THE MODEL HEALTH SHOW

EPISODE 676

The Root Cause of Obesity, Autoimmunity, and Cancer

With Guest Dr. Zach Bush

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SHAWN STEVENSON: Welcome to The Model Health Show. This is fitness and nutrition expert, Shawn Stevenson, and I'm so grateful for you tuning in to me today. The NIH has recently released their latest numbers on obesity in the United State and the numbers are shocking. According to the NIH, today here in the United States, looking at the population of American adults based on body mass index, we've now crossed over 70% of United States adults being clinically obese or overweight. And the number if we're specifically looking at obesity, has now crossed over 42% of US citizens being clinically obese.

Now, there are many different theories about what's happening underneath the surface, or what's the root cause of these epidemics taking place. And also, the offshoots, because a lot of folks don't realize that many of the leading cause of death in the United States, the top 10 leading causes of death, obesity is one of the most predominant risk factors.

So right now, approximately 400,000 deaths plus, are also linked to obesity here in the United States. So, with the leading one being cardiovascular disease or heart disease being the number one cause of death for our citizens.

Now, with these numbers being kind of bleak, the good news is that there are solutions on the horizon, and we're going to be talking about that today, but on this episode you're going to get an insight into the real root cause of our obesity epidemics, and also our epidemics of chronic degenerative diseases overall, that I think it's going to change the way that you see the world.

Now, our special guest is going to break this down in a way that is going to be enlightening and also shining an ultra-bright light on what we've been doing that hasn't been working. And we're existing today in a medical paradigm that has truly become so infiltrated by this pharmacological model, that we really don't know anything else but that.

Here in the United States, we have a 4$ trillion a year plus annual healthcare system. It is the backbone of the American society today. We have a backbone based on diseases. And for these pharmaceutical companies to remain profitable, and again, the backbone of our society really propping up the US economy, it requires sickness, it requires degeneration for it to be profitable. And that is, as we're going to talk about today again, what's propping up and maintaining the US economy in more ways than one.

Now, one of the things we're going to be talking about as well in this conversation about obesity, of cardiovascular disease, we're going to talk about the advent of statins. And I'm

going to share a study during this episode that is going to blow your mind as to how effective has it been. This is a multi-multi-billion dollar a year drug. How has it been working out? Is it saving lives? Is it extending lifespan?

We've got a new meta-analysis that I'm going to talk about during the show, but I want to give you a preview into one of the things that isn't talked about when we're looking at the treatment of a particular aspect of human biology. We're talking about LDL cholesterol, and LDL being a carrier molecule for a variety of different things.

That includes cholesterol. And cholesterol is a seed, it's a seed for the creation of our sex hormones, for example, of steroid hormones. Of all kinds of reparative faculties that the human body desperately needs. But cholesterol become a dirty word in our society. It's a dirty C word, and we're trying to stamp it out with chronic prescriptions, chronic prescribing of statin drugs.

Now, one of the side effects, because you hear the list of side effects getting read out when you see these drug commercials, but one of the most glaring side effects of taking a synthetic chemical complex that's never existed before throughout human evolution, which again, we're going to talk about on this episode and you're going to understand the big picture.

One of the most glaring side effects is by taking a statin to try to superficially reduce our risk of cardiovascular disease, we dramatically increase our risk of developing diabetes. A recent analysis published in the British Medical Journal, the BMJ Open Diabetes Research and Care journal, peer-reviewed journal. The study is titled, Statin Use and Risk of Developing Diabetes.

The researchers uncovered that the habitual use of statin drugs increases the risk of developing diabetes by over 30%. Alright so we're factually trying to treat one thing, while simultaneously causing another thing. And this is getting the conversation about what is a statin doing to my hormones. My insulin sensitivity is obviously a key player here in the development of diabetes.

It isn't... In essence, we want to believe maybe that it's a one-trick pony and it's just going to target LDL miraculously and it's not going to have a "side effect". But it is a direct effect because that statin is going to in fact influence the performance of every single one of the trillions of cells in your body. It has no choice but to do that.

Every cell in our bodies are intimately connected. It doesn't matter if it's a liver cell or a skin cell, it's all in communication in your incredibly innately intelligent human body.

And so again, I'm very, very excited about this conversation. We are going to truly dive in deep, so be prepared for a journey into the understanding of human health and also the deeply intimate connection with human health and the world around us, our environment.

We are all intimately deeply connected here on this planet, and again, this is really going to open our eyes to the bigger picture and also what we can do right now in our own day-to-day lives to be more empowered and of course, healthier and happier.

Now, one of the most obvious influences that humans have had as far as other species is the depopulation of our incredibly important bee communities. Human life is deeply interdependent upon the lives of bees. They are the number one pollinator of so many of our most important crops, and so taking care of our bees is going to be taking care of ourselves.

And so, I'm a huge fan of investing in regenerative bee practices, for our health overall, but of course with a broader scale of health and life on our planet. Now, one of my favorite things from the bee community is royal jelly. In a study that was published in Advanced Biomedical Research found that royal jelly has the potential to improve spatial learning, improve our attention span and improve our memory.

In addition, the researchers have uncovered that royal jelly has anti-microbial, anti-tumor and profound anti-inflammatory properties. Royal jelly has also been found to facilitate the differentiation of all types of our brain cells. And to top it off, researchers in Japan discover that royal jelly has the power to stimulate neurogenesis, the creation of new brain cells, in the memory center of the brain, known as the hippocampus. That is just remarkable.

And for myself, what I have here, if I ever want something for the little cognitive boost, my favorite go-to is called Brain Fuel from Beekeeper's Naturals. It's based on royal jelly and one of my other all-time favorite things, Bacopa. We have a randomized double-blind, placebo-controlled human trial, so gold standard of clinical testing, this was published in 2016.

They found that after just six weeks of use, Bacopa significantly improved speed of visual information processing, learning rate, memory consolidation and even decreased anxiety in study participants. Come on. What things are more remarkable than this, that we have access to today?

We've got this combination of Bacopa and royal jelly. These have been utilized for thousands of years. We've got this new field of nootropics that is gaining traction, but it's most important to look at what have humans been utilizing the longest? What has the most efficacy for us as a species?

And also, effectiveness when we're talking about performance in the real world, anecdotally is important, but also the clinical data to back it up. This is why I'm a huge fan of Beekeeper's Brain Fuel. Go to beekeepersnaturals.com/model, you get 20% off their Brain Fuel and everything else that they carry store wide. That's B-E-E-K-E-E-P-E-R-S naturals.com/model for 20% off.

Beekeeper's is leading the charge in making sure they have the cleanest, most regenerative practices when it comes to bee products. They're doing third party testing for toxicity, because there's so much cross-contamination, again, that's another thing we're going to talk about today, with pesticide use.

And so, they're making sure that your bee products are coming with the highest quality, the highest level of purity. And also of course, they're dedicated to regenerative bee practices and they're making a huge difference. And again, just a huge fan of Beekeeper's Naturals. Head over and check 'em out, beekeepersnaturals.com/model for 20% off.

Now let's get to the Apple Podcast review of the week.

ITUNES REVIEW: Another five-star review titled, “Great Job Dispelling the Myths”, by Weightlifter Danny. "This podcast will give you cutting edge info that your doctor doesn't even know yet. The interviews are both entertaining and helpful. After getting blood tests and finding out that I had super high cholesterol, my doc told me I was at risk for heart disease. But I'm lean, muscular, have perfect A1C, have low heart rate, and perfect blood pressure. This was so confusing. Until I found the interview with Dr. Bowden that dispelled all of the outdated myths surrounding cholesterol. If you listen to this podcast, you'll know more than most experts."

SHAWN STEVENSON: Let's go. Thank you so much for leaving that review over on Apple Podcast. Edutainment, we're blending it together with this faculty of education and entertainment. Because all of this information should be easily accessible and easily assimilated by everyday folks who need it most. And that's what this is really about.

Now, on this episode we're diving deep. Alright, so you need to step into your mental submarine because we're going to dive in deep into the realm of understanding our epidemics of obesity, cardiovascular disease, and so much more.

One of the things that you're going to hear about today is the advent of zombie sugar. Zombie sugar. You're going to understand what I mean when you hear it. And also, how this newly invented chemical complex is underlying so many of our health issues we're struggling with today.

We've got a very special guests in the building, it's Dr. Zach Bush. Zach Bush MD is a renowned multidisciplinary physician of internal medicine, endocrinology, hospice care, and internationally recognized educator on the human microbiome as it relates to human health, soil health, food systems and a regenerative future. Let's jump into this conversation with the one and only Dr. Zach Bush. My guy. So good to see you. Welcome back.

DR. ZACH BUSH: Thrilled to be back. Thanks for having me back on.

SHAWN STEVENSON: We're about to go on a journey. Alright? An adventure. Instead of Bill and Ted, Shawn and Zach. Alright? We're jumping in the phone booth. And speaking of which, if we were to travel to this time, even 50 years ago, 100 years ago, and to see what's happening with our population visually, I think we would be shocked. The NIH just published their new data, and they've affirmed that over 70% of our population is now clinically obese or overweight, with 42% being clinically obese. Alright? So, we're inching to half of our population here in America, we're talking about American adults, being clinically obese. I want to know from your perspective, what is at the root of this obesity epidemic?

DR. ZACH BUSH: It's a phenomenal question, and one that you would expect our public health agencies may have asked a long time ago. But instead, there's been what I would call a popular science movement, which is like which marketing campaign is the loudest to answer to this question.

It started in the 1980s with the war on obesity, and we started to go after sugar and fat as the causes of obesity. And so, there was a Nancy Reagan campaign, War Against Obesity and all this stuff. So, the 1980s, we were starting to realize we had a problem, and we were nowhere near the numbers we are today that you just mentioned.

But there was a clear indication 40 years ago that there was an issue brewing. Those early 1980s we're starting to see something happen, not just in an adult, but also a shift in children for the first time. And so that was an alarm bell.

And the interesting thing is by blaming it on macronutrients, sugar, and fat, that had been in the diet since really the origin of mankind, we'd been running off of sugar and fat. Sugar and fat are the only two fuels the body uses, and so these are long carbon chains.

And so, we were looking for a scapegoat, when instead we should have probably asked, "Look, the American diet probably didn't change much between 1976 to 1986. So, what was the underlying event that occurred there?"

And you're now knocking right on my specialty and my passion here, including our basic science laboratory in Virginia right now, is how does energy happen? Energy happens on this planet through a carbon cycle. When the sun shines on this planet, you could imagine maybe four billion years back, there's nothing but water and rock, right?

And then suddenly we get the first life, which is like these green slime molds that start to form on rocks and some lichens and some other early iterations of life. And all of them were tended to be green or other dark colors that were capturing light in these specialized organelles that were called chlorophylls and the like.

Chlorophylls are a category within plant plastids, and plastids are these small bacteria that live inside of plants, and they capture that sun energy, and they store them in long carbon chains in the form of glucose or fatty acids.

And so, when we start to talk about energy on the planet that would give forth life, it's all about storing sunlight in a way that comes metabolically or energetically relevant to an organism, a single cell organism at the time.

And as we move past the slime molds and moved eventually a billion years later to multicellular organisms, something like a nematode or these earth worms or whatever you're going for, these things got more and more efficient at getting that carbon to release the sunlight inside of each cell. And that occurred when not the plant plastids, but the mitochondria came to be.

And so, plant plastids and mitochondria are super-related, they're super similar bacterium that live inside of other things. And so, the mitochondria bacteria that live inside of animals, and the plant plastids are bacteria that live inside of plants. And these two-work hand-in-hand at capturing sunlight and putting it into carbon chains.

They do that by taking CO2 from the atmosphere and bonding that together, so now you have two double carbons... You have a double carbon bond between two carbons. Then you add another CO2, and you get three, and four and five. And your typical glucose molecule or your fatty acid, you're in anywhere from eight to 30 carbons all plugged together.

And the double carbon bond is your battery that's storing energy. And so that moves into the gut of a being, and then the bacteria in your gut take that and digest it down to a point where the glucose and fatty acid can be delivered the liver of the organism. The liver can then package that up in different little envelopes, send it out to the cells.

The cells pull that in, and then the tiny little bacteria, 200 per human cell, 200 mitochondria in every single human cell. Unless you're a neuron, in which case you have 2000 mitochondria.

So, all these tiny little bacterium are crammed inside your cells waiting for glucose and fatty acids, and at that moment they start to break the glucose apart, and so they're doing that through an outer membrane enzyme that takes both glucose and fat into the exact same molecule, which is acyl-CoA, one more enzyme set, acetyl-CoA.

Acetyl-CoA is smaller, shorter chains of carbon with oxygen, hydrogen bonded on, and then that passes into what we call the Krebs cycle, where we release all of the light energy in the form of electrons and electromagnetic field and all this inside the cell.

And so literally life on Earth is the emergence of the ability to capture sunlight and re-release it for energetic work to be done inside of a cell. This all was working through four billion years of biology without a problem, until the late '70s. And then we started to really slug up the system for the population by poisoning mitochondria.

We did that by adding chemicals to our food chain, and these chemicals were new herbicides and pesticides that could be added at relatively high concentrations without killing cells, but instead would kill the mitochondria inside the cells. And so, this was basically an antibiotic that got introduced to our food in 1976.

And so, 1976, glyphosate, which would be popularized in the weed killer Roundup, started being used widespread in farming. Roundup is actually much more toxic than glyphosate. Glyphosate is the active ingredient in it, but to get it to its commercial full capacity to kill things, they added a bunch of surfactants and other chemicals that make sure that that chemical goes all the way inside of cells.

And so, this is different than Atrazine and 240 and other chemicals that are used as weed killers because it can get inside of cells really well. Monsanto, that patented this compound in 1974 and then got it on the market as Roundup, they didn't even know what their own success was going to be.

They knew this thing was bad, they knew it got inside cells, they knew all of this, but they feel like it's such a low dose that how could it... "It can't harm the human cell. Because our target is not human cells, our target is actually plants and bacteria."

And so, it was really an antibiotic function to this weed killer that allowed it to kill weeds. And since the enzymes that are in there that are the targets for that chemical don't occur in humans, the company probably very innocently thought, "How could this possibly hurt a human cell? 'Cause it just, the enzyme target, the shikimate pathway, only exists in bacteria and plants. So, what could possibly go wrong?"

But at this point in biology, 99% of scientists, and even to this day, you go ask a medical doctor, "What's a mitochondrion?" They'll say, "Oh, that's an organ now that lives, that's part of the human cell." They don't realize it's a bacterium. They don't realize that it has its own genome totally separate from the human cell, replicates inside your human cell with good environments, or bad environments it dies. Doesn't realize that that's where your whole energy system for your ability to have obesity or not comes from.

So, doctors are just very poorly trained to understand the origins of life to begin with, and we have this very human-centric belief system about nutrition and how that becomes fuel for humans. "Oh yeah, that's... " That Krebs cycle, doctors had to memorize that back in undergrad or something. They have a vague sense of PTSD over having to memorize all those pathways and enzymes and everything else. Nobody likes memorizing any of that.

But unfortunately, nobody mentioned that "Hey, this is actually an organic garden living inside of humans, and if you poison this, the human dies." That literally just never gets mentioned in all of our education.

And so, mitochondria, these little bacteria that start getting poisoned by a chemical, glyphosate, that was trafficking very effectively inside of cells because of the extra chemicals added to Roundup. And so now we had a very effective intracellular antibiotic which had never really hit the humans before.

And so suddenly by 1980s, just a few years into this journey, we're starting to figure out or be confused as to like, "How come everybody's getting obese?" And the answer is all of the calories are going into the human, and the human cells can't use those calories, can't use glucose and fatty acids, and so instead they have to wait for the mitochondria to digest that into fuel.

But if the mitochondria are dying or they're losing efficacy, they can't replenish their population. And they're dying at a faster rate, and the ones that are surviving have damaged protein structures, can't convert the glucose into energy anymore. Then the calories started to backup.

And so, it's just like our ports during a pandemic. There was plenty of food sitting out in the ocean, but our grocery store shelves were empty because there was not enough workforce to get that nutrient load from the oceans, from all those shipping containers on to the grocery store shelves. Truckers were out and port workers were out, and so there was a backup. So, the ports became obese, if you will, with nutrients. Too much nutrition sitting in the ports, none getting to the cells, I.e., the grocery store or your dinner table.

That's exactly what started happening in 1980s when we destroyed the port intake of glucose, and we couldn't get that glucose to the dinner table of the cell. And so, cells are starving, and the liver is backing up with like the port's backed up. And so now you got all this stuff waiting to get mobilized and burned, and it can't.

So, we get fatty liver, and we get central adiposity, which put us in the late '70s and early '80s into a cardiovascular crisis, so more and more heart attacks, cardiovascular disease. So suddenly we were like, "Well, everybody needs a statin drug."

No, what? Why do we need to block cholesterol? Which is the most potent anti-inflammatory your body makes is LDL cholesterol, which is your "bad" cholesterol. LDL cholesterol is not bad as long as the ships are moving.

When we clogged up the ports with all of the calories and we started having to store fat in the liver, then we had an inflammatory relationship to fat and glucose. There was no problem. Calories were calories. You ate more, you had more muscle. That was the American dream. The reason we grew the biggest football players in the world by then.

Look at football players in 1920s compared to football players in the 1960s and '70s. The difference was how much glucose and fatty acids did they have available. They had so much more fuel they could bulk up. For the first time we were no longer obeying the predictive heights of children, they were all a chalk taller than their parents, because we were loading them with so much energy in their teen years in the 1950s and '60s, we had this huge over-production of food for the first time in this country's history.

And then no obesity in the '50s. No obesity in the '60s. No obesity in the early '70s. Late '70s, early '80s, suddenly there's an obesity epidemic, and suddenly we have an inflammatory relationship with these calories. And so, we have more lipid problems, more diabetes. Diabetes rears its head by the late 1980s. 1990s, oh my god, everybody's talking about Type 2 diabetes in the 1990s.

By the late 1990s, autoimmune disease. Autoimmune disease is a condition where your gut is so inflamed and so overwhelmed by all of this backup in this inflammatory relationship to nutrients, that your immune system starts to get confused about what's outside, what's inside, what's self, what's not, and that you go into a complete inflammatory cascade where your immune system is attacking everything, and pretty soon it cross-reacts with your own tissues.

And so, you've got autoimmune disease of the thyroid, you've got autoimmune of the pancreas, you've got autoimmune disease of your joints, so you have rheumatoid arthritis, Type 1 diabetes, Hashimoto's thyroiditis.

All those conditions coming out in the 1990s is because the whole port system has clogged up and has put us in an inflammatory relationship to nutrients for the first time in human history.

You fast forward another five, 10 years, and by late 2005, when I'm just creating chemotherapy at the University of Virginia, all of the money is going to cancer 'cause on my god, we have a cancer epidemic. By 2012, 2014, oh crap, we have an autism epidemic, we have an Alzheimer's epidemic, we have a dementia epidemic.

So, this is the path. Obesity, due to a lack of calories getting burned by the mitochondria into fuel. That backup of the ports puts us there's an inflammatory reaction to all of our nutrients and so we get autoimmune disease, and then we get cancer, and then we ultimately get neurologic collapse.

SHAWN STEVENSON: This is paradigm-shifting. Because this all traces back to something that has, in essence has become normalized. And to think about a different pathway. Because we think it's just the over-consumption, we're just eating too much of these fuels that you just mentioned. You just blew me away already saying that.

We've been utilizing fat and sugar forever, since the beginning of life on planet Earth, and obviously something happened. And instead of looking at things through you're over-consuming calories, and that's the whole, "You just need to be in a calorie deficit and you're going to lose weight. What's wrong with you? Silly goose."

It's looking at the advent of what we're labeling now "obesogens", so obesity-causing agents that alter this system that has perfected itself for billions of years. And now in addition to that, essentially one of the things that I'm hearing is, not only with the advent of glyphosate and that kind of obesogen activity, but the fact that we went from eating food that's derived through this remarkable relationship with the sun, to eating chemicals.

We're eating more chemicals. Things that have never really existed before in the natural world. So how does that play into it as well?

DR. ZACH BUSH: Yeah, so the glyphosate and the herbicides became kind of this opening of the gate of dysfunction within the body, right? And so, we lost the ability to get calories into their energetic state, and so we started to get obesity, we started to get all the metabolic collapse that we just talked about.

But in parallel to that, we start to get dysfunction of enzyme pathways, which are our method for detoxification. And so, when you poison enzyme pathways, you can no longer digest your

own metabolites or external chemicals that might be threatening the health of the cell out into benign substrates.

And so, enzymes should break down toxins into benign waste products and then clear 'em in the kidney, through the sweat, through the breath, those are the three pathways really. Stool, urine, sweat, breath. That's the only way we get things out of the body.

And the enzymes, both human and bacterial and fungal and the rest that are in the body, are there churning away to make sure that the toxins are being cleared and your body has always got an opportunity to take another clean breath. Clean breath, clean flow through the vasculature, and you live another day of regeneration.

You start to poison that whole system of enzymes through introducing the introduction of herbicides and pesticides, you're literally eliminating the very workforce that keeps health possible. And for that, we start to blame the diseases, right? Like you said like, "Oh, you're obese. You're just eating too many calories."

Well, think about now everything I just talked to you about what's happening in the 1980s, is that really the problem, they're eating too many? No, they're eating the right number of calories probably, but they're getting all those calories stuck in one compartment of their body and they cannot use that at the cellular level.

So, if you tell that person to start eating less, they have even less calories available for eventually getting to the system. And so, it's very challenging to start to lose weight in an effective manner without harming the individual. You have to start back at the foundation of it.

So, our eight-week program, which is called Journey of Intrinsic Health, uses this eight-step program to get people back in right relationship with food, self-identity, breath, sleep, all the stuff.

Without getting into right relationship with the eight pillars of health, you're really chasing after the wind and you're chasing symptoms instead of the cause. And the root cause of obesity is a collapse in your ability to metabolize glucose and fatty acids into light energy again.

And so, we have to start to retrain our bodies back into their natural state, which is a thriving ecosystem. It's literally a soil system. Bacteria, fungi, yeast, protozoa, parasites. All of that stuff is normal to a soil system in the garden when it's healthy.

In the same way, a healthy human being has a micro-ecosystem of diverse species. Just in bacteria, 40,000 species is thought to probably be a baseline for it. Not nearly probably even optimal, but a baseline health, 40,000 species of bacteria. There's a half million known species of fungi that would be relevant to human biology.

And so, when you start to add this stuff up, you can't even think of yourself as a coral reef, you're an entire planet of ecosystem when you're in your thrive state. And so, if you start to see your body dysfunctioning, it's likely that you've minimized your contact with nature.

And so, our eight-week program, Journey of Intrinsic Health, is about reintroducing people to the natural systems of their body so they can rediscover self, ultimately. It's in our disconnect from nature where we start to lose our self-identity and we become dysfunctional; we've become diseased.

Our laboratory specializes in reintroducing people into healthy soil systems by extracting the very nutrients that our chemical agricultural system took out of our food system, and we do that by going back in time. You can't actually find soil on the planet right now that hasn't been damaged by herbicides and pesticides, and the reason is, is 'cause we're using 4 billion pounds a year of just one of those chemicals, which is this glyphosate compound that's in Roundup. 4 billion pounds a year go into soils globally.

SHAWN STEVENSON: Wow.

DR. ZACH BUSH: And unfortunately, that's a water-soluble toxin which ends up in the runoff into the river system, which then ends up in the evaporation into the air we breathe, and then out into the ocean, and up into the clouds that rain on us.

In the United States it's been reported that we have 85% of our rainfall and 85% of the air we breathe contaminated with Roundup. Our river systems in the greater Mississippi River that collects 85% of the runoff from our farms in this country, is so toxic now you're not even supposed to touch it in most areas.

60% of the lakes and rivers in Indiana, for example, which isn't even the most toxic. Down the farther south you travel on the Mississippi, the worse it gets. But way up north there in Indiana, 60% of reservoirs and rivers is now deemed to unsafe, not just for potability or drinkability, it's unsafe to be there for recreation. Don't touch the water.

And so, when we get our water systems that contaminated, it means we do not have it. Globally, we're now estimating that we're 97% of arable, meaning farmable soils have been

damaged to the point of severe depletion of carbon or other macro nutrients necessary for life to occur in that crop coming out of that soil. 97% damage.

And so, we went back in time to pre-last extinction, so last extinction event that killed all the topsoil was 55 million years ago. So, we go back in the fossil record 60 million years ago, and we find fossil records of topsoil levels that may have been 25 feet deep.

SHAWN STEVENSON: Wow.

DR. ZACH BUSH: You're lucky to find 2 to 3 inches of good topsoil right now. 25 feet of topsoil when the dinosaurs were roaming this world. That were so nutrient-dense that they grew food that allowed dinosaurs to become dinosaurs. A Brontosaurus was a plant-eating dinosaur that had a jaw and mouth structure and gut similar to that of a horse. And so, it was not able to eat any more volume than a horse could, in other words, and yet its body is three or four times bigger than an elephant. Eating just plants.

The herbivores of that time had so much nutrient density they could grow bodies that haven't been repeated in biology since. The mammoth of the past. Yeah, we hunted that thing to extinction, but it also went extinct because topsoil's were dying globally.

And so, every time we lose nutrient density in soil systems, we have an extinction event. We're the thing that's killing the topsoil today through our herbicides and pesticides. We are the sixth extinction existential threat to life as we kill the soil systems. So as nutrients deplete on the planet, we end up disappearing life.

So, our interest in the laboratory was starting to understand, "Okay, if herbicides and pesticides are depleting everything, what happens when we get back in touch with the nutrients of the past?" And the molecule that caught my attention looked a lot like the chemotherapy I used to make.

Which was intriguing, 'cause my chemotherapy was a vitamin A compound that could deliver information to cells through something called redox chemistry, specifically information to the mitochondria. And so, I got super excited when we found out those molecules existed in the soil, 'cause it meant that maybe the soil itself could be our medicine.

So, we started extracting those little, tiny carbon molecules, these carbon chain molecules. Similar to glucose and fatty acids in that they're long double carbon chains, but they're not glucose or fatty acids, these are actually structural carbon molecules that create a colloidal

system within water. And so, when water picks up these carbon molecules, basically it creates a gel state that can carry nutrients.

So, these are the carbon molecules that function as baskets, basically, to say, "Here's nutrients in the soil, we're going to deliver those to the plants. Now the plants can have enough nutrients." They then, the smaller of those carbon molecules can get inside the plant and then be delivered to the animal that would eat that plant and deliver those nutrients more effectively in the gut and into the bloodstream, liver, etcetera, of that consumer.

And so, in the end, we found these carbon baskets, basically the shuttle system for how nutrients move from soil to plant, to animal, to human, to human cell. And then finding that, we also found that the delivery of high amounts of energy and nutrients within that was the antidote to this starvation phenomenon that led to the obesity, the autoimmune disease, the whole 50-year cascade.

We could reverse engineer that in a petri dish in a split second by reintroducing it to these carbon baskets, these carbon carriers. And the carriers are not just the semi-trucks moving nutrients, they also are the communication network.

So, it's kind of like a fiber optic communication system where a liquid circuit board where information can transit very quickly across these carbon molecules, but they're also carrying the resources. So, it's a really cool delivery system that is very similar to the mycelial network of fungi.

And so mycelial network under the soil that can go for miles, is the communication network that can coordinate a whole 40,000-acre farm. You put a bunch of compost over in one corner and the micronutrients will be distributed across a 20,000-acre area a very short order of time, based on the needs out in the periphery of that system.

And so, the soil over there is calling for more nitrogen or magnesium or manganese or phosphorous, whatever it needs. Mycelial network if left intact says, "Oh, great. We've got a bunch of that over here, we'll move it over there." So not only is it the information stream, it's also the delivery system.

And so, this is basically the mycelial network of biochemistry rather than cell biology here that we uncovered in the soil. And the excitement that we had was the very first studies we did was looking at can these molecules combat glyphosate? And we we're able to show and published in peer-reviewed science that we could reverse the direct damage of glyphosate to human cells by giving it this nutrient load from fossil soils.

What I just said was, if we reintroduce humans to a soil they've never touched before, they could become something they've never been before. Because we've only been here 200,000 years, and the soil of this planet carries a promise, a grace. An efficacy of nutrient delivery that defies the worst chemicals we've ever devised, and she put those in her soil 60 million years ago.

This mother nature of ours took a nutrients delivery system that would be the antidote to the poisons that we would bring about the sixth extinction for. So, I find this mysterious, and I find it full of some sort of poetic grace that we may or may not deserve, but I love imagining the nature that would predict all bad outcomes and prepare for that.

SHAWN STEVENSON: Where can we get it? Zach, please share...

DR. ZACH BUSH: Well, that... That probably has been in the market for quite some time. Our original brand was Restore. Restore Gut Health was the product, but regulatory agencies thought that was a health claim, so they shut down that. And so, we had to rename it, and so now it's Intelligence of Nature is the brand, and then gut supplement is the one that we're talking about there, and we peer-reviewed its impact on gut permeability, showing the body's ability to repair a leaky gut after exposure to these nutrients.

And it's really cool, it's not the product repairing things, it's the body repairing itself because it has the availability of nutrients and information that it was lacking a moment ago. And so, reintroducing the body to nature is about reintroducing us to the biologic capacity for regeneration.

I believe that humans have never seen our full lifespan, because we didn't know really how to engage nature in a co-creative process towards optimal health. So, we're just starting to crack the code of possibility, what could in a thousand years humans look like, if we learn just so integrate ourselves and our guts and our skin and our sinuses and every other organ compartment, our bodies back to its optimal communication network, i.e., organic garden of bacteria and fungi and protozoa and the whole microbiome.

What is life to look like? Certainly, zero obesity because all nutrients will be bio-available to the mitochondria, because we will heal all of those transport systems.

And so, I have great excitement that whatever our human journey has been in the past, it's been one of chronic wounding. We are chronically wounded as a species because we have been disconnected from our nature for as far back as we can really remember. And so, we have been slowly increasing our engineering to separate ourselves, divorce ourselves more thoroughly from nature.

And in the 1970s, we did that to our food for the first time. We divorced ourselves from the very nutrients, the very energy within our food would no longer become available to us with the chemicals of agriculture that got introduced in the late '70s there.

So, this is a reintroduction journey, so intelligenceofnature.com, there's all of our science and peer-reviewed articles, all of that, you can find that there. The science product has been a game changer because it turns out that human health really, in many ways, begins with each breath, and we're in a co-dependent i.e., addicted relationship to breath.

We breathe far too fast and frequent and too shallow to be healthy as humans. And that tends to start at issues with sinus and the posterior pharynx and our relationship to breath while we sleep.

When you start to do damage to that whole metabolic cascade that I described with obesity, autoimmune disease, and all the way up to cancer and the rest. When you apply that same breakdown in physiology to your sinuses, what you end up with is chronic post-nasal drainage.

And so, your immune system is constantly activated in the sinuses, and so your sinuses are full of snot, and every time you lay down or tip your head, that's dripping back down your throat and introducing the bacteria of your sinuses to the bacteria of your gut. Those are supposed to be two radically different ecosystems.

But as we age, we lose acidification of the stomach, and that post-nasal drainage no longer gets killed in the stomach as we age. And by age 30, 40, we start seeding our small intestine with sinus bacteria from an overwhelmed immune system up here, and we get small bowel overgrowth, we get SIBO, which is the medical condition there.

We get inflammatory bowel conditions like celiac disease and Crohn's disease as we continued to perturb the normal biologic flora and fauna of the gut. We get more benign things like irritable bowel syndrome with bloating after meals and poor digestion and all this. That's all just a disconnect or an over-connection, if you will, between sinuses and gut.

And so, the sinus spray that we developed really puts you back in right relationship with what you're breathing. We're not supposed to be allergic to everything we breathe, but we've become that. Right?

You remember maybe one kid in elementary school, or for me back in the 1970s growing up, we knew one kid in an elementary school of 800 kids, that had a peanut allergy. Nobody else had any allergies.

Now you go to a school, and they've got 32 EPIPENs on the wall to the weirdest things you've ever heard, anaphylaxis to avocados. It's no longer nut seeds and things like that, it's like radishes and avocados, and herbs and spices. Things that we've been eating for tens of thousands of years are suddenly causing near-death experiences in our children.

We have put ourselves in wrong relationship to the natural world and we can no longer tolerate life on Earth, and that's getting down to the very breath.

And so, we love the sinus spray because a lot of people will start taking the gut prime and be like, "I don't know if anything is going on," because feeling a little bit younger every day is very hard to detect, and youth is a measure of how much metabolism do you have. That's the most basic measurement and true measurement of biologic age. More mitochondria per cell you have, purse you have, the younger you are, period.

And so as you get yourself out of a poisonous relationship to your food system, you start eating regenerative organic foods from your farmers' market, your gardener down the street, your backyard garden, it doesn't take long for you to start to detox the body, when you start to get into right relationship with your food and start to get these chemicals that are poisoning your body's ability to be connected with that nature out.

And so, there's groups that have done a lot of work on this, the Environmental Working Group is a great resource for your listeners, EWG. Environmental Working Group, if you type into your search engine "Dirty Dozen, Clean 15". It keeps up seasonally as to which fruits, vegetables and the like have the highest residues of Roundup and other herbicides and pesticides in 'em.

The Dirty Dozen are the ones that you never want to buy unless you're sure they're organically regeneratively grown, chemical-free. The Clean 15 are crops that are grown conventionally without much chemical, and so you're not likely to get a residue in those. So, the Clean 15, you don't have to buy organic. Even conventionally grown foods are probably pretty clean.

But the Dirty Dozen are the ones you really want to avoid, and those are strawberries, always every year, every time of year, strawberry is the number one most toxic that you can eat. Number two behind that is typically apples. A little bit of seasonally in that.

So then read through that Dirty Dozen, be surprised by that Dirty Dozen, and for me, be really delighted in some of the Clean 15, 'cause avocados are always part of the Clean 15 and I live off of those things. So that saves me money at the grocery store, 'cause they're literally 60% cheaper, 40% cheaper than the organic avocado. And so, I can save money there on that staple and spend that on an organic berry instead.

So, it's a fast way to quickly start to dice out, "What's the most dangerous thing for me here? And where am I going to find the most nutrient and most health for myself at the grocery store?" Grocery stores, by and large, even when organic are really nutrient deficient because most of those are now being grown without soil at all, and so a lot of hydroponically-grown produce hitting our grocery store shelves now.

And so, for me, the more I can just be outside and be engaged with my farm, the better. So, it's very easy to now find area farms around your city that take volunteers on the weekends or whatnot, so these CSAs and other organic garden functions it's often throughout the whole growing season, they have volunteers coming and helping weed or helping with the new planting of your root vegetables or whatever's going in.

You learn so much. But you just feel like a different human being when you've had your fingers in the soil for an afternoon and you've smelled wet soil again, you remember what that smells like. You haven't smelled that since you were a kid. You haven't had fingers all grimy up like that since you were a kid.

But isn't it interesting that kids were always drawn into that, that's what we did before we had screens. And so, the kids of old dug holes, made mud pies. We made forts in the dirt, we made sandcastles. We were up in it, we loved it. And you can't get a kid out of nature if they're given access to nature.

And so that's a sad statement maybe socially, is we've lost that passion and sense of creativity and connection and wonderment in nature itself. 'Cause maybe all we do is go to the national park and there's the wooden sign that says, "This is the trail" and then we walk almost like a lemming on this trail for four hours, and be like, "That was our nature experience."

When you didn't actually touch the soil at all 'cause you have $150 pair of hiking boots on, and if you're out in the garden, God knows you got a $40 pair of gloves on, so you don't actually get dirty fingernails. At every step we have just divorced ourselves from nature.

And so, for me, the journey back into health is one of curiosity for nature. How can I get back in touch with that thing that gave me joy as a child? How can I reintroduce my children to that world? Of course, my kids are all grown up now, but how are they introducing their kids to that experience next generation, how is that going to look? And how can we support that as a society, how can we remind one another the joy and importance of being in touch with nature?

So, the obesity epidemic I think is only at its beginning. It's going to get so much worse if we continue to miss the forest for the trees as to the cause. If people keep trying to sell you gluten-

free food and fat-free food and sugar-free food, you're going to starve yourself into disease no matter how you do it.

And so, it's not until we get back into whole foods that are grown in whole soil systems, that we will really find our way out of this obesity epidemic, which is to say a metabolic crisis, which is to say the collapse of human health.

SHAWN STEVENSON: This is hitting me different. And in particular, just the fact that we're existing in this glorified snow globe. You can't run away from this. And when you talked about the hydrologic cycle and just what... There's rain happening in LA right now, but when you mentioned the Mississippi River, I'm from Missouri, so that was a staple in my reality, from going to cross that bridge and go over into Illinois.

I remember part of our school field trips; we would go on a field trip to the St. Louis Arch or something. And the highlight was going onto the McDonalds riverboat. Alright? So, McDonalds had a f*cking restaurant on a river boat, and now I know the most toxic thing isn't the McDonald's river boat, it's the water. And so, it's just...

It's so paradigm-shifting to look at how quickly we have this infatuation today with viruses, and if we understand how we've devolved as a species in a sense right now. And I think it's a temporary devolution. But we are the most intrusive virus-like thing right now, and we're breaking things down at such a rapid rate.

But at the same time, there are these wonderful things like you just mentioned, nature already had things packaged up for us to kind of counteract these things that are taking place, and it's just a question how quickly are you going to tune into that.

I want to ask you more about this particular thing. You mentioned earlier about this advent of a statin drug deficiency. No human in the history of humanity has been ever deficient in a statin, and looking at trying to treat a particular symptom, but in a very ignorant way.

I'm on a mission to take out the word "bad" on anything that the human body is creating internally. This LDL is a carrier, it's an important carrier of all kinds of things that are critical for the function of our bodies. And to call it bad, "You're the bad boy, you're the bad girl," of the human body is so ignorant.

We'll throw the study up on screen for you guys. This was just published in the BMJ, the British Medical Journal, one of our most prestigious medical journals. The title of the study is, The Effect of Statins on Average Survival in Randomized Trials: An Analysis of Endpoint Postponement.

So, they're looking at taking these statins, this multi, multi, multi-billion-dollar cash cow, does it actually extend your lifespan? So, protecting you. The number one killer is heart disease. The meta-analysis included over 92,000 patients; this is a robust dataset.

The study found that statin use was shown to prolong life between minus five days and 19 days. Alright? You're on the statin for years. Minus five days to 19 days. And they also had a secondary prevention trial as well, and they found that life was prolonged by taking a statin between minus 10 days and 27 days.

Alright, so again, we'll put that study up for people who are watching the video version. It's a joke. It's a joke, Zach.

DR. ZACH BUSH: Yeah. I mean, it's... Again, we developed a wrong relationship with fat and sugar when we poisoned mitochondria and we can no longer use them for fuel, and we broke the relationship.

The first thing that happened is we started to see really severe perturbations in our trafficking of fatty acids, which is done through the cholesterol system largely. And we started to add chemicals like Aspartame to our sugar-free stuff. So, this is all 1980s. And so, Aspartame, before that, high fructose corn syrup, same kind of problem actually.

So high fructose corn syrup is a sugar. Fructose has a very short carbon chain compared to glucose. But it gets everywhere very fast, so fructose is your simplest sugar in some ways. And fructose will typically be converted to glucose so that it can be used by mitochondria, so though the liver will package it up as glucose.

Fructose though is interesting, in that it's naturally occurring in a lot of different fruits and vegetables, and so occurs in apples, it's the main sugar in apples.

SHAWN STEVENSON: Hence the name "fructose".

DR. ZACH BUSH: Yeah, fructose. And so, the fructose in an apple turns out to have actually a relatively local glycemic index when delivered in an heirloom apple. And if you've ever chewed on one of those small heirloom apples, you remember how chewy they are, their crunch is hard, is hard to bite into. Very crunchy, bitter, and very chewy 'cause it's so fibrous.

The fiber that naturally occurred in apples is the antidote to the glycemic index of fructose, and so the food developed a balanced way to deliver nutrients in such a way that it wouldn't be inflammatory to the consumer, the animal that would eat it. And so, fascinatingly, as we

started to favor easier to crunch apples that had more sugar and sweeter thing and less tart and all this, and we hybridized our apple trees over time to make sweeter and sweeter apples over time, we lost the relationship between fructose and fiber.

So, we biologically engineered out of our apples, fiber. Then we come along with processed food, and we say, "You know, we're going to make high fructose corn syrup instead of sugar." And with that, we completely eliminated all of the starches and fibers from the corn and just picked out this fructose.

But it turns out you can't patent a naturally occurring sugar, and so we had to flip the molecule over, which is a trick of biochemistry, it's called the racemic, and so for high fructose corn syrup is actually the mirror image of naturally occurring fructose. It's an unnatural sugar.

When you put a high fructose corn syrup into a liver, the triglycerides, i.e., one of the main cholesterol carriers shoots through the roof in the bloodstream rather than the glucose going up. So, it doesn't actually even act as a sugar, it acts as a fat, and fat that can't be digested well.

SHAWN STEVENSON: So, it's a zombie sugar.

DR. ZACH BUSH: It's a zombie sugar, it's a zombie fat. It's a zombie carbon chain, really. We weren't made to handle the mirror image of fructose. And so, we don't have a biologic pathway for high fructose corn syrup, so that one is just a non-nutrient.

So that one starts causing problems, and so, "Well we should take high fructose corn syrup out and get... Here's something that makes things sweet without it, it's a sugar alcohol or an aldehyde. Here's something that we would call Aspartame."

Aspartame is a very strange molecule that hits the tongue as super sweet, known as NutraSweet. Which is really clever, nutrition plus the word "sweet". Nutrasweet. Good marketing branding. And so, NutraSweet comes in, and when that goes into your blood stream and hits the liver for the first time, it's immediately converted to wood alcohol.

Wood alcohol is kind of famous in medical history because in Prohibition days 100 years ago when we banned alcohol everywhere, you have all these stills that were developed in the backyards of houses and everything else, and West Virginia being famous for it, but all over the country.

And so, people were distilling their own alcohol. And when you don't run the still at the right temperature, you end up with wood alcohol instead of ethanol. And what was happening is when you ingest would alcohol, you go blind, it poisons the optic nerve, and you lose your

vision. So, blindness was a pretty common side effect of wood alcohol contamination within homemade stills.

And then fast forward 70 years later, and we're giving people in their Diet Coke and everything else, a molecule that would turn into wood alcohol in their liver. The poison that happens in the body from wood alcohol isn't actually in that first pass. It's when wood alcohol goes back through the circulation, ends up at the liver a second time and it's converted to formaldehyde.

Maybe you've heard of formaldehyde?

SHAWN STEVENSON: Yeah.

DR. ZACH BUSH: This is what we embalm dead bodies in so that they can't break down. And the reason they can't break down is it poisons all enzymes so that nothing can be broken down.

SHAWN STEVENSON: Isn't that also like the sting of a fire ant?

DR. ZACH BUSH: Yeah, there'd be formaldehyde and formic acids are in those and things like that, they can turn into...

SHAWN STEVENSON: That sounds delicious.

DR. ZACH BUSH: Yeah, amazing. And so, we started ingesting glyphosate at the same time we started ingesting formaldehyde basically from our sugar-free foods. And so, the glyphosate was poisoning our ability to take naturally occurring glucose from fructose into energy, so we started getting obesity and cholesterol problems.

So, we start saying, "Well, we're getting obese, we must have too much sugar. Here is Aspartame." So, here's poisoning with formaldehyde your entire enzyme detox pathways and everything else.

And so, it was this advent of processed foods that systematically poisoned humanity into our current state of dysfunction and disease. And so that's been the journey and now that we know the science, there's a huge opportunity for us to do the opposite, which is get rid of processed food, stop endorsing the increasing processing of nutrients and start endorsing real food to be grown in the United States again.

Which frankly isn't done in the US anymore. We only have one county that grows more than 10 species of food, and that's Fresno County, California grows over 300 species of food. Others... We only have a handful; I think it's 10 other counties that grow more than 10 species.

The rest of the counties really grow three to five species, which is typically corn, soybean, wheat, and a couple of other commodities crops that are never intended and will never end up on your grocery store shelf or on your dinner table. These are ones that go into producing ethanol for gasoline, textiles, so we can make enough polyester for all your clothing and all this, and then your animal feed for high intensity feed lots, which include cattle, swine and very bizarrely, farm fish are eating mostly GMO corn.

And so, we aren't growing food for humans anymore. Our most agricultural state near your Missouri there, was Kansas. Kansas is 90% agricultural use by land usage in that state. Right in the middle of the country. Kansas has to import 90% of its food. One in five children in Kansas goes to sleep hungry, due to a lack of food in the home, due to poverty.

We are not growing food in those fields anymore. Our farmers are starving, literally. And we've made documentaries from the Minnesota and the whole tributary headwaters of the Mississippi all the way down to Louisiana, and farmhouse after farmhouse, after farmhouse, it's Totino's pizzas in the freezer, and so it is in the fridge. There's no real food in our farm homes over and over again throughout this country.

SHAWN STEVENSON: It's crazy. You would think again, just superficially they would have access the fresh farm food, but it's just... It's become so industrialized and disconnected in so many ways. And that Totino's pizza, soda paradigm. That sounds so familiar to me. That's really the reality I grew up with. And I even remember when pizza rolls hit the market, like it was on.

And so, when we're talking about the fact that we have access to "caloric energy", but yet we are starving, as a species our cells are starving, our bacteria, our mitochondria. And not only that, they're also getting essentially clogged up with these very abnormal compounds that are newly invented.

We are living in a state where we have access to caloric energy in a strange way. Again, even as I'm saying that, putting energy on it, it pisses me off because it's such a... Seeing things with tunnel vision. But we're starving, our cells are starving.

SHAWN STEVENSON: We've got a quick break coming up, we'll be right back. The human brain is the most powerful pharmacy in the universe. And I'm saying that because every single thought that we think creates correlating chemistry in our bodies. And that biochemistry is designed uniquely for you. It's beyond bio-identical hormones or bio-identical neurotransmitters.

These are designed specifically for your own receptor sites, so what you're making within your own body based on your thoughts, your perception of reality, is of the utmost importance. And obviously, thoughts of stress and anxiety and worry and fear, these are going to create cascades that make us feel a certain way. The same with more positive and affirmative feelings and thoughts, of joy, of love, of connection. But all of our emotions matter.

Now the thing is, if we're talking about health and longevity, we want to make sure that we're stacking conditions to have more positive affirmative thoughts, and buffer us from the stressful thoughts that we are inevitably going to have.

Now, our sleep hygiene, our movement practices, and also our nutrition are of the importance in helping to modulate these things, and when it comes to managing stress, there is one particular story tea that has been utilized for thousands of years that stands head and shoulders above the rest.

A study published in Biomedical Research found that test subjects with a variety of health complaints, including anxiety and poor sleep quality, were given Lion's Mane medicinal mushroom or a placebo for four weeks to monitor their metabolic and psychological impact.

The participants who utilized Lion's Maine had significantly reduced levels of anxiety and irritation than those in the placebo group. The researcher stated, "Our results show that Lion's Mane intake has the possibility to reduce depression and anxiety."

Not only that, scientists at the University of Malaya discovered that compounds in Lion's Mane are able to significantly improve the activity of nerve growth factor in the brain. Nerve growth factor is essential in the regulation of growth, maintenance, proliferation, and survival of various brain cells.

If we want to have a healthy brain and protect our brain cells, which we don't have the regenerative activity of brain cells like we do other cells in our bodies, we've got to take care of our brain cells. This is one of the few things ever discovered that has that protective capacity.

For me and my family, we want to make sure that the medicinal mushrooms that we're utilizing, Lion's Mane, Chaga, Reishi and the like, are all done via a dual extraction to make sure that we're getting these bio-active compounds in a more full fashion.

So, via a hot water extract and an alcohol extract, there's one company that's doing that and infusing these incredible medicine mushrooms into things like organic coffee, organic hot cocoa. And I'm talking about the folks at Four Sigmatic. Go foursigmatic.com/model, you get

10% off storewide of all of their incredible medicinal mushroom elixirs, cocoas and their organic coffee blends as well.

Today I actually had the Lion's Mane and Chaga organic coffee blend. It's one of those things, of course it puts you on 10, but it helps you to modulate and manage your energy, it's not one of those things where you get this jolt of energy and then it leaves you lagging later on. It's very steady, mild-mannered behavior and also helping to really activate the cognitive function that we're looking at when we're talking about things like Lion's Mane medicinal mushroom.

You can get 10% off storewide, plus more. They got some incredible packages that you've got to check out and specials, over at for foursigmatic.com/model. Go to F-O-U-R-S-I-G-M-A-T-I-C.com/model for 10% off storewide and more.

And now, back to the show.

The next thing I would like to ask you about is, knowing that the solution is getting access, you mentioned this earlier, detoxification, right? This term that is, again, marketers screw everything up and now it's like, "You got to take this thing and have this special cleanse. It's a 30-day whatever. And don't eat," and all this different stuff. And there's so many wonderful programs out there, of course.

But the number one way to detoxify your cells and to regenerate is with real healthy food. And here's the rub, and I want to ask you about this. Getting access. You said the solution is whole food grown in healthy soil. Getting access to that is becoming more and even remarkably difficult when folks that are in control of the education or public policy around food like the Tufts University recent food compass paradigm getting published, and where they got Frosted Mini Wheats as a top tier nutrient dense food over things like eggs, example.

So, this is the marketing, it's more ultra-processed food. And of course, we got glyphosate in that bowl, heavy in those Frosted Mini Wheats. We've got this strange paradigm where the promotion of these things under the guise of, "These things are healthy. It's low in fat." These are those catch raises you mentioned earlier, "low fat, it's high fiber", and yet it's devoid of any real meaningful nutrition.

DR. ZACH BUSH: Yeah. And I can loop this back to your story on the statins, which I forgot to hit on. What I was describing there with the fructose and high fructose corn syrup and then the Aspartame and the formaldehyde, we literally start poisoning the bloodstream of humans. And the reaction to poison is inflammation.

And as inflammation increases in the bloodstream, the blood vessels themselves become damaged, and then the immune system has to react to the damaged blood vessel and what it calls for is LDL cholesterol.

And so, in the 1980s we started to see LDL go up, and because of our inability to really systems think this thing through, we just started to say, "Well, cholesterol ends up in the blood vessel wall, that must be the fault of LDL cholesterol." So, like you said, this normal anti-inflammatory that's critical to human biology, that had been there for 200,000 years of human history and four billion years of processing nutrients in cells, we suddenly demonized it because there was a correlation.

LDL cholesterol starts going up in people that have been poisoned and therefore have lots of vascular inflammation, and we started blaming the LDL. True, true, and unrelated, LDL was going high, lots of cardiovascular disease. But it wasn't the LDL that was causing it.

And so, this is the problem we faced with Western medicine, and the pharmaceutical companies have been very quick to grab on to reductionist theories to disease because they can be a drug target. What drug are you going to invent to say that we fell out of good relationship with our foods because the entire food system has been poisoned? There is no drug. You simply have to get in touch with the real food system again.

The pharmaceutical industries, which are private companies with boards and some of them now public companies that are massive and they wield budgets that are larger than most nation states in the world. The pharmaceutical industry, the "health industry" of our country is five times larger than our entire military.

Militaries have always been the biggest industry in empire building. We've created something five times larger in chemical pharmaceutical companies. And so, this is the biggest business that's ever existed on Earth. The budget is around $4 trillion a year now just to spend on pharmacy in the United States. Globally we're up, we're 11 trillion or something ridiculous.

And so, when your top line is $11 trillion as a global pharmaceutical industry, there's a lot of impetus to keep growing, right? And especially when economies are failing. My gosh, this is the trap the US is in right now is, well actually, we can't get healthier.

Because if we start getting healthy and we have less pharmaceutical dollars being spent, we have no economy at all. Because we stopped manufacturing, and we stopped building things. And you saw what happened when the pandemic happened, we couldn't get a mask on a nurse because we don't make hospital masks anymore.

And so, the jobs became so abstract in the United States and so many of them are being gobbled up in healthcare now, nurses, nurse practitioners, nurse aides, pharmaceutical techs, doctors, physician assistants. All of these. Many of those are new industries that were birthed in the last 30, 40 years.

We didn't need all of those titles and everything else, it used to be just doctors and nurses, and that was enough. Now we need physician extenders, they're literally called "physician extender", so you need two nurse practitioners and a PA because one doctor can't handle the amount of sick that's coming in the office.

We have had to create this massive economic machine to address the amount of dysfunction. And for that we've developed a co-dependence on the healthcare industry for economy. It's a vicious, nasty cycle. And it will be the collapse of the United States empire, it's not some marauding threat of some other military or nuclear threat, it is our freaking relationship with the pharmaceutical chemical companies. This is the threat to solvency, to our bottom line. It's that simple.

We cannot have our primary industry be one that diminishes productivity of our citizens at every single dollar that we spend more on, and that's what's happened with chemical companies. So, we started spending money on statins to reduce LDL cholesterol. Should we be surprised that it never saved a life, that it never actually prevented heart disease, that it never actually...

No, because it had absolutely nothing to do with the poisoning of the beings that started to raise their LDL cholesterol to address the poisoning. And so, the cancer is the same thing. Our war on cancer is like saying we have a on snot.

I've never walked into the doctor's office and said I have a head cold and they make me start doing CT scans and my sinuses to measure how much snot's there, and then they start biopsy and tell me it's green or it's not green, it has pus in it or it doesn't have. It has white blood cells of this type or this type.

That's what we do for cancer. We biopsy and we tell it's all kinds of different shapes and volumes and receptor surfaces. I was a cancer researcher; I did this all the time.

What I didn't realize is I was spending billions of billions of dollars of medical research and medical care measuring the snot of human cells, which was ultimately cancer. If you go unrepairing long enough, you have a cancer cell.

And by making the snot or the symptom of the upstream disease the focus of all of our medical research. And cancer, there's no way we're ever going to prevent a cancer, let alone treat a cancer, because we're so far downstream of the original problem, which was isolation of a human cell, which is what cancer is.

Cancer is the isolation of a single cell, and we know by the second law of thermodynamics, any time you put a system in isolation it increases its chaos, which is to say disease. Cancer cell is simply a cell that's become disconnected from its environment.

And so, you had mentioned earlier that we kind of behave like a virus on the planet. I would argue that we need to re-change our whole understanding of viruses 'cause viruses never cause harm. We can come into a wrong relationship with genetics, which is what would cause something like a flu or a syndrome of respiratory problems, all that, when presented with new genetic information. But a virus cannot attack humans, it is not a living being, it is not a thing.

When we fall out of right relationship with our immune system to our environment, then we can develop unhealthy relationships with our environment, i.e., the genetics in our environment, which would be the viruses. But they're not attacking us.

Humans are not viruses 'cause we're not actually presenting new opportunities to nature to do more biodiversity; we are destroying biodiversity. So, we actually are the cancer rather than the virus.

By being a cancer, we know that we became disconnected from the greater thing. Single cell completely isolated from its larger organism is a cancer. Our species is a cancer because we became isolated from our greater organism, which is Earth. Earth is one living system.

Until we come to terms with that fact, Earth is one living system, we will continue to be the cancer on it. Because we will continue to categorize and say, "Well, those species are good, those ones are bad, we'll kill all those, we'll do this," and we will continue to be against the law of nature, instead of by the law of nature.

We are against the law of nature because we have seen biodiversity as the enemy, and we have tried to monotonize our crops, our social experiences, our churches, our synagogues. Whether we're talking or religion or cancer cells, we have tried to destroy diversity, and we have tried to become monotonous in our beliefs, in our behaviors, in our relationship to the world. And for this we are dying and we're dragging the whole planet down with us as we become that cancer on the planet.

So, what shall we do? Should we measure all the snot of humanity and say, "Oh, 7.8 billion tumor cells. We're killing it all. We might as well just annihilate it all. We're too much human population. We need to shrink the human population." This is currently the solutioning of billionaires and governments worldwide, "Let's just let the human population collapse. Certainly, clearly we're bad for the planet."

Instead of asking, "Well, what's way upstream of that? How do we become not a cancer? How do we become the livers and the kidneys and the hands of this planet?" Because we came along. Nature imagined us into existence. We are a figment of her imagination. And so, we came along and we became.

You and I were talking right before we started of the "I am" phenomenon. "I am because you are," that's the Ubuntu word. I am because you are. Because I can see you and you can see me, I am.

We have to get to the realization that Earth is a living system, and we are an expression of that living system, and we are in wrong relationship with that nature right now, because we thought we were rejected, we thought we had been kicked out of nature.

And this is all the way up to our very language, go to Oxford, Oxford English Dictionary, our great academia. Definition of nature, it's the permanent of all things on the planet, including minerals and the plants, animals. Everything except humans or anything humans have made.

We wrote ourselves out of the definition of nature, and we behave that way. And for that disconnect, we are the cancer, we are the isolated thing that is increasing its chaos.

The opposite holds true all the time in physics, the second law of thermodynamics, a system connected always reduces its chaos. And so, we will reduce our chaos of humanity, we will stop being the cancer on the planet when we reconnect the natural system that we call life on Earth that revolves around a carbon-water cycle.

We need to reverse our demonization of viruses, and we need to reverse our demonization of CO2. Those are the two codes of life. How did life occur? We have a carbon cycle, and we have viruses. The viruses are the genetic potential of tomorrow. They are the life that would be here tomorrow. And for three and a half billion years, those viruses have been accelerating biodiversity.

If we put ourselves in line with the goal of making sure humans are fostering biodiversity at every single element within our behavior, we will be so harmonic with this planet so quickly.

For this, if you have interest, we're launching the Institute of Natural Law, which is a new non-profit that's there for awareness, education, innovation, and policy around natural systems and how we start to understand socio-political change in the context of biodiversity.

The only code, the only goal of life on Earth is more diversity to express more beauty. And if you start to practice that in everything in your day, you will do something much different. If you just think about the biodiversity on your plate, what if you made a goal that your children would not eat the same vegetables one day a week, you know?

There would just be completely different veggies on a plate at least one day a week. And then make that two days a week where they are just unexpected veggies on the plate. Unexpected new herbs and spices in the food. What if you go from the five meals, the typical American cycle is five meals, what if you go from five meals to seven?

Just learn two this month. Two new recipes. Get that into the cycle. Next month, two more. In a year you got 24 new recipes cycling through your dinner table. And make sure every one of those has new varieties of fruits, vegetables, herbs, spices, nutrients, color, flavors, experiences.

Start to get more people involved in that dinner. Something like 35% of meals in the United States are consumed alone behind a steering wheel. That's not dinner, folks. That's a drug. That's you cramming a drug in your face to try to reduce the amount of suffering you feel in your loneliness and your separation from the world around you, while you sit in traffic.

It's time for us to understand that food becomes nutrients, not just for its reconnection in nature, but for our reconnection to society, to social structures. All of the Blue Zones out there have been studied into oblivion, everybody is looking for the magic diet. Maybe it's Mediterranean, maybe it's Asian, maybe it's things. 'Cause people are living to 105, 110 years in these towns regularly.

And the one thing they found in common with Blue Zones is that people eat around dinner tables with multiple generations, at least four generations at every table. You've got grandparents and nieces, nephews, aunts, uncles at every dinner table. A couple from Ikaria, Greece, which is one of the Grecian Island Blue Zones of the world, they were over in the United States for the first time, and they'd been brought over to cook a five-course Greek for a bunch of speakers around nutrition and all this.

And neither of them were chefs, but they've been living on the same property for 500 years. It's their family vineyard and they've been making wine and olive oil off of this vineyard for 500

years, and they live out of their same garden system, their same garden they've had for 500 years in the family.

And this couple, they're in their 60s, they came over and they spent five days foraging in Virginia, in backyards and everything else, to get enough ingredients for this five-course Greek meal.

One of the courses was a little onion that she had found, she went into our grocery stores and was appalled at the size of onions. She's like, "You can't eat onions that big. They're acidic, they've lost all their interesting nutrients. They're too tough to eat. They don't sauté right, they don't soften right under heat. They become inflammatory if you cook them for too long."

She had all this, so she had these baby onions and the whole course was one onion that had been roasted in the oven with their olive oil that they had been growing for 500 years. And a little bit of sea salt.

This thing was the most delectable thing I'd ever put in my mouth. It dissolved in my mouth as I said it there, and the flavors that came out of this baby onion were things that I just had never associated with an onion. It was sweet and there was umami in there, and there was this whole cascade of bitters in the back, and then that bite towards the end.

And then it would reverse itself and then it was back to the herbal and then back out to a sweet finish point. Every bite. And by the time we all finished that one little onion, which was each of us sitting on that plate, one plate, one onion, we were all in tears, realizing we had totally forgotten or perhaps never known what an onion was supposed to taste like.

And the obvious thing was that onion's purpose was to bring pleasure and beauty to the planet. And Epicurus, the great Greek philosopher a couple of thousand years ago, his name now, the basis of Epicurean, those curious of food, those that study food. But Epicurus believed that the highest purpose of humanity was to experience pleasure from nature.

And so, he was huge into food for what it could do to us and our consciousness. He watched people raise their consciousness and become more creative, in their poetry, in their music, in their arts and everything else, when they were connected to food, when they experience pleasure.

And so, I believe that the monotony of our art and our digital expression of art today is a direct expression of chemical food system. When we start to taste onions again that are prepared for their full beauty, we will start to write poetry again in a new way. We will start to put paint

brush to canvas again. And we will start to really create an analog world again, because there's nothing more beautiful than an analog reality.

Digital reality is an abstract concept of our full potential. And so, we need analogic expression, and it has to start at the dinner table. You are too far separated from an onion on your Tortinos Pizza, you cannot taste it. It cannot deliver nutrients or medicine, or joy or pleasure.

I like to imagine a carrot and that carrot's journey through its life course of growing this long orange root that's below ground, seemingly pointless. Why would it spend so much time being so beautiful? There's orange carrots and purple carrots and yellow carrots and white carrots. Why all that beautiful color? Why the effort to get all those nutrients in there, if it was just a root underground, never to be pulled out?

I think it was designed specifically to attract the attention of farmers who said, "What's that root? That's so colorful. I think I'll try that." Was the purpose of nature to bring an observer, a witness, to her beauty into reality, into its right relationship? And I'm curious to know whether a carrot might know that its purpose is to bring humans together to express something of nature in a way a carrot can't on its own?

A carrot can become poetry through your blood stream, through its expression of energy in your brain. A beet can become the next great three-minute GCD song that breaks the charts.

We have the potential for nature to turn into art through our bodies. Right now, we are in an abstract expression of nature because we only know how abstract natures. When we really rediscover the beauty around us, we will write some of the best songs and best poetry, and we will know the best love... Love notes ever written. When we find our own beauty within the nature that's expressing itself for us and within us.

SHAWN STEVENSON: Dr. Zach Bush, I am because you are. I appreciate you so much. This has been amazing. Amazing. And I believe that we are so much closer to this reality than we realize. As you said, things are probably going to get worse before they get better, but it's all in our perception.

Thank you so much for being who you are and for being a representation of what's possible and doing something. We're not just here to be a human doing, we're here to be a human being. But you are indeed proactively doing so much to get us in touch with the education piece, and also just vying to get our hands back in the soil.

And again, I appreciate you so much. Can you let everybody know where they can get more information about you and what you're up to? And also point us back to where we can get

some things. Again, you've put your resources through actual clinical trials as to their efficacy and effectiveness for us. And so, it's really special.

DR. ZACH BUSH: Yeah. Yeah, so intelligenceofnature.com is all that soil science and the products that are reconnecting us to the nutrients of old, to correct that wrong relationship to metabolism and energy on the planet. That has gone through not only clinical trials in humans, but we also did a huge 12,000 cattle trial with an agricultural application of that product, to prove that we could help nutrients get into the muscle of cattle much more effectively than the high fructose corn kind of version of what they're getting in their current corn, soybean, etcetera.

And so, by giving this substrate, even all the crappy food to cows, we showed that they would reduce their morbidity and mortality, less abscesses in the liver, less pneumonia, and they were producing more muscle per calorie in.

And so that's really what I hope for humanity, is we start to produce the muscle and energy that every piece of food intended for us again. And so intelligenceofnature.com there. For the deeper dive on soil and becoming part of the solution for you and your community, please tap into Farmer's Footprint, that's our non-profit.

All of our... Our biotech company, all of that money that we've ever made out of that company is poured back into seeding new research and development and root cause solutions on the for-profit and non-profit side. But Farmer's Footprint was our first big project in bringing awareness, education, innovation, and policy to regenerate food systems.

And so farmersfootprint.us. If you're in Australia, it's farmersfootprint.org.au. We're launching farmersfootprint.uk next week, and so join us in England there as we tackle the food industry there. Farmer's Footprint South Africa coming on this year and the like.

So, lots of excitement around this movement that is now going global after just a few short years, which means that there is an appetite for repair of our relationship to nature. And so farmersfootprint.us to get you back tied in there, we would love your support there, if you can support our programming there, really every little donation makes a huge difference there, so we love seeing that acceleration of impact.

For all my education, if you want more on cancer, heart disease, autoimmune disease, viruses, everything else that you might have been pinged with curiosity here, you can go to zachbushmd.com. That's got all in my education for free there, you can tap in across that.

If you're really feeling like you need a team around you, our eight-week program that is one-on-one coaching or there's group coaching available as well, is our journeyofintrinsichealth.com, and that can get you a team, really giving you a complete new relationship to your nature.

And so, if you're frustrated and feel stuck, there's an opportunity for you to plug into that community. And it goes far beyond your eight-week journey, we launched the whole community platform around that, there's an app that you can connect with. There's a low dollar membership that you can sign up for so you can just be part of the community, even if you don't have the time or resources to do the whole eight-week program.

There's ways to get tapped into the energy of that community that's really finding right relationship with self, and therefore with nature again. And so, Journey of Intrinsic Health, sign up for the membership to be part of the community, sign up to the eight-week program if you need the help.

We want to see you thrive; we want to see each of you become your full potential because we're convinced your part of this puzzle. We showed up, all of us, 7.8, 7.9 billion people. Actually, I think I looked at the ticker of our population, and it looked like it's over 8 billion now, just last week.

So, 8 billion of us sitting here showed up right now at the tipping point of all things with this relationship with nature being at a pinpoint necessity, and so I really believe each of us showed up on purpose to change our relationship ultimately back to an integrated nature within us and around us and become part of that solution.

So please join any way you can, it's all about connection at this point, and radical collaboration is the modus of operation for all of us at this point. We're all in it, one living system on Earth, and we got to go engage.

SHAWN STEVENSON: Let's go. We showed up to the party, might as will dance a little bit. Alright, my guy, Dr. Zach Bush. Listen, thank you for being a resource for truly profound knowledge. Not just knowledge, profound knowledge. That changes the way that we think and how we relate to each other in the world around us, how we relate to ourselves. I really do appreciate you. Thank you so much for stopping by.

DR. ZACH BUSH: Thanks for being part of this journey here.

SHAWN STEVENSON: Let's go. Dr. Zach Bush, everybody.

Thank you so much for tuning into the show today, I hope you got a lot of value out of this. As Dr. Bush mentioned, we arrived at this time in human history, I believe, for something very special. There's about 8 billion of us hanging around here on the mother, and we have this really remarkable opportunity in front of us, and our choices that we're making right now truly will have an impact on future generations.

Our past generations, our ancestors had an insight and understanding into how important it is for them to preserve things for generations to come. We've lost touch with that as we've lost touch with our understanding that we are a part of all of this, we're a part of nature. And we can't run from it. We can act like we can, but truly we are a part of this.

And until we are living off world in some Star Trek version of this whole story, this is all that we have. And making our choices every single day, it isn't just a choice in isolation, just as we're not in isolation. It's either moving us towards health in a regenerative future, or away from it.

And so, embedding these things into our family culture, into our own personal culture, and spreading that out into our communities one choice at a time, we can truly make a big difference. Now we got to buckle our seatbelts here because it's a roller coaster ride and things might get a little bit, maybe a lot, a bit more difficult in the upcoming years, but stay true to that vision of health and making health normalized.

We live right now today if you are healthy, you are the exception, not the rule. The CDC reported recently that today in the United States, over 60% of our citizens, six out of every 10 of our citizens has at least one chronic debilitating disease. 40% have two or more. This is the norm. So being exceptionally healthy, being healthy, let alone exceptionally healthy, you're weird.

And so, we want to grow this population of weird people so that we can normalize health, we can normalize empowerment. And even if we have experienced or experiencing right now a chronic condition, knowing that there is a way. That we are still here, our heart is beating and there is an opportunity, life is always seeking to express itself through us.

And how quickly and gracefully can we get in alignment with life itself and give our bodies the opportunity to do the thing that it does best, which is healing, which is health, which is radiance, which is being a model.

I appreciate you so much for tuning into the show today, I hope you got a lot of value out of this again. If you did, please share this out with your friends and family. On social media you could take a screenshot of the episode, you can tag me, I'm @shawnmodel on Instagram. And

I'm on Twitter, I'll drop in to do a tweet from time to time. And I'm at The Model Health Show on Facebook if you're in the Facebook Meta universe.

And of course, you could send this directly from the podcast app that you're listening on to somebody that you care about. And pop over to the YouTube channel, we got exclusive content that we're going to be sharing over there on YouTube that you don't want to miss.

I appreciate you so much. We've got some epic masterclasses, world class guests coming your way very, very soon. So, make sure to stay tuned. Take care, have an amazing day, and I'll talk to you soon.

And for more after the show, make sure to head over to themodelhealthshow.com. That's where you can find all of the show notes, you could find transcriptions, videos for each episode. And if you got a comment, you can leave me a comment there as well. And please make sure to head over to iTunes and leave us a rating to let everybody know that the show is awesome, and I appreciate that so much.

And take care, I promise to keep giving you more powerful, empowering, great content to help you transform your life. Thanks for tuning in.