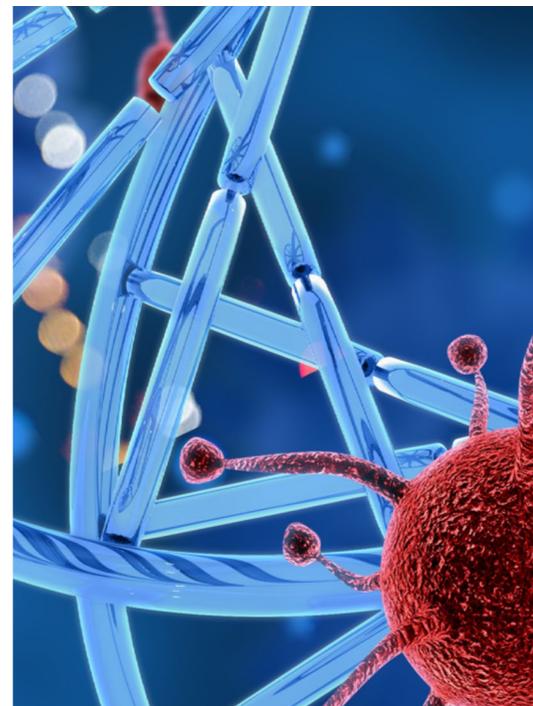
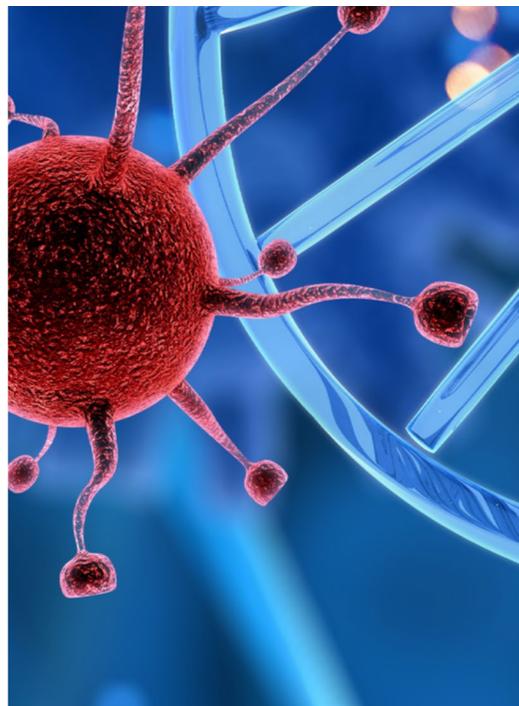


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Is Salt Right for You?

Selina DeLangre

Donna: Welcome to The Genius of Your Genes Summit. Today, we're going to be talking about salt because there's a couple of genes that you might have inherited that make you more salt sensitive. But there is so much misunderstanding out in the world about salt. So I'm very excited about this interview because you're going to learn things that will absolutely blow you away, completely different from anything you've previously thought, and you'll know exactly what to do about the salt solution.

Now, we're going to be talking with Selina DeLangre who's a very dear, long-time friend for at least 25 years. We've been in the health space for a long time together and two women just believing, supporting something passionately. She's super passionate, as you're about to find out. And so her father-in-law, Jacques DeLangre, brought the first decent salt into the U. S.

Before that, I'm sure you remember, we had this salt in a blue, round box. And that little girl on the cover, she had an umbrella because if it rained, it poured. The salt still poured. So the reason it did was because they put all this junk in it—bicarbonate soda, sugar—just all kinds of chemical junk. So that's what we've been eating for a long, long time. And you keep reading salt isn't good for you. And you're about to find out that's very, very not true.

Anyway, Jacques, Selina's father-in-law, in 1976, it was over 40 years ago, bought in this much healthier sea salt, Celtic salt, from France. And

that's what the company is called, the Celtic Sea Salt Company. But Selina has now changed the name of the company to Selina Naturally because she doesn't just have the Celtic salt anymore, she has a lot of other amazing salts that have different medicinal properties to them. They have different tastes to them. So salt is really a very big story. And so I'm very, very, happy to welcome my friend Selina DeLangre.

Selina: Oh, thank you, Donna, for that great introduction. I remember the first time I got a call from you at the office. And I think you were writing a book and said you wanted to get a little bit more details on salt. And I fell in love with you the first time I heard your voice and your passion. And you taught my family so much. You taught my family, my daughter. You helped my granddaughter come into this world. So blessings back to you so much.

Donna: Well, thank you for saying that because this is a gene summit. And I had Carolyn Ledowsky on. And she talks about infertility. But a lot of couples today are having trouble getting pregnant right away, which is so different from our generation, we would hope they wouldn't get pregnant right away. And we didn't have birth control. So looking at Carla's genes, I was able to find several, what I call, Achilles heels. And she added some omega-3 fatty acids. And sent me an email. And in about three months, a little baby's on the way. And we're waiting right now for that little girl to get here. And I'm getting chills.



Selina: Any day. Yes, any day, it's really exciting.

Donna: Yes, it is a good example. I'm glad you brought that up. I'd forgot about it. Anyway, let's get into salt because there's a lot to say. Surprisingly, people think, "Yeah, it's just salt." And, of course, I want them to know that the Celtic salt that you sell, that Jacque brought in, and you've been pioneering for years, is now all over the world. You can find it in just about every health food store and maybe grocery stores. So you can get it in Australia, Canada, England, it is this great salt. Especially the grey salt, I use that always for cooking.

And then the grey salt is, I guess you call it, ground into a fine salt. And then I use that for other things when I need a finer salt. So there's a bunch more salts that we're going to be learning about. So, Selina, why don't we just give people a little bit of history of salt that's been around forever. So can you talk about the history?

Selina: I'd love to. I actually want to bring it back to the founder of the company, Jacques Delangre, and his book, what an amazing book it was that he wrote. The book kind of started the passion of the book when a macrobiotic philosopher, George Ohsawa, gave him a huge, thick book. It was in French. And it was written by Rene Quinton. And Rene Quinton studied minerals and the bioavailability of minerals. And George Ohsawa gave this book to Jacques and he said, "You must tell the world about the right salts to eat."

And so Jacques, 40 years ago, took this book, and Jacques spoke seven languages so he was able to, before the Internet, do a lot of research on salt, and our body, and why is it so important. So it's really not just to look at what the table salt is, but also the essential...This is the first natural mineralization is sea salt. It's like the perfect mineral supplement because it's in the perfect ratio.

That's what he wanted to get a point to anyone. He didn't want anyone to think that this sea

salt was going to give you your daily supply of magnesium, potassium, just sodium, and chloride because he understood that the trace minerals are just as important as essential minerals. And sometimes with all the essential minerals that's in these salts that I have here—you can see all the minerals, there's 82, and some are just trace—but they all play a role in the assimilation of the sodium.

So the main thing is our body does need sodium, but it needs to be accompanied with all its little friends or it does not do well. And that's the main thing is it's just like any whole food, you cannot isolate nutrients, you have to take them in their whole form. And that was what he wanted to get across in this book. He translated this book in seven different languages. So that's why it's all over the world because he started a revolution to educate people about salt.

Donna: Well, is that book still available?

Selina: No, actually, I took it off the market because there are some things that today I didn't feel comfortable by going out there because I've done more research. And I wanted to update the book and re-write it, but these are his words. But since then, if he was still alive, he would be telling everyone about these other miraculous salts that we have found all over the world. And so I just could not really alter or edit this book to where it would still keep his voice. So I've just decided to write my own.

Donna: Oh, good. So George Ohsawa, he started the Macrobiotic Movement. I personally was macrobiotic for eight years. It was a great training. But if you want to put it and personalize it in that way, it can be macrobiotic, but there's way too much green in the diet, actually, because so many people have candidiasis, but it was a great training and a lot of your understanding of Oriental medicine and balance, acid alkaline, and so the salt was really critical. And so people that were macrobiotic were the only people that had access to this good salt at first. You're the one



that's really gotten it out in the world and all over the U.S. first.

So people, originally, like hundreds and hundreds of years ago, I know Gandhi actually marched, the famous march that Gandhi did, was really because the British had deprived the Indians of, they couldn't have salt anymore, they were getting weaker, and weaker, and weaker. And so that's the purpose for his march that became so famous and made him well known. But before that, even, people understood the importance of salt. Can you talk to that a little bit?

Selina: Yeah, oh, yeah, in history, in history you can see where politically they used salt to really control a lot of different communities and societies. And in places that they did prevent people from getting their salt, those people actually craved blood. Because their body wanted salt so much, they knew that there was sodium in blood. And they would crave blood because it was a natural instinct that they really needed it.

And there are some places where the whole vampire stories actually started. So it's amazing when you really just do the historical information about salt, even in the Bible, the Bible says, "Never offer grains without salt." So you know what I'm saying?

Donna: Yes, because the grains are acidic and the salt is alkalizing so it's creating balance.

Selina: Yeah, exactly. So I think that's what is important for us to understand is salt has had a bad reputation. But we have to understand there is salt that has its minerals attached and then salt that does not. And the sodium chloride that you would take without it, it's like a poison. You should never take it by itself. Sodium chloride should never be taken by itself. It can't work.

The cells in the potassium pump will not open unless its attached with sodium and chloride is attached. So the potassium pump how it opens up, and it's in the cell wall, and there is three molecules of sodium here in the internal part of

the cell, the internal part of the cell, out here is the potassium, so those three molecules attach in the cell wall.

And then over here a little bit of phosphorus attaches. It transforms the whole cell. And then it goes like this and opens up in the cell wall. These little sodium things, they fall out in to the intracellular fluid. But then these two little potassium molecules attach here, and then the phosphorus attaches again, and so it goes like this, and then the potassium comes in to the cell well. And so this is what's happening.

Donna: A lot of things happening.

Selina: And sodium will not come in. If you just did a Google search today on YouTube, the potassium pump, there's even cute little high school skits of kids with the sodium sign, a potassium sign, and a little guard saying, "You can't get in without your potassium." They count on each other. And that's what we need to get across is these elements depend on each other.

Donna: And there is potassium salts out there. I bought some once. It tastes horrible. So but they--

Selina: I have a new one. I'm excited to tell you about our new one. And we can go through it, but it's amazing. It is amazing. It's off the chart potassium. I just got back from Japan with this salt. It tastes amazing. It's all-naturally occurring. There's no man-made potassium going in it at all. I'm going to send you some.

Donna: Oh, please.

Selina: It's a really good.

Donna: What's its name? You have so many different salts, already. How would people know about that salt?

Selina: It's not on the market yet. No because I just now discovered it. And let me just tell you a little bit about its mineral contents to give you...Right here is all of my salts. I just spent ten thousand dollars on having every one of my salts tested for its 82 minerals, and trace minerals--



Donna: And purity.

Selina: and purity. And the reason I did this is I got tired of making hem-haw answers to the people with questions. So I thought, "I'm just going to get it down and really show it." And I myself, Donna, was completely surprised of the results. This new potassium salt that we have, the sodium is only 1.014 mg per teaspoon. Let me tell you how that compares...I'm sorry that's the calcium.

Let me tell you the sodium. It's less sodium. I'm going to have to send this to you, but it's 104. Our light grey is 459 mgs of sodium per teaspoon. This new one is 104 mgs per teaspoons. Let me tell you the potassium levels of this salt is off the charts, too. The potassium is—this is such fine print here—but I really wanted to tell you guys this because it's naturally occurring—61.725 mgs of potassium per teaspoon. All of my other salts are like 2.73, 2.52, 7.02. Then the Makai tier has 11, which the Makai, when I had the Makai tier tested, I was like, "Oh, my, gosh!"

Donna: Yeah, I love that salt. It's delicious, the Makai salt. And we'll talk about these salts. I'd like to talk about each one individually.

Selina: Oh, I can tell you now I'm prepared to tell you all about them because before I had to just get the manufacturers and the suppliers spec sheets, I really spent some money to talk about them properly and educated.

Donna: Okay, perfect. So let's get there. But I just wanted to bring the part about genes into the picture. So there's two genes—AGT and ACE. Remember, genes are always just letters or letters and numbers. They're never just numbers. At least, I don't know about them, but anyway, letters and numbers so AGT/ACE. And when I look at people's genetics' charts and all, I see very often there are variants, which technically means that the amount of sodium that they take in, you have to be careful because it's associated with high blood pressure.

Now, as people get older, always everybody, by

the time you're in your 80s is on blood pressure medication. So I'm not, by the way. I've been using the salt, Selina's salt forever and some of her others that I love. But I have those genes. I have two copies of AGT and two copies of ACE. So technically genetically, I'm very salt sensitive.

However, I want you to know two things, it totally changes...So when those studies are done on salt, they're not using the same kind of salt that Selina's selling and offering to the world, they're using the stuff in the little blue box. And so it's ridiculous. I've watched these reports come out all the time and they say these things, I'm thinking, "Oh, my, gosh, what kind of salt were they using? Who are they testing?" So they need to redo all those studies, for sure.

And even if you have those genes like me, you can still eat up to a teaspoon a day. And so, Selina, just like you were saying, that would give me a significant amount of potassium if I spread that teaspoon out over the day. You put a teaspoon in some grains that you are cooking like rice, or put it in soup, probably use some more in soup, but you're not going to eat the whole pot in one sitting, you're probably going to share it with other people, too, so we're not getting that much salt and we are getting quality salt if you're following what we're talking about here. There are other genes for salt sensitivity, but those are the key ones and the most well researched ones and they're common. So this talk is an important talk.

So I know you go all around the world. Oh, well, let me ask you this first, what depletes us of salt? I know I have a little dog. Sometimes he barks in my interviews. But if he licks my skin, I know he needs salt. I'm not giving him enough salt. So animals need salt, too. I know you've talked before about salt licks for pasteurized animals, for example.

Selina: Right, I think that everybody is completely different. And if someone works out a lot, they sweat a lot, they probably need more salt. A person that does not eat meat, they probably



need more salt because they're salt--

Donna: Say that again. I didn't hear the words, "A person that does not eat..."

Selina: A person that does not eat meat because there's naturally-occurring salt in meat. If you're vomiting, if you've been sick, even if you've been stressed, I believe those are the times where you would probably would want to do just a little bit more salt. But I think you could just test your body. If you're finding yourself that you're extra thirsty, you're probably overdoing your salt. If you find that you feel like your meals are lacking something, you could probably do more.

It's amazing, Donna, all the different people that write about sea salt being like God's natural mineral supplement and how they use it is almost a morning ritual to make a [inaudible] before they even get out of bed when they're in an active state to alkalize their body. Even before they get out of bed, they have their little mixture of a couple grams of salt and 16 ounces of water with maybe a little bit of lemon. And they feel like it completely alkalizes their body before they even get out of bed and it brings their body into homeostasis.

Donna: So that's a really good thing to do, though, because we actually do wake up dehydrated and acidic. And I've always thought about that and talked to people about it. There's always been a big argument like, "What do I have for breakfast? Should I have breakfast?" Some people don't have an appetite. Everybody wakes up acidic and dehydrated. So that sounds like a great tip right there.

Selina: Yeah, and I forget to do it. It is a ritual that I think would be smart to put it. And then, also, taking baths in salts. Your skin is the largest organ of your body and so by taking a bath in salt, you can actually absorb that salt that way, especially children. I know Dr. Dettman, that's the biggest thing he recommends for young kids is having a bath salt and always taking the water and flushing them with the bath salt in the bathtub because

of the ions and just everything salt. You go in the ocean, you feel so much better, even just sitting in the air and not getting in that water.

Donna: Definitely. Well, caffeine, I did want to mention that caffeine—coffee, chocolate—those are two sources of caffeine that are commonly drank. We drink them or eat that. And they very much deplete sodium, salt, as well, too. So if you are a coffee drinker, you may even want to put a little pinch of salt in your coffee. You'll get used to it, too. And that's when—

Selina: You can do that. Yeah, it's very common for them to do that.

Donna: Well, even if it tastes a little weird to drink salt water, you very quickly get to where you love it. That's good. So, so many times, you would say to me, "Oh, I'm in France, I'm in somewhere, Haiti, or somewhere looking for salts." And can you just talk about the fact that there's salts all over the world? Like the Japanese have had their salt. And I'm questioning how contaminated it would be today. But can you just talk a little bit about how salts are all over the world?

Selina: Yeah, and I can tell you why I started that. We got a scare way back in 1994 when there was an oil spill, the Erika oil spill, in the region we were originally getting our salt. And they had to close down the salt production for the entire year as they cleaned up everything. And it was really scary, I thought, "Wow! This is ridiculous that we would be depending on one salt from one area. This is putting us in a vulnerable place. I'm promising good salt to people. And I can't keep that promise."

So that's when I started to put my prayers out there asking God, "Please help me find more salt." And that's when God started delivering the angels and they just started coming to me. So I'm in [French city] one time in France doing salt and I had to hire a translator. Her name was Betty Adams. And so she comes with me because I was looking for other salt farmers in France, but they



didn't speak English, but she came with me. And she was my translator.

So I was explaining to her that I heard about this new flower of the ocean in Portugal and she says, "Oh, yeah, I deal with that." So we go to Portugal together and find the new flower of the ocean. While I'm in Portugal, she's telling me about this amazing salt from Spain, but she said it's very high in sodium chloride, but everybody's using it for manufacturing. I just put that behind me. And I'm going to come back to that after I tell my story. I put that behind me and never went there.

I'm at a trade show one day and we're packing up at Expo East and this man comes up to me, his name was Miguel, and he gives me this little vial, it was 10 ccs of salt. And it was very white. And if you recall, in Jacques' book, if it's white, it's not good. So I've always been skeptical of white salt because of what Jacques taught me, "Minerals are grey." So I thought, "Oh, well, whatever." I send the salt to my lab, the ENC lab.

And when it came back, I was completely shocked of the profile of this salt. And so I called the guy and I asked him, I said, "You've got to tell me more about this salt." And he said, "Well, you know, the big..." And at that time, Donna, do you remember when people were buying Deep water from Hawaii, they were high-mineral waters from Hawaii, the Kona water and those waters? Well, in this area, he realized, well, here, they're getting this Deep water and they're bottling it and selling it. He thought, "Well, gosh, I wonder what kind of salt it would actually create?"

So this pharmacist started to experiment and bring the water that they were bottling, it was from 2,000 feet below the surface of the water, and bringing in to these man-made little salt huts that he had made, and have a big fan that circulated all of the air so that the water would evaporate. And it formed those amazing, big, white crystals. And that's the Makai Pure that is [crosstalk] sodium chloride. It's very high in calcium, and it's very high in magnesium, and it's

alkalinity of 10. So it's off the charts. It's like, "Wow! Who would have ever thought."

So I started to do more understanding, "How could these properties be coming from this level of depth in the ocean?" And there's really not a whole lot of studies that have been done yet because there is no photosynthesis that deep.

Donna: So [crosstalk] our people are concerned about contamination in the water, contaminated salt, down below 2,000 feet, that's not an issue?

Selina: It's not an issue. There's nothing there.

Donna: What you haven't mentioned is that these salts all have different tastes. And I love the Makai salt. This was my favorite one because I have these genes, it's higher in potassium than sodium. For years now, I've told people that I have to call you to get it because it's virtually not in the stores. But I love it that there's a salt that tastes this delicious. And this has more potassium in it. So for me, it was the perfect salt and also we've got another option.

So I know you did spend a whole lot of money getting those tests done. And people are, I've heard this over and over again lately on the ocean isn't clean. It has plastic in it. The plastic is ruining all the salt. And then so all the Keto, Paleo people, they're all saying, "Don't buy that kind of salt from the ocean. You should get it from Utah," which there's a big salt area there where...Anyway, you can talk about that better than I. But that's another mistake that your lab tests have just proven to be false or another myth, I should say.

Selina: I'm not going to lie, there are microplastics everywhere in everything. And I did spend the money to have the test done. And some of my salts showed the most minute amounts in it. Which to give you an understanding of the ratio, we sent two kilos. First of all, we had to send it to three different labs because I couldn't find the lab. And I finally found one in Switzerland that would do this kind of lab work for me. And so I sent two kilos to the lab of all my salts to see how they



would come back.

The interesting thing, and I want everyone to understand the perspective of how much is in it, you would have to eat 10 lbs. to get just one of these microplastics in here. So I want everybody to understand this. And I've been fearful of even coming forward with that. But since then, I've been doing more studies and there is no place, there's nothing that doesn't have microplastics in it, it just depends on are you having the right test done?

I get these emails every day, it's in the air. You actually inhale more microplastics when you breathe than you would get anywhere. It's in the water. It's in beer. It's in honey. It's everywhere. We are living in it. So I'm not going to lie. Now, when I had the analysis done, I was very surprised because, and the whole audience can help me in this perplexity because the coarse crystals of the light gray came back very minute. Now the coarse crystal is dried and then it's ground. That came back zero. It's the same salt, but it came back zero. So how did that happen?

Donna: So in other words, some way along the way, these teeny bit of microplastic disappeared in the fine grain. So the Celtic sea salt showed a teeny, teeny bit. And then they ground it and it disappeared. Maybe it stuck to the blades or something when they ground it? I do have a solution.

Selina: Everybody can join me in that interesting thing. But when I contacted the laboratory and I said to them, "Can you break this down into parts per million per teaspoon?" Their answer to me was this, "The probability of somebody even ingesting any of this is not likely, but right now, this is too new information."

People do not have enough studies and information to really go forward and understand how much you can do. You might just chelate this right out. You might poop this right out. We do not know what the absorption is. We know

about BPA. We know about heated plastics. We know about all of that. But we do not know of the indigestion and everything that you're doing with these microplastics yet.

Donna: Well, I can add an answer there.

Selina: Well, I feel safe that my salt is extremely safe. And I will continue to spend all of this money. And I even contacted every single salt store. Shared this information with them. And I said, "We need to partner to see how we can solution this together." So me and all of my seven salt suppliers are working on ways, we cannot clean up the ocean, but there might be ways that we can make the process of the salt be better. Just like right now, if you're saying you're buying organic produce, are you really buying organic produce? Who knows? You see what I'm saying? So.

Donna: Well, I think I have a solution. Any salt that you ingest in your meals, which is how we're taking in most of it, it will be in the food. And one of the functions of the microbiota in the gut is that they seek out those minerals because we need them. And there's more mineral sites in the gut for any amino acids or anything else. So we need minerals desperately. I thought it was so fascinating when I learned that there are more receptors, more sites for starving minerals than any other nutrient.

But the microbiota also have another important job is they are very good at recognizing toxins, parasites, eggs, larvae, things like that. And toxins are, if you drink a whole entire bottle of something, "No," but microscopic, tiny little bits like you were talking about, if you put some in the rice, or the soup, or something, you're not eating that whole pot, but there's a tiny little amount that you're getting, the microbiota, that's a big job that they have down in the gut, they scavenge out basically and they metabolize it themselves.

It's hard to believe because you think it would poison them. And sometimes things do. Like too



much saturated fat will poison the good guys and let the bad ones flare up, but this is something that the...So if people are eating fermented vegetables, a spoonful or two with their meal, that's ridiculous to think about the salt or your quality being a problem for them.

Selina: Thank you.

Donna: Now a lot of salts say they're iodized. Are any of your salts iodized? What does that mean iodized?

Selina: None of our salts are iodized. But there is trace minerals of iodine in our salts, but it's trace. Maybe 50 years ago or when Jacques wrote his book because he states in the book that you will get a sufficient amount of iodine if you eat sea salt.

Today, I think our iodine needs might be different because I am not going to say there's enough iodine in our salt naturally-occurring to get it. What I'm going to say is just like the complex of all of it, iodine needs a bond to be able to work and to be assimilated. And to just take a synthetic iodine, I am not really sure how that bond work and how long it last in your whole body. According to what Jacques said about iodine is you need the bond, you need it in its naturally-occurring trace minerals. But what we did was--

Donna: But you will find, you will find that in fish if people are eating fish and sea vegetables, or you can supplement. One of my favorite things that you have is a sea vegetable supplement. You had me there.

Selina: Well, I really wanted to make sure. So we were getting in to China or that we had a resource that wanted to get our salt in China. But the law was we had to have the salt iodized because of China's regulations. So I actually spent the money on how much iodine I should put in it. I had some made. I used iodate, iodide.

And at the end of the day when I was getting ready to say, "Okay, I really want this China market and I'm going to do this, and I don't think I'm really

doing anything bad," when they said, "Okay, now you need to have some sort of a chemistry kind of certification because this was a chemical," and I went, "I don't want to play that game."

And so I pulled back. And then we thought, "Well, we still have to offer iodine because one out of every three calls that we get it's an iodine concern so we have to take responsibility for that," so seaweed, obviously. So we put four seaweeds in this container. But we know seaweed doesn't appeal to everybody in flavor so we put garlic, onion powder, and [inaudible] leaves in here to camouflage the seaweed flavor. And it is good. It makes its own broth.

Donna: Delicious.

Selina: If you just put just a little warm water, you've got like a little iodine bomb.

Donna: Wow! Yeah, it's really delicious. Yeah, I sprinkle it on a lot of things. Some people have just been doing carnivore right now. And meat is also very, very acidic. So that's why I know, I've known this for years before I understood all that acid alkaline, that if I don't have some salt for my meat, my chicken, or whatever, something's missing. Like it doesn't taste good and you add that little bit of salt, perfect.

And it's a very individual thing. Like everybody has a different need for salt. And our salt needs change throughout the year. If you are sweating and you're an athlete, you'll take more. Women actually need less salt from the time that they ovulate to when their period starts. Once there, they don't need that much during their period. And then about when their period finally ends, they can start to take in more salt, naturally-occurring salt in like fish and also putting more of it on your food.

So I think that's another invaluable thing I've learned from Chinese medicine is our salt intake even varies individually and even throughout the year. Like in the wintertime you're going to crave more fats and salt to keep your body warmer, less



so in the summertime, unless you're sweating a whole lot. So I think the bottom line is follow your desires. Like if you're craving salt on something, put it on there as long as it's the quality that Selina is talking about.

Selina: I agree. And I think I probably want to also explain that people might not understand what these minerals are doing. They are our electricity. These are radioactive minerals. And that doesn't mean radiation. These are radioactive minerals. And there's about 12 of them on the periodical scale. And that's why sea salts are so awesome is because you need these radioactive minerals to ignite all the other ones to work.

And that's why when you start isolating these minerals, the charges aren't happening. Without those electrical charges, your nervous system, everything is off balance. And that's why you might have adrenal fatigue or you might get shakes and things. Or when you're in an accident, the first thing they put you on is a saline drip. Why do they do that? To prevent you from going in to shock. Why? Because your homeostasis is completely knocked off and all of a sudden, the electrons in your body is going crazy. And that's why we really need minerals.

And that's why I think you need them in their whole form instead of just taking a supplement of calcium. Because if you just took calcium or just magnesium by itself, it doesn't work, you need these bonds for them to work. They will not work. So that's why I think people don't understand...

Like *Biological Transmutation*, it's such a great book because he talks a lot about when you've isolated nutrients and how they don't work. But then he also talks about you can take sodium and it can transmute into potassium. You know what I'm saying? The transmutation of these minerals and why they are just so important in its whole form. And that's really it. And I brought in some other sea salts that don't have the same beautiful mineral complexity because the ingredient manufacturers for processed foods, they don't

care about those minerals. And I haven't been able to get that market share with it.

So to go back to where you said Betty said, 'Oh, there's this other salt in Spain, but it has this.' So I just got back from visiting that salt in Spain. And I saw the way they made it. And it's very pristine. It's so beautiful. It's acres, and acres, and acres of salt plots that nobody's even allowed on. It's beautiful.

What makes this salt different from the other salt is they wash it. They wash it to where it's always a consistent mineral composition no matter what. There is no magnesium in it. There's no calcium in it. There's no potassium in it. It's pure sodium chloride. But that's all that's in it. There's no additive in it at all. There's no free-flowing agents. There's nothing in it.

When a person is making a product that ships and they want sea salt, they don't want to pay the price of sea salt. See? So I decided to pick this salt up. I will never put it in a package just to be selling it that way. But these ingredient people that need a good sea salt that's clean that doesn't have dextrose and free-flowing agents, I picked it up. Twenty years ago, Donna, I would have never picked that salt up. You see what I'm trying to say?

Donna: Well, not exactly. I'm a little bit confused because you have brought salts in for a while. Are you saying that basically you really looked at them and got rid of them and you really refined down to the best ones? And then also this salt, it isn't high in potassium? I thought it was high in potassium.

Selina: No, no, no, there's two salts that I just found in Spain.

Donna: Oh, okay, okay, that's where I got confused.

Selina: The salt that I'm talking about is the salt that I refused 20 years ago, but now I'm looking at it.

Donna: Oh, okay, okay. So I need, with my genes, I



need a potassium-rich salt.

Selina: So I went to see this place. And this is so interesting. So over 2,000 years ago, the Mediterranean Sea came over in Spain and it flooded the entire region of this place in Alicante, where this salt is from. Then the water receded. After it receded, it had been trapped underneath the ground, which started faults in that area, which made mountains in that area of this underground sea water.

When it made this mountain of this underground sea water, it possessed all this potassium. So it's actually a cave salt. When you walk into this cave, it's like icicles of salt everywhere just dripping down all over the place around you. But it's the rain water and the underground spring that is constantly feeding it. So it's still a wet salt when it comes out. You understand what I'm trying to say?

Donna: Yes.

Selina: Because it's replenished by the underground water and also the rain water, there is a big mound next to this cave of just sodium. This is the largest source of potassium for people from all over the world, this cave is. So the problem they have now is they have way too much sodium because they're extracting potassium out from the sodium. And they're just selling potassium. I'm going to bring this salt in in its full whole form.

And that's the potassium salt that I'm going to send to you so you can taste it because most potassium salts have added potassium. And potassium doesn't taste good like that. But in its natural form, you're going to love this. You're going to really love this flavor. I'm excited to bring this in. We're just now getting all the details and everything about this salt. But it's just going to blow everybody away. It really is.

I didn't want to bring a mine salt in because of the sustainability issue. But at the end of the day, this salt, because of the rain water and the spring water, they're never going to not be able to

replenish this mineral salt that's being made. So mine salts, they're always concerned that if they just keep taking it, keep taking it, and there's not going to be anything left. This salt [crosstalk]--

Donna: But will we run out of salt? Is there a danger at all?

Selina: No, you will never run out of salt. Right now, I probably have 12 other salt sources that I just, I don't know what to do with them, but they're really good salt sources that I can't bring in.

Donna: Okay, great. Well--

Selina: This is the over one I've ever found like this. Donna, in these 40 years, I haven't found one like this one. The Deep Sea salt blew me away. This one even blew me away more.

Donna: Wow! Tomorrow, right away today. So you were saying it's a cave salt and Himalayan salt is a cave salt. I watch as the Himalayan salts took the world by storm. And I just cringed because this huge difference in quality. They come from Pakistan, not the beautiful, poetic Himalaya. And it's a dirty country. There's wars going on. And they don't have the facilities to transport things out of there and ship them cleanly. So I've never been a big fan of Himalayan salt. But didn't you find a good source for it? I'm going to get it from you.

Selina: I do have...Yeah, I did find a good source for it, but I'm still not bringing it in. I don't need it because it's the identical profile of my fine ground. Actually, the Himalayan salt is 97.63% sodium chloride.

Donna: Oh, wow, so that doesn't work for the genes that I'm talking about. Well, I think people need to spread the word about that because so often I'll pick up an unhealthy bar that's supposed to be a food replacement and they'll proudly say Himalayan sea salt like it's so special. So I want that word to get out there, for sure, is that theirs is not the best salt by any means.



So, let's see, now people crave salt. And I think if your doctor's told you don't eat salt, but there you are craving salt, I think you're making a big mistake. But, Selina, have you... First of all, I know you have a huge number of medical doctors and practitioners that love the salt and recommend it to everybody and you have been collecting a huge, huge stable of practitioners. But in all of the feedback that you've gotten, tell us some stories that you've gotten from like can people become addicted to salt? Can you touch on that?

Selina: I'm going to first tell a story of a doctor and now he's a pediatrician in Miami that I met maybe 20 years ago. And when the children come in to the office, and they always come in because they're sick, the first thing that the nurse is supposed to do is give them a glass of water, warm water, with a pinch of the Celtic sea salt in it. He said 50% of the children, when she finally gets to see them after they've been sitting there, they're feeling already better, 50% of them.

So that's just one thing that I can share that the doctors get to see an instant result with their patients when they give. And this is why I don't think you could take vitamin A and feel an instant result, it's electricity. You just charged the battery and you just alkalized the body so you're going to immediately feel a difference. And that's what's so magical about the sea salt.

As far as people actually getting addicted salt and things like that, I really can't think of anybody or anything with an addiction. My son-in-law, they're from Russia. And his mother loves salt. I've never seen anybody eat as much salt as she eats. She's never had a high blood pressure problem. Nothing. So [crosstalk].

Donna: Perfect example, it's such a personalized... We're all different. We have different needs. Those needs change all the time. That is a perfect example. Well, so the last thing I wanted to go in to was fermentation. Like we both ferment vegetables, for example, and they have to have salt in them. And remember many years ago, Ann

Wigmore had just begun teaching people about her veggie kraut is what I think she called it.

And she didn't put any salt in it because she had that community, the community was against salt. It was really mushy. And here I come along, there's this tiny, little community using veggie kraut. And I wanted the world to go back to eating this very ancient really, really important food that has so many functions. And the big salt question came up.

So you, when I was visiting you, you had a batch that you had made that were so delicious because you'd use a pretty good amount of salt. I was surprised I think you used two tablespoons for a whole batch that you made and I thought, "Well, was that okay, you know?" And so I started doing a lot of research and I found out that the fermentation process is a process that changes. Like certain bacteria show up in the very beginning, and then new ones come along, and they keep advancing the process.

So yeah, some of the microbes are killed in the beginning, but it's very, very important to put the salt in to keep those vegetables fresh. And actually, the government, like if you're making fermented vegetables commercially, you must put the salt in because you'll attract that bacteria. So do you have anything to say about that like your own personal experience in using the salt?

Selina: My personal experience, I think the ones I've tasted with salt are much better. I have not compared regular table salt cultured vegetables with sea salt cultured vegetables. But I do know in Jacques book, he did do some research. And his research was that if you don't have a salt that has trace minerals in it, it is not going to feed those micronutrients the same. So he said it's been proven that they did an experiment, hundreds of years ago, where they put fish in distilled water or water that doesn't have any kind of sodium or anything and the fish could not live.

Donna: Live fish? Oh, and they died.



Selina: Yeah, live fish like it would die. So basically, you have Cantone, the Dr. Cantone, and he actually took blood out of dog and replaced it with sea water, the matric water, and the dog's vital signs were normal in 18 hours. So I just think that we are—

Donna: Well, we also, if somebody has diarrhea or any reason why they're sweating, they might get dehydrated, that's exactly what they do, they put saline solution in them.

Selina: Yeah. But I think really to do pure sodium chloride cultured vegetables versus all of the essential minerals that are in sea salt, I think that it's going to produce a better one. But I have not done an actual laboratory analysis of one and the other. It would be a great experiment to really do if there was actually any difference in that. But even [inaudible], in her book she says you should never eat vegetables without sea salt. So she even recognized the importance of what the sea salt did.

And even when you're cooking, you don't have to use oil sometimes. If you just put salt on your food, the water starts to come out. And it's the natural juices of the vegetable that draws it out because the magnesium in sea salt is like a moisture magnet so it pulls it out.

Donna: Mmm hmm, and I think that everything you said it just popped in my mind that the Maasai Warriors, they were so amazing, strong, healthy, very tall, seven feet, beautiful muscles, dangerous, they sharpened their teeth. And if they came after your tribe, you were gone. They drank blood. And they did it because they'd eat the meat, but they needed minerals.

So they'd slit little, big ole slits in the cow, and they'd raise cattle, and they would literally drink that blood. So it's really been around for a long time. People didn't know. They didn't have the science that you have, for example. They

absolutely needed it to be strong. So I hope that our interview here has cleared up a lot of misunderstanding about salt. And, Selina, is there any last-minute thought that pops into your mind that you want to leave people with?

Selina: I think that the main thing is that I realize that salt is like nature's first mineral supplement. And I really have such an appreciation for it. But I know salt has gotten such a bad rap. And so I feel like there's also some really amazing important things in just herbs and plants. There's minerals in those, too, that I think that we forget that land food has minerals, too, that are essential for our body. And we tend to forget it. But if you look at all the different herbs out there and you see what kind of potassium, and phosphorus, and things like that that they have naturally occurring in it, kale and all those things, I think we can't ignore it.

And knowing that, I'm developing another new product that'll be launching in March. And it's going to be an herb base. It's going to be very, very little salt in it. I'm going to be using potassium salt because, yeah, so that'll be the base. But there's going to be things in it like kale powder and kale powder, all these mushrooms. Like 12 different mushrooms will be in it. So it's going to be another seasoning that will be complemented. But it's just to let people know that there are other options of getting your sodium in you and your minerals in you. And it's not just the salt. So I've taken responsibility. And if Jacques was here, I'm sure he would do the same thing.

Donna: And he'd be very proud of you, by the way, you've done an amazing job. And now I hope when people go to the grocery store and they walk down the salt aisle and they see that little blue box, they'll just keep walking right on by. And they call you because you can definitely buy Selina's salts in Whole Foods and places like that. But now you know that there are so many more salts that you can...It's like collecting different olive oils. And it's the same thing with salts, they all



have their own unique flavor, a little bit different mineral profile. So why be limited to one thing in a blue box?

So, Selina, thank you so very much for clearing up the confusion. And then I got a chance to talk about these two genes to get the truth out there because people should be taking in salt even with these salt-sensitive genes. Thank you.

Selina: So can people get tested? Can they get tested to see if they're salt sensitive? Donna, how would they get tested if my customers call me and they want to understand if they are salt sensitive?

Donna: Well, in 23andMe and some other DNA reports, they all test to see if you've got ACE and AGT because people are concerned about blood pressure, which, of course, causes cardiovascular disease. So they can absolutely. Millions of people have already done 23andMe. It's in your DNA if you've done that test. It's very easy to find that out. You just have to run it through a program that tells you if you have it. And they look at your genes. And now you know what to do once you find out if you have them. And whether you have salt-sensitive genes or not, it's really critical to eat the right kind of salts.

Selina: I do want to say if you do have a friend or anybody that you know that does not like to drink water, you know how some people just aren't water drinkers, just experiment and have them take one crystal of salt and just lay it on their tongue. And you watch them, you will crave water. It's like a moisture magnet. So I think it's the best cure for people that just will not drink water because you put that in there, your body is saying, "I need water." And they will go straight for the water.

Donna: Wow! I'm one of those people. I don't have a great craving for water unless there's something in it, but I think children, too. And children, that's another great tip.

Well, thank you very much, Selina. Have a great day. And we really appreciate the time that you've shared with us.

Selina: I really appreciate you giving me this opportunity.



Why Infertility Is Rising

Carolyn Ledowsky, ND

Donna Gates: Welcome to The Genius of Your Genes Summit. I'm sure that many people listening to this interview today have had infertility problems or know someone who has because statistically, infertility is staggering. It's a staggering epidemic. And I think a lot of us know why, but we're going to dig down deeper and find out why. You might be very surprised with this interview.

And I'm interviewing Carolyn Ledowsky from Australia. You can tell that from her accent. I love the Australian accent. But she's a naturopath, an herbalist, and she started the website called mthfrsupport.com.au. So, you may, while you're listening to the talk, want to go to her website. She has a lot there to offer you. But thank you very much, Carolyn, for joining and being a part of this summit.

Carolyn Ledowsky, ND: Oh, it's such a pleasure to be here, Donna, thank you so much.

Donna Gates: Well, when I started thinking about who -- I wanted to put together a summit, there was a variety of speakers that could teach some great stuff. When I thought of infertility, of course, your name popped in my head permanently. Like there's no one better for this than you, and I've actually followed your work for a couple of years now and taken your courses myself. And seeing the really amazing results that you have with people that have not been able to get pregnant,

or what you say in Australia to fall pregnant. And you get them pregnant.

So, what a gift. Imagine someone who wants a baby more than anything in the world, and they can't get pregnant, and they spend a lot of money, tens and thousands of dollars and do it over and over again, and it fails, and fails, and fails. And then, someone like you comes along into their life and all of a sudden in a rather simple way, really, you help them fall pregnant.

Carolyn Ledowsky, ND: Yeah. It's so exciting.

Donna Gates: Oh, gosh. I can't think of anything that would make me happier. And I'm sure you get a lot of baby pictures too.

Carolyn Ledowsky, ND: I do. My whole wall in the office is completely covered in babies, which is so nice.

Donna Gates: That's so nice. Well, I have some questions. So why do you think fertility is on the rise? Why do we have this problem?

Carolyn Ledowsky, ND: It's a really good question, and I think it's multifactorial. I don't think there's one reason. But the key reasons that I would give is number one, and I know I'm going to get kicked in the backside for this, but I really think that the fortification of folic acid in foods has been a part of it. Because when you



look at the literature, it says that if you have a certain amount of folic acid built up – so let's say someone is having the standard American, standard Australian diet, and they're having breakfast cereal for breakfast fortified with folic acid. They're having sandwiches for lunch fortified with folic acid. They're having some protein bars and snacks through the day fortified with folic acid.

So, the original reason for the fortification of folic acid was to allow the poorer communities who did not have access to prenatal vitamins, folate, so that they did not suffer from the baby's having neural tube defects.

And did that work? One hundred percent. But the problem is now we've got women taking supplements with folic acid. We've got the average American and Australian; they believe their folic acid intake a day is roughly 1,000 micrograms.

Now the research says that the really important enzyme that actually deals with folate or folic acid shuts down at 300 micrograms. It is inhibited, so what happens to that? Our folate pathway is being affected. And when you consider that up to 65 percent of the population may have a genetic polymorphism in MTHFR, it makes it, I think, a really simple equation. That if you've got your folate pathway being affected by this folic acid, then what happens if you actually take it out?

And I've done some experiments, and I can say to somebody, "Just take folic acid out of your diet. We won't do anything else whatsoever. Just do that for the first month, and let's see how you feel." And one hundred percent of people feel better when they take it out. So, I think that's number one.

Donna Gates: Okay. So that means you would need to read labels.

Carolyn Ledowsky, ND: Yes.

Donna Gates: And sometimes they're very tiny little letters on there, and you'll see folic acid surprisingly in more things than you realize. Like I don't think people have any idea they're taking folic acid.

Carolyn Ledowsky, ND: No. Just some crackers off of the shelf will have – and normally it won't say folic acid, it will say folate. So, most people think, "Oh, that's good. Folate's good for me. I'll take that." So, you're absolutely right. Almost every label in the supermarket has got folate, folic acid, some sort of fortification. So, I think that's the number one for me, that's the number one thing.

Donna Gates: And there is a difference between folic acid and folate, like where do you find folate? Just in foods?

Carolyn Ledowsky, ND: Yes.

Donna Gates: Folic acid is synthetic?

Carolyn Ledowsky, ND: Yes.

Donna Gates: It's in a bar, it's probably not in a food.

Carolyn Ledowsky, ND: So, there's three main forms of folate. Folic, which you're absolutely right, synthetic man-made supplemental form. Then you have folinic, and you have methylfolate, and those two are the active folates. And methylfolate is predominately in leafy green vegetables. So that's why we always say eat your leafy greens because we want you to want to have that natural form of folate. So folic acid is one.

The second is toxins. I think we are exposed to so many more toxins, and I think we know that people with MTHFR and glutathione based innate polymorphisms that are affecting detoxification. It means that they've got a much harder time.



So, 40 years ago when people were – we put someone on a detox program, we think, ah, they'd come back in three weeks and say, "Gee. I feel so much better." But today we're bombarded.

So, you think about it, when a woman leaves her house in the morning, on average, she's been exposed to 300 toxins; from what she uses in the shower, to what she puts in her hair, on her face, her makeup, her deodorant, her hairspray. You think about it, everything.

So, I think we've also got to think about the toxins we're exposed to. Plastic. I saw you have a drink and you've got your non-plastic bottle, it's just so great.

Donna Gates: It's a Yeti.

Carolyn Ledowsky, ND: Yes.

Donna Gates: I never would drink out of plastic. I wouldn't even buy water in plastic.

Carolyn Ledowsky, ND: No. So, it's endocrine-disrupting hormones that are mucking up our hormones. I think is key.

I think for men, we know men's fertility is just declining by about nine percent a decade, which is actually a lot. And when you think about it, they've got mobile phones next to their testicles in their pocket. I mean, it's crazy.

So, I think EMF we just heard the summit on 5G, and there was so much interest in that and so many professionals around the world talking about the negative effects of WIFI and EMFs. I think we have to be mindful of that. We think technology's wonderful, but I definitely think it's affecting fertility and stress.

Donna Gates: Are there clothes? Aren't there clothes that you can wear like underwear, for example? For men to wear underwear to protect

them because it is all around us, and it's probably going to continue to get stronger.

Carolyn Ledowsky, ND: It is. Yes. And I think if 5G comes in, it's a potential nightmare. But I think we almost have to proof our houses for fertility. So, these smart meters on the outside of walls. We have to make sure that we've got nothing in our bedroom. No clock radios and I know we're going to get into the preventative stuff later, but these are the things that I always look for; is what's your bedroom like? You spend eight hours a night in your bedroom. How many devices have you got? Have you got clock radios and all sorts of things, yeah, TV, and things like that?

And then I think stress. We are all so stressed with doing so much more. We have very little downtime. We don't have times to chill and meditate. So, I think stress is a big component because it depletes methyl's, and we'll talk about that later. But it depletes methyl's so much more than anything else.

So, I think that's the three key things I would look at for why fertility's declining.

Donna Gates: I've worked with some young men, they're in their 20s and 30s. And to my surprise, they've had their testosterone levels tested. That's surprises me because once upon a time, men never, like my generation, men never tested for things like that. But they all have told me that they have low testosterone.

Carolyn Ledowsky, ND: Yes.

Donna Gates: And pretty consistently, and that I know I've read things like from my father's generation to my son's generation, he's in his 40s, the sperm count has dropped. Not in every single person, but generally overall. It's dropped 50 percent.

And then from my courses, that I have them in



all and hormones taken about one every three hours. One whole entire module is on men, it looks like stress, of course, diet is bad too, but stress is at the top of the list for men because the sperm count is low.

Carolyn Ledowsky, ND: Yeah. Absolutely. And you think about the reason testosterone's low is because men are becoming estrogenized by the receipts that they big up at the supermarket, the water bottles they're drinking out of, the plastic containers they're buying food in, the microwave that they put plastic on, men are becoming estrogenized. And we have to stop that. So yeah, you're right there's so many different factors.

Donna Gates: When people come to you, and they start asking for help, what are you looking for in those people? What are signs that you're looking for that leading to the infertility?

Carolyn Ledowsky, ND: So, most of the people that come to see me, in fact, pretty well 100 percent of the people that come to see me will already know if they have the MTHFR gene. And so, the first thing I will look at is their ability to create folate. So, I look at the folate-based genes, which are the folate receptor gene, dihydrofolate reductase. I look at how do they grab that folate from say the leafy greens, and how do they actually shunt it down the folate pathway ending with MTHFR and how do they have the capacity to make folate. So that's number one.

Donna Gates: Well, at the beginning at that pathway, can you describe like – dihydrofolate reductase, I guess, is the first one.

Carolyn Ledowsky, ND: Yes.

Donna Gates: And that's the one that's blocked by too much folic acid.

Carolyn Ledowsky, ND: Correct.

Donna Gates: So just to tie this back in and already they're blocked there, and that has to continue down a pathway to methylfolate.

Carolyn Ledowsky, ND: Yes.

Donna Gates: And are there blocks along the way too, for that, or?

Carolyn Ledowsky, ND: Yes, absolutely. So, people can have – I find a polymorphism that is really common is the MTHFD1, so that is a gene. It is tri-enzyme that really does the heavy lifting when it comes to metabolizing folate after dihydrofolate reductase.

So, if you can see that pathway, and we probably should put it up so we can talk about it if you have it. But so, we have a folate receptor gene. I've got it if you want me to put it up, I can show you.

Donna Gates: Yeah. Would you? That'd be great.

Carolyn Ledowsky, ND: Okay.

Donna Gates: So, I just thought of something too that you said. You have an article, at least an article or a class or something just on this gene, I think. Because I think that's where I first learned about it, everybody, where I started learning, several years ago, everybody was talking about MTHFR, but they didn't talk about the other genes in the pathway.

And then you were the first one that talked about that gene, that's a really big problem. I knew about the folic acid blocking the very first gene in the pathway, but I didn't know how important the other one was. If you could talk about that just a little bit too, but could you put the pathway up then?

Carolyn Ledowsky, ND: Yeah. I'll put it up, and I'll show you this slide that I have. So, if you have a look at this. So, this is a very simplified version.



If you imagine when you take folate, folic acid, it's at the very, very top end of the pathway. And remember we said it has to get past this dihydrofolate reductase. So, this is where we get these inhibition with folic acid, because it blocks these at 300, roughly about 300 micrograms.

Donna Gates: That's not very much, by the way. It's micrograms. You didn't say milligrams, you said micrograms.

Carolyn Ledowsky, ND: Micrograms, exactly. It's not a lot. And when the research says to us, most Americans and Australians are getting 1,000, that's a heck of a lot more than this enzyme can cope with.

Now when you see dietary folate, it comes in at the step below, and it then makes a very important folate called tetrahydrofolate. Now tetrahydrofolate is there to be recycled. So, if you can imagine methylation is a dynamic process, and it's happening milliseconds, millions of times a day. So, the objective here is we've got to be able to recycle it and continuously regenerate it.

So, tetrahydrofolate here then gets converted down to here's our folinic, 5-formyl-tetrahydrofolate. Now there is a gene out here, an enzyme here called MTHFS. And it predominantly is responsible for regenerating our folinic and making this very important folate called 5,10-methenyltetrahydrofolate because it is the precursor to 5,10-methylene and the precursor to 5,10 MTF.

So many, many people have a polymorphism, a homozygous polymorphism in their MTHFS. So, when you think about a lot of the prenatal supplements, remember we said we had two choices of folate that are active. Folinic and methylfolate. So, I'm looking at these people saying, "Well, which is the form of the folate that is best suited for you?"

Now, if you have an MTHFS and it's affecting folinic, you're not going to give that patient folinic. You're going to give them methylfolate.

Donna Gates: Because you're going to bypass that and work around it and go direct to the --

Carolyn Ledowsky, ND: Correct. So, the whole objective of the folate pathway is to make this guy here, 5-methyltetrahydrofolate. Because that's our active, so MTHFR sits here, so you can see how much of an influence it has. If you're homozygous for the C677T and you have a 65 to 70 percent down-regulation, you're not going to make enough 5-methyltetrahydrofolate. And that is directly going to affect the DNA, and directly affect their hormones, and directly affect fertility.

So, in that first appointment, I'm looking at all of these genes. Here this TYMS again, all of these recycling genes. SHMT recycling, they're continuously moving and recycling this methylfolate.

So, my first point of call is how do you affect or make or recycle your folate. And I say that this is your production company. So, the first thing I'm looking at is -- and this is how I explain it to my patients, what's your production company doing? Is it okay? Is it actually producing the product that we want?

The second step I'm going to do is I'm going to look at the courier company, and the courier company that's responsible for moving 5-methyltetrahydrofolate is really B12. So, I'm looking at B12. One, can you recycle it, and these genes MTR and MTRR are responsible for recycling, and they sit in here. MTR is really responsible for getting this methylfolate and moving into this methylene cycle so we can make SAM. SAME is your pharmacist. So, the end objective of all of this methylation is to get the pharmacist, SAME, a product that he can give away.



So, think of a pharmacist, he's sitting there, he's giving everybody his drugs. That's what SAME does. He passes his methyl's to anybody and anybody in the methylation cycle in the biochemistry of our body. He passes the folate or the methyl's on.

Now everything in our body that is crucially important needs SAME. So, for example, detoxification, hormones, DNA synthesis, detoxification, creatine production for our muscles, everything that we need that is crucial. Phosphatidylcholine one of the most important nutrients in fertility and preconception, can only be made when phosphatidylethanolamine is converted to phosphatidylcholine. What does it need? SAME.

So, we have three pathways I look at: our production company, our courier company, and our pharmacist. And I said to the patients, right, I think this where I think you're falling down. You've got MTHFR, your homozygous. You've got various SNPs MTHFS and whatever else. So hey, your production company is idle. It's working at 30 percent capacity. So, we can't have that. And by the way, you have a genetic polymorphism in B12 and the capacity to move B12 around the body and into the cell.

So not only do you have a problem with your production company, but your courier company is just not shipping the product.

Donna Gates: What about the SHMT and courier group there?

Carolyn Ledowsky, ND: Yes. SHMT is important because a) it's B6 dependent, and B6 is a nutrient that I think is constantly disturbed for a variety of different reasons. Because a lot of people have gut problems, they also have oxalate problems, which then affect their ability to use B6.

I think when we have a problem with viruses and

bacteria and lipopolysaccharides, the one amino acid that we need to fight it is lysine. And so, lysine is depleted, and without lysine, you can't use B6.

So, this enzyme SHMT relies on B6 to recycle our folates. So again, another incredibly important gene here and enzyme for fertility.

Donna Gates: So B6 is over there in the pathway below homocysteine on the right.

Carolyn Ledowsky, ND: Correct.

Donna Gates: It's really, really important. The B Vitamins turn out to be extremely important to take, I think. When you start studying this whole thing from the biochemistry point of view, and you put in these cofactors, you'll see how important those are, which are coming from food or supplements.

I have Bernarda Zenker also talking about cofactors. And I think that's a really important talk too because people just think it's genes but the cofactors are important. If you could speak to that a little bit if you want to?

Carolyn Ledowsky, ND: Yes. And I think that's the other thing that I look at always at the first appointment. Detailed bloodwork to say, "Okay. What nutrients are depleted? What are not being utilized?"

So, a lot of people say to me, "Oh, my B6 is elevated in my bloods. I can't have B6. I've got toxicity." Well, no, you don't. The reason it's increased in the bloods is because you're not utilizing it. So, I think it's also the way you approach it. And by understanding the key dynamics of your bloodwork and what is meant to be high, what it meant to be at a good level, how much B6 can you use? And I guarantee any practitioners out there that have someone with an elevation in B6 in their bloods, if they give the patient lysine, and don't give any B6. Give nothing,



but give some lysine, the B6 will come down. Because you're finally helping the utilization and it's those people that have had chronic diseases with Lyme and mold, and all of these things that are really depleting the body of key nutrients.

So, cofactors are incredibly important because, for example, without B12, we can't use folate. So, forget taking methylfolate. Even if you don't have enough B12 or your vegan and vegetarian and you're not getting enough B12, then you've got a problem.

Donna Gates: Well, you actually have a fantastic webinar on B12. I purchased it and in the early days, and it was really priceless knowing that because B12 is super important. But since then, quite a few times, I've actually seen elevated B12 in people's blood, and they really are concerned about it. But again, the cell's not letting the B12 in.

Carolyn Ledowsky, ND: Correct. And I think one of my passions is. I think the most excited I've ever been in my life was discovering how important B12 was to everything, fertility, mood, hormones, detoxification. It is the clincher.

And if you have someone, if you have some who has an elevation in B12 and they are not taking B12, you must assume they're not absorbing it. And the key gene that you need to look at is the transcobalamin 2. So, the TCN2 gene is your varying capacity of B12. So, your ability to get that B12 to transport it into the cell.

Now, if you have a polymorphism in that TCN2 supplements will not work. And I've tested on thousands of patients. It will not work. You can't rely on even a sublingual. Nothing will work. You must inject. And you will find that a lot of this can be life-changing if you do the injections of B12. So, I do look at the TCN2 because if you haven't got enough B12, you're not going to use that folate. If you're not going to use that folate, you're not going to fall pregnant. So, I think that's a really

important thing to remember. We must, must be evaluating B12. Anyone that's had surgery on the gut, you must assume they've got low B12 because remember it's absorption through that gut within the intrinsic factor that is absolutely critical.

A vegan or vegetarian they're going to have low B12. Don't let any vegan or vegetarian tell you they get B12 from their vegetables. That's rubbish. So, there's a lot of reasons.

Donna Gates: Injecting too. Well, that's so interesting too, it really gave out too priceless information, and nobody knows. And what it is about the B6 and lysine, I learned that from you and Sterling Hill. That was a surprise for me because I'm always taking lysine right about the time I'm coming down with a viral infection or something I immediately take it. So, I started taking the two together, and it was much more potent, effective.

Carolyn Ledowsky, ND: Yes. That's good.

Donna Gates: And then the whole thing about the B12 and that gene that's transporting the B12 into the cell, stopped working, you have to use shots, basically to get your B12 shots. I've never heard that before. So that really, really important too. So, this is a great topic. Everything you're saying and the way you're explaining this pathway, I really appreciate that, because it's complicated and scares people off.

Carolyn Ledowsky, ND: It is.

Donna Gates: And you also mentioned some of the important things that nobody knows about the DHFR that first gene being blocked basically from all of the folic acid we're eating. And what about the SHMT again, can you just talk about that one a little bit more because it's in that courier?

Carolyn Ledowsky, ND: Yes. So, this is serine



hydroxymethyltransferase. So, anything that has a MT on the end of the enzyme is a methyl transferase, and guess what, the pharmacist has to give the methyl for that to work. So, anything with MT.

So, if we don't have enough S_{AM}e or enough methyl's, that enzyme doesn't work anyway, but the cofactor is B6. So, remember we said so many people have deficiencies or underutilization of B6, and so it brings me back to this, I guess, it's one of the things I just don't agree with. Is I don't agree that there is a condition called Pyroluria. I agree that Pyroluria is a B6 and Zinc problem. But I don't agree that it's a genetic issue that cannot be solved. I believe that Pyroluria is a problem in this CBS or the cystathionine-beta-synthase enzyme. Because essentially, we are using B6. It is a cofactor, so it can easily be depleted when we have gut problems.

Remember, we said there's so many people with viruses and bacteria, and gut issues that are depleting lysine, which is affecting the absorption of it. So, I don't believe all of those people with Pyroluria that think it's a long-term genetic problem, I really don't believe it is.

And the danger is that if you give massively high doses of B6 all of the time, you are really depleting homocysteine. And what is homocysteine? This guy here is crucially important for this whole cycle to keep regenerating. And I've seen little kids with homocysteine levels of two. So, if your homocysteine is low, guess what? You're not going to pick up the folate. You're not going to make methionine. And you're not going to make S_{AM}e. S_{AM}e will be depleted. And what happens? Every methyl transferase in the body is affected, and that will affect hormones, detoxification, neurotransmitters, brain chemicals, everything – there's 80 methyl transferases that are crucial to our biochemistry.

So, I don't think we can assume that Pyroluria is

just a genetic problem. We should be assuming that if pyrroles are elevated, there is a problem with B6 and Zinc, most definitely. But how do we actually fix that? So, I think what we have to do is look at B6 and Zinc and say, yes, okay, if pyrroles are high there is a problem, but where is the problem? Well, the problem is in that CBS pathway. Or the problem is that they've been very sick for a very long time with mold, and Lyme, and lysine is depleted. So, I think that's also an important part.

Donna Gates: Oh, very. Another one of those amazing pearls. You know on the pathway there to the right, where you've got methionine down homocysteine and so on, this diagram doesn't show it, but there is a gene between methionine and S_{AM}e.

Carolyn Ledowsky, ND: Yes, there is.

Donna Gates: And that's the MAT gene.

Carolyn Ledowsky, ND: Correct.

Donna Gates: And I find that I keep finding that, not a whole lot, but I do find that, and like to know that because that means that they're not converting their methionine. Which you find it needs animal foods, with that gene variant problem there, they're not making S_{AM}e and then you're backing up on methionine. And that person really should be eating a very, very high protein diet. Like some of the diets out there, they're eating protein at every single meal, and they're eating a lot of it. So, I think that's another important gene in there. I just wanted to throw that in there.

Carolyn Ledowsky, ND: Yes.

Donna Gates: I know you're not a big fan of being a vegan, especially from a B12 point of view, but eating a whole lot of animal protein – and I'm going to ask you down the road here. There's a



study – well, maybe I can ask you now. So, there's a study, a brand-new study that just came out. And they looked at sperm in men. And they found out that – they looked at the MTHFR genes, 677T and the 1298N, in men, and they noticed if there's a polymorphism there, there's a risk of retinoblastoma in children.

So, this kind of leads into, do these genes that you're showing us here that have the SNP and the folate pathway's not working right, how much of an effect is it having on you, the person? I think I have at least one copy, I think I'm heterozygous for MTHFR, but so I have that. Is that affecting me, or is it affecting my children or equally?

Carolyn Ledowsky, ND: It's such a good question. And what we know is that if the MTHFR gene and for want of a better word, I'll say is addressed in preconception. Then that will have an affect trans-generationally. So, the epigenetics, so what happens, what we do, epigenetics means it's on top of the gene. What we do to affect the working of the gene, because we can't – for example, if someone is homozygous MTHFR we can't change that. That's there. It's for life.

But what we can do is we can affect how that gene works. We can affect the working of it by epigenetically giving nutrients on top of. So, for example, we know that if you give B2, it actually stabilizes that gene and that enzyme, and it helps it work better.

So, if you think about – and the reason I put in inverted commas, deal with the gene, is because a lot of people say, "Oh, you automatically have MTHFR, you must take buckets of methylfolate." But it's not necessarily the case because our environment has a massive impact to play. So, let's say we have two people that both are homozygous for MTHFR, one is super stressed, working 16 hours a day, eating very badly, smoking, and drinking, well, the effect of that MTHFR polymorphism on that person is

potentially going to be massive. So, they might have anxiety, depression, terrible detoxification, not being able to sleep, so the effect of their environment on that polymorphism is huge.

But you might have someone else who tries and see this a lot in people with the homozygous. They've controlled their environment so rigidly that it's actually enabled them to get by. So, they're eating really well, they try to get enough sleep, they remove as much stress as they can to the point where a lot of them will move to the country to avoid normal life. Now that's not normal either, because there's obviously a problem. But the environment definitely has an impact to play.

But if you were to say to me, in fertility, could I control my environment enough where I don't give supplementation, and I would say, no way. Because you need that mom and dad to have really good levels of folate, super levels of folate because then the risk of MTHFR affecting the baby pretty much goes away.

So, the effect of MTHFR polymorphism or any polymorphism has the impact that it can be transgenerational.

Donna Gates: Meaning not just the next generation but even children, grandchildren, children going down the line.

Carolyn Ledowsky, ND: Correct. So, what you did when you were pregnant not only affected your daughters, but it affects their children, and they believe possibly their children.

So, in my grandparents' generation where they were pretty well eating farm to plate, not really any packaged goods. I don't think my grandparents ever bought anything in packet. My grandmother made everything. They had chickens in the backyard, and they ate the eggs from the chicken, there was only grass-fed beef at that



point. That was pretty healthy. It was a pretty healthy lifestyle.

So, I don't think we really were seeing the effects of any of these genes really, but since we've got this toxic environment, super stress, we are seeing it. So that's study's 100 percent right in that what you do in preconception will definitely affect the child. And we see these epigenetic effects. However, you can't say that it doesn't matter to the parents, because 100 percent it does.

And you have to make sure because the risk does not go away if you don't have the folate if the folate is low, the risk will be there. And what we know is that dad, the male, the paternal sperm is affected hugely by MTHFR. So, in fertility, you can't just look at mother. You must be looking at the father as well and his genetic polymorphisms. I think that's a mistake that a lot of fertility specialists and a lot of practitioners make is that they only look at the female in this relationship.

We have to be looking, and there's some really good studies, Donna, that say even if dad is heterozygous for MTHFR, the chance of the woman miscarrying is very high. So even if she has nothing. So, we do have to be looking at both parents.

Donna Gates: Well, now, this pathway shows the folate pathway. Then you also showed us right next to it the methylation pathway of methionine to homocysteine and back around again. And that happens thousands a times a second. There's another pathway over to the left that's about your neurotransmitters, and then one to the left of that, that's the ATP energy cycles. So, when this cycle isn't working or the one on the right the methylation cycle is affecting neurotransmitters, it's affecting energy as well.

So, Carolyn, so you explained the folate pathway really well, and it's really clear what you need. And then we can see the methionine pathway,

the methylation, methionine to homocysteine pathway over here on the right. But there are two other pathways to the left on the left. And can you explain that? They're all tied in together, so if you don't have enough methylfolate that pathway, the folate pathway isn't working. If the pathway to the right, the methylation pathway isn't working, or the tiny one at the bottom that you didn't explain, just called the transformation pathway where the --

Carolyn Ledowsky, ND: I'll make it bigger.

Donna Gates: Yeah. That little one down below methionine, homocysteine, homocysteine goes down and drains through that bottom one there, right?

Carolyn Ledowsky, ND: Yes.

Donna Gates: That's where you're talking about the B6 is necessary.

Carolyn Ledowsky, ND: Correct.

Donna Gates: Okay, so there's a whole bunch of fascinating information about that pathway. That's where glutathione is made, for example, sometimes ammonia, which is not so good. But looking over to the left there's two other pathways. Could you explain about the neurotransmitters, and then you can see the HP cycle, right?

Carolyn Ledowsky, ND: Yes.

Donna Gates: So, in other words, if methylfolate doesn't work, the folate cycle doesn't work is that affecting your ATP energy, and is it affecting your neurotransmitters? More than just fertility.

Carolyn Ledowsky, ND: Okay. Good. Now we have to thank Dr. Ben Lynch for this. This is his pathway planner. It's a few years old, but it's a good one because it puts most of the methylation



cycles together so we can get a good look at it.

All right, so we have our folate pathway, we've talked about this. You can see SHMT here. We said our objective was to make methylfolate. We then can see, this is our B12 recycling here. We make methionine, and that makes SAM, our pharmacist, that gives off all of the methyl's.

And as you just said, homocysteine then gets converted with the help of B6 to our energy cycle. Now, most people think, "Oh, your energy cycle is at the top of the chain." No, look where your energy cycle is – it's way down here. So, if you don't have folate, and methionine, and B6, guess what gets affected? Your TSA cycle is your citric acid cycle or your energy cycle. So, it's down here, and it's very, very dependent on the above working so that you have – and that's why we see so many chronic fatigue patients when there's a disturbance in methylation.

Donna Gates: I wanted you to sort of point that out because nobody's looking at this, and they're not tying the two together.

Carolyn Ledowsky, ND: Yes. And it's so incredibly important. We talked about B12, but guess what, adenosylcobalamin is your active energy B12.

So, I think the MMAB genes that make adenosylcobalamin are incredibly important, and probably the clincher when it comes to chronic fatigue. Because look at this, this methylmalonyl-CoA mutase enzyme here. This is a reliant on adenosylcobalamin to make cyanocobalamin, which goes directly into the citric acid cycle. So, without adenosylcobalamin you are not going to have enough energy.

Donna Gates: And that's another form of B12, right?

Carolyn Ledowsky, ND: Another form of B12.

Donna Gates: You can buy it on the internet even. You can buy adenosylcobalamin.

Carolyn Ledowsky, ND: Yes. So, the two active forms of B12 are adenosylcobalamin, which works on our energy, and methylcobalamin, which works on our brain, basically. It's our nervous system. So, two keys important active B12s. So that was the energy.

And you also asked me about neurotransmitters. So, you can see here DHFR, remember we said that folic acid at a certain level inhibits DHFR. DHFR then allows us to make our neurotransmitters. It makes phenylalanine. It makes tyrosine. Which then is converted to dopamine. It makes tryptophan, which is then converted to serotonin.

And look at all of these MT, MT, MT here. What did we say about an MT? It must have methyl's. So, your neurotransmitters; a) we need DHFR working; b) we have to have methyl's and SAME to provide the cofactors so you can actually metabolize. And look at B6, B6, and B6 critically important in this production process.

Donna Gates: Do you recommend people take SAME?

Carolyn Ledowsky, ND: I do, in some instances. So, if I see that someone has COMPT ++ for example.

Donna Gates: Two copies, two variants in COMT gene, which we are talking about in another talk.

Carolyn Ledowsky, ND: Yeah. So, you say COMT, I say COMPT. But it's the same thing.

Donna Gates: I was just spelling it out for people because, for some people, it's hard to tell there's a T in, MT, on the end, again.

Carolyn Ledowsky, ND: Yes.



Donna Gates: And sometimes it sounds like you're saying COMP, with a P, so I was just throwing it out.

Carolyn Ledowsky, ND: That's my Australian accent, sorry.

Donna Gates: No, I just hear that all of the time, and when I was first learning, I thought, "What? Would you spell that for me?" You're supposed to say COMT.

Carolyn Ledowsky, ND: Yes, so COMT is catechol-O-methyltransferase. So, it is crucially important in our dopamine synthesis, but it's also incredibly important in detoxifying toxic estrogens. And this very relevant when it comes to fertility. Because we have so many estrogens in our environment, not only men and women are becoming estrogenized. Which means they've got so much estrogen in their system, they're not getting rid of it, and that is actually affecting things like progesterone and testosterone in men. And that's what they need for pregnancy.

So, if someone goes into pregnancy with a low progesterone, the chances are they will have a miscarriage, because we need good levels of progesterone to ensure that the endometrium is plush and nice and implantation is effective.

So, if we consider our environment is very estrogenized, there are a lot of people out there that have the COMT gene, homozygous, so they're ++. But I'm astounded by the number of people who have the CYP1B1 homozygous ++ polymorphism.

Donna Gates: I see that a lot too, and I've got Filomena Trindade talking about that in one of the talks.

Carolyn Ledowsky, ND: Right. Because that's our phase one, so the liver has phase one, phase two, and many would say phase three. But phase one

is there to basically pull the toxins apart and then allow the phase two to deal with it. So CYP1B1 detoxifies or pulls apart your estrogen at a rate that is way faster than it should be.

So, think about it as a cleaner. If you got a cleaner mopping your floor and he or she is doing a really crappy job, then the person that has to come down and do it and fix it up has to work extra hard to do it. And that's what I like in the CYP1B1 and the COMT. If COMT is ++ and CYP1B1 is upregulated and creating a lot of metabolites that poor old COMT has to deal with, then it becomes completely overloaded. Estrogen builds up, and that affects other hormones. And particularly in men, it's decreasing testosterone, and in women decreasing progesterone, which is essential for pregnancy.

So, one of the things that I always look at and assess for is what is the likelihood that you have COMT ++? And an easy way to tell if you don't have the genetics is just ask about the background in the family. Is there anyone with fibrocystic breasts, fibrocystic ovaries, endometriosis, fibroids, breast cancer, prostate cancer, and soon get a bit of an indication that there is a problem.

And all women who have horrific PMS or PMT, you can pretty well be assured that their estrogen is too high because you should have that. So, it is becoming an increasingly bigger problem. So, a very long way of answering your question, why do I give SAME? I would give SAME if I know that COMT is really a problem, and you can see here that COMT's cofactors are magnesium and SAME. So, I would particularly give SAME in that situation where I think I really just need to start getting these methyltransferases a help along until I can sort out what else is going.

Donna Gates: Great. Well, thank you. I don't think we're really off-track here. I hope that we're not scaring people who are new to this. I also hope people purchase this summit and actually go back



and listen again, and again because this is really like the core, the heart of nutrigenomics and the biochemistry of the body works for basically, this is what you need to really be able to understand genes if you are a practitioner.

And we do have tens and thousands of people, practitioners listening to this summit, so the thing is for the lay people; what would you want a layperson who is kind of new to this, you don't want them to feel overwhelmed – which I'm sure most of the people that come to you are in that category. They don't know biochemistry. They don't know genes. How would you simplify that for them?

Carolyn Ledowsky, ND: So, what I would say to them, particularly those women that are having problems with fertility, they may be diagnosed with unexplained infertility. They might be having multiple miscarriages, failed IBF, or just taking longer to fall pregnant than they think they should. The number one thing to do is check to see if you have the MTHFR gene.

And then that gives you an indication – if you are, for example, homozygous or you've got a copy each, then the chances are your folate is being affected. So that's a really good starting point.

And I've actually developed a course like you, Donna, I've developed a course for women with the MTHFR that want to do preconception work themselves, they want to know about this. So, I break it down, bit by bit by bit, and teach them what sort of folate levels they should be having, and what form of folate they should be taking, how to analyze the bloods to see what nutrients are up and down. So, I actually take them through all of this, because I know it's complicated.

And it doesn't have to be. But I think the starting point is 1) do you have MTHFR; 2) are you having terrible troubles with your hormones? So, have you got a regular cycle? Do you have shocking

PMS? If the answer is yes, you've got an estrogen problem, which is probably affecting your ability to have good progesterone levels, which could be causing miscarriages.

So, it doesn't need to be complicated, but that's why I did the course. So that anyone in the world no matter where they were, they could do it. And practitioners can actually have access to that course as well to work with their patients. So, I can send you the link for those so that you can put it in the show notes. And if practitioners and patients are interested, they can do that as well. It just helps break it down.

Donna Gates: They can just go to mthfrsupport.com.au.

Carolyn Ledowsky, ND: Yes. And we've got a U.S. website which is mthfrfertility.com, which is where these courses are housed.

Donna Gates: Oh, good.

Carolyn Ledowsky, ND: So, they'll get all of the information on methylation and webinars and everything else. But the course information is on mthfrfertility.com.

Donna Gates: Perfect. Well, the thing is I think that practitioners absolutely must learn this. It is the future. And if it's too complicated and bury their head in the sand, they're going to be like all of the other doctors out there in the world that you go to them and they don't help you at all. So, this is really, really critical.

And this information is complicated at first. I remember when I was learning to read, sitting there thinking, "I don't know if I'm ever going to learn to read." And now, I read constantly. So that's what happens. You sort of stumble around in the beginning and wonder where this is all going. But then it all starts to click together, and the next thing you know, you're reading *Cat and Dog*.



Carolyn Ledowsky, ND: Yes.

Donna Gates: That's was biggest concern in doing this summit is that people give up and go away whenever they see a complicated map like the one you have up on the screen right now. It seems scary.

Carolyn Ledowsky, ND: Yes.

Donna Gates: But I learned it. Lots of people can learn it too. I think you just have to have an interest and a desire to help yourself or help other people as well too.

Carolyn Ledowsky, ND: Look, Donna, what I would say to those practitioners that are scared is just – on our Australian site, which is mthfrsupport.com.au we actually have a very, very basic practitioner training. So, for example, we have a whole webinar on just these genes. We have a whole webinar on just these genes. We have a whole webinar on just these genes. So, if they want to break it down bit by bit by bit it makes it simple for them. It makes it easy, and then they can start to get their head around it.

But what I would say to the practitioners out there that are a bit reluctant to jump into the genetics is when you know this stuff, when you are sitting with a patient, and you're asking questions – you don't even have to have the genetics in front of you, but when you're asking certain questions, you will know what pathway is falling down.

And you will address that pathway, and you will get better results than you have ever, ever, had before. It is the difference between you making a 100 percent, well, you'll never get 100 percent, but it's a difference between you getting people better and not. And if you ever sat there with patients, with the same thing – that's how I got into this because I'd patients sitting there, they'd have the same problem, and I'd give them the same sort of protocols. One would get better, and the other

one would not. And I'd think, "Why?" "Why on Earth would someone get better and someone not?" And the genes make the difference.

Donna Gates: I 100 percent agree. I've been teaching for more than 25 years these seven principles. They're universal principals or laws that we have to live by. But one of them is the principles of uniqueness, so over all of these years I've watched people – all get into RAW, all get in macrobiotics, all get into whatever, now it's Keto and Paleo, which Body Ecology is Paleo too.

It's so interesting there's these trends that come along, and we all try them out. But we're all so unique there's not one way, but when you want to know your way, this is what you've got to know.

And Carolyn, I just want to thank you so much. I know we're running out of time, but of all of the people out there teaching this right now, you're right at the top of the list for being able to take complicated stuff like and make it very, very simple. I think people are foolish not to come and learn from you. You've made it real easy.

And then if you just hang in there and learn little bits of pieces at a time, you will master this, especially if you have a teacher like you. And I just really, really admire your dedication, you're always there for people, and you just keep teaching and teaching all of this stuff. And eventually, things click because you're such a good teacher, so thank you very much for that.

Carolyn Ledowsky, ND: Well, thank you. That's so nice of you to say, I really appreciate it. It is complicated, and I do like to be able to break it down for people bit by bit. And I think there's a lot of people talking about and teaching the theorism out there, but the hard thing, "Well, okay, I've got all of this great info, but how do I apply it to my patients and my practice?" And I think that's really the valuable information.



Donna Gates: Yeah. And you do a great job at it.

Carolyn Ledowsky, ND: Thank you.

Donna Gates: So, Carolyn, thank you so much for taking the time out to do this. I know this is your passion and you, like me, never miss an opportunity to get some great information out there. But I just think both of us care a lot about making a difference in the world, and I think you're being on the summit is just huge. So, thank you very much.

Carolyn Ledowsky, ND: Oh, thank you, Donna. I can't tell you how excited I am to be here and talk to you. I'm absolutely honored that you asked me to be part of this summit. And I hope everybody got some really good, valuable information from what we were talking about today.

Donna Gates: I'm sure they did. If they did nothing but the B6/B12, adenosylcobalamin, mitochondria, there's just – it has to be listened to more than once. It's just one of the most important interviews that has to be heard more than once. So, thank you.



IBS, SIBO and Your Genetics

Shivan Sarna

Donna Gates: Welcome to The Genius of Your Genes Summit. This topic that we're going to be discussing right now is just an enormous topic. And I think many, many people listening are either dealing with SIBO, so we'll go into what that is. Or they're practitioners and they work constantly with people that have SIBO, they may or may not realize that it's the problem.

But the more I looked into SIBO and the person that we're interviewing today is Shivan Sarna, and she's really a master in this topic. And it's because she started off with SIBO, dealing with it herself, then she went on and took it to a whole new level and has interviewed every top expert in the field, so there's literally nobody better that I call and say, "Shivan, would you please do this summit with me?" And she said, "Well, I'm not into the gene part of it." And so, I'm going to sprinkle some of that in to the talk. But she's really an expert. So, I'd like to welcome Shivan Sarna.

Shivan Sarna: Hi, Donna, thank you for having me.

Donna Gates: Well, I'll just let you tell a little bit about yourself and your story, because I didn't read the bio, so.

Shivan Sarna: Don't even worry about it. All right. The reason why it's really exciting to be here is because I want no one to go through what I went through, which was not knowing what was wrong

with me for most of my life. And it turns out I do have SIBO, and it stands for small intestine bacterial overgrowth.

And when I first heard those words I was like, "Oh, heck no. I don't have that. That sounds disgusting." And I totally was in denial and disavowed. And it's the number one underlying cause of another sexy term, irritable bowel syndrome.

That's what has plagued me most of my life and it came from me, my underlying cause was food poisoning. We'll talk a little bit about that. But it is a condition that can lead to diarrhea or constipation or both. And it is very uncomfortable. It also can lead to bigger health issues.

And I'm a TV lady. I've been host and a guest on the Home Shopping Network, we're cool now, so it's HSN, which is a show, for those of you not in this country, it's a shopping television station. And I'm a journalist also by nature.

I finally got a proper diagnosis after false starts, thousands spent, the whole tricky patient journey. I swore that I would take all that I had learned and share with the world, the people that I had met, so that none of my experience would be wasted. And that's why Donna is saying, while you're kind in saying I'm an expert, it's I have accumulated a lot of knowledge from interviewing the true clinicians, practitioners, nutritionists, researchers,



and I act as a patient advocate to help people get connected and get informed.

Donna Gates: I think, honestly, every single person listening that isn't perfect health, doesn't have perfect digestion, should seriously consider following the advice that we're going to give them. Because I really think people go undiagnosed all of the time from this.

It's so easy to cause SIBO. There's so many different reasons, like myself, for example, millions of women like me – my skin broke out when I was a teenager. Back in those days they gave you very high doses of an antibiotic, and then they threw in the birth control pill for your skin. That stood true. Most of us that started taking it continue to take it for many, many years, 15/20 years. So, anybody with that history definitely should just say, "I've got SIBO."

And they end up with gas and bloating. We should go into all of the symptoms. I don't care whether people get tested or not. I think everybody should follow the advice that we're giving people right now. So, let's start with how did you finally begin to realize that this was your problem, because it's kind of just recently come on the forefront as a problem? And most doctors know nothing about it and don't even consider it as a potential problem.

Shivan Sarna: And that is part of the mystery that I want to have revealed is because, you're right. First of all, there's not formal training that is expansive on SIBO in medical school. Hopefully that's changing. It's a mention, it's a page or two in a textbook. They're definitely gaps in the knowledge-base out there in medical schools, and hopefully that's getting better.

The way I found out about it was finally after about a very, very severe stress, and having all of my symptoms get much worse and just hearing that internal conversation that I try to listen to, but I'd been ignoring for a long time, "Shivan, you

have to go to a doctor, talk to someone about this" which I had talked to my GP about it.

But like, it got louder and louder because I was really struggling, and I finally went to a gastroenterologist. And he told me if I walked three miles a day, I would probably become regular. And he said, "It's a tricky situation." He gave me a prescription for an antidepressant. And he doesn't say it was all in my head, but that's what I took from that. He wasn't a great communicator. Well meaning guy, don't get me wrong. But I think he was probably trying to help my serotonin in my gut, but didn't explain that to me.

So anyway, I then met a girlfriend who was talking about her gut health. And that's why I want to encourage everyone to talk to their friends about their gut health because that's the way this is going to get solved and helped, is to get the word out. And we don't like talking about it.

But she told me she was on this amazing wild antibiotic, and she had gone and had this test where she had drank this stuff and she blew into this tube and it was all very vague. But I couldn't get that conversation out of my head. So, I went back and talked to her, and I was like, "Okay, what?"

And she told me a little bit more and I got a script from the GI doctor and went to the University of South Florida to do a SIBO breath test, 24-hour lactose breath test. Where you drink this – basically sugar that the bacteria that are in the wrong place in your gut have overgrown. They love it and then they fart either methane gas, or hydrogen gas, or hydrogen sulfate gas, and it shows up a graph of parts per million of that gas. I way oversimplified it, but that's the basics of it.

Anyway, I did that and I got a false negative. I was told it was negative, I got the report. They had written positive and crossed it out and wrote



negative. But I didn't realize that until 18 months later they did not know how to read the test. So, I actually was positive. That is another story.

However, what happened for me was I lost so much of my life to this, it's definitely draining from a lifestyle perspective. It's uncomfortable, of course. You can have other things come from it; rosacea, restless leg syndrome, anemia, so many things have been linked to it.

But here's the thing – this is very important, what it is, it's not an infection. It is when bacteria is overgrowing in the small intestine. And the small intestine compared to the large intestine is quite sterile, which is bizarre to think about. But by a comparison it's quite sterile. And when bacteria isn't swept out of the small intestine, it overgrows. It becomes like a brewery. You're only little microbrewery, and that's when you get SIBO. And that's also why the bloating comes is because it's in that confined space and all of this bacteria is releasing this gas.

So why do you care other than you're uncomfortable and you're bloated, you have constipation, diarrhea, alternating constipation and diarrhea? Well, it's because it could lead to malnutrition eventually. It's a condition that I also just want to say about – also I know a lot of you have chronic conditions – is that when you get a chronic condition managed.

And it's maybe not curable for you because of your underlying cause or whatever your situation is, know that you can feel 100 percent better in many cases. So please don't be discouraged if you have a chronic condition, because I'm living proof, for me, I know everybody's different, but I have felt now 100 percent better than I did before when something was unmanaged.

Donna Gates: And the reason that malnourishment is because the small intestine is really where nutrients go in from the small

intestine into our body. So basically, you're not absorbing things properly, and the sugars in our diet – like lots of people are eating a ton of sugar, they're absorbed in the small intestine. You're really feeding any microbes that are up in the small intestine. There is a microbiome in the small intestine. But Shivan would you explain that – basically, it's that the microbes are necessarily bad they're just in the wrong place?

Shivan Sarna: It's a misplacement of them. And then there's something called the migrating motor complex, MMC for short. It's a sweeping motion out through the small intestine in particular is what I'm referring to. And they call it the crumb sweeper, you know when you go to a fancy restaurant the analogy I love when I've heard from other people is it's a white table cloth, and the waiter or waitress comes over with this little crumb cleaner and sweeps the bread crumbs off the table and now it's clean again.

The migrating motor complex when it's not working will not do that last bit of sweeping of the bacteria out of the small intestine and that's when it can overgrow. It's one of the ways that you can get SIBO. There are so many others, including diverticulitis where in those little pockets they're going to have the bacteria living and it just can never get fully cleaned out.

You could have extra loops in your intestine. You could have something called Ehlers-Danlos, which is a genetic situation. It is a genetic condition where you have a lot of laxity. I have that also, a mild case. And I can do this, if you can do this, if you're like a cirque de soleil yoga teacher person, always flexy, gummy, please look into Ehlers-Danlos. Some people have it very severely and can't even walk, but it's a collagen disorder. And your organs can tend to go lax, and so they can get misplaced in the body and that can mess with cleansing waves.

And think about if you're familiar with ileocecal



valve, which is the valve between the large intestine and the small intestine. And when that's not functioning you can get a backwash of the bacteria into the small intestine, that's another one of many ways that you could get SIBO.

Donna Gates: Even endometriosis I know is part of it too. There are many, many causes basically. Liver not working properly. Bile problems. Many people have bile problems. And I did an interview with Ann Louise Gittleman. We talked a lot about bile and the liver, and there's 50 or 60 genes in the liver, 52 or something. I'm sure the exact amount, but right in there. And there's a whole bunch of genes there, so you can have gene problems in your liver and it's contributing to this, too.

So, I'm going to talk a little bit more down the road about genes. But I wanted to – I know stress, I honestly think stress is an underrated cause of SIBO. Can you talk about some of the emotional factors around it?

Shivan Sarna: I definitely see it as a contributing factor. So, let's say you have a little bit of a slow motility, let's say you do have some migrating motor complex issues, or something else that's already like a compounding factor. And then you put stress on top of it, which is going to impact your stomach acid. It's going to impact the energy stagnation in general in your body. And you're going to be out of rest and relax and into fight or flight.

And I think it's really important to, obviously I'm going to say something that's silly like it's really important to take good care of yourself. But that's one of the things that's so easy to say and so hard to do. It's like me saying, "Hey, Donna, be enlightened." Right? It's a great idea. It's not easy to do. But it's super important that we're all on our journey and trying to – whatever our biggest goals are.

So, I do think the parasympathetic which is the

nervous system that is the one that controls your fight or flight or rest and digest, and when that is in sympathetic more than parasympathetic it creates a lot of difficulty in the communication between the brain and gut. And that can also lead to that slow motility, that cleansing wave not working as well.

Donna Gates: Well, I think it's pretty easy to understand because if you were – back to the early days when man was very primal, if you sensed that there's a lion or some danger around you, you're going to become very alert. Your whole digestive system shuts down completely so that you can put that energy basically into running away from whatever that danger is. So that right there is constipation. You've just stopped. And we're under continual stress.

Also, there's a lot of research showing that stress does basically alter the microbiome significantly too. So, I think it is a factor. And then we live in a time right now where we're just bombarded with stress. And young people being born into this time, they don't even know what it's like to sit on a porch in a rocking chair in the summer time and have nothing to do. It's just unheard of. I'm old enough to remember those days, and I was super bored then, but there's something to say for the days for when the days were much more slow.

Well, let's talk about – I have a billion questions, I kept thinking of things to ask you. So, one of the big issues is that people will start to treat SIBO and then they have a relapse, and that's constant. I have some thoughts about that, but I know that's something you know a lot about. So, what about these people that say, "I know I have SIBO, I've been going to a doctor. I've been trying different things." And let's talk about diet in a minute too, but, "I'm following a diet that's supposed to be good for me, but it goes away, two, three, four months it's back again." So, let's talk just about that. That's the biggest issue, I think too.



Shivan Sarna: Relapse is very common with this condition. But think about it if your ileocecal valve, which is a valve in your gut, if that opens or closes or gets stuck open, which would be fairly easy depending upon you and your anatomy. That could be leading to a relapse.

There's also, an underlying cause is overuse of antibiotics. Now of course they can save your life, so we're fans, but the over prescribing of antibiotics can also lead to a relapse depending upon the antibiotic.

There's so many reasons why. Some people who have SIBO by the way who get treated the first time they don't get it again. It's not a chronic thing, it's not relapsing. And also, not everyone who gets food poisoning or has some of these underlying causes gets SIBO. So, it's not like a sure thing.

But the other thing, Donna, that you're saying which I know I have SIBO, I just want to say it mimics other things. So that's why I am a fan of testing. But treating SIBO, let's say it's candida, right? Because my candida expert, they're very similar in the bloating in the change bowel pattern. They're very similar in symptoms. So, I know a lot of people who thought they had SIBO, treated it, it didn't go away. They finally got tested, it turns out they had candida, which is also hard to test for.

But that's why I like to – if you want to clean up your diet and you want to eat low fermentable foods, and you want to do some antimicrobials, antifungals, chances are if you already have some problems, depending upon the ones you use that could clean things up pretty well. And you could actually probably start to feel better.

So, if you're really stuck and you're really trying to figure it out and you might be concerned that it could be something more serious. I was. I thought I had cancer. I insisted on three colonoscopies in period of five years. It was a lot, because I was

sure that they were going to find something. And they, thank God, did not. But it's the weirdest thing to get a relief diagnosis of like, "Hey, you don't have cancer." Like great, but what is it? And I know a lot of people with chronic conditions they can relate to that feeling.

So, relapse is something to pay attention to. But that's why I do think it's important to get tested, so you know what you're treating. So, you know what you're treating.

Donna Gates: Well, as you said, the fungal part of it if it is from fungus, it doesn't show up very easily on the lactose breath test. But I think the best thing is history. Like if you talked to somebody and you find out that they have had antibiotics for a long time, for a reason. Either as a child they were constantly getting reoccurring ear infections, or as I mentioned before the skin, acne. Doctors prescribe that, they're still doing it today. But for some there not unconscious about it.

But anyway, a history is another really good way to suspect that it's a fungal overgrowth. And both, it can be very easily both. It's so easy to create this condition in the gut. And it's finally what we've gotten clear about.

So, let's talk about diet, because it's very critical. I mean, that's the most important first place to start, in my opinion, is you have to change your diet. Have to get rid of sugars.

Shivan Sarna: And I have to give credit here to so many people, but certainly Dr. Allison Siebecker who is the creator of the SIBO Specific Food Guide, which is going to show people foods that they can eat that will help to reduce their symptoms.

This is the cool part about how food can help us, and quite quickly. If you do have SIBO, if you do tend to bloat, there's a series of foods in this SIBO Specific Food Guide that can help you feel better.



Ultimately, you could probably feel better within like three days, that's fast. Because the food is low fermentable. And what that means is – you hear about low-FODMAP if you have IBS. This is going beyond that and not just saying, "Well, I have IBS, I'm just going to do this diet."

There are things you can do to treat SIBO and remember SIBO is the number one underlying cause of IBS, which I want to shout from the mountain tops. Because I know a lot of people with IBS who think that they just have to live with it forever.

But when you are on a low fermentable diet it does reduce the bloating. You're not feeding the bacteria the fuel that it likes to then become that microbrewery. So that can be a very quick change in how you feel.

Donna Gates: Well, I think that one of the things that when I'm working with people that have SIBO, even if they don't know they have it; I assume they do. Is that during that time when maybe they're taking either antimicrobials and they're on the diet, or they're even taking an antibiotic because like rifaximin, and another one because they're doctor prescribed it for them. During that period of time when you're really knocking back the bacteria, I think it's actually really important to work on establishing the right kind of inner ecosystem or microbiome.

And then that's where you're protected from the relapse, in my opinion. And one of the first foods that everybody says, just do not eat are fermented foods. And I think I would agree with that for most fermented foods, and all fermented foods initially. But the one fermented food that I've been working with for years and teaching people to make is fermented vegetables with the probiotic *Lactobacillus plantarum* because it's not destroyed by most antibiotics.

Bacillus bacteria are very good to take, because

they're not destroyed by most antibiotics, and then bifidus, which is destroyed by antibiotics. They are beginning to provide some – they're helping to reestablish this microbiome, that you've really got to have ultimately in place or you'll never really have a healthy gut.

So I just wanted to – there are many fermented foods, like I'm not big on kombucha because it's got wild yeast in it. Well, actually most fermented foods. I would agree that you don't want to never, never have fermented foods because you've heard that they're bad for you because there's a big difference. Beer, wine, kombucha, they're wild fermentation, and maybe never want to go back on those. So, I just wanted to add that on too.

Well, let's talk about some of the – I literally have four or five or six pages here, questions I thought about. But I do want to go into the genes too, but what about some of the herbs and things that you would recommend people taking, and then also have you kind of arrived at do we need antibiotics, and which antibiotics are being used most successfully?

Shivan Sarna: So, there are three main treatments for SIBO. And there's some more emerging, which is very exciting. But what you want to do is reduce that bacterial load, and you can do that through prescription antibiotics. Which I know we were just talking about antibiotics and you're saying, "Hey, that's an underlying cause." So, I want to explain something about that. You can do it with antimicrobial herbs.

Donna Gates: Such as?

Shivan Sarna: Such as I'm doing my little overview, and then you can do with the elemental diet. So, let's do the herbs first. A lot of people have great results, and these have been studied. Candi-Bactin-AR and BR, which are an herbal combination. And you can find those on Amazon, believe it or not.



And then also Neem, and the brand that I see most practitioners enjoying and using with those is called Neem Plus. There's a couple that are really good. And then oregano oil, people love that encapsulated. I did that one personally for a really long time.

And then allimed, which is the allicin, which sounds like the girl's name, which is the active ingredient in garlic. But keep in mind if you have hydrogen sulfide you should not do it. And that's like they did a straight line on the SIBO breath test. Because it needs that sulfur, again oversimplifying it.

But what you can also do is something called the Elemental Diet, which I just want to touch on because it's a liquid diet.

Donna Gates: Yes, I kind of side-tracked you, let's go back to diet.

Shivan Sarna: So, we were just talking about the diet being the food that you eat to help reduce your symptoms, right? So, diet doesn't treat SIBO in terms of curing, it does help to reduce your symptoms.

There's something called the Elemental Diet, which is a liquid amino acid diet that was originally designed for feeding tubes, believe it or not. That has been consumed orally and is disgusting tasting, because amino acids can really bad, but they've made better flavors and they've done some recipes now. Some commercial operations done on that, so they taste better.

And that actually starves the bacteria versus killing through an antibiotic or antimicrobial. It's literally starving them, and you are on this liquid diet for 17 to 19 days. So, you can do your research about that, it's called the Elemental Diet, and there's definitely a lot of literature online about it. It's not easy, but a lot of people end up doing it, it's the most effective of the treatments. And they end up

saying, "I wish I'd done this first." So, I just wanted to mention that.

And then let's back it up to those antibiotics. There's an antibiotic called rifaximin, with the brand name Xifaxan. And it is used usually for hydrogen dominate SIBO, and that would be mainly diarrhea. And if you have methane dominate, which is the kind of gas that the little bacteria are producing, like cows produce methane, right? That is usually rifaximin and neomycin combined. And there's a couple of others they do with the rifaximin. So, there you go.

I've heard of people doing grapefruit seed extract, which has not been studied. And I personally, I've just not observed anybody having success with that. And then I've also seen people do other antibiotics that are sort of random, that have not been studied. Which doesn't mean they don't work, but I haven't seen great results from hearing from people and what they've been doing.

Donna Gates: And rifaximin is just local in the gut, it's not a broad spectrum getting everything, killing everything. So just to throw that in.

Shivan Sarna: Yeah, totally. That's why it's actually the preferred antibiotic for this is because it does just stay in the small intestine. If you ever had traveler's diarrhea and you were given an antibiotic chance are it was rifaximin. So that's what that has been very famous for.

Donna Gates: Well, let's talk about some of the microbes that could be there in the small intestine. Oh, and by the way I would also throw into that list that you had, berberine.

Shivan Sarna: Yeah.

Donna Gates: Berberine is really good too. At least for three or four months, and unfortunately high doses, like maybe five grams. That means



you're taking ten capsules spread throughout the day. Berberine is really good too. I love berberine because it does other things too like help control blood sugar.

But back to these microbes that can live in the small intestine, archaea as you mentioned is overproducing bacteria. E.coli from the research that I've done can be contributed to very often 60, 90, 70 percent of the bacteria in the wrong place. And E.coli is commensal meaning that it's a normal resident, but I find that it's commensal bacteria's that's most easily to turn into a pathogen because when the gut healthy, basically, these commensal bacteria can turn pathogenic bacteria. But whether it's pathogenic or not it's in the small intestine.

So, I'd love to mention about phages, but let's talk about the archaea. I love finding information on the archaea. So, let's talk about what they are. And I know that the most important thing, as far as feeding them or getting them, you can't feed them, is fructose, which means...The FODMAP Diet, one of the F stands for fructose. So that's a must, you've got to get fructose out of your diet, so people are thinking, "Why don't I just have this apple, I read it was really good for fiber in my gut." Bananas, whatever, that's fructose. Fruit, fructose, so that's one thing I wanted to throw in there, and then I'll let you run with the rest of the talk.

Shivan Sarna: No. I love that reminder, because that happened to me, Donna. I was really obviously trying to be well, and I was doing everything that I thought was traditionally good for you. And I was hungry a lot of the time, too. Because I had ended up limiting my diet just intuitively.

Donna Gates: Yeah, good point. See this is so common. People will live in a little box of five foods that they can eat, because everything else causes gas, bloating, or pain, or something. Would

you explain archaea too, like what it is, how it's different from bacteria?

Shivan Sarna: So, archaea is this ancient organism that is often just referred to as bacteria, even though it is not officially bacteria. And it is what causes the release of methane in the gut. So that's - what you're talking about, Donna, is the kind of that causes most constipation in SIBO and is a really fascinating organism.

Donna Gates: It is a microbe.

Shivan Sarna: Right. A microbe, but it's the one that produces the methane, and I'm not an expert on that. But that is the way that I think of it and that is a baseline for you. You're nerding out on that archaea, so you tell me about that.

Donna Gates: It's a really incredibly hardy one. It can almost not be destroyed. It's all over the earth. It's been since the beginning of time. But they look like bacteria until they started to be able to genetically, get at the DNA of these bacteria. And they realized, well, wait, it's not bacteria because it has to be moved into a different class because it has the outside wall, the cell wall isn't destroyed by antibiotics. It's totally different, so they moved it into its own classification.

Is it methanobrevibacter smithii, something like that, is the really common archaea that we see. But other species of archaea are all over living in these terrible places in the Earth, and right beside them is a volcano. They can just survive everywhere. So, they do produce methane as you said, Shivan, and then that produces gas, constipation, the gas that causes constipation, basically.

I think that's such a major cause of constipation that goes unnoticed again, because people just don't know enough about this topic. So, they use laxatives in other words all their life, which weakens the adrenals.



Anyway, I think there's a product, and I know you know a lot about this and Dr. Kenneth Brown, that specifically targets the archaea. So, can you tell everybody about that?

Shivan Sarna: It's called Atrantil. And I used to call it antrantil, but there's no N there. It's Atrantil, because you're going to feel so much better.

Donna Gates: That's where the name comes? I always wondered where did Dr. Brown get this really weird name for it?

Shivan Sarna: They made it up, and it came from Atrantil. So, he, Dr. Ken Brown is a gastroenterologist who is also a researcher, but very busy in his practice. So, he often takes all the research and lab information and then puts it to good work in his laboratory of his clinic, you can call it. And I know this because I've done a master class with him, and I got to really pick his brain about this. And I've asked him about, of course, Atrantil, which I believe is the only studied supplement that shows, that's proven to help with bloating.

And what it is, is a derived from what cows were given to reduce their methane. And the way he tells the story is much more elegant. Basically, he had someone in his office who had previously been with an organization that was trying to reduce like the gas of cows for the environment. And he kind of had this moment of where he was – like the lightbulb moment where he's putting everything together. It's like really, how would that work in people?

And so Atrantil was born from that, and with some of those natural ingredients. So, it's very cool. When people take it, they often experience a miraculous result, and when other people take it just doesn't do that much for them. But I have people who, absolutely, who's lives have been transformed by this supplement that you can get on Amazon.

Donna Gates: And can you take it with a meal?

Shivan Sarna: I talked about this, because everyone had these questions, how do many do you take, when do you take it? He's like don't worry about it. Take it with a meal, don't take it with a meal. Take it morning, noon, and night. Take it just at night. It's just one of those where it's so flexible, you can just take it with what works for you, but the main thing is to take it.

And they have the bottom of the bottle guarantee. I mean, I'm not a spokesperson for Atrantil or anything, I'm just very excited about this development because it has been so effective for so many people and it is natural.

Donna Gates: Also, the other thing that, again, the food. No more fruit. I like a product in addition to the Atrantil, I like a product that Gaia makes called Gas and Bloat, which is peppermint, which Atrantil has. And has some charcoal. You can get Gas and Bloat Teas. That could be good to drink some tea with your meal. It's not doing the same thing, because Atrantil has herbs. Can you talk about the herbs?

Shivan Sarna: They have, I can never remember the name of it. It's a bark of a tree.

Donna Gates: Quebracho or something like that. I can never pronounce it, that's why I was throwing the ball over to you here.

Shivan Sarna: We need to definitely do our Atrantil webinar.

Donna Gates: You have one. Well, you have one, and so I want people to know. Honestly, this is such an important topic, and Shivan has got these master classes that she does. You got to go to her and you've got to keep listening and listening. She's got the best experts in the world that will fascinate you with how they treat people. So ultimately there's so much more to say about this,



that the thing to do is go follow her and do the master classes.

Shivan Sarna: It's called sibosos.com, you can find us on the web. And what I've done in the past two years was three summits, I'm doing a fourth, and a ten-hour docuseries on this because my journey led me down so many rabbit holes, and so many people aren't diagnosed. Don't have any idea that food poisoning can cause trouble in your gut 20/30/40 years later.

And also, I've done these master classes where I interview world class experts, and they basically take slides that they've done for medical conferences and they don't dumb it down, but they'll realize that the audience is primarily patients. We get a lot of practitioners that come too, Donna, you've come to them. And they go over their expert topic. And then we often have a Q&A after. So, it's really cool because it's direct access to them, and it's also something I wish I had had when I started to figure out what was going wrong.

Donna Gates: Yeah. When you do these master classes you will have the tools you need to get well. We just don't have enough time here, but that takes time. It takes time to get well. It takes time to learn too. I can't say enough about following Shivan.

There's so many things, I wanted you to talk about iberogast, is another supplement. You probably need to use all of the ones we're talking about, really. And again, diet's key too. So, these enhance the diet and are really very important to take together. But what is in iberogast, where do you buy it, when do you take it, what does it do?

Shivan Sarna: It's quite miraculous. And what it is, is it's a combination of herbs. It's a liquid. It's German. And I just want to say that this is a prokinetic. And when you were talking about relapse, I should have mentioned it then. A

prokinetic, think about those words. Pro, in motion, kinetic, they help to make a symphony of the digestive system. Is the way I remember from learning from Dr. Siebecker. It coordinates the digestive system and helps the migrating motor complex do that sweeping.

So, after you're treated you want to make sure you're quickly back on or get on a prokinetic to help prevent relapse. Because it doesn't take that long for this gather in the small intestine and repopulate. So, a prokinetic is super important.

Ginger's a natural one. Motilpro is one that a lot of people use. It has ginger and other herbs in it.

Donna Gates: Who makes that supplement?

Shivan Sarna: I see it in my head. It's a white bottle with blue on it.

Donna Gates: M-o-t-i-l-p-r-o?

Shivan Sarna: Yeah.

Donna Gates: Right. I'm going to spell iberogast if you're taking notes. I want you to buy this summit, because there's so much information in every single one of my interviews. There's no reason... You have to listen to these interviews more than once. But just for people that are not going to and are taking notes, how do you spell iberogast and Motilpro, did I spell it right? I think I did.

Shivan Sarna: Mo-til-pro, and then it's i-b-e-r-o-g-a-s-t.

Donna Gates: And they can get that on Amazon? But can you get the Motilpro from Amazon, or where do you have to go to?

Shivan Sarna: So, you might have to find someone's full scripts. A professional that sells to practitioners, I mean, that practitioners could sell to you. I can't take Motilpro because I tend to have



a – I'm going to call it a weak lower esophageal sphincter, so I tend to get that burn. Where you burp up the ginger.

But iberogast I just want everyone to know about this. It can help with nausea, it can help with constipation, it can help with diarrhea, it can help as a prokinetic. It's quite miraculous. Nausea, it's amazing for nausea. So, you can find it online. And just check into for yourself. It's one of those things that we all should probably have in our medicine cabinet to help with tummy troubles.

But I know some people take it maybe up to 60 drops at night to help with their migrating motor complex, which by the way only works when you do not have food in your stomach.

Donna Gates: Right. And it works about two or three hours after you eat. So, you've got to have a period of time where – like someone who's eating all of the time, snacking, and grazing, they're hurting the migrating motor complex. That's important.

Shivan Sarna: Yeah.

Donna Gates: And as far as ginger goes, you can buy ginger, ginger/lemon tea bags. But I really found the most medicinal is to actually just take a little piece of ginger grate it, even with skin, just grate it and then pick up this little pile and squeeze it and you get the juice. You can put hot water over that, and you've got a true ginger tea. It's not brewed tea bag. I've just found that to be more medicinal to actually have the tea and the actual piece of ginger. Add some Stevia and it actually tastes great.

So, I highly recommend that. This is so true, that a little bit of tea, little bit of soup with your meal, something warm, it actually aids digestion too. So that's another useful tip.

Speaking of teas this is really shocking to me but I

found out, because I'm always studying the genes, we'll go into that, but black tea, green tea, and coffee are probably the three most consumed besides water beverages in the world. They all suppress an enzyme in the gut called DAO, diamine oxidase, and that's a gene. And that one if it's suppressed it doesn't degrade histamine properly.

So, I think often histamine issues are coupled with SIBO but also, they're – so many people are having histamine reactions, but SIBO could be the issue, it's not histamine. So SIBO could be more of an underlying cause in my experience. Would you agree with that?

Shivan Sarna: I learned about mass cell activation syndrome from Dr. Leonard Weinstock, who did a master class with us. So that is definitely – there's a lot to connect histamines with SIBO and with mass cell activation, and if you find yourself constantly inflamed, if you find that you that autoimmune kind of, like I wonder what it is, please find out about what that is.

But the other thing that I just wanted to mention, I should have said it before. Is that opioid use can also cause SIBO because it slows everything down in your body. So, I'm not even talking about the opioid crisis here in the states, but I am talking about if you go into deep sedation for surgery where you like deeply sedating and they're working on your internal organs and stuff. That will slow down your migrating motor complex. So, you could easily get SIBO from the pain meds that you then after take after the surgery, because it just slows everything down. And the bacteria can hang out in the small intestine and populate.

So, the other thing that they've done studies, they found that alcoholics also have – the study of a very high proportion of the alcoholics they studied had SIBO. So, think about that. It's another depressant, it's slowing things down.



Donna Gates: It's harming the liver, affecting bowel flow too.

Shivan Sarna: Of course.

Donna Gates: So, it totally destroys the microbes. People who drink alcohol – like when they say a glass of wine a day to, they're talking about like a quarter of a cup as a probiotic. Anything over that is not a probiotic and it can kill the microbes in your gut too. And then pathogenic ones take over, so yes, that's another factor. I'm glad you brought that up.

But the part about the morphine and the opioids how they put you to sleep, and I honestly think that anybody that has any kind of surgery, right after the surgery as soon as it's possible whether in the hospital or back home, immediately do an enema. Because you're constipated, seriously constipated. Everything's just stopped, and I've often wondered why do they not do colon therapy after they put somebody asleep like that and frozen their digestive tract basically. So, I'm so glad you brought that up too.

Can I talk for just a minute about genes, since this is a genes summit?

Shivan Sarna: Yes.

Donna Gates: First of all, there are a whole bunch of genes that are connected to irritable bowel syndrome. And that's what they've done all of the research on is not specifically SIBO, but IBD, and what 75 percent of IBD is SIBO?

Shivan Sarna: IBS.

Donna Gates: Oh, IBS, yeah.

Shivan Sarna: IBD is inflammatory bowel disease, which much more serious, much more serious.

Donna Gates: Okay. So, all of this, IBS, IBD, Crohn's, colitis, there are multiple – it's called polygenetic, but they're many, many genes that definitely make you much more susceptible. So basically, in a nutshell, we're very susceptible to gut dysbiosis conditions.

Now, some of the genes I absolutely feel are critical to check are FUT2, and now, this gene just real quickly. We all have different types of sugar. Like I'm an A, did you say you're a B, Shivan?

Shivan Sarna: I haven't gotten it tested.

Donna Gates: I feel like you're a B, but anyway I thought you told me that. But anyway, whatever your blood type is B or O, your sugars are different and we secrete those sugars into our gut, into our mouth, where many microbes grow. Into our tears and sweat, microbes grow on our skin too. If you're breastfeeding, you're secreting in your breast milk. These fluids that have the sugar they're feeding where these microbes live.

And so, if you have variance in the FUT2 gene, you're not secreting your sugars into these places. So that's a big deal if you're not secreting in your breast milk. And if you passed on this gene to your baby, he's not going to secrete his sugar or her sugar into his little gut. These sugars are critical for feeding the bacteria that live there, particularly bifidus.

So, it's not supposed to be a very common gene, but in my opinion and the genetic studies and everything, and the results that I've looked at – when I look at people's genetic DNA tests, I see it often. Because I think the people who come to us are people that have gut problems. So, I see it much more common than people realize, so FUT2 is a gene that needs to be checked.

Now there are two other genes MUC1 and MUC2, so their bacteria that are in the stool but some bacteria are nestled into the mucus lining, and it's



so amazing this gene, because this just shows you perfectly the relationship between the microbes and the genes. This is a perfect epigenetic example that here's this gene, MUC1, MUC2, the microbes have to be in the gut to activate MUC1 and MUC2.

So, if you've got a mouse that's grown up in a sterile environment that has no microbes in his gut. Those genes are not activated so there's no mucus produced, so you can't have microbes actually living there. So that's a perfect epigenetic example. So, I always check for the for these genes because again, there really is a direct relationship between, a much more direct relationship than just looking at all of these other lists of genes. I could read them all off, but I'm not going to.

NOG2, however, is very strongly related to all of the IBD, Crohn's, colitis, all of them. So, it's something I think as time goes along, we're going to see a lot more practitioners doing genetic reports, checking them, and looking for these genes. Again, I just had to add that.

Because I don't want people to sign up for a gene summit and find out we talk about genes at all in that entire talk, so there's the gene part of it.

Shivan Sarna: So important.

Donna Gates: Yeah, they really are, they are really important clues. And really what they do is they help you predict what you want to prevent, so you can personalize your treatment or your diet. That's really what it's all about. Predicting, preventing, and personalizing, basically.

Well, Shivan, I haven't even been watching the time, but gosh, there's so many – we talked about your master classes and everybody, just, you have to know who Shivan is. You really, really have to go and learn from her because this is a very important topic.

One thing, you had told me a while ago, or maybe I learned it in one of your master classes. There's a new test out for SIBO?

Shivan Sarna: Lactulose, I'm glad you just said that. There are two things I want to just mention.

Donna Gates: Please. Please wrap up here, anything you want to say.

Shivan Sarna: I'm so bummed because I didn't mention this. So, there is a test coming, a breath test for hydrogen sulfide, which is the third type of gas that is produced or can be produced when you have SIBO. But there's another test that you need to know about, and it's called the IBS Smart Test. And it's a blood test that can tell you if you have IBS from food poisoning. So, it's not just a diagnosis of exclusion, like, "Oh, you don't have IBD. You don't have Chron's. You don't have colitis. Oh, but you have irregular bowel patterns, you must have IBS."

So, it's IBS Smart and it tests for whether or not you have IBS from food poisoning. And you can go to their website it's ibssmart.com. and that is a breakthrough test that has just happened in the past like 18 months in terms of this newest iteration. And that was developed by Dr. Mark Pimentel and his team that MAST, which is at Cedars Sinai in Los Angeles. So that's a very important test to know about.

And you can really adjust your brain and reconnoiter or your focus once you know if that is one of the reasons why your migrating motor complex isn't working.

The other thing is, not to scare anyone --

Donna Gates: Oh, Shivan, before you go on though, what's the difference between IBD and IBS.

Shivan Sarna: Oh, inflammatory bowel disease



is a much more serious condition than IBS, which is a diagnosis of exclusion, meaning you don't have IBD, and you don't have Crohn's, you have IBS, which is like in this category of like not other things. So, we call it this. You know when you get into those syndromes, that's tricky territory.

Not to scare anybody, but the symptoms of SIBO can also mimic the symptoms of ovarian cancer. So please do try to figure out if you have this. There are some very sad cases, there are not a lot, but there are enough. One's enough, right? That people were diagnosed with SIBO without getting a breath test, turned out they had ovarian cancer. So that's what I would recommend.

Donna Gates: What are the symptoms?

Shivan Sarna: Bloating, pain in the abdomen, hypersensitivity in the abdomen, alternating bowel patterns, these things that we've been talking about. So, I think it is – there are tests available. Often insurance will pay for them. Aerodiagnosics Labs out of Massachusetts has wonderful breath tests. And they're wonderful customer service, and they can help you. And if you're trying to find a doctor that is SIBO literate, then come on over and see what we've got going on at sibosos.com, because we do have a list of speakers that are SIBO literate. There you go.

Donna Gates: And people have to travel, do they have to travel to these doctors, can they see people --

Shivan Sarna: A lot of people now are, thank goodness, doing remote consultations, and depending upon the state that you live in they can't be your primary care, or they can't be your doctor, but they consult with your doctor and they can certainly do a consultation with you or they can give you their insight on your case without taking on your case.

So, I used to think, "Oh, that's not for me, I would

never do that." And then once I did, I'm so glad I did. Here comes kitty. I'm so glad I did because I just made so much progress when you finally get that hour with a true expert.

Donna Gates: Oh, my gosh. Yeah. Well, do you mind tell us about, not your kitty's name, you probably thought I was going to ask you that. What is iberogast -- when I go out to a restaurant and something, and they come over and they say, "What do you want to drink?" And everybody's drinking wine, and drinks, martini's or whatever. I will just order either sparkling mineral water with bitters in it. And that's a really old-fashioned treatment. I even put a little bit of Stevia, a little tiny drop of Stevia in there. Tastes really good to me. But it works like iberogast. Is iberogast like a bitter? Do you know how they're different?

Shivan Sarna: I don't because bitters actually have that bitter taste. They're similar certainly in that they help to stimulate your digestion, and they're wonderful to use in conjunction with food. And bitters are incredible and super helpful, and probably good for everybody to help get those gastric juices going. So that and digestive enzyme are probably the most underrated digestive tools out there. Along with being properly hydrated. So, I definitely glad that you mentioned bitters because they're really, really important.

Donna Gates: And I forgot to mention I said I was going to talk about phages. Because we've literally entered into a phage stage basically that antibiotics aren't working for us anymore. Like drug companies aren't even developing them, because as soon as they do and they start to use them, the bacteria is so smart they outsmart the antibiotic. And then they don't work, the antibiotics don't work.

So now we're in the post-antibiotic era. And phages are appearing on the scene. Although, they were -- before antibiotics were so popular, they were used, phages were used in Europe.



They're basically viruses, and they're – for every bacteria on the planet there are ten phages, and the phages are specific, so they target one bacteria and only that bacteria or one group, like E.coli for example. Which is the phage we saw called EcoPhage. But it targets E.coli.

And I have found, because I don't know if E.coli is in the small intestine or not, but just taking it – in people and in animals too, animals can get SIBO by the way, right? There's something about this specific phage, they don't attack any of the good bacteria, they only attack, like in this case E.coli. But their finding them now, because this is a really important new therapy for Lyme Disease, different types of Strep. You take the phage that is going to target that particular bacteria.

And there are ten phages for every bacteria on the planet. And they go in and they attach to the bacteria, they inject their DNA right into the middle, right into little bacterial cell and they start to replicate it and then they expand into the trans, and then blow up the bacteria. The E.coli, the pathogenic E.coli for example.

And then they are out in the bloodstream attacking everything, all a bunch of other E.coli. So, I have really found – I know that phages are not mentioned, but I found it has a calming effect on people that are using it. So, I would add that to the list too. Why not try it? Because what I find is that people, they might see a difference right away, but they might not see a black and white difference. But there's a calmness that's happening. And I think that they're helping – they are like policemen gathering around the E.coli, so they can't become pathogenic.

And it again it seems from the research that I've done that E.coli are often, not always at all, but are often an issue in SIBO too, so I wanted to add that part. But Shivan, I don't want to steal the

show here. Because you're the one that I want people to go to.

Shivan Sarna: Donna, thank you for all of your good work, and for sharing your excellent information. And everybody buy the summit, because you need to refer to it back over and over and over again. Genes are complicated. And Donna and her experts I know have done a great job for you. I can learn more about mine.

Donna Gates: Thank you. Shivan, thank you so much. How can people reach you and get signed up for these master classes? And even though they happened, they're all recorded, like you can join at any time, right?

Shivan Sarna: Such a good point. Yes, you can come on over to sibosos.com at first, I was come save me help, help. And now, I've come to learn we have to save ourselves. So, it's sibosos.com. I'll see you there.

Donna Gates: That is so true. We have to save ourselves by educating ourselves and that's what our summits are about. So, thank so much for the work you do. I want to say again very clearly, most people have SIBO. If they have any kind of gut problem, they should learn about SIBO, and start to treat themselves. And whether you get a diagnosis or not, this very, very wise advice basically.

Shivan Sarna: We definitely need to get people educated. It's probably one in ten people that have it. So, want you to be aware of it at the very, very least. So, you can pick up on the signs, and also help your friends who are suffering who don't even know the condition has a name. Because that was me for most of my life.

Donna Gates: Great. Thank you very much.



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