The Plant Paradox: The Hidden Dangers in 'Healthy' Foods That Cause Disease and Weight Gain: A Special Interview With Dr. Steven Gundry

By Dr. Joseph Mercola

JM: Dr. Joseph Mercola
SG: Dr. Steven Gundry

JM: Did you ever wonder why you could be eating a healthy, whole-food diet and still not getting better? Hi, this is Dr. Mercola, helping you take control of your health. Today we are joined by a leading expert, a truly innovative novel thinker who can answer that question. That individual is Dr. Steven Gundry, who is trained as a cardiothoracic surgeon. He doesn't do much of that anymore. He really focuses on treating people naturally.

He actually worked at the National Institutes of Health, with a prestigious fellowship there. He was a professor of surgery and pediatrics in cardiothoracic surgery and head of the surgery department at the Loma Linda University School of Medicine in California, which you might recognize as being popular for vegetarian proponents. He's got quite an interesting background. There's no question.

You guys know that I read about 150 books a year. Most of those are health books. I can read many of these books. The reason I can read so many is that I walk for two hours a day at the beach. But a lot of these books I can read in under an hour because they're just saying the same old stuff. You don't have to read it a hundred times to know it. But Dr. Gundry's book, which is *The Plant Paradox: The Hidden Dangers in "Healthy" Foods That Cause Disease and Weight Gain,* is not one of those.

It's really and truly a resource you need to understand and have in your library if you're at all interested about health. My biggest disappointment with the book is that I didn't read it before I published my book, because I would have integrated a lot of what he has in there about the lectins. *The Plant Paradox* and *Fat for Fuel,* I believe, are the two best health books for 2017. With all that preface, welcome and thank you for joining us today.

SG: Thanks for having me. Obviously, I'm a big fan of yours as well. [inaudible 02:06]

JM: Great. I'll let you take control here because you're really the expert in this area. But the primary focus of your book, as I understand it, is to really understand the issue that these plant lectins have, these proteins that they make in defense. You've been studying for well over a decade and seen truly profoundly amazing results, just from applying these principles. Why don't we start at the beginning and help people understand what a lectin is.

SG: Yeah. The easiest way to think about lectins, plants were clearly here first. Even some of my evangelical Christians will give me the fact that plants were here for 48 hours before the rest of us arrived. They had it really good before animals arrived because nobody wanted to eat them.

From an evolutionary standpoint, evolutionary principles apply to all creatures, whether they're animals or plants. That is that any creature, like a plant, wants to grow and thrive, and wants to propagate, wants to have babies and make sure they grow and thrive. Now, when you didn't have a predator, that was a pretty nice time. But when insects, which were the first predators, arrived, about 60 million years after plants established on land, now plants had a problem. They couldn't run. They couldn't hide. They couldn't fight.

As you and I know, plants are incredible chemists. They're in fact alchemists. They used chemical warfare or biological warfare to thwart their predators. They have a number of systems, but the one I focus on in the book, because I think it's easy to understand, are lectins.

I'm saying lectins, L-E-C-T-I-N-S, and not lecithin and not leptin. These are proteins that plants manufacture. They're sometimes called sticky proteins, because they, in general, seek out certain sugar molecules on the surface of cells to bind to. I like to think of it as they hack into our communication system, or any predator's communication system.

For instance, in insects, they attack a sugar called sialic acid, which among other things, sits between the endings of nerves. One nerve talks to the other nerve by acetylcholine jumping through that space. Sialic acid allows that to happen. Lectins bind to sialic acid and so interrupt nerve transmission. If you think about it, paralyzing an insect is a really great defense system. Because if the insect can't move, bingo, you've solved the problem.

One of the things I've learned through the years through my patients is we're just a giant insect to a plant. What may happen to an insect fairly instantaneously by eating some plant lectins may take years and years and years in us, who are giant insects, to manifest. It may manifest as neuropathy, may manifest as brain fog. It may manifest as arthritis or heart disease. But the longer I've done this now, the more I'm convinced that almost every disease process that I've come in contact with, we can trace back to, in one way or another, us interacting inappropriately with plant lectins.

That's a long winded explanation for how plants don't like us. They absolutely don't want to be eaten. They've had 400 million years to work out defense systems – a really long time.

JM: Okay. Thank you for that preface. What impressed me most about your book is that our recommendations, for the most part, are really almost identical. The only other time I've seen that, at least for food perspectives, is with Dave Asprey's book, *Headstrong*. Because not many people get it. I mean they really don't. But the food recommendations are just straight on-target. The only difference is the exclusion of these plants that have these lectins. For the most part, *Fat for Fuel* doesn't really recommend that many, but there are a few that snuck through, like some of the seeds and cucumbers, and certainly nightshade vegetables.

They're really aligned, as I said earlier. We're putting out a cookbook in the fall for *Fat for Fuel.* We're integrating the lectin-exclusion component, because I think it's so crucial. But really, you do such a great job in the book of explaining the correlatively complex science and going into the great details of that, yet, providing a practical strategy, which is a tough assignment to do to

bridge the gap. Because usually you'd make the mistake going too easy or too technical, but you seem to have done a really nice job of integrating both of those together.

Well, I think one of the observations that seem to be useful is that your Plant Paradox approach targets the mitochondria and the microbiome, which is really the thrust of getting healthy. Not many physicians, even integrative medicine physicians, understand the importance of mitochondrial function, but you certainly do. Why don't you expand on the integration of those two?

SG: Yeah. One of the things that are interesting to me – My background at Yale was human evolutionary biology back in the dark ages. I assessed that you could take a great ape, manipulate its environment and its food supply and predict that you'll arrive at a human being. I actually defended my thesis successfully.

One of the things that have been fascinating to me – We obviously concentrated on the human genome, but the bacterial microbiome genome is actually far more important. Our microbiome is, I think, our early warning system, because about 99 percent of all the genes that make you and me up are actually non-human – they're bacterial, viral and fungal – I think, and a few other think, that we've actually uploaded most of the information processing about interacting with our environment to our microbiome, because the microbiome is capable of almost instantaneous changing and information processing that we actually don't have the ability to do.

[-----10:00-----]

We're beginning to realize – and you've been on the forefront of this – I'd like to think that in my little neck of the woods, we're beginning to understand that the microbiome is not only how we interact with plant materials and get the information from plant materials and also diffuse plant materials, like lectins. But probably more importantly, our microbiome teaches our immune system.

Whether a particular plant compound is a friend or foe, how long we've known that plant compound, there are lectins in everything. But the longer we've interacted with lectins and the longer our microbiome has interacted with them, the more our microbiome kind of tells our immune system, "Hey, guys. It's cool. We've known these guys for 40 million years. Chill out. They're a pain in the neck, but we can handle them." Then from an evolutionary perspective, if you then look at modern foods – say the grains and the beans, which we started interacting with 10,000 years ago, which is a blink of time – our microbiome has never interacted with those sorts of food. These are foreign substances.

What I go into the book is fast forward to 500 years ago. All of us in America, despite what Donald Trump would say, are not Americans. We're from Europe or Asia. None of us were exposed to a lectin from the New World until Colombian Trade started 500 years ago. One of the things that have been very impressive to me from what my patients have taught me, is [inaudible 11:43] no lectin speed dating in evolution. I don't think it could be done.

They're in some of our most cherished foods. The nightshade family that you mentioned – potatoes, eggplants, tomatoes, peppers, goji berries. They're actually an American plant. They

were taken to China in trade. The American beans, cashews and peanuts. The American seeds, sunflower seeds, chia seeds, pumpkin seeds. The squash family are American plants. These are very modern foods. We really have not had time to deal with them. Plus the American grains, corn and quinoa, these are very abnormal lectin-containing foods. We can talk about that.

So, mitochondria. You and I agree that mitochondrial flexibility is probably one of the really unique things that made humans humans. We are the fat-storing ape. There are no other great apes that successfully store fat. Chimps, gorillas and orangutans carry 3 percent body fat. Most of us will never ever achieve 3 percent body fat. Even our most accomplished body builders can't do that.

If you think about it intellectually, it's a very stupid design to store fat, because we're the only ape that has fat babies. Any woman would tell you that that's really dumb to have a fat baby. There's a reason we've done that. As you and I know, the reason is we're designed to be able to access fat for fuel. It's really the reason why this crazy species has taken over all parts of the world, whereas any other specie has never been able to do that. That's because we can cycle back and forth to having our mitochondria use fat for fuel or to use glucose for fuel. We're designed to shift very quickly, in 24-hour time periods to doing that, even within 24 hours.

You and I, I think, agree that the fact that we no longer have that metabolic flexibility and that we've been constantly bombarding our mitochondria with overload of glucose as a fuel, that really underlies, I think, most disease processes.

JM: Yes, indeed. When you say "we," you're referring to the social "we," because I know quite clearly that you have been a long-time practitioner of intermittent fasting, going for up to 18 hours or even more. Maybe you can share your experience on that. I just recently have been doing 15 to 16, but I think you're on target. I've shifted to more than 18 to 20 hours of intermittent fasting, and I think it's a better metabolic cycle.

SG: Yeah. When my first book came out back in 2008 – Random House bought my book – I actually had a whole chapter on intermittent fasting. What I was doing at that time, which I continue to do now, was during the winter, from January through June 1st, during the week, I eat all my calories in a two-hour window.

JM: 22 hours. Wow.

SG: Yeah. I don't eat breakfast. I don't eat lunch. I eat my calories between 6 and 8 o'clock at night. I do that because my wife and I are at home at that time. If I was really smart, I would have done it much earlier in the day, but, you know, you've got to be practical in one way or another.

JM: Socially pragmatic.

SG: Exactly. We had this whole chapter. My editor said, "You're obviously a nutcase. We know that. But you can't put that in here." I said, "No, no, no. Here's the research. Here are the animal studies. Here's my own personal data. No. This has got to stay." She said, "Okay. I'll give you a

page and a half, but you've got to tone it down." I think it's really funny because ever since then, of course, intermittent fasting has obviously hit mainstream. But for the last 10 years, I've actually – from January through June – I eat all my calories in a two-hour window. I take time off of the weekends and I eat two meals a day, but I always skip breakfast.

Four weeks ago, I just finished my winter fast, if you will. Now, why do I do that? You and I, again, would agree that food was a very rare thing to find. Again, our metabolic advantage is we're really good at starvation. It's what allowed us to survive. We know that during food scarcity, not only do our mitochondria rev up, but more importantly, our entire immune system and genetic monitoring basically says, "Look, times are tough. We don't know when the next good food supply is going to come. We've got to make it through to that next period."

We're going to look at every cell in our body. We're going to look at whether they're pulling their own weight. Are they odd? Are they not very fuel-efficient? We're going to jettison that. We're going to create apoptosis until these cells commit suicide. It's kind of like if we were in a hot air balloon and we're heading for the mountain and we're going to crash, we've got to start throwing things overboard to get more lift.

I think that's a fundamental principle that you've known for a number of years and that I've certainly preached for a number of years. The more we understand that that's how successful aging occurs and study successful agers, one of the things that's fascinating, particularly in an animal model, is that this intermittent fasting, this challenging, is the way to do it.

Valter Longo from USC, who's a colleague, would echo this. You've got to have these periods of time. Dale Bredesen, who I happen to think is probably the smartest researcher in dementia, really thinks that we should have a minimum of 14 hours between two meals, preferably 16 hours. We can go into that as well. But I think the tide is definitely turning to understand how we were designed.

JM: What is your summer schedule from June to January?

SG: In summer, I'll have a smoothie that's actually in my book, with some MCT oil in it, half an avocado, some romaine lettuce, spinach, half a lemon and a little bit of vanilla or stevia. Then I won't eat lunch. At dinner, same sort of thing, I try to pack all of my calories in between 6 and 8 o'clock at night.

JM: Okay.

SG: Yes.

JM: Now, you've mentioned or made a comment on cycling, which I think is really a crucial principle in biology that really is very not well appreciated among most clinicians, even astute clinicians in my experience. I missed this because as I started to practice this fat for fuel approach, which I described, I thought it was the ideal diet. I stuck on it. Boy, I got hit in the head really hard. Until I realized that you have to cycle this thing.

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Yes, it's a good strategy to undergo while you're not burning fat for fuel. But once you are, you can't continue that. You have to cycle it. You've really been doing this for a while and I would appreciate your insights and comments on that.

SG: Yeah. You have to look at it evolutionarily. It really was feast or famine. When we hit large amounts of food, whether it was a fruit tree or whether it was honey or whether it was a wildebeest or a mastodon, there was no food storage system. People tend to forget that nobody walked out of their cave and said, "What's for breakfast?" There was no refrigerator to have organic berries in every day. When we chanced upon fuel, then our beautiful design is we could eat actually large quantities of this stuff and store it as fat. Because, very shortly, whether it was a period of drought, whether it was a period of winter, we were going to regress.

I'd like people to think of circadian rhythms. Obviously, we have a 24-hour clock. We have a moon clock. We have seasonal clocks. What I like people to think of is that we have a period of every year where it's a growth cycle. You can look at that with any creature, including trees. That's the time of growth and it's a time to reproduce. Then there's a time of involution, whether it's a tree dropping its leaves, whether it's an animal hibernating. That's the time where we kind of take stock of everything. That yin and yang, that flow that would happen every year on seasonal basis has completely been lost. We have to have periods where we do consume excess calories, then we have to have periods where the exact opposite happens.

Years ago, after my first book came out, I was invited to Phoenix, Arizona by a blogger by the name of John Kiefer. I don't know if you've ever checked out his blog.

JM: I have not.

SG: Kiefer said that you should burn fat for fuel most of the time. But every week, you should have what's called "carb nite loading." He chanced upon this by accident, but he made a career out of it. He's actually picked his brain and he's picked my brain. I think he's absolutely right.

JM: I agree. That's the conclusion I reached too. At least once a week.

SG: At least once a week, you've got to just basically overload with carbohydrates. I think they ought to be decent carbohydrates.

JM: Lectin-free carbohydrates.

SG: Lectin-free carbohydrates. Exactly. I think you're right. One of the things I liked about you for over the years is you go out on an extreme. Many times, it bites you in the foot. Thankfully, you're man enough to say, "Here's what I did. Here's what didn't work out. Here's what I've learned." Unfortunately in the health business, it is so rare to see someone who will take a position and then will not learn that that position had a lot of good stuff, but here's a couple of things that were wrong and here's what I did about it.

I like to think that if you read my first book, you'd say, "Wow. In Dr. Gundry's second book, he said, 'Look, I was wrong about this. I was wrong about this. I was wrong about this. Here's why I was wrong.'"

JM: I just realized you're wearing an Oura ring.

SG: Yeah. Exactly.

JM: It's got to be on airplane mode though.

SG: Uh-oh.

JM: No, really. You've got to. Because I've measured it with a microwave meter and it has significant radiation. It's easy to do. You only need to download the data once a day. That's a tangent. Sorry about that. Let's get back to the topic of lectins.

We described what they are, but why the heck should we be concerned about them? Well, folks. One of the primary issues is autoimmune diseases. Your body starts beating up on itself. I'll let you expand on that too.

I also want to note that you've treated a major celebrity, Tony Robbins. Not many people don't know Tony Robbins. He came to you because his health was suffering. You were able to implement this program and you radically improved his health. You can take it from there.

SG: Yeah. Tony will tell you this. I'm actually speaking at one of Tony's events in New York City in three weeks. Tony is an amazing guy, as anyone who knows Tony. Tony does these crazy 18-hour days, seven days in a row. Quite frankly, Tony was flagging through some of these things. One of the things I did early on with Tony is convince him to start consuming a lot of MCT oil during his performances. It's so cute that Sage, his wife, would always send me a picture of some new little packet of coconut oil that she'd found.

But one of the things I asked Tony to do was take the major lectins away from his life. I'd like to think that it's worked well. Tony has been nice enough to send a number of other people my way to let me play with. Because Tony has helped so many people. I'm happy to help his colleagues and friends.

JM: Yeah. You're really leveraging your impact by affecting real significant influencers like Tony. Thank you for doing that. But let's expand on the autoimmune component, because that's such a crucial role. I used to think, and I still believe, that vitamin D is a big factor. I'm sure you do to.

SG: Yeah.

JM: It really is crucial. You've got to get vitamin D, ideally vitamin D from the sun. But what I fail to appreciate is the power of these lectins in catalyzing these disease processes. I just simply missed it. Why don't you educate us on this note?

SG: I think one of the things I talk about in the book that really made me hyper-focused on lectins was a guy who's a friend of mine, who's a very early adopter of my first program. I call him Tony in the book. Tony had really bad vitiligo. That's what Michael Jackson had where the pigmentation is lost.

Vitiligo is an autoimmune disease. What happens is we attack the pigment-forming cells in our skin called melanocytes. Melanocytes are actually neural cells. They're modified neural cells. They migrate from the neural crest to our skin in embryonic development. When Tony started on my program, a few months later, he came up to visit me. He said, "You're not going to believe this. My vitiligo is gone." I'm looking at him and I'm going, "Wow. That's impressive." He said, "How did that happen?" I could have said, "Well, this is a very anti-inflammatory diet. It's high in antioxidants." But because I'm a researcher, I said, "No. It's too simple."

I said, "Melanocytes. Melanocytes. Neural Cells. What's the target of lectins in insects? Neural cells." I said, "Son of a gun. Could it be that lectins are why he's attacking his neural cells? What I've done is I've removed lectins from his diet."

Just to fast forward, I lost track of him for a number of years. I was on a health panel in New York City two years ago. I saw him and he's covered with vitiligo again. I said, "What the heck happened?" He says, "You know. I fell off. I really need to get back on." I said, "This is a great experiment. Come on. Here's the list. Go for it."

We were just on a panel at Harvard two months ago. He's chairing the panel. He says, "I've got to show you, everybody. Vitiligo's gone." Then he says, "Because I took lectins back out of my diet. It sounds so silly but here's the proof."

Years ago, I was talking with Loren Cordain, the father of the Paleo Diet, who doesn't get enough credit. He said, "You know, I think there's this thing called molecular mimicry, where we recognize all proteins by a molecular barcode."

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I talk a lot about this in *The Plant Paradox*. One of the blessings I've had is I'm a transplant immunologist, because I wanted to put a pig heart in a baboon and have it survive for more than a few minutes. I'm really good at tricking the immune system and understanding what the immune system is looking for.

When people with autoimmune diseases came to me after my first book came out, I said, "I don't know anything about autoimmune disease, but I know a whole lot about what the immune system's looking for, so let's play." What I found is that lectins actually make you shoot yourself in the foot. They resemble proteins in the thyroid gland. They resemble proteins in your joint spaces. They resemble the myelin sheath proteins. They resemble proteins in nerves.

Why one person attacks their skin with vitiligo or psoriasis and another person attacks their thyroid or their joints in rheumatoid arthritis, I'm not smart enough to know yet. But I can tell you that the underlying factor in all of these disease processes is the penetration of the gut wall

by lectins and also their co-travelers, which are lipopolysaccharides (LPSs). LPSs, I don't usually swear, but in the book I call them "little pieces of shit," because that's what they are.

You're right. Vitamin D. One of the things I found earlier in all my autoimmune patients is they had profoundly low levels of vitamin D. I was shocked that some of these people I would have to give 20, 30 or 40 additional units of vitamin D3 every day to get their D levels up towards 100. Interestingly, I found that vitamin D levels, when you finally seal the gut – and that could take some time – all of a sudden, their vitamin D levels went sky high and I could back down on the dosage.

JM: I thought it was due to a SNIP, a single nucleotide polymorphism, but it's leaky gut. Who would've known?

SG: This happens. Vitamin D is essential to tell the stem cells at the bottom of the crypts in the villi to grow and divide. Without vitamin D stimulating them, they just sit there and they don't repair the gut. I think plants are so intelligent it's shocking. I think one of the plant strategies is that if you have low vitamin D, because you can't absorb it, then you can't repair your gut. You're a horrible predator. You won't reproduce. You won't walk. You'll go away. Vitamin D is really one of the keys to autoimmune disease.

Lectins are the other key. I've been blessed by knowing hundreds and thousands of autoimmune patients who I call "canaries," because they react almost instantaneously to lectins. It's interesting. Everybody has their own certain lectin or lectins that they really react to.

It's interesting. This morning I had a woman who has rheumatoid arthritis. Her rheumatoid markers or anti-CCP3 markers have gone up. Her IL-17 had gone up. I said, "Alright. What are you doing? What's going on?" She said, "No, no. I'm perfect. I know your list backwards and forwards." I said, "No. There's something."

She said, "You know, it's funny you should mention that because we got your book and my son said, 'Hey, mom. You know you're not allowed to have almonds with peels on them, because the peel has a lectin.'" She said, "What? I've been eating almonds right and left." I said, "Your son's right. You can't have almonds." I had another woman who was going on a cashew binge. Her markers came up and she had forgotten that cashews were an American bean.

JM: A relative of poison ivy.

SG: Exactly right. You really want to chew on poison ivy? I think not. Cashew pickers get horrible burns on their hands, just like pepper pickers do. These plants have an amazing defense system. What I found is that through molecular mimicry, we attack ourselves. Once you remove that trigger and you seal your gut, things get better.

I see lots of people who had been on various autoimmune protocols and gut healing protocols. I think what the difference is – that my patients have taught me – is that if you're out on a boat and you're taking in water because you have holes in the bottom of the boat, you can bail water all you want. You'll keep the water out of the boat. But if the holes keep occurring, you're going to

need a bigger and bigger bucket. I think most of the anti-inflammatory programs and autoimmune programs are just giving people bigger buckets. But I think it's easier to seal the holes. Then water won't come in.

I'm convinced, and others are convinced that lectins and some of the seven deadly disruptors are making the holes. Let's get the hole makers out of them, give some vitamin D and let them heal their gut.

JM: Yes. I sure wish I would have known that when I was practicing, because I could remember a number of patients with vitiligo. I just threw my hands. I've had no idea what to do. But something so simple as this lectin-exclusion approach could have been so profoundly effective. It's not just relatively uncommon diseases like vitiligo. It's all the autoimmune conditions like multiple sclerosis, inflammatory bowel disease and rheumatoid arthritis. You name them. There are millions of people suffering with these diseases.

As part of the solution – I'm not sure if it's the only solution because there are a lot of other variables that need to be embraced. You'll discuss some of the profound comprehensive principles later in your recommendations that cover this. But this is a big part of the equation, or the solution rather.

SG: It really is. I'll give you an example. This morning, we got a phone call. I'm seeing a little boy with Crohn's disease in August for the first time. He's been on my program, just because they got the book, for two months now. He's actually been thriving.

Yesterday, I don't know why the mother decided to give him a very large bowl of grits, corn grits. They called this morning in a panic because he was having terrible abdominal pain and started having bloody diarrhea this morning. My staff and I are looking at each other going, "What? Why would you do this?" I was **[**inaudible 37:51].

I mentioned a young woman who has Crohn's disease in the book. Her well-meaning doctor at the Mayo Clinic told her that food had nothing to do with Crohn's disease. She had been cured of Crohn's disease with my program. He told her it was the placebo effect. We still laugh at that one. She ate a couple of Christmas cookies after she got off the phone with him. Of course it was like throwing a bomb in her stomach. She had horrible cramps and diarrhea. We skyped and she said, "Why don't doctors see this?" Like I talk about in the book, we can't see unless our eyes are open.

One of the things that benefitted you, you're a doctor of osteopathic medicine (DO), you luckily were not down the allopathic path. You luckily had your eyes open. I was lucky enough when I met the guy who changed my life, Big Ed, who cleaned out his coronary arteries with a diet and supplements, to have my eyes open. I said, "This is not a placebo effect. This is not chance. How did this guy do this?" Luckily because of my evolutionary background, I was able to piece it together.

JM: Great. Let's talk about two common lectins that are not in the nightshade family that I think people would really appreciate more information on. One of them is milk. We talk a lot about the

benefits of raw milk on our site. But it turns out about 2,000 years ago in Northern Europe, there was a spontaneous mutation in the cows up there that caused them to make a derivative of casein protein, the A1. The normal is A2. That just caused havoc on steroids. Why don't we address that? Because it's not just raw milk, it's the dairy and all the dairy products that are manufactured from them or produced from them.

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SG: Casein A2 is the normal protein in milk, besides whey. It's present in sheep. It's present in goats. It's present in water buffalos. But like you said, most of our cows, in fact most of the cows in the world are casein A1 producers. They make a lectin-like protein called casein A1, which is metabolized in our gut to make beta-casomorphin, which is a very interesting thing. They can attach to the beta cell of the pancreas and incite an autoimmune attack on the pancreas.

I and others are pretty convinced that a ton of type 1 juvenile diabetics is because of the casein A1 in milk. I've been convinced through the years that not only is it the problem, but the people who think they're lactose intolerant or that milk gives them mucus, it's the casein A1.

One of the reasons I know that is so many of my lactose-intolerant patients will go to Italy and have gelato. They come back and they say, "You know, it's amazing. There's no lactose in Italian gelato. I can have all the gelato I want and I'm perfectly fine." I'm going, "Well, actually, there's tons of lactose. There's casein A2, not A1. You've been reacting to casein A1."

You're right. Raw milk is great, as long as it came from the right cow. I even bring the example in the book of a lovely woman who had arthritis, got her off of all her drugs. She was visiting a friend in the Napa Valley and her friend said, "I've got some great raw cow yogurt for you." My patient said, "I better not because I have to have A2 milk." She said, "Don't be ridiculous. You're following this Gundry guy. He's a nut. This is raw milk. You'll be fine." To be nice, she has a couple of tablespoons of yogurt.

That night, she had some joints in her left hand that blew up like a toad. She called me the next morning not in panic, but in delight. She said, "You were right. It is the breed of cow. I've never felt so bad and so good." Again, my patients have taught me that what we think is kind of crazy in us, we could actually measure this stuff in bloodwork. A lot of people who I would've tossed off as crazy 15 years ago, there's an underlying problem that needs to be addressed. We can see these things with modern blood tests, quite frankly.

JM: Yeah. For those who still want to have their dairy, it's still possible. But for the most part, you have to avoid almost all the commercial dairy because they mix milk from all these different herds. There's no way you can segregate A1 from A2. It has to be from a local farmer. I believe that it's the Jerseys that make the A1.

SG: Jerseys are half A1 and A2. Holsteins are A1.

JM: Holsteins are A1. Okay.

SG: There are movements now. In California, there's A2 milk. It's actually an Australian company. There are movements in Ohio to have A2 milk. For those of you who are ice cream fans, Jeni's Ice Cream, which is quite famous, she gets all her milk from Snowville Creamery, which is an A2 farm. I've actually talked to those people. They get it.

There have been attempts to introduce A2 milk on a larger scale. Quite frankly, they've been crushed by the American Dairy Council for obvious reasons. You and I know that coming up against big business and Big Pharma and Big Chemical is a hard job.

JM: Yes, indeed. Most physicians who have some understanding or training in nutrition will initially put patients on a gluten-free, casein-free diet. We've just addressed the casein in really great detail that I think will help people understand it. But the other is gluten-free. It turns out that although gluten is an issue, it's not a big one. It's actually a relatively minor component. But there's this component called the wheat germ agglutinin, which is far more severe. Why don't you enlighten us on that?

SG: Yeah. I think one of the things that have gotten us into trouble over the last 40 years is this whole grain goodness. Many traditional cultures have tried to get the hull off of grains and eat their bread white or their pasta white or their rice white. There's a nasty little leptin called wheat germ agglutinin in the hull, in the wheat germ. If you want to produce heart disease in experimental animals, one of the best ways to do it is we give the animals wheat germ. Wheat germ agglutinin actually –

JM: A common heath food of the '70s.

SG: Yeah. In Loma Linda, I was putting wheat germ on all of my stuff and wondering what its big effect is. But the interesting thing about wheat germ agglutinin is that it binds to the insulin receptor sites.

Lectins are fascinating in that they'll hit docking sites on a cell. That'll hit insulin receptors. Normally, a normal hormone will dock, give its information and then release. What happens with these pseudo hormones is they don't respond to the same information. They dock, but then they never leave. It's kind of like if they hit the insulin receptor on a fat cell, they turn on lipoprotein lipase and you just pump sugar into the fat cell and turn it into fat constantly. In muscle cells, the exact opposite happens. They'll attach to the insulin receptor in the muscle cell. But in that case, it actually blocks insulin from delivering sugar into the cell.

I see so many long distance runners who are carboholics, who look like concentration camp survivors because they're really cachectic and sarcopenic because they block actually all the insulin receptors in their muscles. My wife used to run the Boston Marathon. Thank goodness she gave that up when I showed her the data, as has Mark Sisson and other people.

But one of the interesting things I talk about in the book is long ago, things that promoted weight gain from a given number of calories would be miraculous. The lectins, like wheat germ agglutinin and galactans in beans, are miraculous ways of making us store fat. We realized that because the only way we've ever been able to fatten an animal for slaughter is to give them

grains, beans and some antibiotics. If that's how we fatten animals, that's how we fatten us. It works really well.

JM: Yeah. Some people observe that when they travel to Europe and they have the bread over there, they don't notice a problem. That's because the lectins have been removed because they made the bread the way it was supposed to be made. Let's find out why.

SG: Yeah. Right. What's happened in Europe of course is that they've always used traditional methods raising bread. They use yeast or sourdough. Yeast and bacteria are actually pretty good at breaking down the gluten molecule and other lectins. The idea of a French person having a whole wheat croissant is just –. Now, we're seeing whole wheat pasta over in Italy. Tourists are like, "What? These guys figured this out. What are we doing?"

The other thing that you're a big spokesperson against and I am too is glyphosate. Of course it's banned in Europe for very good reasons. As you and I both know, this miserable chemical Roundup is used on all conventional grains, beans and flax. It is in the animals we eat. It's in all of our baked goods. As you know, it's in our wine in the United States.

This stuff potentiates gluten to people who are not even gluten-sensitive. As you know and I know, it totally screws up the way our liver manufactures the active form of vitamin D. It hits cytochrome P450. It's one of the reasons that the Europeans are so far on health.

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It's one of the reasons why so many of my patients can go back to Europe and eat their traditional diet and think they're cured and now they can start eating bread. They come back and eat a piece of bread and, bam – the whole thing starts all over again.

JM: Yeah. Not only does glyphosate chelate important minerals out and really disrupt the shikimate pathway and decimate our microbiome, but it also, as I understand, increases leaky gut, which allows more of the lipopolysaccharides into the bloodstream and just contribute to this whole issue. It works synergistically with the lectins. It's a one-two bad punch for you.

SG: Yeah. Absolutely.

JM: I'm wondering. Having been a professor at Loma Linda – I've never been there. I certainly know many friends who were Seventh Day Adventists at the Seventh Day Adventist University, most of whom were vegetarians. What is the expectation there as a faculty member? What percentage of the people in the community are vegetarians? What has been the response of the community to your lectin message?

SG: I'm not an Adventist, although I've done many mission works for the Adventists. They do a really good work. I ate an Adventist vegetarian diet pretty much for 15 years. I've never been sicker in my life. I used to weigh 228 pounds despite running 30 miles a week and running half marathons on the weekend and going to the gym one hour every day, wondering why I had high blood pressure, prediabetes and heart disease. I was running with [inaudible 51:56] to protect them.

It wasn't until I realized that was a pretty good diet to cause arthritis. Quite frankly, we have a fabulous orthopedic department at Loma Linda, because the grains are pretty doggone mischievous for that.

But the thing that I think is interesting – Through the years, I've been good friends with the head of the Adventist Health Studies, a cardiologist. One of the things that I've learned from following the Adventists and following Gary Fraser is that animal protein is unfortunately pretty mischievous in terms of aging us. I hate to say that because I grew up in Omaha and Milwaukee where meat is king.

One of the things I did learn from the Adventists is that animal proteins, certain animal proteins do contribute to aging. In the Adventist health study, the vegan Adventists have the longest lifespan. Behind them are the lacto-ovo vegetarians, then behind them are the pescetarians. Then finally, there are the real cheaters who eat chicken.

I can tell you, having lived among the Adventists, it's not a secret they do cheat. But it is interesting that the longest living of the Adventists, who are very long-living, are the vegans. I take care of a lot of vegans because of my association with Loma Linda. As a general rule, the vegans are some of the most unhealthy people that I have met.

The reason is they're in this country as grain and bean-itarians. They are not vegetable eaters. I have nothing against a high vegetable diet. In fact, I'm a wonderful vegetable predator. But the other thing that we see in the vegans is they somehow fancy fanciable thinking that they will convert short-chain omega-3 fats into EPA, the long-chain omega-3 fats. They absolutely and positively do not.

Our brain is about 70 percent fat. 50 percent of that fat is DHA. There are beautiful longitudinal studies now showing that people with the highest omega-3 index have the largest brains as they age, and the largest areas of memory in the hippocampus. People with the lowest levels of omega-3 index have the most shrunken brains and the smallest areas of memory. Vegans have no excuse anymore. There's algae-based DHA, which I filled them full of.

JM: Yeah. It's the lesser of two evils by taking oral vitamin D if you can't get the sun. I'm not a big fan of algae DHA because I really think you should get it from real food.

SG: I agree.

JM: But if you don't have a choice, what are you going to do?

SG: I've got no other choice.

JM: You have been the director at the Center for Restorative Medicine – that's where you practice – for 17 years now?

SG: Yeah.

JM: Okay. Your first rule, which I love and it's really a novel rule – I'm sure you came up with it because I've never seen it anywhere before, but it makes perfect sense. Rule number 1 that you've concluded after 17 years of doing this at your clinic is, "What you stop eating is more important than what you start eating." Why don't you tell us how you came to that conclusion?

SG: It's really absolutely true. It's so funny. You see all these things that you're supposed to eat. I had the pleasure of training at Great Ormond Street Hospital in London, England. There was a gastroenterology professor who always used to walk around and say, "It is not what you eat that's important. It's what you don't eat that's important." If you take away certain foods, you'll be amazed that it's certain foods that are the troublemakers.

I really kind of thought he was a nut long ago. But the more I think about that and the more I see that it's what I tell people not to eat that makes the difference in their lives. Don't sweat the stuff that you do eat, as long as you don't eat certain things.

JM: Rule number 2 is taking care of your gut microbiome. But our audience is really quite familiar with that so we'll skip that one for obvious reasons. But rule number 3 is a bit unusual because it seems counterintuitive. That is "fruit might be as good as candy." Why don't you elaborate on that?

My guess is – I don't think you went into it in the book – but that is for the majority of people who are not burning fat for fuel, but once they are, that could be part of the healthy carbohydrate if they can average it twice a week.

SG: Yeah. Exactly. I think part of the problem is the vast majority of Americans are insulin-resistant. One of the things that people should realize is that the modern fruit has been bred for sugar content.

It's interesting. A couple of weeks ago down in Southern Italy, I was studying the world's oldest people, the denizens of a little fishing village called Acciaroli. There was a farmers market. They actually had blueberries. The blueberries were these really tiny bitter things that you and I remember as a kid, that you had to put half a cup of sugar to make them edible. I grabbed my wife Penny and said, "Oh look! Real blueberries." Because even in the farmers' market in Santa Barbara where one of my clinics is, the organic blueberries are about the size of a grape now, even though it's organic.

One of the things I ask people to do initially is give fruit the boot. Fructose is a major toxin. You and I know that we take fructose directly to our liver and detoxify it into triglycerides and uric acid. It always amazes me the number of people with gout who consume more concentrated fruit, like wine or beer. Beer is one of the underlying reasons that they have gout.

The other thing that people should realize is that fructose is also a direct renal toxin. The more fructose I can get out of people, the better. Having said that, once you get to a point where you have metabolic flexibility, I think things like berries are probably one of the best ways to eat carbohydrate load during the day you decided to do that.

JM: Yeah. My two favorites are berries and sweet potatoes, which I was doing today because I do it twice a week on my strength training days.

SG: Yeah. Sweet potatoes are great as well. I'm a big fan of taro root quite frankly. I try to copy the Kitavans and eat cassava and taro root. But I'll tell you a funny story.

Years ago, right before the first book, my wife and I were in June at Santa Barbara farmers market. I was taking these gorgeous organic peaches and putting them into my bag. She says, "Hey, wait a minute. Aren't you the guy who says give fruit the boot?" I said, "Yeah, yeah, yeah. But it's June and it's time to eat fruit." She says, "Okay, smart guy. Let's do this. This summer, we're going to give up fruit and we're going to see what happens." I go, "Oh come on. Don't do this to me. I'll put the peach back." So we gave up fruit for one summer. We didn't change anything else in our diet. My wife lost 6 pounds and I lost 8 pounds.

It brought home to me that, again, our great ape ancestors and the reason we have two-thirds of our tongue devoted to sweet taste is we are great fruit predators. Fruit was only available once a year. We utilized that fruit to gain weight for the winter. We should not forget that there were no refrigerators to store our berries. We got it once a year. You live in Florida and I live in California. We can have it 365 days a year, but that's not normal.

JM: Yeah.

SG: Always keep that in mind.

JM: Well, I live in North-Central Florida, close to the ocean. It's really temperate so I can gather fruit about nine months of the year. But I only eat fruit that I pick off my own land. That's it. I don't buy any store-bought fruit. I can only eat it when I harvest it. Like peaches – I probably gathered like 10 gallons of peaches, but that was in two weeks. That's it. No more peaches for the rest of the year.

SG: Yeah. That's exactly right. I talk about this in the book. One of our problems is that our computer program can't imagine that a 747 can bring a blueberry to Costco in February from Chile. As I talk about in the book, all these fruits are picked unripe. They actually have very high lectin content. They ethylene oxide gas them to make them appear ripe, but they're actually full of lectins that would normally have been dissipated if the fruit had been allowed to ripen normally. It's just another way that we've done ourselves in.

JM: Alright. We're coming to the end of our time together. I'm wondering if you could summarize any key important points. We've got a little more time so if there's something that we didn't cover that you think is important, we could review, then we could close.

SG: Yeah. I think the high points are that people are unwittingly allowing lectins into their body. One of the things that have destroyed us is broad spectrum antibiotics, not only given to us but also in the animals that we eat.

The other thing that has been a real eye-opener to me is the effect of the non-steroidal anti-inflammatories (NSAIDs). Things like Advil, Aleve, Ibuprofen and Naprosyn. These things seriously are like swallowing a hand grenade. They actually denude the wall of our gut.

There's new information that as little as four days of taking an NSAID will dramatically increase your risk of heart attack or stroke, because it literally lets in all these LPSs and all these lectins into our bloodstream. There's even children's Advil now. It's just horrible what we've done. Drug companies know this happens. I show the evidence in my book. They've known it, but we've been in the dark about it until recently.

JM: Yeah. I was a pharmacy apprentice in the early '70s. I remember when Motrin, which was the first NSAID – I mean after Aspirin and Ibuprofen – was released. They couldn't prescribe it for more than a few weeks. That was it.

SG: That's right. Because it was so dangerous.

JM: Yeah. Thank you for reminding me because you did bring up that point in the book about the dangers of those NSAIDs from a lectin perspective.

I couldn't endorse your book more strongly. I think if you are a health advocate and have not heard this, you would be beyond foolish not to pick up a copy of this and put it in your library. It's really vital information to optimize not only your health, but also the health of people that you know, especially if they're struggling with an autoimmune disease. I mean it's just nuts not to integrate this.

If you've been following the *Fat for Fuel* approach, it's just a minor tweak. But it's a very important tweak that I wish I would have known about earlier. Because as I said, I clearly would have integrated it. But it is in my new book coming out in the fall, the *Fat for Fuel Cookbook*. But it's great. Pick it up. You will not regret it. It's a very great read, with the perfect balance between science and pragmatic recommendations.

SG: Thanks very much. I appreciate it.

[END]