Why a cardiologist started talking about gut health.)

What if everything you've What if everything you've been told about been told about losing weight is not just losing weight is not just wrong, but wrong, but actually harmful to actually harmful to your health? Here's a your health? Here's a number worth number worth thinking about. 25%. This is thinking about. 25%. This is the proportion of weight loss the proportion of weight loss with with with calorie restriction, fasting, calorie restriction, fasting, and even the and even the most popular most popular most popular diets. And it's not just diets. And it's not just fat. These are muscles. And when fat. These are muscles. And when those muscles disappear, those muscles disappear, your metabolism your metabolism slows down, your slows down, your body body body gains more weight, and you gains more weight, and you become biologically become biologically older than you were before you older than you were before you started. My guest started. My guest today has been today has been debunking debunking debunking false medical dogmas for over three decades.

false medical dogmas for over three decades. Dr. William Davis is a cardiologist and the # 1 New York 1 New York Times bestselling author of Wheat Belly. For the past few. For the past few years, he has been doing something years, he has been doing something that is rare in that is rare in medicine: following medicine: following the science wherever it the science wherever it leads. From discovering leads. From discovering that grains and that grains and wheat products wheat products were secretly harming us, were secretly harming us, to realizing to realizing that our microbiome is in a that our microbiome is in a modern-day crisis, to modern-day crisis, to his new book, Superbody—a blueprint for Superbody—a blueprint for restoring the muscle, restoring the muscle, shape, and vitality that modern that modern medicine is accidentally medicine is accidentally destroying. This conversation destroying. This conversation will change the way you will change the way you think about your own think about your own body. Dr. Davis, body. Dr. Davis, welcome to the welcome to the show. Okay, Dr.

show. Okay, Dr. Davis, Davis, Davis, welcome to the show. welcome to the show. Oh, thank you. Glad to be Oh, thank you. Glad to be here. here. here. Okay, since I Okay, since I know everyone has know everyone has their own preferences, how should I their own preferences, how should I call you: Doc, call you: Doc, William, or Dr.

William, or Dr. Davis? Doctor, how do you feel more Davis? Doctor, how do you feel more comfortable? What are you… comfortable? What are you… Okay, Bill will be there.

Okay, Bill will be there. Let there be Bill. Let there be Bill. Okay, Bill. So, the Okay, Bill. So, the first question, and I have to first question, and I have to ask it.

You are a cardiologist. When did you You are a cardiologist. When did you start talking about start talking about the gut? Because it's not… I the gut? Because it's not… I asked myself: when did this asked myself: when did this happen?

happen? happen? You know, Greg, this did You know, Greg, this did n't happen through n't happen through some epiphany. This some epiphany. This happened because happened because a lot of the things I a lot of the things I do in patient programs—we started eliminating all started eliminating all wheat and grains, and wheat and grains, and it was for a it was for a purpose. It shocks me, purpose. It shocks me, Greg, that we are still being Greg, that we are still being fed this nonsense fed this nonsense about " limiting saturated limiting saturated fat and lowering fat and lowering cholesterol cholesterol cholesterol with with with statins." This is a fiction. This is complete, absolute. This is complete, absolute nonsense. There is a grain of truth to this nonsense. There is a grain of truth to this, stemming from the, stemming from the original original original NIH studies of the NIH studies of the 1950s, but because 1950s, but because it brought in so much it brought in so much money in the form of money in the form of statins—literally a statins—literally a trillion dollars. As trillion dollars. As you know, our you know, our colleagues still colleagues still cling to this cling to this ridiculous and ridiculous and outdated idea that outdated

idea that cholesterol cholesterol cholesterol causes causes causes heart disease, but it doesn't.

There are known There are known causes of coronary heart causes of coronary heart disease, and one of them is small, dense small, dense LDL particles. This LDL particles. This science is already well science is already well studied, Greg. This studied, Greg. This has been carefully has been carefully studied. 55 studied. 55 human clinical trials human clinical trials have shown that have shown that measuring small measuring small LDL particles, usually LDL particles, usually using NMR (nuclear magnetic nuclear magnetic resonance), is a resonance), is a much better much better indicator. But once indicator. But once you start you start looking at looking at lipoproteins, you lipoproteins, you realize very quickly realize very quickly that coronary that coronary heart disease is a heart disease is a dietary disease, dietary disease, period, and it has period, and it has nothing to do with nothing to do with saturated fat.

It's related to the liver's great ability the liver's great ability to convert to convert to convert carbohydrates and sugars, carbohydrates and sugars, such as amylopectin A in such as amylopectin A in wheat and other wheat and other grains, or grains, or sucrose and fructose, sucrose and fructose, into VLDL particles (very very very low density lipoproteins), low density lipoproteins), which then which then enter the bloodstream and enter the bloodstream and convert convert convert LDL particles—not LDL particles—not LDL cholesterol, this indirect LDL cholesterol, this indirect marker, but marker, but LDL particles— LDL particles— into small… a series of series of enzymatic enzymatic enzymatic reactions occur. So, I reactions occur. So, I eliminated wheat and eliminated wheat and grains from grains from all of my patients' diets, and we all of my patients' diets, and we watched the watched the small LDL levels small LDL levels drop precipitously to, or, drop precipitously to, or, typically typically typically using NMR, 2,400 using NMR, 2,400 nanomoles per liter.

nanomoles per liter. Let's say someone has Let's say someone has coronary artery disease, coronary artery disease, after eliminating after eliminating wheat and grains wheat and grains it drops to zero or it drops to zero or something close to something close to that. In other words, it's not 20% better; this is, it's not 20% better; this is complete destruction. And complete destruction. And then I add a few then I add a few nutrients nutrients nutrients that are lacking in that are lacking in modern life, modern life, you know, simple, you know, simple, very simple: omega-3 very simple: omega-3 fatty acids, fatty acids, vitamin D, iodine, magnesium, vitamin D, iodine, magnesium, because they are missing because they are missing in modern, in in modern, in modern life, not in modern life, not in diet, but in diet, but in modern life.

It became clear that It became clear that this brought people this brought people a lot of benefits. a lot of benefits. Years ago, when I Years ago, when I started doing this, I was started doing this, I was surprised when people surprised when people said, "Hey, I know said, "Hey, I know we did this to we did this to get rid of the small get rid of the small LDL particles, but you didn't LDL particles, but you didn't say I was going to lose 20 say I was going to lose 20 centimeters off my waist." centimeters off my waist." "You didn't tell me "You didn't tell me my rheumatoid my rheumatoid arthritis would go away." " You didn't tell me You didn't tell me I would lose 21 I would lose 21 kilograms." So, I kilograms." So, I mean, it almost mean, it almost happened by accident.

happened by accident. But it became clear But it became clear that something was missing. In other words,. In other words, let's say a let's say a type 2 diabetic: they type 2 diabetic: they give up give up wheat, grains, wheat, grains, sugar, and also sugar, and also add vitamin D, add vitamin D, magnesium, omega-3 fatty magnesium, omega-3 fatty acids, and iodine. And their acids, and iodine. And their hemoglobin A1C level hemoglobin A1C level drops, maybe from 6.7% (diabetic range) to 5.8% (prediabetic prediabetic prediabetic range), but we range), but we want it to be want it to be below 5.0 because that's the below 5.0 because that's the ideal number.

ideal number. But the process stalled, But the process stalled, or maybe they or maybe they lost a lot of weight lost a lot of weight but then reached a but then reached a plateau. Well, why? What is plateau. Well, why? What is blocking their success?

blocking their success? That's when, a few That's when, a few years ago, I started years ago, I started studying the studying the microbiome, and it became microbiome, and it became clear that the clear that the microbiome is a microbiome is a huge factor.

huge factor.

How the microbiome connects to chronic disease.)

Huge. And Greg, Huge. And Greg, as you know, this as you know, this has been shown to be an important has been shown to be an important factor not just in factor not just in weight loss or weight loss or diabetes, but also in pregnancy health, pregnancy health, vaginal and vaginal and prostate prostate prostate health, health, health, neurodegenerative neurodegenerative neurodegenerative conditions, and conditions, and heart disease. In other words, the microbiome turned out to be an, the microbiome turned out to be an extremely powerful extremely powerful thing. And we thought thing. And we thought its only role was to cause diarrhea to cause diarrhea after a course of after a course of antibiotics. It's antibiotics. It's almost absurd almost absurd how little we how little we knew about this until knew about this until recently. Ovva. This is recently. Ovva. This is truly impressive. So I truly impressive. So I have a question, have a question, going back to my going back to my first one: How much first one: How much resistance did you encounter resistance did you encounter when you started when you started linking the impact of linking the impact of weeds to the weeds to the microbiome and these microbiome and these chronic diseases chronic diseases and modern health issues?

Antibiotics, pregnancy, and missing microbes.)

You know, not really, You know, not really, because, as you understand, because, as you understand, most of our most of our colleagues, especially my colleagues, especially my colleagues, ordinary colleagues, ordinary doctors, don't read what you and I doctors, don't read what you and I write, uh, they, they don't read anything at all, to be don't read anything at all, to be honest, they are honest, they are so disconnected so disconnected from reality. This is from reality. This is scary. Greg, scary. Greg, for example, I have a for example, I have a daughter-in-law who just gave birth to her third gave birth to her third child, a girl, a few months ago.

child, a girl, a few months ago. She has no shortage of She has no shortage of resources, she resources, she literally has a literally has a rheumatologist, rheumatologist, rheumatologist, an endocrinologist, a an endocrinologist, a functional functional medicine doctor, an internist, an medicine doctor, an internist, an obstetrician-gynecologist, uh, and several other, and several other specialists. And no one, specialists. And no one, no one, mentioned the no one, mentioned the importance of importance of importance of the microbiome during the microbiome during pregnancy and postpartum pregnancy and postpartum, because you, because you probably know that probably know that science in this area science in this area has made a huge has made a huge leap. For example, leap. For example, Lactobacillus crispatus should be the Lactobacillus crispatus should be the dominant microbe dominant microbe in the female vaginal in the female vaginal environment. And if environment. And if a woman loses it a woman loses it because of taking because of taking antibiotics, which antibiotics, which happens to everyone, happens to everyone, right? she right? she loses this microbe.

loses this microbe. This makes her much more This makes her much more vulnerable to vulnerable to candida candida candida vaginitis, vaginitis, vaginitis, bacterial bacterial bacterial vaginosis, dryness, vaginosis, dryness, irritation, pain, er, premature labor, which can be, which can be catastrophic.

catastrophic. catastrophic. You know, if a woman You know, if a woman gives birth at 28 gives birth at 28 weeks, the baby will be in the weeks, the baby will be in the neonatal intensive care unit for neonatal intensive care unit for weeks or months, weeks or months, and this will lead to and this will lead to neurological, neurological, immunological, and immunological, and psychological psychological psychological developmental disorders. And mom and developmental disorders. And mom and dad will get a dad will get a bill, a hospital bill, a hospital bill of a million bill of a million dollars or more.

dollars or more. So you want, every So you want, every woman wants to do woman wants to do everything possible to everything possible to carry her baby to carry her baby to full term. And there are full term. And there are things that women things that women can do, and can do, and among them—Lactobacillus among them—Lactobacillus crispatus. Uh, but they do crispatus. Uh, but they do n't talk about it; women are n't talk about it; women are simply not told about it simply not told about it. And this is. And this is also very important during the also very important during the menopausal years menopausal years because, as you because, as you know,

especially when know, especially when a woman is over 65, she is a woman is over 65, she is prone to dryness, prone to dryness, irritation, irritation, irritation, discharge, unpleasant discharge, unpleasant discharge, infections, as well discharge, infections, as well as as as urinary tract infections, urinary tract infections, recurrent, and recurrent, and incontinence, crispus. So there is very good evidence, very elegant, very elegant work from Loyola. So work from Loyola. So our old district, this particular our old district, this particular area.

area. area. Yes. Yes. Very good work, Very good work, they have isolated a number of very they have isolated a number of very important microbes and important microbes and shown that crispus has an shown that crispus has an impressive effect on impressive effect on women's health both women's health both during pregnancy and menopause, and of course menopause, and of course all the years in between. And all the years in between. And yet women are not told about this yet women are not told about this. They are not told. They are not told that lactobacillus crispus is that lactobacillus crispus is important. They are not important. They are not told that bifidobacter told that bifidobacter infantis is critically infantis is critically important for the child.

So, as you know, this is what should So, as you know, this is what should happen: the baby happen: the baby is born is born is born naturally and naturally and then then then breastfed. That's how it breastfed. That's how it happens in happens in nature, right? And nature, right? And when this happens, when this happens, the mother gives the baby the the mother gives the baby the nutrients, but nutrients, but especially especially especially the oligosaccharides of the oligosaccharides of the oligosaccharides of human milk, which human milk, which the baby needs to have in the baby needs to have in order to assimilate bifidobacterium order to assimilate bifidobacterium infantis, and this gives the baby infantis, and this gives the baby an advantage in an advantage in neurological neurological neurological development, growth and the development, growth and the immune system. Without immune system. Without this, neurological this, neurological maturation is maturation is maturation is impaired. They are impaired. They are more prone to more prone to asthma, type 1 diabetes, and asthma, type 1 diabetes, and autoimmune autoimmune autoimmune diseases. And are diseases. And are more likely to be more likely to be obese or have type 2 diabetes obese or have type 2 diabetes in in in adolescence. So, like lactobacillus adolescence. So, like lactobacillus crispatus, bifidobacter infantis is crispatus, bifidobacter infantis is very sensitive to very sensitive to common common common antibiotics. So antibiotics. So the mother may not be the mother may not be able to pass it on to the able to pass it on to the baby, or the baby baby, or the baby gets it, but it's gets it, but it's destroyed by the destroyed by the widespread widespread widespread use of use of use of antibiotics at antibiotics at birth and in the birth and in the weeks and weeks and months that follow, it's so months that follow, it's so critical, and a lot of critical, and a lot of it just doesn't it just doesn't get through to women.

And so, but the great thing is And so, but the great thing is that if people that if people learn about these learn about these things, and one of the things things, and one of the things I do is we I do is we identify the need for identify the need for these microbes. One of the these microbes. One of the problems with commercial problems with commercial production of production of production of probiotics is that it is very probiotics is that it is very expensive to produce expensive to produce probiotic microbes.

So one of the tricks So one of the tricks we we we use is we use is we make something that make something that looks and smells like looks and smells like yogurt. This is not yogurt.

yogurt. This is not yogurt. Yogurt is something different, Yogurt is something different, but it looks and but it looks and smells like yogurt. smells like yogurt.

We get specific We get specific microbes. I call them microbes. I call them human enzymes because, you know, because, you know, store-bought yogurt store-bought yogurt is made with microbes is made with microbes that are usually not that are usually not human microbes.

human microbes. They are simply They are simply traditionally traditionally traditionally used to used to make yogurt. We are going to take. We are going to take microbes of human microbes of human origin. It could origin. It could be lactobacillus crispatus. This be lactobacillus crispatus. This could be bifidobacter infantis. It could be lactobacillus. It could be lactobacillus reuteri or bacillus or reuteri or bacillus or lactobacillus gasseri. And we lactobacillus gasseri. And we will will will use use use long fermentation.

long fermentation. This is how This is how microbes reproduce. They don't have a microbes reproduce. They don't have a sex life, do they sex life, do they? They just? They just double. So, double. So, for example, for example, lactobacilli, one of lactobacilli, one of my favorite my favorite microbes, microbes, microbes, doubles every 3 doubles every 3 hours at hours at human body temperature. So human body temperature. So they are adapted to the they are adapted to the human body.

human body. So we let them So we let them ferment ferment ferment for 36 hours. 12 for 36 hours. 12 doublings. We count doublings. We count the number of microbes the number of microbes using a method using a method called called called flow flow flow cytometry. And cytometry. And we get about 300 we get about 300 billion microbes.

billion microbes. This is a way to increase This is a way to increase the number of microbes. the number of microbes. hundreds or thousands of hundreds or thousands of times. And when we times. And when we engage in combat engage in combat against unwanted against unwanted microbes, we need microbes, we need large numbers.

That's why we That's why we use this use this long long long fermentation method. We also fermentation method. We also add prebiotic add prebiotic fibers to fibers to stimulate stimulate stimulate microbial growth. It's like microbial growth. It's like adding cow adding cow manure to your manure to your tomato garden.

tomato garden. You get bigger, bigger bigger bigger tomatoes. And this is a very tomatoes. And this is a very effective strategy.

Why cholesterol guidelines still miss the bigger picture.)

So, there are two things So, there are two things I want to I want to come back to here. You come back to here. You mentioned that dogma, mentioned that dogma, if I may if I may say so, regarding HS. I say so, regarding HS. I want to come back to want to come back to this because this because maybe a week or maybe a week or two ago, at the time of two ago, at the time of writing, there was a writing, there was a new update to the new update to the clinical guidelines clinical guidelines for treating for treating dyslipidemia, or dyslipidemia, or high high high cholesterol. And one of the cholesterol. And one of the things there, of course, things there, of course, they changed they changed the values, they changed the values, they changed the metrics, but what's the metrics, but what's hidden in there is essentially hidden in there is essentially saying: we are now saying: we are now recommending or recommending or removing removing removing the recommendation that the recommendation that supplements can supplements can help lower help lower cholesterol. And I cholesterol. And I thought, "What?" You know, thought, "What?" You know, and I'm like, "Wait, are we and I'm like, "Wait, are we talking about all the talking about all the supplements?" And I'm studying supplements?" And I'm studying it. They're like, "Yeah, it. They're like, "Yeah, omega-3, fish oil." omega-3, fish oil." Literally, they Literally, they say, "No, it doesn't say, "No, it doesn't work." And I thought, " Okay, now we're beyond reasonable." Did you reasonable." Did you see that?

see that? No, because I don't pay No, because I don't pay attention to the nonsense attention to the nonsense that comes out in the that comes out in the instructions, and also because I blame you.

So what happened in 1958, early 1960s: early 1960s: Two scientists at the NIH, Dr. Two scientists at the NIH, Dr. William Friedwald and Dr. William Frederickson, Dr. William Frederickson, knew that if you take knew that if you take blood plasma—that's blood blood plasma—that's blood without red blood cells—and without red blood cells—and spin it at spin it at high speed in a high speed in a centrifuge, it centrifuge, it forms layers.

The lowest density is The lowest density is at the top, the highest at the top, the highest density is at the bottom, the heaviest is at density is at the bottom, the heaviest is at the bottom, and then the the bottom, and then the intermediate density. And intermediate density. And they wanted to they wanted to calculate, they calculate, they knew that the particles in knew that the particles in those plasma layers those plasma layers were causing some of were causing some of these heart diseases, these heart diseases, coronary diseases, coronary diseases, coronary coronary coronary atherosclerosis. But in atherosclerosis. But in 1958, how do you 1958, how do you actually take a actually take a layer like that and count layer like that and count the number of particles?

the number of particles? They are microscopic. They are microscopic. You can't You can't see them. So, they see them. So, they said in 1958, right? They said: we? They said: we know what know what these particles are made of these particles are made of, because we, because we isolated them and isolated them and analyzed them biochemically. They analyzed them biochemically. They have all kinds of ingredients.

have all kinds of ingredients. They differ in They differ in layers, but there are layers, but there are triglycerides, proteins, and triglycerides, proteins, and cholesterol. So they cholesterol. So they said, "You know what, said, "You know what, we can't we can't count the particles.

count the particles. Let's just Let's just measure one of the measure one of the ingredients." and ingredients." and we will use it as a we will use it as a kind of feeler gauge, as a kind of feeler gauge, as a yardstick. So they yardstick. So they measured cholesterol, measured cholesterol, top layer, bottom top layer, bottom layer. It layer. It was very difficult was very difficult to get to the middle layer because as soon as to get to the middle layer because as soon as you insert a pipette or you insert a pipette or something like that, it something like that, it disrupts everything. So they disrupts everything. So they created a very rough created a very rough calculation, which is calculation, which is still called the still called the Friedewald equation, to Friedewald equation, to calculate calculate calculate cholesterol in the cholesterol in the low- low- low- density fraction. This is density fraction. This is LDL cholesterol. Well, LDL cholesterol. Well, they knew it was very they knew it was very artificial and led artificial and led to all sorts of mistakes.

to all sorts of mistakes. If you change your If you change your diet, for example, the diet, for example, the equation becomes equation becomes invalid. If you invalid. If you are overweight or are overweight or diabetic, it is invalid, and, and cholesterol use is a rough cholesterol use is a rough proxy marker.

proxy marker. One of the problems is One of the problems is that that that we take this we take this middle layer, the middle layer, the low-density lipoprotein layer, low-density lipoprotein layer, for which they for which they use use use cholesterol as a cholesterol as a measure of measure of particle number. What is particle number. What is actually contained actually contained in this low- in this low- density layer? A whole density layer? A whole spectrum of different spectrum of different particles. So particles. So using using using cholesterol as a crude cholesterol as a crude indirect marker is indirect marker is pointless. And yet it pointless. And yet it continues. This has been prevalent for continues. This has been prevalent for probably 70 years, 60 probably 70 years, 60 years, or whatever.

years, or whatever. Because it brought in Because it brought in so much money. You so much money. You know that, Greg. know that, Greg. Healthcare is Healthcare is not guided by not guided by honesty, truth, or honesty, truth, or science. She is science. She is driven by money. And driven by money. And pharma has made pharma has made so much damn so much damn money on this idea of money on this idea of lowering cholesterol. It created this. It created this ridiculous ridiculous ridiculous house of cards, and now we house of cards, and now we have this, you know, you have this, you know, you can can can use use use supplements to lower supplements to lower cholesterol. Well, who cholesterol. Well, who cares? Cholesterol cares? Cholesterol does not cause heart does not cause heart disease. This is a disease. This is a crude indirect crude indirect marker. The real marker. The real tragedy is that it has tragedy is that it has distracted distracted distracted everyone from the real everyone from the real cause of heart disease.

And Greg, they are easy And Greg, they are easy to identify, and, in to identify, and, in truth, very easy truth, very easy to eliminate. So one of the to eliminate. So one of the things we do is monitor is monitor coronary coronary coronary atherosclerosis atherosclerosis atherosclerosis with a CT scan of the heart, and with a CT scan of the heart, and I determine the I determine the coronary coronary coronary calcium index. I've been calcium index. I've been doing this for 30 years, doing this for 30 years, and you can reduce and you can reduce your coronary your coronary calcium index. This is calcium index. This is easy to do. It's easy to do. It's quite easy, although quite easy, although my colleagues still my colleagues still say it's say it's impossible. You impossible. You can't do this.

can't do this. In fact, that's what they In fact, that's what they say. For example, we say. For example, we enrolled patients enrolled patients in a clinical in a clinical trial many trial many years ago. Many years ago. Many years ago, this is nothing years ago, this is nothing new. This is a crazy new. This is a crazy thing called the thing called the

Bell study, where Bell study, where they compared 40 they compared 40 milligrams of Lipitor milligrams of Lipitor versus 20 milligrams of versus 20 milligrams of simvastatin (Zocor) simvastatin (Zocor) and placebo. Well, if and placebo. Well, if a person a person does nothing with their does nothing with their heart calcium level, heart calcium level, say 400—which is a pretty say 400—which is a pretty high level— that person is at that person is at risk of heart risk of heart attack and death.

attack and death. If you If you do nothing, the rate do nothing, the rate increases by 25% per year. increases by 25% per year. So, 400 a year, 500 a So, 400 a year, 500 a year, well, 625, and you're getting year, well, 625, and you're getting closer and closer to closer and closer to sudden death, sudden death, heart attack, heart attack, symptoms like symptoms like angina angina angina leading to leading to stenting or stenting or bypass surgery. What if bypass surgery. What if you take 40 you take 40 milligrams of Lipor milligrams of Lipor or 20 milligrams of or 20 milligrams of simvastatin? How simvastatin? How fast will fast will this figure grow? 25% per year – this has no has no impact. This has been impact. This has been proven in dozens of proven in dozens of studies, Greg.

studies, Greg. So my colleagues, So my colleagues, instead of instead of saying, "Hey, this saying, "Hey, this cholesterol lowering thing is nonsense, it's nonsense, it's nonsense, it doesn't nonsense, it doesn't work," they say, " Oh, it's going Oh, it's going up, we can't up, we can't stop it, stop it, don't scan don't scan people anymore." I'm not kidding, people anymore." I'm not kidding, let them have a let them have a heart attack and we'll heart attack and we'll be be be worried by then. They worried by then. They really said that.

really said that. And you know, half of And you know, half of heart attacks are heart attacks are fatal; You may fatal; You may not make it to the hospital, die on the way or, die on the way or in your own kitchen. So the in your own kitchen. So the traditional approach traditional approach to coronary to coronary heart disease is absurd and heart disease is absurd and outdated. And outdated. And the tragedy is that the tragedy is that you can identify you can identify the causes and fix the causes and fix them, but they're almost all them, but they're almost all dietary and dietary and related to basic related to basic supplements, like, you supplements, like, you know, magnesium—it's know, magnesium—it's not in our not in our diet because it's diet because it's missing from missing from most modern most modern foods, and we have to foods, and we have to filter filter filter our drinking water. We are our drinking water. We are forced to do this because forced to do this because it contains sewage and it contains sewage and all sorts of other filth.

all sorts of other filth. So when we So when we filter water, it filter water, it removes all the magnesium. removes all the magnesium. And magnesium plays a And magnesium plays a big role in big role in metabolic metabolic metabolic health, controlling health, controlling small LDL, small LDL, blood pressure, blood pressure, heart rate, etc.

heart rate, etc. So, it's actually very So, it's actually very easy to control your easy to control your heart risk. But heart risk. But if you and I if you and I start talking about start talking about eradicating eradicating eradicating heart disease, and your heart disease, and your hospital has an $80 million cardiology department $80 million cardiology department that's the that's the main revenue generator.

main revenue generator. Half of Half of most hospitals' revenues most hospitals' revenues come from come from treating coronary heart treating coronary heart disease. When I, you disease. When I, you talk about resistance, talk about resistance, when I first opened the cardiac CT scanning center 35 years ago, cardiac CT scanning center 35 years ago, a long time ago, hospitals were a long time ago, hospitals were very angry with very angry with me for many me for many reasons, but one of them was that they know that a they know that a significant portion of the significant portion of the revenue from revenue from cardiac cardiac cardiac care comes from care comes from performing performing performing cardiac catheterizations on cardiac catheterizations on people without coronary artery people without coronary artery disease.

disease. they have some weird they have some weird chest pain or something chest pain or something, they do a, they do a stress test, go to a stress test, go to a catheterization lab, catheterization lab, do a do a $20,000-$50,000 procedure, and oh, $20,000-$50,000 procedure, and oh, good news: you good news: you don't have a blockage. Well, don't have a blockage. Well, they knew: if they knew: if you do a you do a heart scan and get a heart scan and get a zero score, a very zero score, a very low score, you don't need a cardiac catheterization. So you don't

need a cardiac catheterization. So they would see their they would see their incomes drop, so, incomes drop, so, again, it all again, it all comes down to money.

comes down to money. Oh my God. And for me, Oh my God. And for me, it's like—again, I it's like—again, I don't practice under these don't practice under these guidelines, but it's guidelines, but it's important to know because important to know because patients will come to patients will come to me after they've me after they've been to that been to that cardiologist. who cardiologist. who will tell them, "Oh, I'm here," and will tell them, "Oh, I'm here," and they can come and they can come and ask, "Oh, well, why ask, "Oh, well, why don't you do it?" don't you do it?" because "I was told because "I was told it doesn't work," or it doesn't work," or they only they only screened for statins.

screened for statins. I just want, it's I just want, it's important to me to know what important to me to know what they come with. they come with. So I think that's the So I think that's the only reason, just only reason, just like, okay, let me like, okay, let me know. It's like, it's like, it's know. It's like, it's like, it's like football, man. I like football, man. I need to know the other need to know the other team. I need to know to team. I need to know to understand what understand what they are coming with. Now they are coming with. Now the second thing I want to the second thing I want to go back to is, you go back to is, you mentioned the loss, you mentioned the loss, you know, you mentioned know, you mentioned how, you know, and it's how, you know, and it's funny, because today funny, because today I realized that I realized that Bifidobacterium infantis is Bifidobacterium infantis is associated with associated with childbirth. I have childbirth. I have never tied an never tied an infantis.

infantis. infantis.

The loss of healthy gut microbes in modern humans.)

You know, so I thought: You know, so I thought: hmm, exciting. Now the hmm, exciting. Now the other thing: you mentioned, other thing: you mentioned, and I saw this in "Super Gut," and I saw this in "Super Gut," and it was really and it was really disturbing that modern disturbing that modern humans have lost hundreds of humans have lost hundreds of species of microbes that species of microbes that our ancestors had.

our ancestors had. We are not talking about We are not talking about three thousand years ago. We are talking about 50–100. We are talking about 50–100 years ago. Besides years ago. Besides antibiotics, what else antibiotics, what else has led to the extinction of has led to the extinction of some of these species some of these species or the decline in the or the decline in the numbers of some of numbers of some of these species? You know, these species? You know, unfortunately, there's only limited unfortunately, there's only limited official evidence, official evidence, a lot of it is a lot of it is conjecture, but conjecture, but there is official there is official evidence that evidence that emulsifiers, namely emulsifiers, namely polysorbate 80 and polysorbate 80 and carboxymethylcellulose carboxymethylcellulose — very common — very common ingredients in salad dressings, ice cream, salad dressings, ice cream, marinades, they're in marinades, they're in many products — act as a detergent act as a detergent in your gastrointestinal tract. And gastrointestinal tract. And when you dissolve the when you dissolve the mucosal barrier, it mucosal barrier, it changes the microbial changes the microbial composition and increases the composition and increases the entry of entry of bacterial breakdown products, bacterial breakdown products, endotoxins, into your endotoxins, into your bloodstream, and that has bloodstream, and that has very serious very serious consequences. So, we consequences. So, we know that know that emulsifiers emulsifiers emulsifiers do this. We know that do this. We know that preservatives, because preservatives, because preservatives are preservatives are antimicrobial in food, antimicrobial in food, mostly against mostly against mold, but they mold, but they are also are also antimicrobial for antimicrobial for you. So you. So preservatives preservatives preservatives probably play a probably play a significant role. The evidence is significant role. The evidence is still speculative, still speculative, but glyphosate but glyphosate is likely a significant factor is likely a significant factor because it is because it is ubiquitous. This is the ubiquitous. This is the main ingredient in the main ingredient in the herbicide Roundup. Um, herbicide Roundup. Um, other herbicides, other herbicides, pesticides, and the pesticides, and the emergence of microplastics emergence of microplastics and nanoplastics as a and nanoplastics as a new problem. And the new problem. And the reason we reason we now know is that now know is that microplastics are a microplastics are a risk factor for the risk factor for the cardiovascular cardiovascular cardiovascular system. You may system. You may have heard about that have heard about that

study where study where micro- and nanoplastics were found micro- and nanoplastics were found in in in coronary coronary coronary atherosclerotic atherosclerotic atherosclerotic plaques, and people plaques, and people whose tissues had it had a significantly higher had a significantly higher mortality rate mortality rate after 18 months. It is becoming after 18 months. It is becoming obvious, and we obvious, and we assume, that it is assume, that it is not just about the not just about the plastic itself; As plastic itself; As is known, microplastics is known, microplastics have a surface have a surface charge that causes them charge that causes them to attract heavy to attract heavy metals, PFAS, “forever metals, PFAS, “forever chemicals,” bisphenol A, chemicals,” bisphenol A, and other toxins. So and other toxins. So microplastics microplastics microplastics are considered vectors are considered vectors or carriers for or carriers for many toxins. And many toxins. And now we know that it is now we know that it is also a cardiovascular risk factor. There are cardiovascular risk factor. There are probably many other probably many other things that play a role, things that play a role, such as drugs such as drugs that block stomach that block stomach acid, such as acid, such as proton proton proton pump inhibitors and H2 blockers.

pump inhibitors and H2 blockers. Nonsteroidal Nonsteroidal Nonsteroidal anti-inflammatory drugs, birth control, birth control pills that harm pills that harm the microbiome, the microbiome, chlorinated drinking water.

There is a long list of There is a long list of factors that factors that disrupt the microbiome. disrupt the microbiome. But as you point out, But as you point out, antibiotics are the antibiotics are the main culprit.

And although by the age of 40, And although by the age of 40, most of us most of us have taken about 30 have taken about 30 courses of antibiotics, courses of antibiotics, and and and 650,000 prescriptions for them are written every day.

It only takes It only takes one course to, as one course to, as you say, wipe out you say, wipe out several hundred species, several hundred species, and sometimes they can be and sometimes they can be restored and sometimes they can't.

So even one course of, So even one course of, say, say, say, amoxicillin for an amoxicillin for an upper upper upper respiratory tract infection or respiratory tract infection or Bactrim for a Bactrim for a urinary tract infection urinary tract infection destroys a huge destroys a huge number of beneficial number of beneficial microbes. Of course.

microbes. Of course. I want to delve into I want to delve into Lactobacillus reuteri because Lactobacillus reuteri because I think it's one of the I think it's one of the most interesting species, and most interesting species, and from your books "Super Gut" and "Super Body," I realized that Body," I realized that it's kind of a bridge between the two.

it's kind of a bridge between the two. This is just my opinion. This is just my opinion. Maybe, again, Maybe, again, just mine. Like I just mine. Like I said, I don't have the said, I don't have the time to read like I time to read like I used to, Bill. Now used to, Bill. Now it's audiobooks and I it's audiobooks and I try to take try to take notes when I sit down notes when I sit down for it. But, again for it. But, again, I saw it. I, I saw it.

What SIBO is and why it impacts the entire body.)

I want to start with another want to start with another thing that I thing that I know you've talked about—which is know you've talked about—which is SIBS, or SIBS, or small intestinal small intestinal small intestinal bacterial overgrowth syndrome bacterial overgrowth syndrome,,, because I've seen in your because I've seen in your discussions that it's discussions that it's more common than we more common than we tend to think. I tend to think. I believe that one in believe that one in three or four three or four Americans may Americans may experience some experience some symptoms, and this symptoms, and this leads to all leads to all these conditions that we these conditions that we don't usually don't usually associate with associate with the gut. Rosacea, the gut. Rosacea, depression, depression, depression, joint pain, joint pain, brain fog, autoimmune brain fog, autoimmune diseases—these are the diseases—these are the things. So, for things. So, for those who don't understand those who don't understand what SIBO and what SIBO and the endotoxemia that the endotoxemia that results from it are, what is results from it are, what is it and why does it it and why does it manifest in manifest in places other than

the places other than the intestines and not be intestines and not be limited to it? As limited to it? As you know, and as you know, and as your listeners know, we all used to your listeners know, we all used to think that microbes were think that microbes were mostly mostly mostly concentrated in the concentrated in the large intestine, in large intestine, in the last 1.2 to 1.5 meters of the the last 1.2 to 1.5 meters of the gastrointestinal gastrointestinal gastrointestinal tract. But our tract. But our exposure to exposure to antibiotics and antibiotics and other factors other factors has destroyed beneficial has destroyed beneficial microbes such as microbes such as lactobacilli, lactobacilli, lactobacilli, bifidobacteria, bifidobacteria, bifidobacteria, faecalibacteria, faecalibacteria, faecalibacteria, akermansia, akermansia, akermansia, lactospira, and lactospira, and rhinacasia. These are the “good rhinacasia. These are the “good guys” and they guys” and they serve to serve to suppress the suppress the suppress the overgrowth of overgrowth of overgrowth of fecal microbes.

We're talking about We're talking about gram-negative gram-negative gram-negative proteobacteria—these are proteobacteria—these are species that many species that many listeners are familiar with: listeners are familiar with: E. coli, E. coli, Serratia, Serratia, Serratia, Pseudomonas, because Pseudomonas, because they are a common they are a common cause of cause of urinary tract infections urinary tract infections caused by feces, which, by caused by feces, which, by the way, infects urine, the way, infects urine, but they are also but they are also pathogens elsewhere pathogens elsewhere. When we. When we lose these hundreds of lose these hundreds of beneficial species. This beneficial species. This allows for the allows for the allows for the uncontrolled uncontrolled uncontrolled proliferation of these proliferation of these gram-negative gram-negative gram-negative proteobacteria, proteobacteria, proteobacteria, fecal microbes, fecal microbes, which then, strangely enough —no one knows exactly —no one knows exactly why or how— rise to rise to colonize the 7 meters of the colonize the 7 meters of the small intestine. As you small intestine. As you remember, the small remember, the small intestine is very permeable.

intestine is very permeable. That's how it should be. That's That's how it should be. That's where you absorb where you absorb nutrients nutrients nutrients like vitamins and like vitamins and minerals, but minerals, but the presence of these the presence of these fecal microbes fecal microbes inflames the wall of the inflames the wall of the small intestine and makes small intestine and makes it even more permeable. So we have. So we have penetration of many penetration of many toxic compounds, but toxic compounds, but most importantly, as you most importantly, as you point out, point out, lipopolysaccharide lipopolysaccharide lipopolysaccharide endotoxin enters the endotoxin enters the bloodstream in much bloodstream in much higher concentrations.

higher concentrations. You know, we have a model You know, we have a model for this. It's for this. It's called sepsis. called sepsis. Let's say a woman has a Let's say a woman has a bladder infection bladder infection. She has a. She has a burning sensation and her burning sensation and her urine has a specific urine has a specific smell, right? But she smell, right? But she doesn't want to take doesn't want to take the antibiotic, which is the antibiotic, which is understandable. So she understandable. So she takes cranberry takes cranberry juice and some mannose.

juice and some mannose. Yes? A week later, oh Yes? A week later, oh no, she has back pain no, she has back pain and a fever because the and a fever because the bladder infection has bladder infection has moved up the moved up the ureters to the kidneys.

ureters to the kidneys. Now it's pyelonephritis, a Now it's pyelonephritis, a kidney infection. And kidney infection. And now she's getting very now she's getting very sick because some sick because some germs, like germs, like E. coli or E. coli or Klebsiella, Klebsiella, Klebsiella, are getting into her are getting into her bloodstream. Now she has bloodstream. Now she has sepsis and is sepsis and is feeling very feeling very bad. She bad. She ends up in the hospital ends up in the hospital because her because her blood pressure is 75.

blood pressure is 75. She is delirious. She is She is delirious. She is being put on a being put on a ventilator ventilator because she is in because she is in respiratory respiratory respiratory failure due to failure due to fluid leaking into her lungs. She is starting to have. She is starting to have kidney problems, kidney problems, kidney kidney kidney failure. Sometimes you failure. Sometimes you have to undergo have to undergo dialysis. Her blood dialysis. Her blood pressure is now 50 and they pressure is now 50 and they have to have to have to use use use heavy drugs like levofed and dopamine levofed and dopamine to bring it up because to bring it up because she is

in shock. So sepsis is. So sepsis is very serious, and it's very serious, and it's caused by caused by endotoxins in the endotoxins in the bloodstream. Levels in bloodstream. Levels in sepsis are 100 or 200 sepsis are 100 or 200 times higher than normal.

In SIBO, they are only In SIBO, they are only two to four times higher, two to four times higher, and this is likely an and this is likely an underestimate for a underestimate for a number of reasons. One number of reasons. One reason is that the reason is that the measurement method measurement method is not the most reliable, and the is not the most reliable, and the highest levels are in what highest levels are in what 's called the 's called the portal vein system, which is the portal vein system, which is the venous system that, venous system that, as you remember, as you remember, carries blood from the carries blood from the gastrointestinal gastrointestinal gastrointestinal tract to the liver. By tract to the liver. By the way, the liver is like a “ canary in the coal canary in the coal mine” because it is the mine” because it is the first to suffer from first to suffer from endotoxins in the endotoxins in the portal portal portal vein system. This is why we vein system. This is why we are seeing such a are seeing such a surge in fatty surge in fatty liver and liver and nonalcoholic nonalcoholic nonalcoholic steatohepatitis, where portal vein endotoxemia is a major factor. But portal vein endotoxemia is a major factor. But some of it some of it enters the enters the general systemic general systemic circulation, and this is what circulation, and this is what provokes weight gain in the provokes weight gain in the abdomen, visceral abdomen, visceral fat, high blood pressure, and fat, high blood pressure, and recurrences of atrial recurrences of atrial fibrillation. This makes it difficult fibrillation. This makes it difficult to control congestive to control congestive heart heart heart failure. This failure. This affects your brain affects your brain because it provokes the because it provokes the formation of beta-amyloid plaques. It is amyloid plaques. It is also the cause of also the cause of skin rashes such as psoriasis, seborrhea, as psoriasis, seborrhea, or eczema. It is a driver of or eczema. It is a driver of depression, depression, depression, anxiety, anxiety, anxiety, hatred, and hatred, and violence. To Craig, in violence. To Craig, in other words, other words, understanding this understanding this forces us to forces us to rethink everything rethink everything we knew about human we knew about human disease. Not injuries or disease. Not injuries or infections like infections like pneumonia, but all pneumonia, but all common chronic common chronic conditions. Sleep apnea, conditions. Sleep apnea, depression, skin depression, skin rashes, rashes, rashes, ulcerative colitis. These are ulcerative colitis. These are all diseases of all diseases of the microbiome. In the microbiome. In many cases, it is SIBR.

SIBR. SIBR. Oho. Now, as we Oho. Now, as we look at this, if I understand you correctly—and again understand you correctly—and again, I'm an, I'm an allergy specialist. I like allergy specialist. I like to explain this to to explain this to patients, and to me, patients, and to me, SIBO is like a SIBO is like a sewer clog in the sewer clog in the wrong pipe.

wrong pipe. But when But when such a blockage occurs, such a blockage occurs, the impurities do not the impurities do not stay in place. stay in place.

They pollute the They pollute the water supply. You water supply. You smell this. smell this. It's spreading everywhere, It's spreading everywhere, right? And this right? And this leads to the fact leads to the fact that the symptoms that the symptoms occur due to the occur due to the same contaminated water.

same contaminated water. The source is there. It The source is there. It just leaked just leaked out. It never just out. It never just stays in stays in that pipe, right?

that pipe, right? Because you will eat, Because you will eat, you will do everything you will do everything else, you will have else, you will have metabolic processes going on, metabolic processes going on, and this contaminated water and this contaminated water will circulate throughout the will circulate throughout the system. Is this system. Is this close to the truth?

close to the truth? Because again, Because again, I want to be able to I want to be able to explain this explain this analogy. analogy. analogy. Yes. Yes. Yes. So, Yes. Yes. Yes.

Breath testing, hydrogen gas, and detecting SIBO.)

So, I have a question for I have a question for you, and this is an opportunity you, and this is an opportunity to be, and I can't to be, and I can't wait to wait to hear your hear your answer. I need to answer. I need to fill the gap.

fill the gap. So for So for functional functional medicine practitioners, who are concerned with medicine practitioners, who are concerned with gut health, gut health, it's like, "Do it's like, "Do you have too many you have too many opportunistic opportunistic opportunistic bacteria? Do you have too few bacteria? Do you have too few beneficial, beneficial, beneficial, commensal commensal commensal bacteria?" Our approach bacteria?" Our approach now is: I will do a now is: I will do a stool analysis. I'll stool analysis. I'll check your check your microbiome, I microbiome, I like it, but I like it, but I also understand that it's also understand that it's like a snapshot. I like a snapshot. I only see the picture behind only see the picture behind this poop, right?

this poop, right? There are so many There are so many factors, but is it factors, but is it better to not have a scan better to not have a scan at all, or just at all, or just focus on focus on symptoms? So what do you symptoms? So what do you think about think about microbiome testing and its microbiome testing and its feasibility, knowing feasibility, knowing that it's just a that it's just a snapshot of the here and now?

snapshot of the here and now? Ideally, Greg, we Ideally, Greg, we could measure could measure endotoxin levels in the endotoxin levels in the blood, but that's blood, but that's not clinically available.

not clinically available. I think it should be I think it should be available. I think available. I think the FDA is wrong, they the FDA is wrong, they should approve this should approve this or a surrogate or a surrogate marker, marker, LBP.

LBP. LBP. Let's say that neither is Let's say that neither is clinically clinically clinically available, available, available, at least not real at least not real tests. I think tests. I think they they they will appear in the future, but right now will appear in the future, but right now we don't have a direct we don't have a direct measurement. We are measurement. We are forced to act forced to act indirectly. One indirectly. One of the indirect methods, of the indirect methods, as you noted, is as you noted, is stool analysis.

stool analysis. The difficulty with The difficulty with stool analysis is that it's a stool analysis is that it's a rectal sample, rectal sample, right? You get right? You get some stool that comes out some stool that comes out of the rectum, and we of the rectum, and we know from know from human and animal data that human and animal data that as we move as we move up from the up from the rectum: sigmoid colon, rectum: sigmoid colon, descending colon, descending colon, transverse colon, transverse colon, ascending colon ascending colon, cecum,, cecum, ileum— ileum— ileum— each step has a each step has a different microbiome. So different microbiome. So we draw conclusions based on the rectal sample we obtained.

rectal sample we obtained. So it's still So it's still useful, but you have to useful, but you have to be careful with the be careful with the interpretation because interpretation because we're really looking for what's we're really looking for what's going on in the going on in the small intestine. You small intestine. You may get a may get a hint of SIBO (bacterial overgrowth syndrome) when there is an) when there is an overgrowth of overgrowth of proteobacteria. These are proteobacteria. These are species such as Escherichia species such as Escherichia coli, Klebsiella, coli, Klebsiella, Campylobacter, Campylobacter, Campylobacter, Citrobacter, Citrobacter, Citrobacter, Pseudomonas aeruginosa, Pseudomonas aeruginosa, Proteus, etc. So, Proteus, etc. So, we can draw an we can draw an indirect conclusion, because it is impossible is impossible to tell from a rectal sample where they to tell from a rectal sample where they came from. So there's another came from. So there's another way, well, there's two other way, well, there's two other ways. You could ways. You could do an endoscopy do an endoscopy and take some and take some fluid from the fluid from the duodenum, but nobody duodenum, but nobody wants to do that, wants to do that, right? And most right? And most laboratories and laboratories and clinics do not have clinics do not have the ability to perform the ability to perform DNA sequencing.

DNA sequencing. They don't have it yet. They don't have it yet. They simply do They simply do cultures, and cultures do not cultures, and cultures do not allow allow allow most microbes to grow, most microbes to grow, including the bulk of them including the bulk of them. By the way, Mark. By the way, Mark Pimentel from UCLA—he's Pimentel from UCLA—he's one of the pioneers one of the pioneers who's doing great who's doing great

work. They did a work. They did a very thorough very thorough study study study called "Reimagine." called "Reimagine." They did an upper They did an upper endoscopy, a endoscopy, a duodenal aspirate, and then duodenal aspirate, and then used used used more modern methods more modern methods to identify to identify microbes, and 37-40% turned out to be fecal turned out to be fecal microbes, microbes, microbes, proteobacteria. This proteobacteria. This indicates that there is a indicates that there is a massive massive overgrowth of fecal overgrowth of fecal microbes in the duodenum. This is very microbes in the duodenum. This is very high. Another method is measuring gases in measuring gases in exhaled air. So, this device. So, this device appeared, it seems, in appeared, it seems, in 2018—the 2018—the 2018—the FoodMarble AIRE device. It measures the FoodMarble AIRE device. It measures the hydrogen level. Here's a hydrogen level. Here's a newer version: newer version: measures hydrogen and measures hydrogen and methane. There is a preparatory methane. There is a preparatory diet and then you diet and then you get a get a baseline. You blow into baseline. You blow into it. The device it. The device connects to your connects to your smartphone, the scale goes from smartphone, the scale goes from 0 to 10. Then you 0 to 10. Then you eat something with eat something with prebiotic prebiotic prebiotic fiber. In fiber. In laboratories or laboratories or clinics, clinics, clinics, lactulose or lactulose or glucose is used. I glucose is used. I use inulin use inulin because inulin is because inulin is better better better metabolized by metabolized by metabolized by the types of bacteria in the types of bacteria in SIBO. Add two SIBO. Add two teaspoons to your teaspoons to your coffee, it's very simple, and coffee, it's very simple, and you can have breakfast. So, the baseline level on the, the baseline level on the AIRE device is, AIRE device is, let's say, 1.2, very let's say, 1.2, very low, from 0 to 10, and low, from 0 to 10, and 45 minutes after 45 minutes after inulin it is already 9.8.

inulin it is already 9.8. A rise of more than A rise of more than four units is a four units is a positive result, as each, as each unit corresponds to 20 unit corresponds to 20 parts per million, parts per million, as in a laboratory or as in a laboratory or clinic. So 9.8 indicates clinic. So 9.8 indicates that microbes that microbes live high up in the live high up in the gastrointestinal gastrointestinal gastrointestinal tract. So, Greg, these tract. So, Greg, these devices are devices are mapping tools. They mapping tools. They help help help determine where determine where microbes live. This is not as microbes live. This is not as efficient as efficient as measuring LPS or LBP, measuring LPS or LBP, but we can't but we can't do it yet.

do it yet. This is not available. So This is not available. So we are left with the we are left with the second best second best option, or a option, or a stool analysis. But let me stool analysis. But let me tell you and tell you and your listeners about how we deal with it how we deal with it. If you. If you go to go to a gastroenterologist and a gastroenterologist and say, "Hey, I think I have say, "Hey, I think I have SIBO." SIBO." SIBO." A gastroenterologist A gastroenterologist A gastroenterologist usually says, “Don’t usually says, “Don’t waste my time.

waste my time. We talked to We talked to Dr. Google again, right? » Yes? They don't know. » Yes? They don't know. They don't understand. They don't understand.

They are 20-30 They are 20-30 years behind. Experts, you years behind. Experts, you know this, know this, are not really experts. This is are not really experts. This is sheer ignorance. I am shocked that this is. I am shocked that this is happening. Those who happening. Those who know something know something will say: “Here is a prescription will say: “Here is a prescription for Ziaxin or Refaxamin. "It's for Ziaxin or Refaxamin. "It's an antibiotic." an antibiotic." Wait a minute.

Wait a minute. Antibiotics are what Antibiotics are what brought us here. Are brought us here. Are antibiotics the antibiotics the antibiotics the solution to the problem?

solution to the problem? I have a problem with this. I have a problem with this. But it has about But it has about 60%, maybe 70% efficiency. And efficiency. And you'll have to you'll have to deal with relapses, deal with relapses, and that's not covered by and that's not covered by insurance. It costs insurance. It costs $1,200 and so on $1,200 and so on. So I. So I use this use this simple reasoning.

simple reasoning. You have 24 feet of small You have 24 feet of small intestine filled with intestine filled with fecal microbes, just like your large, just like your large intestine. What if you intestine. What if you just took a just took a commercial commercial commercial probiotic, which is a probiotic, which is a random collection of random collection of microbes that are microbes that are considered beneficial, but created without, but created without any

logic? This is what any logic? This is what most most most probiotics are. Just, probiotics are. Just, "Oh, we think bifid "Oh, we think bifid bacterium long—throw it in bacterium long—throw it in there." "Anything there." "Anything left?" "Throw it there.

left?" "Throw it there. " If you " If you take a take a take a commercial commercial commercial probiotic, what are probiotic, what are the chances that your the chances that your SIBS will go away? Zero.

SIBS will go away? Zero. Very unlikely. Very unlikely. So, here are the questions So, here are the questions I asked. What if I asked. What if we selected microbes we selected microbes that specifically that specifically colonize the small and colonize the small and large intestines, and large intestines, and selected species and strains selected species and strains that are known to that are known to produce produce produce bacteriocins—bacteriocins— natural antibiotics that kill that kill Gram-negative Gram-negative Gram-negative proteobacteria, the kind of bacteria that cause proteobacteria, the kind of bacteria that cause SIB? So I chose three SIB? So I chose three strains: Lactobacillus reuteri, strains: Lactobacillus reuteri, Lactobacillus gasseri, and Lactobacillus gasseri, and spore-forming Bacillus. For example, I. For example, I genetically sequenced genetically sequenced this Bacillus. It has this Bacillus. It has genes for seven genes for seven bacteriocins—seven bacteriocins—seven. So this is a real. So this is a real energy center.

energy center. Now we make the Now we make the same yogurt to same yogurt to increase their increase their number. The number. The original recipe is original recipe is slightly different.

slightly different. Now we ferment Now we ferment them separately to them separately to get very, very, get very, very, very large numbers. very large numbers.

While you can While you can co-ferment co-ferment co-ferment reuteri and gasseri, reuteri and gasseri, ideally all three ideally all three separately—it's more separately—it's more work. But so far, it has work. But so far, it has been extremely been extremely effective in effective in normalizing hydrogen in the normalizing hydrogen in the breath and breath and getting rid of all the getting rid of all the symptoms that we symptoms that we suspect are suspect are caused by SIBO, caused by SIBO, such as food such as food intolerances. All intolerances. All food food food intolerances intolerances intolerances disappear: hydrogen, disappear: hydrogen, histamine histamine histamine intolerance, FODMAP, intolerance, FODMAP, nightshades, all of this nightshades, all of this disappears, as do any disappears, as do any other phenomena that other phenomena that were observed.

High blood High blood pressure, skin pressure, skin rashes, anger, rashes, anger, depression. You will see how all this recedes how all this recedes if you if you use it. This is a minimum of use it. This is a minimum of four weeks. Unfortunately, four weeks. Unfortunately, Greg, there are people who have Greg, there are people who have such bad such bad SIBR. These are people who SIBR. These are people who say, "Well, I was on say, "Well, I was on antibiotics for three years antibiotics for three years because of Lyme disease because of Lyme disease or two years because of or two years because of acne." And these people have acne." And these people have very bad SIBO, and very bad SIBO, and they may they may have to have to have to use this use this strategy for a strategy for a long time. It also long time. It also makes sense to do this, makes sense to do this, even if you have even if you have gotten rid of SIBO, gotten rid of SIBO, normalized your normalized your hydrogen levels, and eliminated all hydrogen levels, and eliminated all symptoms, it is still symptoms, it is still useful to consume useful to consume yogurt from time to time, yogurt from time to time, for example, two or three for example, two or three times a week, because there are things times a week, because there are things we don't know how we don't know how to do. So, if your to do. So, if your mother passed mother passed lactobacilli to you at lactobacilli to you at birth and you didn't birth and you didn't take antibiotics, they will stay with, they will stay with you for life. But you for life. But if you get them if you get them with yogurt or with yogurt or probiotics, they will probiotics, they will only last for a only last for a week. Well, why is that?

week. Well, why is that? Nobody knows. Perhaps Nobody knows. Perhaps it's because of the lack of what it's because of the lack of what we call a we call a consortium, consortium, consortium, guild, or guild, or community, but community, but no one knows what that should no one knows what that should look like.

look like. I understand. Choosing I understand. Choosing supplements can be supplements can be exhausting.

There are exhausting. There are hundreds of brands. There are hundreds of brands. There are conflicting claims, and conflicting claims, and it's impossible to know it's impossible to know what is actually what is actually beneficial and what beneficial and what will really help improve will really help improve your health. That's your health. That's why I created Dr. Jones Supplement Store. Every Dr. Jones Supplement Store. Every product in the store product in the store for energy, for energy, gut health, sleep, gut health, sleep, hormone optimization, recovery, and, recovery, and more is more is personally reviewed, tested, and, tested, and recommended by me.

recommended by me. These are the drugs that I These are the drugs that I use and use and recommend to my recommend to my patients, friends, and patients, friends, and family. So, family. So, go to go to drjonesseupplements.com, drjonesseupplements.com, drjonesseupplements.com, sign up for our sign up for our mailing list, and you mailing list, and you will receive a 10% discount on your will receive a 10% discount on your first order. You will first order. You will also receive also receive exclusive exclusive exclusive protocols and insights protocols and insights that I share only that I share only with my community.

with my community. So, cut out the So, cut out the noise and go for what noise and go for what really works. Bill, I have a question for you, I have a question for you, okay? Because I, okay? Because I know we're here to know we're here to talk about talk about supergut and supergut and superbody, but this is superbody, but this is fascinating, and now you've fascinating, and now you've got me interested, right? And got me interested, right? And I say this because I I say this because I see a lot of see a lot of patients with gut health issues, right? They gut health issues, right? They come in and say: come in and say: I have bloating, I have bloating, poor digestion, I'm poor digestion, I'm gaining weight, I have gaining weight, I have all the typical symptoms of intestinal problems. And intestinal problems. And generally you say, generally you say, okay, let's okay, let's look at their look at their diet. What are you eating? You diet. What are you eating? You are considering these things are considering these things here. How many problems?

here. How many problems? Is there Is there undigested food, undigested food, mucus, or blood in the stool? We have our mucus, or blood in the stool? We have our own list of questions.

own list of questions. You follow him. And You follow him. And sometimes you can sometimes you can say: okay, say: okay, let's act. let's act. Maybe we'll do something Maybe we'll do something to reduce to reduce intestinal inflammation, maybe we'll take, maybe we'll take probiotics, you know, probiotics, you know, not necessarily all at not necessarily all at once. Let's say if once. Let's say if I do a GI Map, here are the I do a GI Map, here are the probiotic strains probiotic strains that I think you that I think you need. Maybe we can need. Maybe we can do something to do something to help increase help increase ackermansia, ackermansia, ackermansia, increase butyrate. And increase butyrate. And you get down to business, you start with this, you start with this person, and someone says, person, and someone says, “Oh my God, this is “Oh my God, this is amazing. I amazing. I feel great." feel great." But some say, "Well, But some say, "Well, it didn't work at all it didn't work at all, we worked as a team, we worked as a team, and nothing, and nothing happened." And then you happened." And then you think: "Okay, think: "Okay, what's the what's the problem?" Is this the problem?" Is this the case where you case where you say, "Okay, I say, "Okay, I need to need to test you for SIBO." test you for SIBO." If you come in with If you come in with digestive issues, you're not getting better,, you're not getting better, simple things aren't working, simple things aren't working, you've changed your diet, you've changed your diet, cut out wheat, cut out wheat, done all of that—is this done all of that—is this the person the person you're saying, "Okay, I you're saying, "Okay, I need to do an need to do an air test or a air test or a SIBO test." And it's interesting SIBO test." And it's interesting because I've always because I've always done this done this methane and hydrogen test, you methane and hydrogen test, you know, the breath know, the breath test for SIBO. I definitely test for SIBO. I definitely want to learn want to learn more about the more about the air test. Is this where air test. Is this where we start on we start on our side, as our side, as specialists, specialists, specialists, recognizing a recognizing a recognizing a potential person with potential person with SIBR?

SIBR? SIBR? Well, you rightly Well, you rightly point out that many of the point out that many of the things we things we talk about are very talk about are very safe. We don't safe. We don't say, "Hey, you say, "Hey, you need to have need to have part of your small intestine part of your small intestine surgically removed." surgically removed." We have to be We have to be 100% sure here, 100% sure here, right? Because it destroys right? Because it destroys life. So, for example, life. So, for example, yogurt, which I yogurt, which I call SIBR yogurt, is

yogurt, is so so so harmless that you harmless that you can make it in can make it in your own kitchen, and it your own kitchen, and it has a lot of benefits.

has a lot of benefits. No side No side effects, only great effects, only great benefits. So, in other benefits. So, in other words, the barrier is very words, the barrier is very low. But what if low. But what if you do this for, say, you do this for, say, four weeks, maybe eight, and you still have eight, and you still have food intolerances, food intolerances, or rheumatoid or rheumatoid arthritis, or psoriasis, arthritis, or psoriasis, or whatever. Then or whatever. Then we ask: this is where we ask: this is where stool analysis can be stool analysis can be useful, if you useful, if you find unexpected find unexpected microbial species. The microbial species. The mix of microbes mix of microbes that I'm talking about is very good at that I'm talking about is very good at killing gram-negative killing gram-negative bacteria and, to some bacteria and, to some extent, gram-positive bacteria, extent, gram-positive bacteria, but sometimes someone but sometimes someone can have an can have an overgrowth of, say, overgrowth of, say, enterococci, which are enterococci, which are resistant. So this is where a resistant. So this is where a stool analysis would be stool analysis would be helpful, and we also helpful, and we also have to think about what have to think about what allows SIBO to be allows SIBO to be so persistent, and so persistent, and the hardest part of all is the hardest part of all is hypochlorhydria, a lack of hypochlorhydria, a lack of stomach acid.

Such people seem to Such people seem to never be able to never be able to get rid of SIBO. get rid of SIBO. Even if they Even if they take betaine take betaine hydrochloride and other hydrochloride and other acidification strategies like soda like soda or vinegar, it helps, or vinegar, it helps, but the SIBS doesn't but the SIBS doesn't go away. So, we go away. So, we need better need better answers about answers about hypochlorhydria.

hypochlorhydria. hypochlorhydria. Undiagnosed Undiagnosed thyroid problems are a very common are a very common cause. Ahem. Sometimes medications can be the cause. There is a long medications can be the cause. There is a long list of medications, and list of medications, and sometimes there may be an sometimes there may be an anatomical cause, and anatomical cause, and then we have to then we have to see see see a gastroenterologist a gastroenterologist to find it. But these are to find it. But these are the most common: the most common: thyroid, thyroid, thyroid, lack of stomach lack of stomach acid, and acid, and unexpected types of unexpected types of bacteria in SIBO.

But in most But in most cases, if the cases, if the initial strategy is to make this yogurt, is to make this yogurt, the skin becomes smoother, the the skin becomes smoother, the muscles regain youthfulness, the muscles regain youthfulness, the immune system is strengthened, and you become, and you become happier. This is one happier. This is one of the things we're of the things we're seeing: people seeing: people are becoming happier are becoming happier and more satisfied with and more satisfied with their physical, their physical, mental, and mental, and social health, social health, so we don't have to so we don't have to talk about the talk about the unpleasant side unpleasant side effects. The only side effects. The only side effects are the effects of effects are the effects of bacterial death bacterial death or lactic or lactic acidosis, which, as you acidosis, which, as you know, also happens know, also happens with probiotics. If with probiotics. If you have severe SIBO you have severe SIBO and you start and you start to destroy them, to destroy them, things things things like depression, night like depression, night terrors, anxiety, terrors, anxiety, tremors, low-grade tremors, low-grade fever like with the fever like with the flu can occur. And this indicates that flu can occur. And this indicates that you are successfully you are successfully destroying the microflora.

destroying the microflora. There are ways to There are ways to mitigate these effects somewhat, mitigate these effects somewhat, such as such as activated charcoal activated charcoal or reducing or reducing the amount of yogurt the amount of yogurt you consume. So there you consume. So there are ways to deal with are ways to deal with it, but that's the only it, but that's the only downside and a minor downside and a minor inconvenience.

inconvenience. inconvenience. Got it. Got it. Got it. Got it. So, one more thing about So, one more thing about SIBR, I'm now, I'm now, SIBR, I'm now, I'm now, I'm now going to move away from the I'm now going to move away from the topic of SIBR. I promise, topic of SIBR. I promise, it's just so it's just so fascinating to me fascinating to me because I think it's because I think it's underdiagnosed underdiagnosed underdiagnosed and and and undertreated undertreated undertreated, and sometimes people, and sometimes people say, "Oh, I say, "Oh, I feel better." And feel better.

Why low-FODMAP diets do not solve the root problem.)

" And then the disease then the disease comes back, you comes back, you know, it's a relapse. know, it's a relapse. Now, one Now, one part of this is the part of this is the FODMAP diet. Is this part of FODMAP diet. Is this part of the protocol they the protocol they use too?

use too? Because obviously, Because obviously, should they should they change their diet so that change their diet so that the disease doesn't the disease doesn't come back after come back after all this, or all this, or how effective do how effective do you think this you think this dietary strategy is dietary strategy is for such people?

for such people? It's terrible because it It's terrible because it actually causes actually causes harmful distortions harmful distortions in the microbiome that you in the microbiome that you may not be able to may not be able to fix. In other fix. In other words, if you have fecal microbes living in your words, if you have fecal microbes living in your duodenum and duodenum and jejunum jejunum, and you think, and you think that certain vegetables and that certain vegetables and fruits activate them, fruits activate them, then eliminating these then eliminating these foods will not cure foods will not cure SIBO, but only reduce the SIBO, but only reduce the manifestation of symptoms. So when you restrict when you restrict yourself to foods that yourself to foods that contain FODMAPs, you're contain FODMAPs, you're actually, uh, not actually, uh, not only not fighting only not fighting fecal microbes, but you're also losing, but you're also losing some of the good some of the good microbes, and that microbes, and that also applies to also applies to meat-based diets, meat-based diets, ketogenic diets, or ketogenic diets, or other extremely other extremely low-carb low-carb low-carb diets where you're not diets where you're not getting the fiber that feeds the good that feeds the good microbes. And by the way, microbes. And by the way, food food food intolerances, intolerances, intolerances, such as FODMAPs, such as FODMAPs, indicate that fecal microbes live in indicate that fecal microbes live in your upper your upper gastrointestinal tract. And I tell. And I tell people this because I people this because I hear it often. Well, I'm hear it often. Well, I'm on a on a low FODMAP diet, low FODMAP diet, all my symptoms all my symptoms have gone away. Or I was on a have gone away. Or I was on a ketogenic diet and ketogenic diet and my symptoms my symptoms decreased. I decreased. I followed a meat followed a meat diet. Yes. Yes.

diet. Yes. Yes. Because you didn't feed Because you didn't feed the proteobacteria that the proteobacteria that fiber, but they're still there. So,. So, the main secret is the main secret is that you can that you can follow these follow these diets, but you need to diets, but you need to destroy the fecal destroy the fecal microbes in the upper microbes in the upper GI tract, and then you GI tract, and then you will see that you can will see that you can add all these add all these foods back in without any foods back in without any problems. This is quite problems. This is quite impressive. People say, you know, I can, you know, I can only eat eight foods.

only eat eight foods. This is not the best life. This is not the best life. This is true. IgG testing as well. testing as well.

Lactobacillus reuteri and the oxytocin connection.)

Got it. Got it. Got it. Got it. So I want to So I want to go back to go back to Lactobacillus reuteri, because in the Lactobacillus reuteri, because in the book you mention book you mention benefits that I'm benefits that I'm starting to starting to understand better from our understand better from our conversation — smoother conversation — smoother skin, better sleep, skin, better sleep, body composition — but there's body composition — but there's one fascinating thing one fascinating thing you discussed: you discussed: the connection with the connection with oxytocin. Because, oxytocin. Because, you know, I think about you know, I think about oxytocin, the anterior oxytocin, the anterior pituitary, pituitary, pituitary, you know? It's like: you know? It's like: wait a minute. How does wait a minute. How does this this this connection between connection between microstrain and microstrain and oxytocin even arise? And I oxytocin even arise? And I really want to really want to understand this, because I understand this, because I think it's a really cool think it's a really cool mechanism, but I mechanism, but I want to hear in your own want to hear in your own words how this words how this probiotic strain probiotic strain can actually can actually help with this help with this hormone.

hormone. Well, I have a Well, I have a real mix of real mix of different questions here. So, different questions here. So, initial initial initial studies on mice studies on mice at MIT showed a 300% increase in increase in blood levels of

oxytocin, blood levels of oxytocin, which is secreted by the which is secreted by the hypothalamus. Then hypothalamus. Then there was a group in Dallas there was a group in Dallas that did some very that did some very elegant work and elegant work and showed that showed that oxytocin is also oxytocin is also released from the intestinal mucosa and that there is intestinal mucosa and that there is activation of the activation of the genetic code for genetic code for oxytocin in the oxytocin in the hypothalamus. So, hypothalamus. So, okay, pretty okay, pretty consistently. A consistently. A recent recent recent study from study from study from the University of the University of the University of Cincinnati showed a Cincinnati showed a doubling of doubling of oxytocin levels thanks to oxytocin levels thanks to reuteri in children with reuteri in children with autism. So, three autism. So, three studies suggest that studies suggest that reuteri reuteri reuteri stimulates the production of stimulates the production of oxytocin. I conducted oxytocin. I conducted two studies on two studies on mice and two mice and two studies on humans.

studies on humans. We were unable to We were unable to confirm this. Very confirm this. Very frustrating. I don't know frustrating. I don't know if we're doing something if we're doing something wrong or if someone else is wrong or if someone else is doing something. I don't know, I don't know what the, I don't know what the explanation is, but we couldn't confirm it.

confirm it. The most interesting thing is that we The most interesting thing is that we see evidence of see evidence of improved empathy, improved empathy, generosity, and a desire generosity, and a desire to be in to be in the company of others, in the company of others, in other words, the other words, the predicted predicted predicted oxytocin effects, oxytocin effects, but we couldn't but we couldn't confirm this. So we are confirm this. So we are still in the still in the thinking stage. Are we thinking stage. Are we doing something wrong? I do doing something wrong? I do n't know what exactly. And, n't know what exactly. And, for example, in the for example, in the initial initial initial MIT studies, they MIT studies, they used, used, used, sorry, 10 to the fifth sorry, 10 to the fifth power of microbes. We power of microbes. We used 10 in used 10 in the seventh, 10 in the eighth.

the seventh, 10 in the eighth. So we So we use use doses that are a thousand to ten thousand times higher. So doses that are a thousand to ten thousand times higher. So it's not a it's not a dosage problem. We dosage problem. We need to go back need to go back to the beginning and to the beginning and figure out what's figure out what's going on, because it's, going on, because it's, as you pointed out, very as you pointed out, very interesting and very important, but I don't know what to make of, but I don't know what to make of all this.

all this. I was fine. I was fine. I just thought it was a I just thought it was a cool concept. cool concept. I'm like, "Hmm, interesting." I'm like, "Hmm, interesting." Because oxytocin is like… sometimes when I give… sometimes when I give lectures, I always lectures, I always get asked the question get asked the question from the stage: "What from the stage: "What hormones are hormones are anabolic?" And everyone anabolic?" And everyone calls it calls it calls it testosterone, testosterone, testosterone, growth hormone, DHEA. No one growth hormone, DHEA. No one ever talks ever talks about the other two that are about the other two that are always forgotten— always forgotten— oxytocin and oxytocin and melatonin, they're also melatonin, they're also anabolic hormones, anabolic hormones, right? And so, being the right? And so, being the curious curious curious person that I am, I tried person that I am, I tried different forms of different forms of oxytocin, oxytocin, oxytocin, trying to trying to trying to stimulate stimulate stimulate anabolism, man. This anabolism, man. This doesn't really doesn't really work for me, work for me, man. I don't know. I man. I don't know. I tried injections and was tried injections and was like, "Okay, I like, "Okay, I felt good, I felt good, I was a nice person," but it didn't do anything," but it didn't do anything. So it's an interesting. So it's an interesting concept. The theory is there, concept. The theory is there, but I just don't know but I just don't know how we see it in how we see it in practice. So that's also an practice. So that's also an exciting thing. You exciting thing. You have a good point, Greg. We, Greg. We know a lot. But there's a lot know a lot. But there's a lot we don't we don't know yet. My personal know yet. My personal feeling is that feeling is that if we take this if we take this measurement method, measurement method, it is called ELISA (enzyme-linked immunosorbent immunosorbent immunosorbent assay). He is very assay). He is very moody. So moody. So the problems are not only the problems are not only ours. This has been a ours. This has been a subject of debate for decades: subject of debate for decades: how to measure how to measure oxytocin. Because if we oxytocin. Because if we knew how to reliably knew how to reliably increase increase increase oxytocin levels, that would be oxytocin levels, that would be great, because it great, because it affects emotional affects emotional and social and social behavior. You know, behavior. You know, there are five there are five studies that studies that show that people with show that

people with lower levels of lower levels of oxytocin in their blood or oxytocin in their blood or cerebrospinal cerebrospinal cerebrospinal fluid have significantly fluid have significantly higher higher higher suicide rates. This is very suicide rates. This is very important, but it is important, but it is difficult for us to establish difficult for us to establish cooperation and cooperation and understand these understand these problems. So there is problems. So there is still a lot of still a lot of work ahead.

work ahead. Certainly. Certainly. Certainly.

The problem with rapid weight loss and GLP-1s.)

Undoubtedly. And now a Undoubtedly. And now a nice transition. nice transition. It's time It's time to talk a little to talk a little more about more about controversial things.

controversial things. Your latest book, Superbody, is an Superbody, is an open and direct open and direct challenge to the challenge to the diet industry and the diet industry and the GLP-1 boom, is GLP-1 boom, is n't it? You mention n't it? You mention there that the obsession with there that the obsession with the number on the scale and the the number on the scale and the calorie restriction calorie restriction that that that encourages it encourages it actually makes actually makes people sicker in the people sicker in the long long long run. So what run. So what exactly does a person lose exactly does a person lose when they lose 30-40 when they lose 30-40 pounds in a short pounds in a short period of time? This should be an period of time? This should be an easy question for easy question for my listeners because I my listeners because I talk about it often, talk about it often, but why does it hurt but why does it hurt longevity?

longevity? Yes. As you know, Yes. As you know, any method of any method of reducing calories— dieting, bariatric dieting, bariatric surgery that shrinks surgery that shrinks the stomach, or a GLP-1 agonist drug that GLP-1 agonist drug that dulls appetite—are dulls appetite—are variations on the same thing variations on the same thing : reducing : reducing calorie intake.

Thanks to scientific Thanks to scientific data from the last data from the last decade, we decade, we know that when know that when losing weight, 25% of the weight lost is weight lost is muscle. So if you muscle. So if you lose 40 pounds on lose 40 pounds on GLP-1 agonists, 10 GLP-1 agonists, 10 pounds of that is pounds of that is muscle. Think about it, 10 muscle. Think about it, 10 pounds of ground beef pounds of ground beef on the kitchen on the kitchen counter—that's a lot of counter—that's a lot of muscle, a whole bunch of muscle, a whole bunch of muscle. And if you muscle. And if you stop taking stop taking the drug, you the drug, you will regain fat in the will regain fat in the abdominal area, not abdominal area, not muscle, muscle, muscle, very little muscle will return very little muscle will return. That's why—and this is. That's why—and this is not my data, but not my data, but the results the results the results of research by the of research by the pharmaceutical pharmaceutical pharmaceutical industry itself—when people industry itself—when people stop taking stop taking GLP-1 agonists because they can't GLP-1 agonists because they can't afford afford afford it forever or don't it forever or don't want to deal with the want to deal with the terrible side terrible side effects… By the way, there are effects… By the way, there are now 3,000 now 3,000 lawsuits filed, many of them lawsuits filed, many of them related to related to optic neuritis and optic neuritis and blindness. Blindness. So blindness. Blindness. So maybe you maybe you stop after a stop after a year. You've lost 40 year. You've lost 40 pounds, 10 of which are muscle. You typically muscle. You typically gain back 32 to 34 gain back 32 to 34 pounds of fat. Your pounds of fat. Your blood sugar levels, insulin resistance, risk of insulin resistance, risk of heart disease, dementia, and cancer are, dementia, and cancer are now higher than they were at the now higher than they were at the beginning. And now we beginning. And now we also know that when also know that when you lose muscle, you lose muscle, your metabolism your metabolism slows down slows down slows down by about 25–27%. And by about 25–27%. And this means that you will this means that you will gain weight again in the gain weight again in the form of fat. So I form of fat. So I was talking was talking about Danny Cahill, for example.

He was the winner of the He was the winner of the eighth season of the eighth season of the television show "Biggest Loser." As television show "Biggest Loser." As you remember, they you remember, they torture these poor torture these poor people, right?

people, right? Low-calorie Low-calorie Low-calorie diets. He was consuming 800 diets. He was consuming 800 calories a day, and he calories a day, and he was a big guy.

was a big guy. And four to And four to six hours of six hours of training per day: training per day: strength and aerobic. He lost 239 pounds, He lost 239 pounds, Greg, that's just Greg, that's just extraordinary. This extraordinary. This guy made a guy made a heroic effort. And heroic effort. And he won the show. He he won the show. He won a prize of won a prize of $250,000.

$250,000. $250,000. He He He looked great in the last episode. By looked great in the last episode. By the way, they all wear the way, they all wear tight underwear to tight underwear to hide their sagging hide their sagging skin. But skin. But they look they look great in clothes. Well, he's great in clothes. Well, he's leaving the show. He leaving the show. He told me that told me that he continued a he continued a he continued a low-calorie low-calorie low-calorie lifestyle, two lifestyle, two hours a day, six hours a day, six days a week, days a week, strength training, strength training, aerobics. I aerobics. I mean, that's a lot. He mean, that's a lot. He gained all his weight back. He would return to the. He would return to the alumni reunions organized organized organized by the producers and see by the producers and see that all the other contestants from that all the other contestants from all the other seasons had all the other seasons had regained the weight regained the weight that was consistent with the data.

that was consistent with the data.

Why losing muscle accelerates aging.)

Now it gets even worse, Now it gets even worse, Greg. There are now about Greg. There are now about 60,000 people who have 60,000 people who have been followed for years, up to 20 been followed for years, up to 20 years, people who have years, people who have consciously lost weight consciously lost weight by cutting calories.

by cutting calories. These are not people who had These are not people who had hidden cancer and lost hidden cancer and lost weight. These are people who weight. These are people who lost weight lost weight intentionally. We know intentionally. We know that people who that people who lose 10% or lose 10% or more of their more of their body weight… For example, a body weight… For example, a 180-pound woman 180-pound woman loses 18 pounds. A loses 18 pounds. A pound man loses 24. This is pound man loses 24. This is very common. They very common. They will die a few will die a few years earlier. We years earlier. We know this. This accelerates know this. This accelerates mortality, and your mortality, and your later years, due to later years, due to muscle loss, are muscle loss, are much more likely to be much more likely to be marred by marred by falls, falls, falls, fractures, fractures, fractures, frailty, loss of frailty, loss of independence, independence, independence, accelerated accelerated accelerated cognitive cognitive cognitive decline, and early decline, and early death. So, you know, death. So, you know, this wasn't known until the this wasn't known until the last last last decade, but decade, but now it's absolutely clear now it's absolutely clear that that that calorie reduction is a death calorie reduction is a death sentence. This is terrible.

sentence. This is terrible. Therefore, we never Therefore, we never reduce the number of reduce the number of calories. We never calories. We never restrict fats. This is restrict fats. This is ridiculous. And you ridiculous. And you have to make an have to make an effort to maintain effort to maintain or even build or even build muscle. OK.

muscle. OK. This is also exciting This is also exciting because we because we use GLP-1 a lot use GLP-1 a lot in the clinic. So there are in the clinic. So there are a few things that a few things that I am very aware of and I am very aware of and very conscious of. My very conscious of. My biggest fear is that biggest fear is that you lose weight you lose weight and muscle, because muscle and muscle, because muscle itself is an itself is an anti-inflammatory anti-inflammatory anti-inflammatory organ. This is the organ organ. This is the organ of longevity. It of longevity. It does a lot does a lot more than we more than we think in terms of think in terms of body composition and body composition and preventing preventing preventing frailty, doesn't it?

frailty, doesn't it? It is literally a It is literally a metabolic organ. metabolic organ. Understand this. So, Understand this. So, for anyone who takes for anyone who takes GLP-1, especially GLP-1, especially those who come to those who come to my office, I say, “ Look, we have the InBody—a body composition analyzer.” If I see body composition

analyzer.” If I see you losing weight and your muscle you losing weight and your muscle mass is dropping, then… I have a mass is dropping, then… I have a problem with that.

problem with that. You know, I take this You know, I take this very seriously. very seriously. As a doctor, I As a doctor, I follow a strategy : first, I don't want : first, I don't want you to lose weight you to lose weight too quickly. I too quickly. I want the most want the most gradual and gradual and slowest loss of slowest loss of muscle mass. If muscle mass. If you're trying to you're trying to lose 15 pounds lose 15 pounds in a month, then I'm not the one for in a month, then I'm not the one for you. It's a you. It's a long way because I have to long way because I have to let your let your metabolism metabolism metabolism adapt to what adapt to what you're doing. I have to you're doing. I have to do this. Also, do this. Also, of course, do of course, do you do any strength you do any strength training? Are training? Are you eating enough?

you eating enough? The goal is not to The goal is not to consume 600 calories. consume 600 calories. If you need to If you need to change anything, change anything, make sure make sure you are getting enough you are getting enough protein, it is important.

protein, it is important. Creatine is also a Creatine is also a great tool great tool for this. I think for this. I think he is often he is often underestimated in such underestimated in such cases. And another cases. And another question: what else question: what else do you do to maintain do you do to maintain muscle mass? This is muscle mass? This is critically important.

critically important. If I see that my weight If I see that my weight is falling and my muscle mass is is falling and my muscle mass is too, I need to too, I need to understand what we are understand what we are doing wrong.

doing wrong. Maybe we're doing it Maybe we're doing it too fast. too fast. Maybe we need to Maybe we need to change something. And this is my change something. And this is my biggest fear. I've biggest fear. I've mentioned this before on mentioned this before on other podcasts: it's a other podcasts: it's a real challenge, real challenge, Bill. When the drug Bill. When the drug stops working, stops working, the habits must the habits must remain. If you've remain. If you've limited your snacks, your limited your snacks, your sugar, and all that, then sugar, and all that, then when I gradually when I gradually taper off the taper off the medication… You medication… You medication… You have to be willing have to be willing to follow those to follow those rules going forward. If rules going forward. If not, then everything not, then everything will come back, because, no matter what, Sophie,, no matter what, Sophie, some of the weight will still some of the weight will still come back.

come back. Research Research Research confirms this. I can't argue with that. But argue with that. But ultimately, the key is ultimately, the key is how we how we return to return to normal—it depends normal—it depends on our actions.

on our actions. There is some control over this, There is some control over this, but people have to be but people have to be careful. I careful. I think when they think when they go to go to traditional traditional traditional weight loss clinics, they weight loss clinics, they follow a follow a follow a standard standard standard dosage, and in dosage, and in four weeks they four weeks they take you from take you from minimum to minimum to maximum. This is maximum. This is madness. That's when madness. That's when all these all these side effects start to appear. That's side effects start to appear. That's too aggressive, too aggressive, man. You know, it man. You know, it scares me, and many people scares me, and many people don't think about it don't think about it because we because we just chase the just chase the numbers on the scale. I numbers on the scale. I agree with you, but from a agree with you, but from a clinical perspective, a clinical perspective, a good specialist should good specialist should keep this in mind and keep this in mind and discuss the discuss the following following following questions with patients: are questions with patients: are you losing muscle mass? Are you losing muscle mass? Are you losing strength? This is you losing strength? This is very important, really. After all, the reality is. After all, the reality is that these drugs are that these drugs are not going to disappear, not going to disappear, you know? I think, you know? I think, given given given the investment that's the investment that's being made in this, the question is being made in this, the question is just how to just how to make the use of make the use of these drugs these drugs more reasonable for those more reasonable for those who need them. And this is where education is needed for both doctors and our our our patients, so that they patients, so that they become more literate. I'm glad

to hear that because the research because the research supports it, but supports it, but I also believe that I also believe that good doctors good doctors are paying attention to it. If someone is taking. If someone is taking GLP-1 and no one GLP-1 and no one talks about muscle talks about muscle mass, does mass, does densitometry, or does a densitometry, or does a body composition analysis, that's the biggest red that's the biggest red flag you'll find in any store.

find in any store. This is my vision of This is my vision of this issue. So, this issue.

Myosteatosis: fat deposits inside muscle tissue.)

So, let me think. Oh, I let me think. Oh, I want to go back to what want to go back to what you you you mentioned in the book and mentioned in the book and touch a little on the topic of touch a little on the topic of weight regain in the weight regain in the form of fat. This is an form of fat. This is an exciting concept —myosteatosis.

—myosteatosis. —myosteatosis. This is the deposition of fat This is the deposition of fat directly in directly in muscle tissue. muscle tissue. Many people have never Many people have never heard of it, but I have my heard of it, but I have my own theory about the own theory about the causes of this phenomenon.

Since I read "Super Since I read "Super Body," I want to discuss Body," I want to discuss with you how you with you how you see it and how it see it and how it starts and starts and worsens over time.

As you know, this is a fairly As you know, this is a fairly new concept: when new concept: when you have you have visceral fat growing in your visceral fat growing in your abdominal cavity, abdominal cavity, it somehow it somehow provokes provokes provokes fat deposits in other places, the fat deposits in other places, the so-called so-called so-called ectopic fat. It ectopic fat. It can be found can be found around the heart, it's around the heart, it's epicardial fat, and epicardial fat, and it's a major it's a major risk factor for coronary artery risk factor for coronary artery disease and heart disease and heart attacks. It can attacks. It can accumulate in accumulate in the joints, hips, and the joints, hips, and knees. In fact, this knees. In fact, this can be seen, can be seen, for example, for example, with an MRI. You with an MRI. You can see can see fat globules, and fat globules, and when that happens, when that happens, the destruction of the cartilage the destruction of the cartilage tissue of the joints accelerates, bone-to-bone-to- bone arthritis occurs more quickly, and it also bone arthritis occurs more quickly, and it also happens in the muscles —myosteatosis.

—myosteatosis. Most methods for Most methods for detecting it are detecting it are research research research tools, so tools, so it's not easy to do clinically it's not easy to do clinically, but if, but if you have abdominal you have abdominal visceral fat, it's visceral fat, it's safe safe safe to assume that it's also to assume that it's also in your muscles, and that in your muscles, and that impairs muscle function and impairs muscle function and strength. The good strength. The good news is that if news is that if you make an effort you make an effort to get rid of this to get rid of this abdominal abdominal abdominal visceral fat visceral fat and exercise, and exercise, exercise is fortunately exercise is fortunately extremely extremely extremely effective in effective in eliminating myosteatosis. And this may not. And this may not depend on the type of depend on the type of exercise. So exercise. So it could be just it could be just walking or something walking or something like that. But like that. But combine this with combine this with measures to measures to reduce reduce reduce abdominal abdominal abdominal visceral fat, visceral fat, such as vitamin D, such as vitamin D, magnesium, omega-3 fatty magnesium, omega-3 fatty acids, and, of course, acids, and, of course, overcoming overcoming overcoming endotoxemia. So, endotoxemia. So, this is one of the key this is one of the key points. We know points. We know that endotoxemia, that endotoxemia, for example, destroys for example, destroys muscles and reduces their muscles and reduces their strength, so getting back strength, so getting back to normal is to normal is extremely important.

extremely important. Because Because Because endotoxemia endotoxemia endotoxemia causes so many causes so many negative effects. It contributes to. It contributes to the development of myosteatosis. It contributes to. It contributes to an increase in an increase in an increase in abdominal abdominal abdominal visceral fat.

Of course, it causes Of course, it causes inflammation, so taking steps inflammation, so taking steps to eliminate SIBO/ endotoxemia is a endotoxemia is a huge benefit huge benefit for muscle maintenance.

I also have a I also have a microbial solution, but microbial solution, but I can't talk about it I can't talk about it because because because we haven't published the we haven't published the data yet. I think we'll data yet. I think we'll publish them publish them around summer. I'm around summer.

The gut-muscle axis and preserving strength.)

I'm waiting for the latest data, but I may have a, but I may have a microbial solution to microbial solution to combat combat combat muscle loss. It's fascinating, muscle loss. It's fascinating, because when I was reading because when I was reading about it in the book, I about it in the book, I remembered that you gave a remembered that you gave a lecture on this topic lecture on this topic a few years ago about a few years ago about how muscles age, how muscles age, and it's really interesting, because and it's really interesting, because we all have these we all have these satellite satellite satellite muscle stem cells in the muscle stem cells in the sarcolemma, and the theory sarcolemma, and the theory is that when you is that when you exercise, exercise, exercise, especially when you're young especially when you're young, it, it works great: these works great: these muscle stem cells muscle stem cells start to start to start to proliferate, proliferate, proliferate, differentiate, and differentiate, and become new muscle become new muscle tissue. Oh, that's tissue. Oh, that's great, isn't it? But with great, isn't it? But with age, firstly, age, firstly, stem cells stem cells no longer no longer come into play as actively. We have come into play as actively. We have more myostatin, more myostatin, but also but also more inflammation. And this more inflammation. And this inflammation inflammation inflammation can actually stimulate, can actually stimulate, slow down slow down slow down proliferation, but proliferation, but actually increases actually increases differentiation into differentiation into fat cells, fat cells, literally adipocytes, literally adipocytes, and also into muscle and also into muscle cells. So, I think there is another is another important point here. I'll be important point here. I'll be interested to see interested to see the results of the results of the results of the research, because I the research, because I always think about how always think about how people as they get older people as they get older say, "Dude, I'm say, "Dude, I'm working out, but my muscles aren't working out, but my muscles aren't growing." I feel like growing." I feel like I'm I'm I'm gaining fat, and I'm gaining fat, and I'm wondering if the reason for this is wondering if the reason for this is that it's not that it's not just about lifting weights, just about lifting weights, but also about reducing but also about reducing chronic inflammation. What's happening to. What's happening to your gut? What's your gut? What's happening with your happening with your stress? And I believe stress? And I believe that these things are the that these things are the deciding deciding deciding factors. It's not factors. It's not just about age, it's about what just about age, it's about what happens at the happens at the cellular level. So it would be cellular level. So it would be interesting interesting interesting to see what the to see what the results of results of these studies will be and how these studies will be and how it compares. It's it compares. It's always an exciting always an exciting concept because I concept because I understand that it's a understand that it's a real struggle.

real struggle. Like, man, I Like, man, I remember when I was remember when I was young, I felt young, I felt better in the gym. And better in the gym. And now it is very difficult.

now it is very difficult. It's not… It's not… That's one of the That's one of the encouraging things, encouraging things, Greg, is that you know, the Greg, is that you know, the emphasis on muscle is emphasis on muscle is really good. This is really good. This is useful because useful because almost no one almost no one paid attention to it before.

Of course, any Of course, any article or book about article or book about sarcopenia, a serious sarcopenia, a serious loss of muscle mass, loss of muscle mass, will say that there are no solutions will say that there are no solutions, but that's not true.

, but that's not true. As you noted, As you noted, creatine may be creatine may be part of the solution. part of the solution. Strength training is part of the solution.

is part of the solution. Reducing myositis and Reducing myositis and abdominal abdominal abdominal visceral fat is also part of it. is also part of it. Overcoming Overcoming Overcoming endotoxemia and endotoxemia and restoring a restoring a restoring a healthy microbiome that supports muscle. There is a gut-muscle axis. All of gut-muscle axis. All of this helps. So, there this helps. So, there are indeed are indeed solutions to combat solutions to combat sarcopenia and sarcopenia and age-related age-related age-related muscle loss.

muscle loss.

Affordable ways to track muscle and visceral fat.)

Almost done, Almost done, man. I have a man. I have a few more questions because I few more questions because I was thinking about how was thinking about how many people don't have many people don't have access to DEXA scans or scans or body composition analysis.

Of course, scales can be Of course, scales can be misleading, so misleading, so what tools or what tools or metrics can people metrics can people use to more use to more easily easily easily track their track their progress? Do progress? Do they maintain they maintain muscle mass? Are muscle mass? Are they getting, you know, they getting, you know, stronger? What stronger? What can they do to can they do to track this, track this, besides just besides just looking at the numbers?

Most people don't Most people don't have access to the Mercedes of Mercedes of bioimpedance scales bioimpedance scales like InBody or DEXA, like InBody or DEXA, but there are inexpensive but there are inexpensive devices like Tanita, devices like Tanita, Omron, or Hume that have added Omron, or Hume that have added the feature of assessing the feature of assessing visceral fat.

InBody and DEXA actually InBody and DEXA actually show the amount of show the amount of visceral fat in visceral fat in kilograms or kilograms or pounds. These pounds. These bioimpedance bioimpedance bioimpedance devices give a devices give a score, and each score, and each device works differently. On one differently. On one device, the scale might device, the scale might be from 0 to 12, on be from 0 to 12, on another it might be from 0 to 60.

another it might be from 0 to 60. So you really So you really can't compare the can't compare the scores between them. scores between them. So you pick So you pick one device, which one device, which usually costs usually costs less than $100, and less than $100, and you can measure you can measure and track your visceral fat and track your visceral fat,,, because accuracy isn't the main thing here because accuracy isn't the main thing here. As. As you rightly point out, you rightly point out, you need something to you need something to track dynamics. If your score,. If your score, say on a scale say on a scale of 0 to 12, goes of 0 to 12, goes from 10 to 8 and then to 6, from 10 to 8 and then to 6, you know you have a you know you have a good result.

good result. You can also You can also track muscle track muscle loss. loss. loss. Another underestimated Another underestimated device is the device is the dynamometer. Unfortunately, I do dynamometer. Unfortunately, I do n't have it right now, but I literally, but I literally paid paid paid $7.99 for my dynamometer $7.99 for my dynamometer. They. They can also be found in can also be found in physical therapy offices. Such physical therapy offices. Such professional devices professional devices cost thousands of cost thousands of dollars, but we dollars, but we know that there are cheaper know that there are cheaper analogues, although analogues, although their price has increased… Now their price has increased… Now they cost they cost about $15, about $15, but they are just as but they are just as accurate—they have a 95% correlation with very correlation with very expensive clinical expensive clinical devices. So, you devices. So, you can buy a very can buy a very cheap dynamometer cheap dynamometer for $10–15. It's for $10–15. It's just a squeeze. It just a squeeze. It measures grip strength.

measures grip strength. We are interested in this not We are interested in this not because of the grip itself, but because grip strength is grip strength is an indicator of overall an indicator of overall body strength and muscle body strength and muscle mass. You need to mass. You need to compare your compare your squeezing ability, in squeezing ability, in pounds or kilograms, pounds or kilograms, to the results of other to the results of other people in your age people in your age group. like this. You group. like this. You can find can find graphs for this.

graphs for this. I think they're I think they're even on my even on my blog. And you might blog. And you might say, "Oh, as a 65- year-old man, I year-old man, I benched 90 pounds, which benched 90 pounds, which puts me in the top 10%." And you know you're." And you know you're doing everything right. What if doing everything right. What if you've pumped out 37 pounds you've pumped out 37 pounds and you're in the bottom 10%? So, it's and you're in the bottom 10%? So, it's good to know this and you good to know this and you can improve the can improve the

outcome. This does not outcome. This does not mean that you need to mean that you need to do do do wrist flexion. This means wrist flexion. This means doing other doing other exercises for the whole body. Core exercises,. Core exercises, push-ups, push-ups, push-ups, pull-ups—simple pull-ups—simple pull-ups—simple things, and you'll see things, and you'll see your grip strength your grip strength increase even if increase even if you don't train your you don't train your wrists.

wrists. wrists. Perfectly. Perfectly. That's Perfectly. Perfectly. That's good. It's cheap, and good. It's cheap, and expensive, and in some ways expensive, and in some ways even humiliating, even humiliating, you know? Especially you know? Especially when you're like, "Oh, I can when you're like, "Oh, I can handle this." You're handle this." You're like: this isn't the same like: this isn't the same old fair anymore, man. Is this like that thing I. Is this like that thing I see on old TV shows? They came, and they? They came, and they had a sledgehammer. You had a sledgehammer. You ring the bell and it ring the bell and it flies up and all flies up and all that. But this is something that. But this is something you can do at home, you can do at home, and it's really cool.

and it's really cool. So, man, that was So, man, that was great. Bill, I really great. Bill, I really appreciate that, man. I… I was so… I was so excited when excited when they said, "Oh, they said, "Oh, man, Dr. Davis man, Dr. Davis is going to be on your is going to be on your podcast." I thought, " Oh, this is so cool," Oh, this is so cool," just because I've just because I've learned a lot from learned a lot from reading books, and reading books, and just getting just getting the opportunity to expand the opportunity to expand my knowledge. And with that my knowledge. And with that first question, I first question, I was like, "Wait, this was like, "Wait, this guy is a cardiologist, what's guy is a cardiologist, what's going on here?" going on here?" Why is he talking about Why is he talking about this? So it's very interesting this? So it's very interesting to see this to see this relationship and relationship and understand it. I think that's fascinating too.

that's fascinating too.

First steps to rebuilding metabolic health.)

Now, before we Now, before we let you go, let you go, you know, we have you know, we have people listening to us who are constantly people listening to us who are constantly on diets, on diets, dealing with dealing with unexplained unexplained unexplained inflammatory inflammatory inflammatory symptoms, their symptoms, their gut is not healing; gut is not healing; they just can't they just can't figure out what's going on figure out what's going on and are starting to and are starting to wake up and wake up and question the question the conventional conventional conventional advice they've been given.

advice they've been given. If a person is in such a If a person is in such a situation, what is the first, or rather,, or rather, the most important first the most important first step they can step they can take immediately?

Well, we don't have much time. Well, we don't have much time. One thing we didn't One thing we didn't focus on— focus on— one of the first things one of the first things I started I started talking about, which was the talking about, which was the exclusion of wheat.

exclusion of wheat. Yes. Yes. Yes. Which is extremely Which is extremely powerful. Don't eat this powerful. Don't eat this food. The FDA, the USDA, all these food. The FDA, the USDA, all these agencies are saying to eat more agencies are saying to eat more and and and more of it. Well, what more of it. Well, what they don't say is that they don't say is that, first of all,, first of all, wheat is not what it wheat is not what it used to be. This is a 45- centimeter creation of centimeter creation of genetic genetic genetic research. And among research. And among the changes was a shift in the changes was a shift in the structure of the the structure of the gliadin protein, making gliadin protein, making it a more potent it a more potent appetite stimulant. So, humans do not have. So, humans do not have the enzymes to the enzymes to break down this break down this gliadin protein into gliadin protein into individual amino acids, individual amino acids, as is the case with as is the case with other proteins.

other proteins. Instead, you Instead, you break it down into break it down into peptide fragments peptide fragments four to five four to five amino acids long, which amino acids long, which have an opioid have an opioid effect. They effect. They bind to bind to opioid opioid opioid receptors in the brain and receptors in the brain and stimulate

appetite.

stimulate appetite. That's why people say, That's why people say, "You know, I ate a whole "You know, I ate a whole big bowl of big bowl of pasta and I was stuffed pasta and I was stuffed to the brim, but I to the brim, but I still wanted to eat," which is still wanted to eat," which is very unnatural. Or : "I had breakfast at 7:00, and by : "I had breakfast at 7:00, and by 8:30 I want to 8:30 I want to eat again." I need a eat again." I need a snack, and by 10 I'm snack, and by 10 I'm hungry again and I can't hungry again and I can't wait for wait for dinner. These are all effects of dinner. These are all effects of gliadomorphins and gliadomorphins and opioid opioid opioid peptide derivatives. So peptide derivatives. So getting rid of getting rid of that gives you a huge that gives you a huge advantage because you advantage because you get back get back control. Don't control. Don't limit fats, limit fats, add more add more olive oil, olive oil, more more more butter. Do not trim butter. Do not trim the fat from the meat. Eat the fat from the meat. Eat it. Eat chicken it. Eat chicken skin. Eat, I skin. Eat, I mean, don't limit mean, don't limit fats. This is all fats. This is all nonsense. It's the same thing nonsense. It's the same thing. This is part of the same. This is part of the same absurdity absurdity absurdity about lowering about lowering cholesterol.

cholesterol. cholesterol. Additionally, beneficial Additionally, beneficial bacteria bacteria bacteria also appear to suppress also appear to suppress appetite, especially the appetite, especially the desire to snack. In other words, if other words, if you put it into practice, it will become much, it will become much easier. You will stop easier. You will stop giving in to the same giving in to the same impulses and impulses and desires as other desires as other people. This is great. This is people. This is great. This is incredible, my friend. That's the incredible, my friend. That's the best way to best way to look at it. You know, look at it. You know, that's good to know, that's good to know, man. It's just that man. It's just that sometimes it's hard to take the sometimes it's hard to take the first step and find first step and find something simple, something something simple, something small, that can small, that can make a difference, and make a difference, and of course, when of course, when you feel better, you feel better, you start to change. That's exactly it. Another. That's exactly it. Another thing—I always tell thing—I always tell my patients or my patients or people who people who listen to me: sometimes it's listen to me: sometimes it's not about not about finding someone who finding someone who agrees with you. It's all about finding the right person to finding the right person to ask the right ask the right questions, right?

questions, right? Because if they don't Because if they don't ask about ask about gut health, diet, stress levels,, stress levels, sleep—all the things that sleep—all the things that make you who you are and make you who you are and affect your health—they affect your health—they just look at the just look at the tests and say, " Take these medications." These are all Take these medications." These are all things that go hand in hand, things that go hand in hand, you know. So we you know. So we want to take care of our want to take care of our health, not health, not chase chase chase performance. And I performance. And I think that's exactly what I think that's exactly what I learned for myself. And learned for myself. And another conclusion I have: as a another conclusion I have: as a doctor, I learn that doctor, I learn that everything starts in the everything starts in the gut. It gut. It all starts with the all starts with the gut. And this is gut. And this is another confirmation.

another confirmation.

Where to learn more.)

Another Another Another confirmation of this. confirmation of this. And last but not least And last but not least : for people : for people who want to follow who want to follow your work, your work, learn more about learn more about your books, read them, your books, read them, buy them, where buy them, where can we find more can we find more information about you information about you and your activities?

and your activities? So, the books, of course: " Supergut", " Superbody", the last one is "Wheat Belly", it's old, "Wheat Belly", it's old, but I think it's still but I think it's still relevant. My blog relevant. My blog has thousands of has thousands of posts. This is posts. This is williamdavmd.com. I have a williamdavmd.com. I have a podcast called podcast called DefiantHealth. I have a DefiantHealth. I have a paid website where paid website where we usually we usually get together once a week get together once a week for two hours and for two hours and discuss, "Hey, I discuss, "Hey, I tried to make tried to make yogurt, but nothing yogurt, but nothing worked." Things in worked." Things in that vein. This is an that vein. This is an opportunity for people opportunity for people to express their

opinions, to express their opinions, comments, and feedback.

comments, and feedback. So this is the " So this is the " Inner Circle". Dr. Inner Circle". Dr. Davisinfinitealth.com. Davisinfinitealth.com. Davisinfinitealth.com.

Got it. Got it. Got it. Got it. We will add all this to the We will add all this to the release description. Are you release description. Are you currently continuing your currently continuing your medical practice? No, medical practice? No, but we have a lot of but we have a lot of conversations that are somewhat like conversations that are somewhat like practice.

practice. People go through this People go through this program, and I program, and I continue to learn continue to learn new lessons based on new lessons based on their experiences.

their experiences. Of course, the good thing is that Of course, the good thing is that this way you can reach this way you can reach more people than more people than six, seven, ten or six, seven, ten or fifteen per day.

fifteen per day. And no insurance And no insurance companies. companies. companies. Well, there is such a thing, and it is also Well, there is such a thing, and it is also true, you know. But true, you know. But listen, I want to listen, I want to thank you again.

thank you again. It was wonderful. It It was wonderful. It was enlightening, and I was enlightening, and I appreciate… appreciate… appreciate… I appreciate that I appreciate that people like you and me have now been blacklisted by the mainstream blacklisted by the mainstream media.

media. media. That's right. Yes, this has been going on since Yes, this has been going on since 2015. 2015. Pharmaceutical Pharmaceutical companies are pouring companies are pouring billions of dollars into billions of dollars into direct advertising and direct advertising and have told all the major have told all the major media outlets, television and media outlets, television and print, "We don't want print, "We don't want people like these people like these guys talking about guys talking about health and health and nutrition if you nutrition if you want to keep want to keep getting getting getting paid for advertising from us." So if you go to So if you go to Barnes & Noble, you'll see Barnes & Noble, you'll see that there's almost nothing that there's almost nothing new about health new about health and nutrition and nutrition because we've been blacklisted.

blacklisted. blacklisted. That's why what you're doing, That's why what you're doing, Greg, is so Greg, is so important. important. important. Well, thank you. Listen. I Well, thank you. Listen. I will continue to will continue to will continue to fight for what is right fight for what is right. I will not give up. I will not. I will not give up. I will not give up. Okay, everyone.

give up. Okay, everyone. It was another episode of It was another episode of Dr. Greg Jones Optimization Academy. I'll Dr. Greg Jones Optimization Academy. I'll post all the post all the links links links Dr.

Dr. Dr. Davis mentioned so you can Davis mentioned so you can follow the follow the developments, learn developments, learn more, read the blogs —there are recipes and —there are recipes and a lot of interesting things there. So a lot of interesting things there. So I highly I highly recommend you recommend you check them out. Until check them out. Until next time, next time, friends, stay friends, stay healthy, stay in healthy, stay in peak shape, and peak shape, and