) you never eat food in the laboratory; the other thing is you don't play with your food, that's what your mum says as well.He had a Fleming-like experiment, where he had the petri dish and there was artificial or fibrin, or clot. Same thing, if I had a blood clot right now, if we took it out, it would look very similar to this white gelatinous material in these petri dishes.

What he was doing was basically dropping the urokinase in there. These enzymes are like Pacmen, they eat that fibrin up. They hydrolyze it, if you want the scientific term. He was just curious. This is what he was using to measure plasmin, which is an enzyme we make, urokinase, and some other enzymes. He dropped the natto bean in there, and it made a huge hole in the fibrin. It was greater than the plasmin, it was bigger than the urokinase. He was like, "Wow, what's going on here?"

So not to lose his funding, he waited until he got back to Japan. This is just showing: U is urokinase, P is plasmin, which is our own. When you have a blood clot, they put you in the hospital, they put you on heparin and convert you to warfarin. All they're doing is buying you time to allow your plasmin to catch up. In other words, to allow you to break up your own blood clot there.

Then enters the nattokinese. Again, like I said, he waited until he got back to Japan. This was the late '80s. He looked at over 200 different foods. He's trying to isolate what in particular was so unique about natto. Natto, in and of itself, has a long medicinal history going back to the Edo period, thousands of years. These are the two publications there that he published basic and clinical aspects of the Japanese traditional food, natto.

He literally became a folk hero overnight, because if you've ever had natto, it is the combination of pork and beans and rubber cement, with the odor of stinking socks. It's the ammonium from the process. The texture is actually a polyethylene glycol. That's where the natto is, is in there. The beans provides the protein. It's a fermented dish. It's the third most popular soy food in the world, believe it or not. I make it. I

had some last night. I was going to bring some, but I figured with airport security the way it is, I would have never made it to this presentation.

Male: You can buy it at Japanese stores.

Ralph: There you go.

Natto, in and of itself, is the richest form of vitamin K food. If you have a patient, and you're trying to figure out, "Why can't I control their PT and INR?" Ask them if they're Japanese, or if they have … For some reason, like natto, it's probably because of the menaquinone, or vitamin K, in there. It has the longest half-life of any vitamin K. It's 48 hours.

Yes sir.

Male: How much vitamin K is in, let's say nattokinase? 2,000 FU or 1,000 FU?

Ralph: Say again?

Male: How much vitamin K would be in the typical nattokinase body?

Ralph: The natto, if we went down to the market tonight and bought some, there's about 1,000 micrograms per gram of natto. Very high. 1,000 micrograms per gram.

Male: Vitamin K is a blood clotter, isn't it?

Ralph: Pardon?

Male: The vitamin K is a blood clotter, isn't that correct?

Ralph: It's strategic in four of your vitamin K dependent blood clotting factors, but in and of itself, I think it's healthy for a physiological clot. I encourage vitamin K, as long as you're not on warfarin, because that can cause a lot of problems there.

Nattokinese, again, is a fermentation process. Is by a microbe. It's not a fungal enzyme.

The other thing is we measure an enzyme's activity. Concentrations, they don't mean anything. I can have 100 milligrams of an enzyme here, and another 100 milligrams of the very exact same enzyme. Their activity can be completely different. They're almost a living entity when it comes to that.

Some of the first papers done by Dr Sumi: Experientia. Just basically, he isolated the enzyme from the natto. He did a number of experiments with natto in and of itself, and then taking a water soluble fraction and isolating the enzyme nattokinase. Basically, he found very equivalent results, and it made him believe that that's really what the active ingredients was.

These are dose response studies here. We're measuring on the y-axis here fibrin degradation products. Nattokinase is very, very specific in breaking cross-linked fibrin. I mention that because a lot of other enzymes have fibrinolytic activity, they break up fibrin, but it's more of a shotgun effect. If we look at SDL electrophoresis on these byproducts, we'll see 12-20 of them. In nattokinase we see two very distinct veins of proteins. It's a very clean, very specific enzyme, as far as the therapeutics. Again, we see a dose response. In other words, we give the nattokinase, and then we see an increase, and then a proportional serum redistribution and decrease of the degradation products.

What is very unique about the nattokinase … Most doctors are familiar with this slide of the clotting cascade. We have the coagulation cascade, and then here we have, basically, the fibrinolytic or plasminogen system. What's really going on with the nattokinase is it up-regulates the plasminogen activation system. I'll go into more detail. It does it by three different mechanisms. It doesn't directly attack the blood clot. It really up-regulates the plasminogen system. I'll show you how that eventually prevents and treats the blood clots.

About 10% is the quantification between the direct thrombolysis from nattokinase. It's absorbed through the body through an alpha-2-macroglobulin, which is produced by monocytes and macrophages.

My analogy is, if we want to go to a fire tonight, because you're tired of listening to me, you'll jump on a fire truck with bells and whistles. The likelihood is you'll probably end up at a fire. I think most of us will agree with that. Same thing with the nattokinase. It binds with alpha-2-macroglobulin, which is actually released during inflammatory processes by monocytes and macrophages. It ends up at the very specific site of where inflammation is occurring. This is very important, obviously, when we're trying to combat blood clots, because they're very site specific, as I'll show you later.

The other 90%, probably, of the prevention/treatment of the nattokinase is through up-regulating of the prourokinase to urokinase, and then actually promotion of plasmin. That's the enzyme that we produce in our body that actually breaks down the blood clots. I'll show you another diagram.

Yes, Jim.

Jim: Would lumbrokinase, and let's say serrapeptase, have a similar site specific activity? How would you compare the efficacy of the various systemic enzymes like that?

Ralph: That's a great question. I am not familiar with the NI protease or the receptors for those, as far as the lumbrokinase. I do know that lumbrokinase is actually three different serine endopeptidase. They tend to directly attack the blood clot, from my understanding there.

That's just a venogram here just showing a blood clot here, and then a resolution after an oral administration.

Jim: Point at the screen. You're blocking the whole thing.

Ralph: It's just showing that. Who has that? That's great.

Then just to go through the pharmacology there. Digests cross-linked fibrin. Again, that's very specific. Cleaves and inactivates PAI-1, and that's plasminogen activator inhibitor-1. We see that with one of the effects of glucose, over abundance of that, or hypoinsulinemia. We actually see PAI-1 increase. 80% of type-2 diabetics will succumb to a cardiovascular disease in large part because the effects of the glucose and diabetes on increasing their chances of having an inadvertent blood clot.

tPA: I'll show this on another slide here. Basically, there is some antiplatelet aggregation effect. Here's some of the antiplatelet aggregation. It's an inverse ratio, as you can see on the bottom, the control on top. Then at the very bottom, that's with nattokinase water extract that has the strongest platelet inhibition. It's not as strong as aspirin. It's very similar to what we'd get from onions and garlic. I just mentioned that.

Some of the things I read in the literature about nattokinase, I was a little perplexed, and then some of my clinical studies I was like, "What else is going on?" That's when I got into working with Dr Kensey. Using his viscometer, the real log to actually measure blood thickness.

We're doing research now at the Keck School of Medicine, University of Southern California. Dr Herbert Meiselman, probably one of the foremost hemorheologists in the world. We're looking specifically how the nattokinase increases blood flow. We found so far, basically prevents red blood cell clumping, the aggregation of rouleauing. Helps with the red blood cell, as far as its ability to deform. This is very critical when you look at a diabetic's retinopathy, their nephropathy, micro-vascular disease, because in those, their deformability of the red blood cells, they literally bottle-neck the red blood cells trying to get into the micro-vasculature. Decrease in cross-linked fibrin, and helping normalize the whole blood viscosity. What we found was that it normalized or dropped the blood viscosity across both the high, middle, and low shear zones, which again is something that some of your anti-lipid agents, they only work in one particular area.

Looking at some of the doses, I'll move forward. What Dr Sumi did is he went back retrospectively, looked at the typical 100 grams of natto, which is about the size of the old cardboard ice cream containers. That's what the typical Japanese was eating for breakfast. He equated that back. He developed that to about 2,000-,3,000 units of the urokinase. Then he developed units for fibrinolytic activity, which I can go into. Basically, that's where we're talking about activity. We quantify that by fibrin units. It's a method that all nattokinase that you should take, you should be able to be

familiar and know what the fibrinolytic activity or what the FUs are per milligram so you can dose it correctly.

Typically, you look at 2,000 fibrin units, depending upon the activity, that could be anywhere from 100 milligrams or more. Then 4,000 and 6,000 for status post ischemic strokes.

One thing I've been doing is having patients taking it at evening, because PAI-1 tends to increase at night time, so you're more susceptible to a blood clot in the early mornings or morning hours. You hear of black Mondays. That's typically male, going back to work, probably a lot of indiscretion in eating and drinking, and then this thickening up of blood there.

This is just showing some of the fibrinolytic activity of the nattokinase. It's comparing it to plasmin. Just giving you some of the reaction coefficients there for it, and for fibrin, as far as breaking up the fibrin there.

These are just some of the dose responses. On the far left you have after you take it, intake. Basically, you look over here, what they're using is ELT: euglobulin lysis time, which is a measurement of how much fibrinolytic activity your body currently has. As you can see over here, with the nattokinase, that's increasing fairly shortly, within two hours, then four hours, peaks, and then on the back side. The half-life is generally between eight, 10, 12 hours there. You have to dose it at least every 12 hours. For a lot of patients who have severe risk, let's say they have atrial fib, or increased thrombophilic states, I does them every eight hours.

Here's a paper here. Three years ago, I presented this to the FDA. I introduced nattokinase to the United States. What I did, because of what I was seeing with it, I went to the FDA and said, "Look, this is a medical food. I'd like to declare it a medical food, because I want to make structure function claims, therapeutic claims." Luckily, I was not aduterated. I actually got GRAS status for nattokinase in the United States.

Male: Tell them what GRAS means.

Ralph: Oh, excuse me. GRAS being generally regarded as safe. That's necessary for a dietary supplement. Officially, I should have filed an NDI, which is a new dietary ingredient, if I wanted to apply for a dietary supplement to the FDA. But I felt that it was much superior, so I went to medical food and then also I retrospectively got the dietary or GRAS status.

Yes sir.

Male: Didn't the GRAS list used to be ... there was a date on that ... what you said, generally recognized as safe. It was an accumulative period we had aspired knowledge. Is that still out there?

Ralph: That's correct. When I presented that, what I did, I actually found in San Francisco the use of natto. It's documented in a book. That was one of the references I provided. Basically, I got them into a corner, that I said, "Okay, if you don't approve this as a medical food, then you're going to have to put warning labels on every container of natto being sold in the Japanese communities." I think they were a little concerned about that.

Their big question, there was a previous proposal that was aduterated by Daiwa Pharmaceuticals, the problem with the FDA, and I answered it with this paper. They said, "How do you know, if you've taken out all the kinase. you're not going to exhaust all the fibrinogen? In other words, the material that you need to make a blood clot. This paper on fibrinolysis satisfied them for the time being. I'll summarize that real quickly.

It just showed, basically, nattokinase is six times more efficient than plasmin in cross-linked fibrin. Now kinase is better than the body at breaking up cross-linked fibrin by six-fold. It also stated, more importantly, that it was three less times less efficient than plasmin, as far as the cleavage or breakage of fibrinogen. That's the stock material. The other thing was that it's not tPA. I'm not competing with a pharmaceutical drug, recombinant tPA, and then no effect on albumin. Those are the big things that I think they were happy with once I was able to show that documentation.

Let me move forward here. This is just an article here in Nutrition in March 2003. They used rose bengal. They caused a chemical/mechanical insult to the endothelial lining. Then gave control as well, and then administered natto extract. It just showed a resolution of the neointimal thickening. There's the thickening from that mechanical injury, and by far, the one with the nattokinase was able to rate meliorate that damage. These are the early stages we see in atherosclerosis: the thickening. There's tremendous biochemical backgrounds and the pathhophysiology going on there.

The next thing is just going through the chemistry. Fairly large weight. The other thing is, once they connect, the nattokinase goes to the alpha-2-macroglobulin, it actually comes into the immune system. It sort of has diplomatic immunity, as far where it can go. I've seen hardly any incidents of allergic reaction. It's usually impurities in the carriers or the excipients that were used with the nattokinase.

This is just showing some amino acid sequences. Very, very specific amino acid, as far as the nattokinase. Structure predisposes function. We did a number of ELISA studies to try to determine what was out there in the marketplace.

We only found one that was identical to Dr Sumi's original nattokinase that he used. Sort of a biochemical fingerprinting, if you will.

Activity test: I can go into the background, but it's a way of quantifying what that nattokinase will do, as far as breaking up the fibrin in the body. These are just some of

the activities out there in the marketplace. These are from different world manufacturers.

Male: On the graph, what is what?

Ralph: Oh, I'm sorry. This is fibrinolytic activity on the y-axis there, and that's just showing some of the different activities there.

Male: You have nine different systems.

Ralph: Oh, yeah.

Male: Is that what they are?

Ralph: Yeah, they're all nine different individual manufacturers.

Male: Can you identify which of them … It sure looks you wouldn't want to buy from manufacturer nine.

Male: Yeah. I want to keep it as per capital …

Ralph: Yeah. This is fibrin units per gram, I'm sorry. I didn't put my dimensions on there, I apologize. That's fibrin units per gram.

Mike: Ralph,does the NSK-D form, does that have less vitamin K, and does that increase the fibrinolytic activity? What's the reason that it's so high?

Ralph: The higher activity of an enzyme, the more unstable they are. It just says that whatever they're doing during their process, they're able to keep it stable, that activity.

Male: What does NSK-SD stand for?

Ralph: Natural Super Kinase – Sprayed Dried.

Male: That's a form of manufacturer.

Ralph: Yeah, that's a brand. I'm trying to keep it generic, but for this community here of doctors, there's only one brand that I think you should be using therapeutically: NSK-SD.

Male: That's always in gel pack form?

Ralph: No, it can be in powder. The first nattokinase was presented in a soft gel. It's really just a reflection of Japanese, and their market, and what their preference was.

Male: Can you tell us what number seven is?

Ralph: I don't know if I can do that. Is that appropriate? Okay. That's Daiwa Pharmaceuticals.

Male: Daiwa?

Ralph: Daiwa, yeah. They have vitamin K in their material though. If you're on warfarin or coumadin then I wouldn't recommend taking that.

Yes ma'am.

Female: Is [inaudible 00:48:02] in this survey?

Ralph: No. I can talk to you about that.

Moderator: In fact, speaking as a vice president, if you're comfortable showing the names of the vendors, we would love to hear them. If there's a place where we can find this out. There are people here who are on fixed incomes. One of the things we look at is what's the cost effectiveness? It may make sense to buy seven, or even eight, if it's cheaper. We also need to know which supplements don't work to make us live longer. I'm not a doctor, I'm not going to treat people, but I'd buy number nine. Because if I didn't buy number nine, I would consider myself a failure of moderating tonight.

Ralph: Let me just say, I can present you data sheets on all this material. It's done by another laboratory. I think it's important. I've been on call for nattokinase for the last four years. I get the phone calls when somebody gets a heart attack or stroke, and I try to figure out what happened.

People are going off the warfarin, and I think that's probably a good thing. I guess what I'm saying is, I treat nattokinase just like a pharmaceutical drug. I'm just as diligent as a medical doctor as if it was a beta blocker, or alpha, etc. Unfortunately, other people in the industry don't respect that. That's when people are trying to save a few dollars here and there, and they'll take a brand that I know has no fibrinolytic activity, and then they get a heart attack or a stroke, even though they've been doing very well for the last three years.

Moderator: Give us the data and nobody will do that. You can put it on [inaudible 00:49:47].

Ralph: Okay.

Male: What do you personally take?

Ralph: I prescribe NSK-SD.

Male: Is that the brand?

Ralph: Yeah. That's also the one that Dr Sumi endorses. He wrote me a letter. I can share that letter with you. In all the research I've done, that's the only one I'm recommending.

Yes sir.

Male: I take two grams of aspirin every day. How does this compare to that one? If you cut yourself, do you bleed for a long …

Ralph: Yeah, excellent questions. (1) He takes aspirin. How is this different, or is this different? (2) If you cut yourself, are you going to bleed to death?

The first question is aspirin is an antiplatelet aggregation. Nattokinase works on a hump on the plasminogen system. I have people on aspirin, or very low dose, or I prefer fish oils, which actually act as antiplatelet aggregation agents as well, and nattokinase, because you're getting two different therapeutic modalities.

(2) No, I've not seen anybody have any prolonged bleeding times, or any nose bleeds, or GI bleeds, from the administration of nattokinase.

Yes sir.

Mike: Back to my original question, how much vitamin K is in NSK-SD? If you're taking warfarin, you have to know.

Ralph: Okay. That's a good point. How much vitamin K is in NSK-SD? There's none. Absolutely none. The US patent manufacturing … That's another reason with the FDA, that I was able to show them that the nattokinase had no vitamin K, therefore a patient who's on warfarin wouldn't interfere with that. That's a good point.

We're never going to get finished.

Jim?

Jim: Briefly, we had talked, and you mentioned about the enhancers like alpha-lipoic acid tends to enhance the activity of nattokinase. Are there other things that may do that as well?

Ralph: Bioavailability, yes. Those were empirical observations. Now I can share with you we're increasing perfusion, because we're decreasing blood viscosity. It just makes sense, if you have any blood delivered materials there, that it's going increase their availability.

Male: Do you have a financial interest in NSK-SD?

Ralph: Yes. That's a whole other story, but yeah. Nobody wanted to pick this ball up and run with it, so I did the regulatory work with it, yes. Thank you for bringing that up.

Safety data: 28. There's over a million dollars of toxicological studies done on nattokinase there. I presented that to the FDA.

No vitamin K. Thank you, Mike.

These are just showing you the HPLC. Just showing you that vitamin K from natto is very high in the blood.

These are some additional studies: biochemical/biophysical research communications. I like this. This is a very significant study here. This was done by Dr Sumi's graduate student. It's an ex vivo study, but what he showed was that the plasminogen activator type 1 was decreased by the use of nattokinase. I'll show you how that influences blood clotting.

This is showing a dose response there with PAI-1 on the x-axis and then the y.

This was a DVT prophylaxis for air flight. Belcaro called me and asked me what dose I recommended. I told him 100 milligrams. They had a couple of hundred people in New York on British Airways. They took patients, had a control, did their ultrasounds in New York, flew across to London and then reevaluated them. There were no incidents of DVTs in nattokinase group, the therapeutic group. There was a number of cases of chronic venous stasis that actually improved during flight while they were on nattokinase. Then I think the control group had a couple of blood clots, and they had a number of cases of chronic venous stasis develop during the flight.

This another paper here, Acta Haematologica. This is a good paper, because it mentions, I think, lumbrokinase as well. Just as far as it compares and talks specifically about cancer and metastasis, and potentially where there might be an application of nattokinase in preventing the spread of metastases of the cancer. It's through the urokinase plasminogen system.

Male: How did it compare? How did the lumbrokinase compare with the natto in that setting?

Ralph: It was just mentioned in reference. It was not a direct … In the very end of the paper, it's got different mechanisms, as far as urokinase matrix, metalloproteinase, and how they modulate different arterial modeling. In there they also reference how that may be a prevention for the metastases of cancer.

Yes sir.

Male: [inaudible 00:55:37] your earlier comment, the nattokinase slows up the aging process of the arterial system. Is that proven?

Ralph: Okay, the question was does the nattokinase slow up the aging process?

Male: [crosstalk 00:56:02] earlier.

Ralph: Yeah, I think that's a little premature. I can't say that scientifically unequivocally. I can tell you that we have a number of laboratory research that suggests, yes, that that may be the case. But again, I want to be very conservative, and just suggest that there's enough indications.

I went to Mayo. Mayo is involved now in doing some larger scale studies with nattokinase, because we need these larger studies for them to hold water.

Yes sir.

Male: Does a family history of atherosclerosis, generously taken as a prophylatic just from the natto beans itself?

Ralph: The question was, if there's a history of atherosclerosis in the family, can they take natto or nattokinase? The only thing with the natto is that these different bacteria can mutate, and then those produce enzymes. There's some question as to whether you're still going to get the same type of enzyme every time. I think the nattokinase is manufactured, and then the activity is tested. If you're going to use it therapeutically, then I think that would be the way to go, because it's standardized. But certainly think that everybody, if they can tolerate it, should eat natto because of the vitamin K in the nattokinase.

Yes sir.

Male: Sorry to ask another question, but at the start of the talk you mentioned that natto was not appetizing, but then you make it yourself for your own consumption. Why would you eat natto when it's not appetizing, when you can just take NSK-SD, or whatever?

Ralph: I like different varieties of foods.

Male: Natto. It's a natto thing.

Ralph: Yeah, right.

Male: Even the Japanese [crosstalk 00:58:00].

Ralph: I eat [crosstalk 00:57:59] too.

No, that's simply a culinary thing. I think it's important that I appreciate where this came from as well.

Yes ma'am.

Female: I heard that you should have seaweed with natto and egg. What do you eat?

Ralph: Yeah, I've tried all of that. These a lot of ways to make it. If you ever want to make it, I can send you the recipe.

Male: Do you have data about phytates and thyroid estrogens after it's been fermented. Soy is generally not considered a health food, at least by lots of us here. Are those problems with soy taken care of in whole natto, or do you not know?

Ralph: Well I do know. The nattokinase, in and of itself, is very highly purified, and it's far removed from the soy bean, in and of itself. Menaquinone-7 or vitamin K2. There's a lot of things I can tell you in the natto we still don't know about, that may or may not have therapeutic aspects.

Jim, you're timed out.

Male: Is there going to be a copy of this talk on the web somewhere?

Ralph: Yeah. If you're interested, yeah, I copy the DVD for you.

Yes sir.

Male: I thought I heard you mention something about the use of natto with autoimmune disease. Is that correct?

Ralph: Right.

Specifically, I was using wormazole. There's circulating immune complexes and peripheral IgL, IL6-1, TNF. Those have been proven that you can use enzymes in different manners to calm down the autoimmune complexes there.

Yes, Stan.

Stan: The body is making fibrin to repair something.

Ralph: Correct.

Stan: Why would you want to dissolve a repair mixture?

Ralph: The reason is …

Stan: Unless you have repair materials, like vitamin C, glycine, and proline to repair whatever the problem was. Dissolving the fibrin without the repair material was a dangerous thing to do.

Ralph: If you remember back to the paper I presented, fibrinolysis, that was the one I showed the FDA. It specifically indicated that nattokinase did not compete, or significantly deteriorate, that reservoir, that fibrinogen. That was in the slide there:

fibrinolysis. Because that was the same question the FDA had. That paper satisfied their interest. We're not competing. I mean, if you were to continue that logic, then you wouldn't want your body to produce plasmin any more, because plasmin's going to be breaking up fibrinogen. Do you see what I'm saying? We produce that all the time.

Stan: But it's not activated all the time.

Ralph: Pardon?

Stan: You can have it, but it's not activated.

Ralph: Plasminogen or plasmin? It's working all … Everybody in here without a blood clot.

Stan: It's there but not activated.

Ralph: The fact you don't have a blood clot means it's active.

Yes ma'am.

Female: How much 100 milligram equal a gram to fresh natto?

Ralph: That's a good question. A believe it's 100 grams Is 1,000 fibrin units there.

Male: 100 milligrams. [inaudible 01:02:18]

Ralph: Say that again.

Female: You're taking one tablet.

Male: [crosstalk 01:02:21]

Ralph: Oh, it depends, yeah. Oh, I've got you. About 100 grams of natto is equivalent to about 100 milligrams of nattokinase.

Male: Very concentrated.

Ralph: Yeah. Thanks.

Yes.

Male: One question I think that Stan was trying to get at was the issue of infrastructure elements in the body. If collagen is somehow deficient in an individual, that fibrin can be a substitute for poor collagen. The question is, if somebody is in a vitamin C deficient state, and has poor collagen, and their vascular system is falling apart, and fibrin constitutes a major structural protein at that point, then dissolving that might be a liability. But if you build in the vitamin C, the bioflavonoids, and all the proline

and lysine, and all that, then the collagen repair system can be activated such that it can be safe to remove the fibrin. Does that make sense?

Ralph: Yeah. No, I'm a big proponent of lysine, and vitamin C, and all those things. I guess I'm just suggesting that I don't know where that end point comes in. I think most of us are probably sub-clinically deficient. Well not this group, but the general population is sub-clinically deficient, yeah.

Male: Has natto been studied in vitamin C deficient animals cases?

Ralph: Not to my knowledge. That's a good question.

We are doing some work in Turkey right now, though, where we are looking at the some of the different nutritional parameters, and seeing how those, combined with the blood flow parameters, are changing.

I'll put that into the study. Thank you.

Yes sir.

Male: Are you recommending this as a daily supplement or something, or just for medical emergency situations?

Ralph: I measure blood viscosity every day. I look at all my population, and I triage them. I look at people that have high blood viscosities with the real log, and then those people I put on a therapeutic. That's what I'm using.

I had a physician's assistant. He had no risk factors at all. The only single thing that suggested he might have a problem was the real log and his elevated high blood viscosity. About two months ago, we coded him. He's alive, but all I'm suggesting is that was the only diagnostic tool that I had that told me my PA was going to have a heart attack.

Male: The viscosity, you say, is an unpredicted here. Suppose you're very low in viscosity because you get too low.

Ralph: That's a good question. As far as blood viscosity, I think as long as you can maintain a blood pressure for perfusion, then the answer would be no, you couldn't get too low. That's interesting. He's talking about his own individual viscosity there.

Yes sir.

Male: Question: would natto actually affect your body in such a way to prevent a heart attack?

Ralph: I've used it for that. I live in a very rural setting. I have to lifeline people out. I'm 100 miles away from a cath table. "That's probably a good thing," everyone's saying. I give

them nattokinase. Can I say that it reversed it? I don't know. Did I see reperfusion beats? No. All I can suggest is I have treated a number of people. I've reversed ischemic stroke with it. I've had a blood clot. The person was allergic to all the orthodox medicines. I was in a hospital and I was able to use those things, and I had good results. Those are anecdotal cases, but if you're that person, you don't mind anecdotes.

Okay, I'm going to try to break up.

Ma'am?

Female: Have you used live blood cell analysis studies on before and after this nattokinase?

Ralph: Yes.

Female: What do you see in that?

Ralph: The reloads of the red blood cells are demonstratively diminished. Then we quantified that. We can do aggregometer and myrenne aggregometer. We've done blood studies that really quantify what you're seeing through the dark film microscope.

Yes?

Male: What are the objections of warfarin and natto?

Ralph: What's the objection?

Male: Taking both. You've alluded to [crosstalk 01:07:30]. Taking both warfarin and natto.

Male: The vitamin K content.

Ralph: Okay. I guess a lot of times, I don't want to butt heads with the cardiologists. When I can show the cardiologists, "This is your warfarins working and your coagulation cascade. Look, let's consider the plasminogen." A number of those doctors, they feel comfortable adding the nattokinase, because it's providing another therapeutic modality that that patient doesn't have. I think that's where he was going with that.

I use them together, if you will.

Male: Your warning was not to use K.

Ralph: Yeah, you don't want to use vitamin …

Male: With warfarin.

Ralph: Right. I had a woman who took a multivitamin when she was warfarin and lost the eyesight in her right eye because of that. It causes inadvertent blood clots.

How much K is in warfarin?

Moderator: We have about five more minutes. We officially end at 9:30, but we have the room till 10. If there's time for a few more questions, are you up for taking a few more questions?

Ralph: I'm fine. I admire the energy of this group.

Moderator: All right, let's go for another five minutes, and then we'll go to officially ending it, but I'd imagine there will be a few people clustering around you asking even more questions.

Ralph: That's great.

I'm going to get to you, Jim. This is him waiting here.

Female: What if you're allergic to soy foods?

Ralph: Excellent question. The question was, what if you're allergic to soy foods? The enzyme is such a purified state, as long as there's not any other soy proteins in the diluent. The soft gel capsules have soy bean oil. But if you can get the pure powder, I have not had any problems with people with soy allergies. Now, if they tell me they have anaphylactic shock, we're not going there. But simple hypersensitivity type reactions, no, I haven't seen any problems with the pure copy. Excellent question.

Yes sir.

Male: When you're dealing with the cardiologists, like you just said, what is the measure that you're using that they will accept as your activity? My experience is a cardiologist won't accept any way of you measuring the activity of the nattokinase.

Ralph: Correct.

Male: You can't give them any parameter they will accept.

Ralph: Right.

Male: What are you using?

Ralph: Basically, their concern is … It's Stan's question! "How do I know they're not going to exhaust all my fibrinogen?"

Male: No. They're looking at specific measures: PK, PPT, and I&R, [inaudible 01:10:16], stuff like that. What is the parameter that you can use for the cardiologist to say, "I accept that, that will work just as well?"

Ralph: Quest Labs will run an ELT, Euglobulin lysis time. When you push recombinative tPA, you keep doing that, you draw an ELT somewhere later on to make sure you're not exhausting all the fibrinogen. Usually, if I can present that …

The other thing I do is I explain to them about the plasminogen system. Show them a couple of the papers with the PAI-1. They're not going to recommend it or embrace it a lot of times, but they're going to say, "It looks like it won't do any harm. Go ahead." They've been impressed.

I have a family medicine doctor, and one of his patients starting taking nattokinase, and the guy's still alive. He said the guy should have been dead five years ago, as far as he was concerned. The proof is in each patient there.

Yes ma'am.

Female: [inaudible 01:11:27] To take vitamin C as a whole wasn't a bad thing, but K2 is bad when it comes in the menaquinone . I need to know more about the role of nutrition in all these studies as you do them. Or your studies on [inaudible 01:11:45] with the same thing that you have in yours is supposed to be that theme, that active.

Ralph: I apologize. Natto has the highest concentration of vitamin K of any food, period. Vitamin K is a great thing. Unfortunately though, if you're on warfarin or coumadin, and you take vitamin K, then you could have an inadvertent blood clot. That's a bad thing.

That's all I'm suggesting, is that most of the people that are on nattokinase, who have been exposed to western orthodox medicine, are already on coumadin. You wouldn't want them to take a nattokinase that had a vitamin K content in it, or they'd have a blood clot. We're trying to make it doctor proof and patient proof. That was the big thing with the FDA, was they were glad there wasn't any K in there, for that reason.

Outside that, menaquinone 7 is huge. It's a great thing, preventing osteoporosis, and prevents matrix GLA proteins, prevents the calcification of arteries, the elastin. There's at least eight other biochemical reactions with vitamin K. Great implication in preventing mental diseases, dementia, as well, and cancer, and all the rest.

Yes sir.

Male: Are there any studies that have shown any effect of nattokinase on the established plaque, material plaque? The introduction of plaque, [inaudible 01:13:31].

Ralph: No, not any human studies. That's an excellent question. The question was was there any clinical data suggesting the effect of nattokinase on the specific atherosclerotic plaque. I have some particular case studies that I can present that show a decrease, but not like the mice study there with the neointimal thickening. Good question.

Yes ma'am.

Female: More of nutrition. You didn't answer that question. [inaudible 01:14:04] in it. I was wondering if you get the test back, to get some comments on it earlier …

Ralph: They're not using NSK-SD. I'll just leave it there.

Female: Okay.

Ralph: Yes sir.

Male: Let say your patients, were on warfarin and natto, and you want them just on natto. Would you prefer just that they're basically on natto?

Ralph: If I do anything before I die, I hope that I can produce enough clinical research to show that patients are better off being on nattokinase, and warfarin falls to the wayside. That's really one of my [inaudible 01:14:41].

Male: A comment on that question about it dissolving a complete clot, I want to point out that if you can keep a person alive, that has a complete clot, long enough, they're going to develop collateral circulation. This would be good to help that.

Ralph: Correct. Plus, whatever diminished flow there is, it's going to be enhanced, because your viscosity's different, your red blood cell aggregation. What is it? 80% really, when we look at occlusions, that we really start seeing problems there, and starting to clot, etc. I think it's even higher than that.

Moderator: I think we have time for one more question.

Ralph: Okay. This is going to be someone who hasn't had an opportunity to ask it.

Female: How much do you take? Do you take it daily?

Ralph: How much do I take?

Female: No, anybody.

Ralph: Okay. It depends. All my patients, I have on 100 milligrams, at least twice a day.

Female: What if you're well?

Male: How many you're taking daily?

Ralph: It's a hard question. There are so many variables to say. I think 4,000. I think when you get over the age of 40, one of four of us in here is going to have a congenital problem where you're going to be thrombophilic.

Male: 4,000's equal to 200 milligrams.

Ralph: Yeah. That would be 100 twice a day.

Male: You're right. 4,000 means 200 milligrams a day, two total.

Ralph: Total, exactly.

But for some of the stroke patients, I've had to go up to 6,000. But we got them back.

Female: Where do you get it?

Ralph: Yeah, there's a number of brands. All I asked is … There's Jim back there. "Look at me."

Female: Can I have the recipe for that?

Ralph: Yeah, just give me your emails, and if you want any more literature or research articles, that's okay. I can email the Powerpoint presentation, or we can put them on your website.

Female: Put them on the website. There you go.

Ralph: Great. Thank you.

Moderator: Thanks very much.

I'd like to remind you all our next meeting is September 15th.

Female: …. any of those areas that could cause disease or health problems. You then can remove those things, examples: parasites. 80% are all deceased, so you can remove those parasites.

303-828-9770.

Male: 303-828-9770?

Female: Yes.

They also find that sea salt from the health store, the good sea salt, lowers the blood pressure. Don't use any other salt. The trampoline jump, you get on the trampoline to help clear the arteries, which can cause high blood pressure. Cayenne, the good hot pepper. There's the [inaudible 01:18:07] that talks about heart disease and the use of cayenne. Working on your kidneys and adrenals will also help. Thank you.

Moderator: Sorry, thank you for your opinion.

I wanted to make sure that all of you knew that we'll be posting these on our website, so if you miss an address or something, we'll be able to get that for you.

Male: I'd like to add some of them, that's for sure.

Moderator: All right. I'm going to take two more answers about high blood pressure. Then let's see if we can get another question going.

Male: Mine's high blood pressure.

Moderator: Okay.

Male: I was diagnosed with high blood pressure a few years ago. It as in my second or third start-up. The doctor thought I should be dead. I made a point of learning a few things. One of the things that I didn't read in anything, but I got from some very informed people, was potassium chloride, which is like table salt replacement. Morton, if you go to Safeway. It dropped by 10% really fast, within two-three days.

The other thing I was really surprised with was arginine. A related thing, of course, is high cholesterol. One of the things that's very inexpensive and very effective is niacin. I'm sure you all know what the CoQ10 is.

All right. I give it to somebody else.

Moderator: Okay. Last one on this question on high blood pressure. Just this side of the room. Saw you first.

Bob: I agree with most of what's been said here, but I wanted to say that, of the patients that I see with high blood pressure, the early ones, very frequently, work out to be food sensitivities, and of course the parasites, and all those other things we look for.

The body makes adrenaline and/or cortisone to block allergies, and stress, and all those things that we know that cause infections. It's interesting about adrenaline. As we get older and lose muscle mass, we get higher blood pressure because adrenaline causes vasoconstriction of all of the tissues of the body except for the muscles that cause vasodilatation. It's the fight or the flight hormone.

If a person doesn't have any terrible heart disease, or anything like that, I get them into muscle building, which means heavy weight lifting, not just calisthenics, to try and build muscle up. This is why very muscular men will sometimes pass out when their blood is drawn. Is because the muscles dilate, and it drops the blood pressure.

Anyway, all you people who have high blood pressure, please look into your sensitivities.

Moderator: I think Bill Miller had also mentioned D-Ribose for sugar as a potential treatment for that. That's something else you might write down. R-i-b-o-s-e.

I think people wanted to know you name.

Bob: Bob Cathcart. I'm here in Los Altos.

Male: orthomed.com.

Bob: Yeah, that's 949-2822.

Moderator: He's one of our frequent attendees and very well known.

These are open for questions now. Dave, got a question?

Dave: Last month I said that I might bring you some articles about using iodine instead of chlorine in swimming pools and spas. Here is 20 pages of three studies. One is American Journal of Public Health, and it's Effectiveness of Iodine for Disinfection of Swimming Pool Water.

The second one, which is especially cool, is Safety of Iodine as a Disinfectant in Swimming Pools. This was from Public Health Reports. These are from the '60s. This was a study done at the Stanford University Aquatic Center for about a month, with the all of the teams, especially the freshman team that were working there. They tested them for urinary excretion of iodine, because they were afraid they might be taking up some iodine from the water. It didn't find any. Probably because if they were picking up any from this one part per million in the water, it was being absorbed by their body that sorely needed it. They also looked for any adverse health effects, like conjunctivitis, or whatever. One of the kids came into the study with severe chronic conjunctivitis, like eyelids weeping with tears and big problems. By the end of the study, he said it was miraculous that it completely cleared up and it was great. Of course, after a month, Stanford went back to chlorine, and they've been doing it for the last 40 years.

The last study is iodine disinfection of water, but this is from archives, Environmental Health, 1969. All three of these papers I followed on a trail from the papers by Abraham, who was the mentor for our January speaker, Brownstein, who's going to come talk to us about iodine and about the 50 milligram a day, three month protocol, and all that stuff.

We have actually a guinea pig in the audience. Our illustrious member, Mike Korek, who for the last two weeks, he has been using iodine in his hot tub. You don't smell any chlorine there anymore.

Male: Does he know how much to use?

Dave: He doesn't know how much to use. We don't have a testing kit yet, like you have a testing kit for chlorine. I'm going to make one by hand.

Male: Is he always that tan, or is that actually …

Dave: He's not going to tell you what happens to him when he gets into this tub for a few minutes. We can't go into that.

Anyway, here are these papers. It's cool stuff. It's a cooperative of all the other health stuff, and why it's a good idea we should be taking a decent amount of iodine.

Male: [crosstalk 01:24:07]

Dave: It cost us $1.50 each to copy these. If you want, you can put in $1.50 to defray that cost. Otherwise you can just pick one up and walk away with it, that's fine too.

Male: Oh yeah, sure.

Male: Except you've got to get past him.

Moderator: We had another health related question, I think, up here.

Female: It's not a question, but you were talking about the proprioceptors. Dr [Moxon 01:24:338] is always away. we have a new dentist in the area who has been trained by Moxon who does this technique. It's ArtaVhakshoori. She's on Winfield in San Jose.

Male: Oh how nice.

Moderator: Can you help us spell us that? We're just taking notes for our website. This would be great to know.

Female: I'd have to look at the spelling. It's V-H-A-K-S-H-O-O-R-E. Arta Vhakshoori. All right, it's R-I, not R-E.

Moderator: Thank you.

A question down here from Mike.

Mike: There's also Dr Jennings.

Moderator: Yeah, Dr. Jennings. He's in [inaudible 01:25:16], Alameda? Yeah.

Mike: He talked here.

Moderator: Yeah, Jennings came and presented.

Other questions right here or comments? We're open for either one.

Female: Jennifer [Rari 01:25:32]. I brought up before a couple of things. One was the mosquitoes, the West Nile. The study that I talk about is not out yet. They will let me

know when that study … We had a horse that was brought back, there was not all the vitals on it. That's one. I'll let you know when that study …

I talked also about azosemide and the reaction on the oak trees. I don't have copies to give you, but if you'd like to look at them, you can take a look at the before and after shots of the oaks in the study.

Moderator: Thank you.

Female: You guys have talked about discounts on my products. If you want to talk to me about Vitalzym and Vitalzym SEB, I'd be willing to give you guys great deals that I'm allowed to, but the internet has moved away with the deal on the SEB.

Moderator: Cool. I think we love deals.

Let's see.

Male: Hi. Mike Richard. I'm looking for an iridologist. If anybody could recommend an iridologist who's good, studied the iris as a diagnostic tool. Also, I have a couple of recommendations for a dentist. But if anybody has an additional one as a backup, I live in the Berkeley area. I need a holistic dentist.

Moderator: Any answers? Don't know. I think we all know some good dentists, but …

Male: I'd say go to Tim. I drive from San Francisco to go see Tim. Sunnyvale. Tim Gallagher.

Moderator: Yeah, Tim Gallagher.

Male: Right.

Female: He's worth driving from any place.

Male: There you go.

Moderator: All right, you're in then.

Okay, if there are other questions or comments, I think we have time for another brief one. Otherwise, we have a special announcement about Codex we can move to. Anyone want to … Questions? Comments? Going once, going …

You have some more. All right. Ed.

Ed: I brought with me a DVD called We Become Silent. This is about the Codex debacle, which you're going to probably talk about. Maybe some time we'll have some time to play at least some of this so you'll get some idea what it is. This is available in a very bad rendition for online viewing somewhere on somebody's website. I offered to do a good one for them, and they said, "No, we'd rather try to sell DVDs." It's pretty good.

In case you haven't seen this hilarious film on super-sizing, I bought this on Amazon used for $4, and shipping was $3. It's worth it. Unfortunately, it's a shame. This guy was an NYU trained film maker, a documentary film maker, who made an entertaining good film. He didn't talk to any of the doctors we know, or anybody like any of the doctors we know. There's some just painfully obvious things that he should have talked about or looked into that he didn't. You meet a lot of people with this idea that, "O god, you do this testosterone regiment, all hell's going to break loose. Your liver's going to fail." We don't know why it happened. Certainly, the doctor was treating him in his 30s with testosterone. Didn't know. It's very flawed, but it's also very cool. There's lots of cool information and very funny stuff in here, so I recommend that.

Moderator: I do want to say, testosterone is always bad if you're 30. I'm 32, and I drink testosterone … I'm just kidding. But I do use testosterone cream, a very small amount of it, because my ratio of estrogen to testosterone was off a little bit, and I had too much of the sex binding globulin stuff. Even if you're in your 30s, it might not be bad. I seem to like it.

Male: Someone mentioned the West Nile virus. Of course, you know most people here know my Monomania vitamin C. Please don't fool around with other things. Vitamin C in massive doses has been used by all the orthomolecular physicians. It just really works. I've never seen an acute viral disease that can't be taken down by either bowel tolerance doses of ascorbic acid. If there's an epidemic going, and you really think you have West Nile, and you think that maybe you're going to need intravenous vitamin C, for god's sake, get into me, or somebody who uses intravenous vitamin C, before you get sick enough to have to go to a hospital. Because there's no hospital around here that will allow vitamin C to be used.

As I say, I have never seen an acute viral disease that can't be taken out by that. That leaves out AIDs, and some of the other things, but the acute self limiting viral disease, flus, and things like that, just easy to get rid of.

Male: Can I ask you, Dr [crosstalk 01:30:40], in your experience with atherosclerosis and heart disease, vis-a-vis [inaudible 01:30:48] vitamin C?

Male: I would use it in conjunction with the chelation therapy. But there's all sorts of other things. We always look into diluted chemical sensitivities, look for a parasites, look for all sorts of things that can make you sick. And the nutrients: zinc, manganese, chromium, selenium, and the B vitamins, and all that. It's a big program.

Male: This is my first time here, so I don't have the structure down. Is this the part where we ask questions or you have a comment?

Moderator: Yeah, this is the part where you ask questions, or make comments about previous questions, or basically something you've learned.

Male: My dad over here fell off a ladder some years ago. He has a pain/inflammation. Explain it. Maybe somebody here knows something.

Male: It's sciatic. It can transfer to the legs.

Male: He's had a burning sensation. On a scale of one to ten, he's usually nine on pain.

Moderator: Solutions for a really bad sciatic pain. I have one suggestion, but let's see what we hear from the audience. Any thoughts? I've got three people who have something to say.

Female: I had a bad sciatic pain where I couldn't get out of bed about three or four years ago.

A friend of mine recommended acupuncture. I had gone to the doctor, literally crawling to the doctor. He said, "Stay in bed for a month." I decided, "I'm not going to stay in bed." I decided to do the acupuncture. When I got to his office, he was on the second floor, I literally had to crawl up the steps. I wasn't aware that he was standing there, looking down at me, until I got halfway up the stair. I thought, "Gee, that's pretty rude. He doesn't come and pick me up. I can't move." I did my hour session with him, and then after the session, I realized why he didn't pick me up, because I was healed. After one hour of the acupuncture, I had no more pain, and it never came back. I would recommend that.

Moderator: Along similar lines. I had uncle who was having pretty bad sciatic pain. I have a cold laser that you use for acupuncture. Well, not acupuncture, but acupressure. Three minutes, he basically said, "Oh." Just felt thing release. It's gone. It's been gone for three months after three minutes of the laser on the right spot. That works pretty well. If you're interested, talk to me about the laser robot.

I think we have time for two more comment on this, and then we need to move on.

Male: You might try that topical product called Arnica Flora. It's over the counter. My wife heard about it from her friends who had pains in the shoulder from playing tennis. They all use it now. They put it on their shoulder, and they go out, play an hour's worth of tennis, and all the pain is gone.

Male: What's it called?

Male: Arnica Flora. It's over the counter.

Male: Spell it.

Moderator: A-R-N-I-C-A. There's something you may have heard of called Traumeel, T-R-A-U-M-E-E-L, which is a combination of some homeopathics along with arnica. This stuff is quite wonderful.

One more.

Male: He needs some knowledge about it too.

Male: You know me from years ago, I haven't seen you again. I have a suggestion here.

Moderator: Okay.

Male: There's a protocol I'd like to suggest. If you'd like to do so, announce yourselves. Especially if you're a health professional, or a doctor, and so forth. For the new members in the group, I was telling Ralph, when I met 10 years ago, our speaker, said there's quite an array of talented people, and only when people get to talk that are new here, I go, "Wow! I needed to talk to someone like that." For example, Raymond Frances, who has a radio show every week, people should know that and help him give a plug, because it's all about health.

Male: Here's his book.

Male: Pardon me?

Male: Here's his book.

Male: Here's his book, Never Be Sick Again. I'm thinking all day today, I'm looking for a really good source of coconut oil, because I realize what the natural saturated fats can do. I said, "I've got to ask somebody." Low and behold, he provides a paper tonight. I just want to say that.

And remind everyone too, if you like what you see tonight, remember that we have them available on DVDs. We have last month's speaker, Burton Goldberg. For most of his $39 video you can get for $15 there. I called him last night and said, "Would that be okay?" He said, "Just mention my website: burtongoldberg.com." He's done more as a single person for helping the alternative health movement, starting by putting $4.5 million of his own money into the book, Alternative Medicine Digest. Thank you.

Dave: Thanks.

All right. With that, I think we need to move on to do notes from this evening for this section you just heard, for the two talks. It's what's called a wiki at this address. Which means a web page you can go to where anybody can enter any comments or notes that they want. I urge whoever is taking notes here to go to that page and please enter those notes in and enter in the links. If you don't know how to use a wiki, call me up and I'll help you through it. 6509-88-988. I'm Dave Gills.

Moderator: Thanks, Dave.

Now we have a speaker about Codex, and I also believe coconut oil, coincidentally enough.

Pam: Thank you.

Hi, I'm Pam Zuzak, and I'm also anti-Codex. On the table over there I've got a brochure, five pages. I'd like everyone to please pick one up. It tells about the laws. Most of them are in effect, some of them are dormant right now. But we need to keep a watch on all these laws that are coming up to protect ourself about the supplements.

John Campbell is a pretty part in a lot of my research that I've done. He's contacted the FDA regarding some of these regulations. He has also asked if he could be there, and his people could be there, to monitor the regulations of the supplements, and they just downright refused him.

We shouldn't give up. We still have a lot to do. There's a lot of talk in the industry. There's many, many laws out there that really have to be changed before they can implicate this, because the way they went about taking our supplements was not legal. There's a lot of laws that have to be changed before they can really enforce it. I can't get into that right now.

The other thing I'd like to mention is, I have a bottle of coconut oil on the table for anyone that would like to look at it. It is not for sale, but if you'd like to look at it. There's some people here that are not familiar with coconut oil, what it looks like. I brought that in to show you.

Also, Raymond Francis, our scientist friend that is here tonight … Raymond, put your hand up so everybody knows who you are. He's with the company Beyond Health. He also has a radio station on 1220 on Sunday at ten o'clock. You need to listen to that. It's an extremely informative and very powerful radio station. Raymond always has good speakers. You can call in and ask questions.

Raymond sells the coconut oil, and he's running a special for our group tonight. If you feel that you would like to order the coconut oil, you can order to the coconut oil. Raymond is going to sell the coconut oil for $29.95. That's $29.95. He's throwing in a book free to Smart Life members. That's a $15 book on coconut oil, and it's really informative. You can't believe the things that you can use for coconut oil. Also, on the desk, he has a brochure on coconut oil. Please feel free to pick one up.

Thank you.

Moderator: Thanks very much for the update on Codex and the coconut oil stuff.

Pam: I'll be keeping you informed as I go along.

Moderator: Right. We definitely count on that.

For those of you who might be new, Codex is a set of laws that are being slipped in around the edges, which will severely restrict the ability of Americans to buy

nutritional supplements in doses that are meaningful at all. It's being done in a very slimy way. There's lots you can read online. Our website's a good source of information about it as well.

With that, it's time to start our short report on sugar titled Sweet Satanic Seduction. Until I saw sugar in the title, I was wondering if it was for the right meeting, but it turns out it is. Stan Field, a long time member, will be presenting this.

Stan, over to you.

Uh oh! Hey, Dave. Are we looking at 10 seconds, or are we looking at a longer …

Dave: Longer.

Moderator: Okay, so it's waking up right now.

Stan, in the meantime, why don't you go and introduce yourself, and tell us a little bit about your background? As soon as this is up and running … It's up and running now. Tell us a little bit, and then you've got about 20-25 minutes.

Stan: Okay, great.

Male: Dave, just the front lights. Yeah, good. Okay.

Stan: Here we go. Okay, we're ready to go.

My background is I'm a chemical engineer. I graduated from Penn State in 1951. I've been in various parts of the oil operations throughout the world. My last job was at Stanford Research Institute as Director of Energy Programs. I found Smart Life in 1996 through Steve's newsletter, Smart Life News. Ever since then, it's been a one-way trip into biochemistry and physiology. Thanks a lot, Steve.

Before we get started tonight, I wanted to show my appreciation, and the appreciation of the group, for our webmaster, Brian Joslin. Stand up, Brian.

Male: Stand up, Brian.

Stan: He does a lot of work, and there's a lot of information on that website if you go there. If you want to read the stuff that I've written, it's under [toolage mark 01:41:59].

Okay, we're ready to roll on sugar.

This is not working.

Male: Dave, would it be all right if you just ported the slide, and everybody pointed at you.[inaudible 01:42:33] in a way,.

Dave: Or you could say, “He.”

Male: Thank you.

Stan: There you go. No, top one. You’re going backwards, Dave.

Dave: Are you clicking your arm at me?

Stan: I give up.

Okay, we’re back to the beginning. Keep your hands off it.

Sugar, we’re going to find out, is a drug that acts like an opiate, which causes you to feel really great.

Okay, there we go. This thing works.

The average American is eating about 170 pounds of sugar a year. You can read all of this later. We’re going to go through this fast and get to the main points.

The main point here is at the end, you’ll see that 50 grams of sugar is eaten every four hours of awake time, which means that you’re getting about 12 grams of sugar an hour. That’s a very important number we’ll get to later.

Now we come to fructose. In recent years, like the last 30 years, the high fructose corn syrup has been put into everything as a substitute for sugar. This is making people fat, and making them have high cholesterol. I’m going to explain why.

You’ll see up at the top, sucrose is made of d-glucose and d-fructose. The D standards for dextro, means right handed. Fructose is made of d-fructose and l-fructose. The l-fructose is levulose. I need to put this down to show you what that means.

This is left handed. Okay, too sexy.

Male: He takes a lot of testosterone, so I’m a bit unnerved.

Stan: The D and the L, the D is the right handed, dextro, and the L is left handed, levulose, levo. They’re mirror images of each other. You can see that if you look in the mirror, they would be mirror images. The body uses the dextro for energy, and the levo cannot be used for energy. When it’s put into your mouth, it goes to the liver and makes fat. You’ll see that the only place that the L is coming in is in the fructose. The addition of fructose to all the soft drinks, and everything … it’s even in Safeway’s tuna salad … is getting into everybody’s food. The L part is sent directly to the liver for storage as fat. That’s what all this says.

I’d like to read the last paragraph to you, because it’s kind of funny.

High fructose corn syrup and its levulose in many foods in the US over the last 30 years has deceptively accelerated the ongoing obesity epidemic. This has occurred because the US government encourages the conversion of excess corn to high fructose corn syrup by subsidizing the producers of corn syrup production while taxing cane sugar imports. This is economically protective for farmers, beneficial for politicians, and physically destructive for the entire population, including the farmers and the politicians. That's what's happening.

Next.

Look to the back. That's the end.

Dave: Push once and then wait.

Stan: What?

Dave: Go back.

Stan: Do you want to push it, Dave? Do you want to push?

Dave: You just push it once, and then wait, that's it.

Stan: Okay.

Experiments were done with rats to show how addictive sugar is. It acted like an opiate. The experiments they did were done with opioids, and when the rats were weaned off their addiction to sugar, they kept pressing the lever to get sugar. These studies concluded that sugar induces the feeling of euphoria, takes away pain, and induces a pleasant sleep. Sounds great. Phil, who's not here tonight, eats a pint of ice cream every night before he goes to bed.

Now this gets into some of the chemistry, which you may or may not understand, but we'll go through it anyway. Sugar leads to insulin, which leads to an important chemical called arachidonic acid and estrogens. What happens is, if you eat sugar, the insulin that's generated from that activates enzymes which converts linoleic acid to arachidonic acid. Linoleic acid is in the polyunsaturated vegetable oils. That is carcinogenic. One of the ways that it becomes carcinogenic is it's converted into arachidonic acid.

The arachidonic acid causes an oxidative over-reaction in cells caused by toxins, carcinogens, and pathogens, which is what Dr Cathcart was talking about looking for. That's how it gets related in here. It starts an arachidonic acid cascade in the immune system, magnified by cortisol, which Dr Cathcart mentioned also.

The high insulin surges causes an expression of the aromatase enzyme, which converts androgens to estrogens. Estrogens promote the growth of cancers.

We have a speaker, Ray Peat, coming. I want to read you something from Ray Peat's book about estrogens. He says that Nazis put estrogens in the food in concentration camps to make prisoners helpless and unable to organize resistance. He said, "They weren't doing it to slow the aging process." High estrogen levels are associated with increased incidents of breast and neuron cancers and prostate cancers. Sugar is one of the leading causes of these cancers by this mechanism.

Let's see what diseases sugar can cause or be associated with. Ascorbic acid, which is vitamin C, can be reduced to scorbutic levels in vascular cells, because sugar competes with vitamin C to entry into the cells. Sugar wins. It makes the cells lack vitamin C.

Cancers via the estrogens, prostate enlargement via estrogens, and glycation. Glycation is a reaction of a protein with sugar. It causes inflammation that results in the clumping of red blood cells, cardiovascular disease, brain dysfunction, and fibrosis, which is aging, wrinkling of skin and all tissue throughout your body. We're going to hear later how to dissolve the fibrosis from our main speaker.

Sugar leads to diabetes, adrenal burnout, and pancreatic burnout. It leads to the proliferation of all kinds of bacteria and fungus in your intestines. It can even be associated with attention deficit disorder. In the morning, a kid gets a bowl of cereal which is 50% sugar. By the time he gets to school, he's hypoglycemic. He's getting dizzy, passing out. The adrenal glands come in and wake him up with all the adrenalin. Then he becomes hyperactive, and is going through this cycle that started with sugar.

This is ascorbic acid: vitamin C. Animals make ascorbic acid from glucose at the rate of 10 grams per day for a 170 pound animal ... which I've put in Newton terms ... when he's healthy. When he's sick, the animal makes 60 grams a day or more. The comparison is that the RDA for vitamin C is 0.06 grams a day. You can see there's no comparison between what the government says the minimum is. The minimum is associated with keeping you from getting scurvy. It has nothing to do with health.

Ascorbic glucose and ascorbic acid compete with each other to go into cells. Ascorbic acid is extremely important to make collagen. Your collagen production cannot be good if you have a high sugar intake.

Sugar reduces immunity by the same mechanism. The white blood cells need ascorbic acid to kill virii, bacteria, fungus. If you have high sugar, the ascorbic acid cannot get into the white blood cell to do the killing. This reduces your immunity. For example, your normal glucose is about 90 milligrams per deciliter. If it goes to 120 milligrams per deciliter, because you're eating a lot of sugar, the phagocytic activity of white blood cell drops by 75%. This why high sugar leads to disease.

The last part here, of this slide, is insulin potentiation therapy is often done at hypoglycemic conditions, which is about 60 milligrams per deciliter of sugar. That's effective because vitamin C can enter the cells more effectively. I don't know, doc, have you got anything to say on that one?

Doc: I absolutely agree with you, man. Since 1972, I have been on this ...