

# **THE** MODEL **HEALTH** **SHOW**

**EPISODE 582**

## **How Antibiotics Can Damage Your Brain & The Microbiome-Covid Connection**

**With Guest Dr. Robynne Chutkan**

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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 me today. This week we're kicking off a special event, we're kicking off gut health week here on The Model Health Show, and I'm bringing forward for you two of the greatest gastroenterologists in the world, and also their integrative gastroenterologist, so they have a much more well-rounded perspective about gut health and how it affects so many other aspects of our lives. You'll have to look very hard to find somebody who hasn't heard the term microbiome today. It's a hot topic, and as our special guest mentions today, the human gut is really having a moment right now, and it's starting to really be fleshed out just how much our gut health impacts every area of our lives, and especially every area of our bodies. So much so, today, our special guests are going to be sharing with you some new information about antibiotic use that is going to blow your mind, and when I say blow your mind, I'm talking literally...

That's right. Antibiotic use has some very interesting impacts on the human brain and our cognition, so make sure that you tune in and listen deeply for that one. And also, we're going to be dissecting, really, really digging in on the relationship between gut health and COVID-19. And this is information that every single person should know, this should be highlighted on all the press conferences in the public education, but unfortunately, this has been glassed over again and again and again, and our special guest is going to be sharing real, peer-reviewed data on how important the health of our microbiome is in protecting our bodies from the impact of communicable diseases, namely COVID-19, the one that's been on everybody's mind for the past couple of years, and so yeah, this is just absolutely packed with incredible information, so I'm really, really excited about this. And in the context of gut health, there's obviously very few things that impact the health of our microbiome, our friendly flora, encouraging the replication and proliferation of unhealthy, pathogenic bacteria as well, and the food that we're putting directly into that organ system. The food that we eat has an incredible impact, obviously, and there are foods that have been well-documented to encourage the proliferation of pathogenic bacteria and starve our healthy, friendly flora that are needed, they are literally required to create certain compounds essential for human life.

So, our bacteria create compounds in us for certain vitamins, certain short-chain fatty acids or SCFAs that are required for healthy integrity, maintaining the healthy integrity of our gut lining itself, but also have major roles in our overall metabolism, our hormone function, our heart health, all based on the performance of our friendly flora. We have to support having a healthy bacterial balance, and so even these pathogenic or opportunistic bacteria, they still have a role. This is why we have them, but it's when this cascade gets imbalanced, where we've got too many of the opportunistic bacteria running our system that our friendly probiotic

flora. Now, again, so we've got our probiotic flora, right? Pro meaning for, biotic meaning life, that are making post biotics in us for us. So, these are the individual compounds that we're getting from this relationship, but the prebiotics, so prebiotics are needed for the probiotics to make post-biotics. Prebiotics are coming from array of foods and something that is often looked over and it's easy to look over, because it's not in the same kind of fibrous category that we might think about in terms of our bacteria.

It's the oils that we are consuming. That's right, the oils that we consume has a major impact on our bacteria cascade. In fact, new data just published a couple months ago in The Journal of Functional Foods, titled Effect of Medium Chain Fatty Acids in Human Health and Disease, found that MCTs, medium-chain triglycerides, have significant antibacterial effects against pathogenic microbes, and one of the studies that they mentioned in this meta-analysis was looking at MCTs versus corn oil, corn oil being used for so many different food products today, and corn oil literally contributing to mortality in killing... This was a particular animal study, killing these animals faster, disrupting their gut help, but also killing these animals, these critters faster, versus the MCTs being protective against morbidity, against dying from all causes, really, really cool stuff, but specifically, they were analyzing how MCTs helped to establish a healthy microbial composition in the human gut.

This is yet another reason why I'm a big fan of MCT oils. And this is something that I have on a daily basis. I just traveled, I just got back from being on the road, traveling to speak at an event, I bring my MCT oil with me, I bring it with me, I'm that serious about it. And also, of course, it has these thermogenic effects as well, that help to positively alter our metabolism, we've got so much data on that aspect as well, but specifically since we're talking about gut health, I wanted to add that layer on why MCT oils are such a great thing to have in your super food cabinet. The only MCT oil that I use, because again, people, they hear this information that go out and they get company X MCT oil, and not paying attention to the standards, the quality, the integrity, the sourcing, the other nefarious compounds that can come along with what they're trying to get their health from. You've got to get it from the best sources as possible, and for me, the best source for MCT oils is going to be coming from Onnit. Go to [onnit.com/model](http://onnit.com/model), that's O-N-N-I-T.com/model...

You get 10% off their incredible MCT oil. They also have emulsified MCT oil varieties as well, that are kind of like a functional coffee or tea creamer, taste really amazing, but the original MCT oil, again. We're going to make sure that it's sourced correctly, we don't want the palm version with coconut derived, you're going to get this exclusively from [onnit.com/model](http://onnit.com/model), and you're getting 10% off. Alright, go to [onnit.com/model](http://onnit.com/model), check out their human health and performance supplements, functional foods, their fitness equipment is world class as well, you get 10% off everything they carry. [Onnit.com/model](http://onnit.com/model), now let's get to the Apple Podcast review of the week.

**ITUNES REVIEW:** Another five-star review titled “So Motivational” by RachelMay1401. "I love The Model Health Show. I learn something new from every episode and feel motivated every time I listen. Shawn has great energy that you can just feel when you listen."

**SHAWN STEVENSON:** Let's go. Thank you so much for sharing that review over on Apple Podcast, truly means the world. And if you get to do so, please pop over to Apple Podcast and leave a review for The Model Health Show or whatever medium you're listening on. If you're listening on Spotify, you can leave reviews now. So, pop over and give us a shout out, I appreciate it so very much. And on that note, let's get to our special guest and topic of the day. Our guest today is Dr. Robynne Chutkan, and she's the author of the best-selling digestive health books Gutbliss, The Microbiome Solution, and The Bloat Cure. Dr. Chutkan received her bachelor's from Yale University and her medical degree from Columbia College of Physicians and Surgeons, where she also did her internship and residency and served as Chief Resident. She completed her fellowship in Gastroenterology at Mount Sinai Hospital in New York and has been on the faculty at Georgetown University Hospital since 1997. In 2004, she found at the Digestive Center for wellness and Integrative Gastroenterology Practice incorporating microbial optimization and nutritional therapy as part of the therapeutic approach to digestive disorders.

Dr. Chutkan has been featured everywhere, from The Today Show to the Dr. Oz Show, The Doctors, CBS This Morning, the list goes on and on... And she's also an avid athlete, she plays squash, coming from Jamaica. She plays squash, she's a runner, and she's very passionate about getting communities empowered and healthier than ever. Let's jump into this conversation with the amazing Dr. Robynne Chutkan.

**DR. ROBYNNE CHUTKAN:** I think what I have to offer is a little different, it's some storytelling from the gut, making it exciting. The first one is an episode called Shy Bowel, and so they all kind of start with a patient's story, and this talks about this woman who came to see me in her 50s, but when she was 12, she was at camp and she was on a long hike and had to poo and she squatted down, and these boy hikers, campers found her mid-exit, the stool is exiting her bum, and these group of boys happen upon her in the woods and how it created such trauma, she could never have normal bowel movements, and the actual term for shy bowel, that this is a real condition, psychogenic fecal retention, also called coprophagia, and how so many people have an element of it where they are afraid to use the bathroom in public, people see, will smell, will hear. And then I talk about the involuntary and the voluntary things that go into having a bow movement, and so I started telling this story, get into it, I talk a little bit of the mechanism, and then I end with three takeaways and take away one...

Drop it while it's hot. You have got, when you get that urge... You could be mid lovemaking, you've got to go and have a bowel movement. And so, I give... So, it's a little bit of a format, it's a patient story, it's get into the nitty-gritty and then three takeaways, and they're all like 20 minutes or less, and so it's fun to just... After trying all these different things and... 'cause I'm sure as you know, Shawn, your podcast is really only as good as the person you're interviewing to a large extent, I mean, you're a really skilled interviewer, you can bring it out and you compare, but a lot of it rides on that other person, right? And I thought, I have some stories from the gut, the intro is like, if you're on a quest for stool nirvana and you're more interested in learning about microbes and medication, you've come to the right place, and it's just been fun. At the end of the day, it's... What do I have to lose? I love doing it, but I have to stop re-recording and just... That's really good advice. Just let it out there.

**SHAWN STEVENSON:** Yes, just literally drop it while it's hot. You got to take your own advice for getting that out into the world.

**DR. ROBYNNE CHUTKAN:** I have to drop it while it's hot.

**SHAWN STEVENSON:** Because your information is the sh\*t. You can use that.

**DR. ROBYNNE CHUTKAN:** I'm going to use that. My information is the sh\*t, literally. You know what? I'm going to just quickly; I'm writing that down. That is so good. Did you just come up with that? Just like that.

**SHAWN STEVENSON:** It's a vibe, it's a vibe.

**DR. ROBYNNE CHUTKAN:** That was so good. I have to give you full credit for that. I'm like, "I was talking with Shawn Stevenson, and he said, literally, your information is the sh\*t."

**SHAWN STEVENSON:** Yes, literally. And your experience, your perspective... I'm not exaggerating in the slightest. You are one of the, for me, top three people in the world in this space, because of course, you have that traditional background in education, but you've been able to keep your mind open and to experiment and to stay on top of the research, and I know how difficult that is because there's always so much coming out, but we can get stuck in tunnel vision, coming from our conventional education and just see things in this one very, very constricted... Again, another little tie into the digestive here, a very constructive view of things and how the human body works, but being an integrative gastroenterologist, I want you... Number one, if you could explain what that is, because it's opening the door to understand just how much our gut health affects everything about us.

**DR. ROBYNNE CHUTKAN:** To be honest, Shawn, it's a term I made up to really emphasize the connection between it all, because when you think about it, think about where your gut is. It is literally in the center of your body, it's the engine for everything, and it feeds your brain and your heart, and your kidneys and your lungs, and the same way if your car had a broken-down engine, you're not going to get very far. If your alignment is off or something's up with a transmission or your lights don't work, you can still make it down the road, but if the engine is not working, you're not going anywhere. And so, this idea of integration... In medical school, we're very siloed, there's the brain and there's a digestive tract, and there's a cardiovascular system, and the orthopedic system with the muscles and the joints and so on, and there's literally no integration. And in my 30 years in practice, I realized there's tremendous integration, particularly with things like the gut brain, access and mood, and so I started seeing literally what would happen to my patient's mood after they had, for example, an episode of infectious gastroenteritis, and they would describe they're feeling more anxious and they're feeling more nervous, and then we started seeing clinical data of like, "Wow, when we inject mice with *Campylobacter* and give them gastroenteritis, guess what, they start displaying more anxiety."

So, as we've learned more about the whole gut brain axis, the production of serotonin, the communication through the vagus nerve, the fact that it's bi-directional, not only is what's going on and you've got affecting your brain, what's going on in your brain is affecting your gut. It just makes sense, like you cannot practice gastroenterology in a vacuum, or maybe you can, but then you're just scoping people and handing out Nexium and you're not really having an impact, so it's really important to understand the integration and just from an ego point of view, in medical school, nobody wanted to do GI. Back when I was in medical school, everybody wanted to do orthopedics or dermatology or ophthalmology. People were like, "Why would you want to wade around in stool as your profession?" So, I have to say, the gut is having a big moment and I am so excited about that, I'm like, "I told you all that the gut was where it's at."

**SHAWN STEVENSON:** So also, you have this ability to see the future, in a sense. Because when you just said, the gut is having a moment... I just spoke at an event this past weekend in Mexico, and just asked people in the audience if they've just heard the term microbiome. Every hand went up, everybody knows this term. They might not know all the ins and outs of it for the most part, but this is where you come in at, and why your skill set and your experience is so valuable, and this is leading into the main reason I wanted to talk to you today is this gut cognition connection, this gut brain connection, because there's some new data that just came out about antibiotic use and cognitive decline. Let's talk about that.

**DR. ROBYNNE CHUTKAN:** Shawn, this study literally stopped me in my tracks. This was a study that came out in March that looked at frequent antibiotic use in women and noted a significant decrease in global cognitive decline. So, they looked at over 14,000 women, these were female

nurses, over a period of several years, and they found that women who were taking antibiotics frequently, when they added it all up, it was for about two months or more over a four-year period, had a seven-point drop in cognitive decline globally, now, what does a seven-point drop mean? It turns out that's equivalent to about three to four years of aging. It's incredible, and so many of us are dealing with issues of family histories of dementia and concern about cognitive loss, and I don't think that the average person... I don't think the average physician, quite frankly, is aware of these kinds of statistics, and so one of the things that I'm most evangelical about, if you will, is getting people to understand this connection between the medications they take and the effects on their bodies and their brains. Nothing is free, not even a prenatal vitamin is free. Everything has side effects, and we know that antibiotics are amongst the most over-prescribed drugs in the world. The Center for Disease Control and Prevention estimates that somewhere around 30-50% of antibiotic use in the US is unnecessary.

So, people always want to know... I gave a talk yesterday at a woman's club and everybody wanted to know, "What probiotic?" I said, "Draw the brakes for a minute, I don't want to talk to you about what probiotic. I want to talk to you about all those antibiotics you're taking that you probably don't need." And you know, my patients, it's sort of a joke, but not really where I say to my patients, "If death is imminent, you have my blessing. Otherwise, here are some questions I want to ask your doctor who's doing the prescribing starting with, is this antibiotic absolutely necessary? Is there an alternative? What would happen if I didn't take it? Could we wait? Am I even being treated for an infection or you just giving you this antibiotic to prevent a possible infection?" You know, all these things, and I think unfortunately, Shawn, we're at this point in the medical system where we can't just blindly follow advice, we have to ask these probing questions, if we really want to get to the right place and we have to be really active advocates in our health and not just rely on the fact that, "Well, the doctor said, so this must be the way to go."

**SHAWN STEVENSON:** Yeah, yeah. And here in the United States, especially, you're like a unicorn, if you haven't had several stints of antibiotic treatment, especially during childhood, it's just one of those things that's automatic and frequent. And as you said, and I want to lean into this a little bit more, because so often it's getting prescribed for things that it's not even valid for, and I think that there might be... There is, of course, a placebo effect, for example, or things just run their course, but to prescribe antibiotics for a viral infection, for example, even when COVID landed on the scene, antibiotics were getting passed out. And there's some really sound data on this, that this thing was just getting, again, without any context, this is viral, what are we doing giving antibiotics for this condition?

**DR. ROBYNNE CHUTKAN:** Yeah, I think that's really kind of the salient point of the last two years. Antibiotics have zero effect against viruses, zero, zip, zilch, nada, none. The only situation

where an antibiotic can be helpful in a setting of a viral infection is if you have what's called bacterial super infection, meaning, you also have a bacterial infection, and who... Get this, Shawn, this is a crazy part, who is at most risk for bacterial super infection? People who have been taking lots of antibiotics and don't have enough bacterial foot soldiers to fight the virus. So, the irony is that all these antibiotics people are taking... And honestly, I see sophisticated well, educated people, and when I tell them, you know that doxycycline your kid is taking for acne or that Cipro you're taking for a sinus infection, do you know that that is dramatically increasing your risk of COVID?

They look at me in utter surprise, in utter surprise. And I think what it speaks to is really the power that the pharmaceutical industry has in terms of the marketing dollars. I mean, the money that is spent trying to convince people that these drugs are the answer and the only answer, and we've become so disconnected from our own bodies and our own strength, our own ability to fight these things, and I have to tell you, that's why I am really such a fan of your show, because it really... You know, the goal, the mission is always to educate and empower people to say, you know what, you are actually in the driver's seat here. And that's so true when it comes to infection, and you let me know when you're ready to drill down to that whole gut-immune connection and how it works, because I think once people really understand the relationship, it becomes so clear, the path forward becomes so clear.

**SHAWN STEVENSON:** Yeah, absolutely. And so, we'll put also up these studies as we go stuff, if people who are watching the video version as we go through things today, you could check out the studies. But one of them that I talked about, and this was over a year ago, was this huge meta-analysis looking at this phenomenon of something called polypharmacy, dramatically increasing your risk of severe COVID. So, polypharmacy is being on multiple medications, and they identify three specific types of medications that were tending to be the most pervasive and the most damaging, one of those was related to gut, so gut medications, so things that are acid blockers, for example...

**DR. ROBYNNE CHUTKAN:** Yes.

**SHAWN STEVENSON:** And antibiotics. Why on earth would these be increasing your risk for severe COVID? And one of the things they highlighted in the study was that COVID is at least in part an enteric infection, a gut-related infection, because we know there's a lot of ACE2 receptors happening. And also, of course, your immune system in and of itself is hanging out primarily in that gut environment. So, super powerful stuff there.

**DR. ROBYNNE CHUTKAN:** Yeah, you hit the nail on the head three times, bam, bam, bam. The first is pointing out that COVID is in many ways a gut infection. In fact, we have about a hundred times more ACE2 in our intestines than we have in our lungs. So, the portal of entry



is often the gut, and that's why GI symptoms and some of the studies are present in up to 50% of people, and we know the virus is excreted in the stool, sometimes for much longer than it's detectable in the sputum. So that was nail number one. Nail number two was talking about the acid blockers, proton pump inhibitors, specifically. And I think I was on here doing a long rant about these drugs in the past, 'cause this is just one of my favorite things to talk about, because you literally cannot leave a gastroenterologist's office except mine, of course, without a prescription for one of these drugs.

I spend my time un-prescribing people. But these drugs are most the common... Amongst the most commonly prescribed drugs in the world, and part of why they're prescribed so commonly is because they work really well. They're really good at what they do, and what they do is they completely shut off that proton pump, that acid pump in the stomach. So now you can eat your cheeseburger at 11 o'clock and you can have your three cocktails and you can have your four cups of Espresso and you're feeling good, right? You're like, this is fantastic. The problem is, those symptoms, that heartburn that you get when you have your late-night cheeseburger and your four cups of Espresso, and your cocktails, that feedback is really the negative feedback your body is giving you to tell you, uh-uh, this is not a good idea. So, when you remove that, you are actually doing damage, and that's what proton pump inhibitors do. When they block the acid, you don't have symptoms, but those symptoms are really important, 'cause it's your body signaling you. It's like pain when you overdo it at the gym, or a hangover, when you drink too much.

I mean, I'm always saying, Man, if we didn't have hangovers, millions of people would be dying from alcohol poisoning, 'cause people would just keep going, right? So that hangover is your body's brakes. And so, what happens, not only do these drugs remove the brakes, they do something far more problematic in the gut, which is, they completely shut down acid production. And acid is digestion 101, you cannot properly break down the food and assimilate the nutrients into your body without acid. The digestive enzymes don't work at an alkaline pH, so that's one problem. Huge problem now with the pandemic, and in addition to the study you're talking about, which is a super important study, it was a big meta-analysis that came out summer of 2020, looking at about 54,000 patients, and they found people taking proton pump inhibitors once a day, twice as likely to get COVID. People taking them twice a day, three to four times as likely to get COVID, for the simple reason that stomach acid denatures viral protein. It basically renders the virus inactive.

If you have stomach acid, so you're happily taking your little purple pill and eating your cheeseburger late at night and having no symptoms and thinking this is great, not realizing that you have just dismantled one of your body's most potent defense mechanisms against viruses. You have just made yourself so vulnerable. And part of the reason that I love putting this together for people and making sure they understand the connection, is that number one,

it's empowering, right? Like, now you can understand how to protect yourself. But number two, people don't know, because your doctor gives you this drug, your doctor is not telling you. By the way, stomach acid is one of your most important host defenses in fighting viruses and you're not going to have any stomach acid, so not only are you not going to be able to properly digest your food, but you're now going to be much more vulnerable to viruses.

And I have these discussions with my husband at the dinner table all the time, he's not in medicine, he's an ex-federal agent who does cybersecurity, so he's kind of my litmus test. And I tell him this stuff and I'm like, you know that, right? And he's like, Robynne, people don't know that. Like, I don't know that. How would I know that? How would you intuitively know that not having stomach acid puts you at risk for COVID? So, for me, realizing people don't know this stuff has really been the main motivation to write these books and get the word out there and be on shows like yours that... With the same goal of, we've got to let people know what is happening when they take these drugs.

**SHAWN STEVENSON:** Yeah, that's... It's probably the biggest thing that has not been addressed this entire time, which is susceptibility. And what you can do to dramatically reduce your susceptibility. You know, again, it puts the power into people's hands, that's the whole concept behind empowerment...

**DR. ROBYNNE CHUTKAN:** Power to people.

**SHAWN STEVENSON:** Exactly. And what we've been doing is just creating a psychology of victimization for people like, I've never seen people in such a victim state as we have the past couple of years. And then that starts to bleed into other things, but also, I'm grateful because I can see how quickly we can devolve into that type of thinking. And leaning into this a little bit more with the susceptibility, I love the fact that... And I'm so grateful. You're one of the people who really brought this front of mind for me, which is that biological feedback that we get, right? And so, when we are invoking these behaviors, and for me, the thing that stands out the most was, I had this rendezvous, I had this little intimate occasion where I would go and get the 7-Eleven nacho with chilli and cheese, right? And so just psychologically, I didn't realize that it's probably not a good idea to be at this convenient store pumping your meat out of a pump, right? So, you're pushing... Meat is coming out of this pump, it's like there's some kind of...

**DR. ROBYNNE CHUTKAN:** Oh, the meat comes out of the pump, not the cheese?

**SHAWN STEVENSON:** The meat... The cheese too.

**DR. ROBYNNE CHUTKAN:** The meat.

**SHAWN STEVENSON:** They were right next to each other, right? And so, you get the nachos, you pump your meat out, you pump your cheese out, and so... But I would love the taste and how the chips get a little bit soggy. And so, I would take this back to my apartment and have this love connection, but every time I would be in pain afterwards, like...

**DR. ROBYNNE CHUTKAN:** You would feel it, yeah.

**SHAWN STEVENSON:** Yes. And my body's telling me don't eat this sh\*t... Don't eat this, this is not for you. But what I would do is, because one time I called my mom, I was like, "Mom, I just had the 7-Eleven nachos". She was like, "Just drink a white soda". Right? So now...

**DR. ROBYNNE CHUTKAN:** So, one time where mom did not know best.

**SHAWN STEVENSON:** No, right. She did not know best. And so now after that, I just started getting my nacho with chilli cheese and I get a 7UP with it, right? And still again, I'm trying to find a way to suppress the symptom, my body is saying...

**DR. ROBYNNE CHUTKAN:** Yeah.

**SHAWN STEVENSON:** Do not eat this. This is not for you. And so, being able to tune in and listen to that feedback, so the suffering that we get, we've been programmed in our culture to look for a drug or some type of treatment for the thing instead of stop doing the behavior.

**DR. ROBYNNE CHUTKAN:** Yes, and then you get into the whole polypharmacy thing, you're talking about the wackadoodle, 'cause you whack that feeling from the liquid meat nacho soda combination, you whack it with some Nexium and then you have side effects of the Nexium, and you have to whack that with something else, and then you're whacking the side effects and... You know, when I have patients come into my office, I have them bring all the drugs with them. I say, I want to actually see what you're taking. Sometimes they're taking three versions of the same drug. You know, they're taking Nexium, Aciphex, and Prilosec. I'm like, this is all the same thing. One doctor gave them, another doctor... So, they're taking multiple drugs, and then we get into, why are you taking this? Well, I'm taking this 'cause when I started this, I wasn't sleeping, so then... It's crazy. And I'm like, just stop taking the thing. But it's not our culture, our culture is, a pill for every ill.

Nail number three, by the way, when you talked about... You made those three really excellent points, the third one was about the immune system and susceptibility. Why are we so susceptible? So, when I ask people, why do you think that some people get exposed to COVID, never actually even get infected? Others are asymptomatic or have mild symptoms and others tragically end up in the ICU or even dead. Why do you think that is? Is that random? And there's

some obvious things, right? Some people have obesity, some people have a lot of heart and lung disease and all of these things, but even beyond that, there are additional risk factors, and sometimes these risk factors are hidden. Sometimes these risk factors are, you don't have any stomach acid, sometimes these risk factors are, you are taking so many antibiotics, you barely have any helpful microbes left to fight the virus.

And so, you can't always tell from the outside, but really one of the most compelling pieces of data was a study that came out last year, that showed that looking at the composition of the gut microbiome, Shawn is 92% accurate in predicting outcome from COVID. 92%, that's more accurate than age, comorbidities like obesity, hypertension, heart disease combined. It's more accurate than looking at inflammatory markers like C-reactive protein, looking at the microbiome and specifically looking at levels of two bacteria. The first is a bacteria called *Enterococcus faecalis*, which is... I hate to characterize bacteria as good or bad, but this isn't a particularly great one to have high levels of, because high levels are associated with poor outcome. This is a bacteria that can cross that gut lining into the bloodstream wreak havoc and it can allow COVID to do that.

And the second bacteria is called *Faecalibacterium prausnitzii*, *F prausnitzii*. It's my favorite bacteria of all time because it protects you against so many things, against heart disease, against stroke, against colon cancer, and it turns out, it protects you against COVID. So, people with high levels of *F prausnitzii*, the good guy, good gal, have much better outcomes with COVID. So again, this is not random, this is not luck, sometimes it is, but really, we can follow those breadcrumbs back. But here's the thing again, you can't just go borrow some of your friends' *F prausnitzii* or take the supplement for the short-chain fatty acids, those important metabolites of microbes that the *F prausnitzii* is producing that's keeping your immune system nice and Goldilocks just right. You have to actually eat the food that the *F prausnitzii* needs to thrive and to grow and to have a healthy population. And so, people spend so much time trying to figure out how do I hack this? How do I get a supplement or borrow some stool or...? You know, just eat the food. Just eat a little more fiber will make a tremendous difference.

So, the relationships can be complex, that whole... You know, when you think about, you have the gut and you have the trillions of microbes on one side, and you have this one cell layer thick like razor thin and then you have all the immune cells on the other side, and they're in constant communication, right? So, if your gut microbes are healthy and you don't have enough of the *F prausnitzii*, the immune response is either going to be too active where you end up with cytokine storm, you damage your lungs, you damage your body, or it's not going to be active enough and you don't clear the virus. So again, what creates that just right immune response? It's the *F prausnitzii* churning out high levels of the short chain fatty acids, the Butyric acid, the propionic acid, but again, you have to feed them, you have to fuel them with the right stuff.

**SHAWN STEVENSON:** Yeah. So that's another... Again, because we have this pill for every ill consciousness, we are trying to look... Can I get that into supplement? Is there some type of probiotic I can take to get that versus what you're saying is we need to provide the prebiotic fuel? So, what would that look like? You said fiber, that's a keyword here.

**DR. ROBYNNE CHUTKAN:** Yeah. So, first of all, let me say there are no bad vegetables. They're all good. I mean, there are bad ways to prepare them, you just over-salt them, over-fry them, etcetera, but what we're talking about here, particularly, Shawn are something called MACs, MACs, Microbiota Accessible Carbohydrates. And so that's primarily things like beans, legumes, oats, fibrous vegetables like celery, asparagus, broccoli, especially the stems, these are all prebiotic foods. Apples, these high fiber kind of stringy fiber, if you will, I mean, leafy greens are good too. But it's really... Think about the fiber that's dense like celery or an asparagus stem, that kind of dense fiber. And a lot of whole grains, a lot of legumes, they're also very prebiotic. So, when you eat a lot of these foods, you're feeding the bacteria, and one of the most important studies we have validating this comes through the American Gut Project that study in 2018.

Again, a large population-based study, they looked at thousands of people and they found that regardless of how you label yourself, regardless of whether you're vegan or an omnivore or pescatarian, vegetarian, people who ate 30 or more different plant foods per week have vastly superior microbiomes to people who ate less than 10. And remember, we're talking variety, so I have plenty of patients who are like, oh yeah, you eat vegetables every lunch and dinner, but they eat the same peas, carrots and broccoli every day. So, they're getting three versus the 30. And you know, it's per week, so when you think about it, if you take something like a bowl of oatmeal, you have the oats, maybe you make it with some almond milk, that's two, you put some walnuts in it, three, you put some blueberries in it four, you put some pumpkin seeds in it, five. Maybe you sprinkle a little grated coconut, six, you add some banana, seven. You have seven plant foods in your bowl of oatmeal.

You have a salad with lettuce, tomato, cucumber that's 10, that's 10 already, and you haven't even got to dinner. Dinner, you steam a little broccoli, and you have some avocado, you're at 12, you only need to get to 30. I mean, the higher the better, of course. So, it's really thinking about the variety. And you want to get out of this monoculture of eating the same vegetables every day, get into eating seasonally, get into eating a variety, because again, all these prebiotic foods, they all have different substances in them, but they all feed the bacteria, the bacteria churn out the short-chain fatty acids, the short-chain fatty acids guide that immune response. They tell those immune cells those B and T cells and plasma cells exactly how many cytokines to make, what kind of cytokine. Because as you know, Shawn, the majority of deaths from COVID are not from the virus specifically, they're from the immune response. They're from an exaggerated immune response.

It's our bodies are destroying our own tissue, creating inflammation in the lungs and in the heart and in the brain. So, you need those short-chain fatty acids to modulate to kind of draw that response back a little bit, so that you don't damage tissue, but you still clear the virus, and it is...

You can look at immunology textbooks and you see all kinds of complicated things, but at the end of the day, it is that simple. And of course, don't do things that damage your gut lining like taking a lot of NSAIDs, for example, because that's going to damage your gut lining, make it easier for COVID to get across.

**SHAWN STEVENSON:** Yes, we got to come back and talk about that a little bit, but just to lean into this a little bit more because what you just said about the diversity, and I've seen this consistently, in my, almost 20 years in this field, even when we're eating "healthy", eating real whole foods, we tend to get in a rut of cycling and recycling those same foods over and over again. So, somebody might be eating salmon and sweet potato and broccoli, and then they'll do their food prep and they're just eating that over and over again, especially in the fitness field, they'd be chicken, rice, broccoli, chicken, rice, broccoli, chicken rice, asparagus, chicken, potato, broccoli.

You know... Like, it'll be some minor tweaks, but it's a lot of these same types of foods, these solo foods, which you just brought up a really easy thing that we can do is just stack it when we have a meal. Right? So that oatmeal can become something very evolved, where we have some Chia seeds in there, where we have the fruit in there, where we have some nut butter or whatever the case might be, or... I'm really big into making these acai balls right now, and this is going to go... I've got something planned for that, but it's a great opportunity for me to stack it, so I have the acai, I have the berries, I have the nut butter, I have Chia, and flax, and protein, various types of protein that I could add... The list goes on and on things you could do.

So, start stacking your meals a little bit more. The last one you mentioned was the salad, like, Oh my gosh, what... All the things you can do with the salad, you know. Like, even the different types of leaves that you're using, the lettuce leaves, so it could be Arugula, it could be Romaine, it could be spinach, and then all the wonderful array of veggies and fruits, that you can get added to that salad.

**DR. ROBYNNE CHUTKAN:** Yeah, and think about the consistency too, what are you going to add for crunch? You know, are you going to add some kind of seeds for crunch? Or are you going to add in some... Maybe some toasted Chickpeas, roasted Chickpeas, so think about the texture too that you want. You know, what do you want that's smoother? Or something like avocado, but what do you want for crunch? What do you want? Do you want some toughness?

Do you want some sweet...? I love throwing some fruit in and again, shopping seasonally, the farmer's market, one of the things I challenge my patients to do, as I say, "Every week, I want you to go to the farmer's market and I want you to buy a new type of produce that you've never had before. It could be a radish, it could be rutabaga, it could be dandelion root. Talk to the farmer, get some suggestions, they know, they grow it, they know what to do with it, and come home and make something you've never made before."

**SHAWN STEVENSON:** Yeah, such great advice. So to go back, you brought up NSAIDs, and the consumption has skyrocketed in recent years of NSAIDs, so these are Non-steroidal anti-inflammatory medications, and most often, of course, people are associating this with treating pain, and we're experiencing another hidden epidemic that shouldn't be hidden of pain and pain management, and often times, again, these are a result of things that we're doing in our lives that are manifesting this pain, so we're not treating the symptom... I mean, I'm sorry, we're not treating the root cause, but we're treating symptoms with these NSAIDs, but here's a little sobering statistic, a recent report estimates, the States NSAID market is going to reach \$25 billion industry within the next five years. \$25 billion. It's crazy.

**DR. ROBYNNE CHUTKAN:** I saw that study. I think we're currently at \$17.8 billion or something crazy... Yeah, I saw that number, and I was shocked. And I think part of what's happened is that people have gotten more aware of opiates, which is great, we want people to be aware, but people have now turned more to NSAIDs because they perceive them as a safer option, and in many ways they are, but they're still super dangerous as far as the gut, and all of that, and the other thing, Shawn, when I met my husband about 23 years ago or so, he's an athlete, he works out, he used to take some kind of ibuprofen, Motrin, Avila live, Alison, whatever, and NSAID, virtually every day. He would say he had a sinus headache, or he had a ache or pain, and I said to him one day, I said, "You realize that every time I go into the hospital on call, virtually every weekend, I'm on call, I am stopping somebody with a GI bleed from those drugs, he was shocked, he was shocked. But GI bleeding from NSAIDs is still one of the most common reasons for somebody to end up in the emergency room, and fatal bleeding a lot of the time.

So those little erosion and ulcers that... That's one of the absorption of the drugs to work systemically, erodes through that mucus lining of the GI tract, and they can cause just tiny little kind of pinpoint erosions, but can cause bigger ulcers, and if that also happens to be in your stomach, duodenum, your small intestine, over an area where a significant blood vessel is running, you might be just out of luck, because if you're hitting a big vessel like the gastroduodenal artery, and that thing starts pumping, that is a situation where we fly in there, put the scope down, there's blood everywhere, we're just trying to temper now, to stop that bleeding, and many people don't make it from something as simple as taking one of these drugs.

So, these drugs, again, they're amongst the most commonly prescribed in the world, because they work... I remember I tore my MCL snowboarding back in 2017 in Utah, and this thing was painful, first run of my first day out Friday, the 13th, I'd flown all the way from DC, was there for a conference stopped there Friday afternoon, fresh powder... It was actually at Powder Mountain Utah, and I'm like, "Oh man, I got to get a quick run in." And my husband and daughter were with me, my husband is a boarder too, my daughter is a skier, and we're getting off the lift, Shawn, and there was a down skier right in front of me, so I just kind of politely go around, I go around, and my knee turns, and my board doesn't turn, so I reached my knee. And my husband and my daughter are like, "C'mon, let's go... It's a big deal, you're fine."

So, I somehow, painfully, slowly make it down on our first run, and I'm like, "Man, something is wrong." And sure enough, it was a torn MCL. But I had to get home, so I got a pair of crutches, I used the rest of the weekend on crutches while they had a fantastic time up and down the mountain. And I'm coming home, and I'm like, "I can't bend my knee to sit in the plane." So, I get a bunch of NSAIDs. And I'll tell you, it was like magic. My pain was gone. I said, "Oh no, something that works this well, cannot possibly be good for you." I don't take these drugs, I'll typically take them once every blue moon, every decade with some extreme circumstance, like this thing with my knee, and I tell you, I was immediately suspicious like, "How can this possibly be a good idea if my pain is gone like that? I must be paying a price somewhere else." So, the drugs are really effective, and while there are people who are in pain 'cause they're doing things they shouldn't be doing, like they're sitting too much or whatever, things happen sometimes like my knee injury, but it's really the chronic use, that's the problem.

And these drugs really, they poke holes in that gut lining and your gut lining here, we're talking about immune system and defense, your gut lining is the main thing keeping what's inside your body away from the environment, because when you eat food, it's in your digestive tract, which really means it's not in your body, it's in this hollow tunnel that goes from mouth to tush, and in that tunnel is really the environment, it's air and toxins and food and bacteria and viruses, and one of the gut lining's purposes in addition to allowing the nutrients to be absorbed through so that your body can use them for food, it's also to keep pathogens out. So if you now have all these holes in the lining, stuff is coming through, including viruses like COVID and COVID is now getting into your body, their receptors are used to receptors in the heart, the lungs, kidney, liver, or other organs, where the virus can now bind and do damage, so again, I just really want people to think about what does it really mean when you're taking these drugs that work so well, you're getting relief, you feel great, think about where you may be paying the price down the line.

**SHAWN STEVENSON:** Yeah, if anybody can think back into their mental Rolodex over the last two years, how many times did you see your so-called public health official on TV talking about



gut health in relationship to this virus that's taken over everybody's life? Person... I can't think of a single time.

**DR. ROBYNNE CHUTKAN:** Never.

**SHAWN STEVENSON:** Of course not.

**DR. ROBYNNE CHUTKAN:** Never.

**SHAWN STEVENSON:** Like, again but for me, I really thought that, in the beginning of this, this is our Super Bowl, is there opportunity to apply the things that we've learned over the past few decades, all the mountains of research we have into these different fields, and to see us again, revert so far back and ignore the foundational principles of how all this stuff works was really, really fishy for me. And so again, looking at this issue with NSAIDs, and so this is an urge for everybody to be cautious, we talked about the caution required with antibiotics, we need to be cautious in these situations, not to say that "They work." Like you just said. It's like... I mean, it's amazing how they work, but we're tricking our body, there's an underlying issue happening, but we're tricking our body... "Okay. In a spot situation. Absolutely." But if we're consistently leaning on these things, we are tearing our bodies apart from the inside out.

**DR. ROBYNNE CHUTKAN:** You're so right, Shawn, and it's an interesting position for me as a physician, and I've been a physician for 30 years, 31 this year, to spend the majority of my time trying to help people un-prescribe, trying to get off of these drugs and realizing that we... In a well-meaning way, we're trying to help people, but we in the medical community are also creating a lot of these problems because we are over-prescribing, we are over-diagnosing, we're over-prescribing, and while a lot of these drugs are used appropriately... I mean, I'm glad the pharmaceutical industry exists, and I'm glad that we have powerful effective drugs, but we are not using them judiciously, and so really what I want consumers to know is that they have to be really strong advocates. So, I give you example. One of my favorite studies, Shawn, it's a study from several years ago from The Journal of Pediatrics, and this study showed that pediatricians prescribe antibiotics 62% of the time when they perceive that the parent wants an antibiotic for their kid, and only 7% when they don't. So that tells us there's an enormous grey zone area where the drug is just not necessary.

It's totally dealer's choice. So, I want people to be the kind of patient who walks in with one eyebrow raised, like, "Do I really need that?" You know... Ask questions, probe. Ask about options alternatives. Most physicians are well-meaning, but they're busy, they don't have time, they may not be as well-informed as you think they are, or they may just think you want a drug, because lots of people walk in and they want something and they're trying to make you happy,

so you really have to be one of those consumers who's a little skeptical and questions things, because I tell you there's a lot of gray on there...

**SHAWN STEVENSON:** Yeah, yeah, man, this is so powerful. We've got a quick break coming up, we'll be right back. If you want a sure-fire way to damage your microbiome, then look no further than that dirty S-word, sugar. Data published in *Advances in Nutrition* uncovered that excess sugar creates a clear pro-inflammatory environment in our gut. There's even recent data published by scientists at the University of Texas Southwestern Medical Center, showing that mice who were fed diets high in sugar developed worse colitis. This pro-inflammatory, very, very detrimental inflammatory bowel disease, and the researchers examined their large intestine, and found that more of the bacteria that can damage the gut's protective mucus layer was driven by the increase in sugar consumption.

Another study cited in *Science Translational Medicine* describes how sugar is likely making negative alterations to our gut bacteria. Again, having healthy robust amounts of probiotic-friendly flora controlling our system, and keeping in check, the opportunistic pathogenic bacteria is key for all manner of health and wellness, from helping to reduce our risk of diabetes and obesity, to reducing our risk of autoimmune conditions. As it stands right now, the average American consumes about 100 pounds of sugar annually, mostly in the form of added sugars.

But what can we do to pivot from this? In fact, there's a sweetener, that not only doesn't damage our gut health, it actually improves it. A recent study published in *Food Quality and Safety*, found that in addition to having natural antibacterial effects against pathogenic bacteria, raw honey is able to improve overall gut microbial balance. How sweet it is, when we're talking about the benefits of honey long renowned for its anti-microbial impact. We're talking about the external applications, but it has these internal applications as well. But the key here is making sure that your honey is not coming along with pesticides, and heavy metals, and all these other things that are common in bee products today. We want to make sure that we're dedicated to sustainable beekeeping as well. And this is why my honey that I utilize, that's in my cabinet right now, is bee-powered super food honey from Beekeeper's Naturals. Go to [beekeepersnaturals.com/model](http://beekeepersnaturals.com/model), you get 25% off. Taken off automatically at checkout. That's B-E-E-K-E-E-P-E-R-S naturals dot com/model, for 25% off. They do third party testing for over 70 plus pesticide residues, or heavy metals and negative bacteria like E Coli and salmonella to make sure that you're not getting any nefarious things along with your healing delicious super food honey.

Again, go to [beekeepersnaturals.com/model](http://beekeepersnaturals.com/model) for 25% off. Now, back to the show. I want to go back just a little bit and talk about this association with... Because I don't think that... We think these are two entirely different universes, but you brought forth this understanding, this

principle that, our bacteria... A healthy gut bacteria cascade is necessary in order to protect us from viruses, so it's kind of like bacteria versus viruses in my mind, so I thought of like a video game, screen, we got this side like, Mortal Kombat... But they're all intermingling. We have that human virome, like right now, everybody listening, we've got like 400 trillion virus particles in and on our bodies, and the best theory that is taught in university settings of how the human immune system evolved, it evolved from viruses integrating with, or we could consider our human blueprint, so viruses facing off against other viruses, right, but bacteria also are necessary, the right cascade of bacterias you've been talking about to help us to defend our bodies from viruses.

**DR. ROBYNNE CHUTKAN:** I love that you bring up the virome, 'cause it's a term that even in the medical community, until really a few years ago, people weren't really familiar with, and those numbers... So, we have about... We have a maybe 100 trillion, I mean... Nobody really knows, but we have roughly 10 times the number of microbial cells compared to human cells, and then we have about 100 times the number of viral particles compared to bacterial organisms. We have... One estimate is that there are more viruses in our body than there are stars in the universe... It's a lot. That's a lot. That's a lot. I watch enough Neil deGrasse Tyson to know that's a lot. And as you said, you know, as much as 10% of our genome of human genetic material is actually derived from viruses, and just like bacteria, bacteria can protect us from other bacteria, and they protect us from viruses from other organisms, so not all viruses are bad, and in fact, the role that viruses play in the universe in terms of, for example, killing pathogenic bacteria in the water that can protect the plankton, that's involved in photosynthesis to keep our oxygen, carbon dioxide, nitrogen balance.

If all viruses disappear, the estimate is that life on earth would cease after about a day and a half. So, the majority of viruses just like the majority of bacteria are not out to get us, and they're part of our genetic material and they're part of our microbiome in a larger sense. But what allows our immune system to be able to detect from the trillions of organisms it's seeing coming through the gut every day, right, what allows it to know precisely this is a pathogen versus this is just a commensal... Not to react to it. And again, it's those healthy microbes that guide it, those are like the stages for the immune system that say, literally say to the immune system, "Okay, this one big immune response... Right. Ebola is up in the house. You need to be really worried and do something big." versus, "Oh yeah, this is nothing, just keep going. Ignore this." So, to really modulate that immune response, it really is the bacteria that are doing all the work there that are guiding that, and what's really interesting about viruses too, I learned a lot writing this last book was so interesting...

And for example, certain classes of herpes virus are protective against bubonic plague and certain types of viruses too can slow down progression of HIV. So, some people who are infected with HIV based on other viruses in their body, they'll never progress to AIDS. Certain

people are immune to HIV, no matter how many times they're exposed, about 10% of people with certain European ancestry, and we think in part because those were genes that protected them from bubonic plague way back in the day, and they're now protecting them against HIV. So, the interaction with all of this, which is why we can't just apply a scorched earth approach, and just like we're just going to burn it all down, we're going to get rid of all the organisms. You would die, you need this stuff to keep you alive, to guide your immune system, to make hormones, to detoxify compounds, to activate genes. So, we have to have a more measured approach, and I think about it like gardening, Shawn. I'm not much of a gardener, I don't have a green thumb at all, but I love plants, but what I do know is that if you are too aggressive with the gardening and you use, you're using heavy duty pesticides, sure, you'll get rid of the giant hogweed and the poison ivy, you'll get rid of the weeds, but you're not going to grow anything good in that garden either, because the soil is going to be too polluted from the pesticide, it's going to be overkill.

And it's the same thing when I think about the gut, and I talk to people about the gut garden. If you are on a search and destroy mission with your antibiotics and antifungals and your antivirals and you're trying to kill everything in there, you are also going to harm your gut, your soil, you've got soil that everything grows from, that's again, the engine feeding your brain and your lungs, and your kidneys is going to be damaged. So, I really focus on a repopulation approach, how can you increase the population of the good guys of *faecalibacterium prausnitzii* by eating more healthy fiber, build up that acai bowl and that salad, right?

Crowd out the bad guys. And I've seen it over the last few decades in my medical practice, where we treat people with complicated autoimmune diseases, Crohn's disease, ulcerative colitis, autoimmune hepatitis, and by really changing what's going on in their gut we can make a tremendous difference with their disease. And the same thing for how we should really be thinking of our antiviral approach, it's great that we have this potent stuff for when people really need it, but the everyday approach is to strengthen your host defenses by really thinking about what's going on in your gut, what can you remove the NSAIDs, the acid blockers, the antibiotics. And what can you use to restore the health of your gut, and that's primarily food, as I like to say, dark sweat veg, you got to get out in nature, you got to get you sweat on, you got to eat some vegetables. It's really that simple.

**SHAWN STEVENSON:** The word that jumped out there's so much there, modulate, so our bacteria are immunomodulators. And so for us to have an appropriate immune response, and that's another thing that I don't think has been part of the education for the public, is that, it's your immune system, we want to have an appropriate response when you come in contact with this virus or anything else, because we've seen with COVID, it's inevitable that you're going to come in contact, so you want your body to have an appropriate response. And so, bacteria behind the scenes functioning as one of the most powerful, if not the most powerful

immunomodulator, and so putting focus here is about real solutions. So, we've mentioned bringing in diversity of different plants, which is a huge hallmark take away from today. We've seen this and I've got data on this that I talked about in my latest book in Eat Smarter. We see as a diversity of your microbes goes down; obesity goes up. As the diversity of your microbes go down, diabetes goes up, heart disease goes up, pretty much the top 10 killers and more, all of these chronic conditions go up, your rates of these things as your diversity goes down. So, increasing diversity, the number one way to do that is increase the diversity of foods that you're eating, real whole foods. So very, very simple principle.

**DR. ROBYNNE CHUTKAN:** And I just want to mention too, because you mentioned eat smarter, but also thinking about sleep smarter, we know also that tryptophan, the immunoacid tryptophan is a precursor for serotonin, the feel-good hormone that's primarily made in your gut 80%-90% of it. And serotonin is a precursor melatonin, the hormone that you need to help you fall asleep. So, if your gut microbes are off kilter, if you don't have good diversity, you're going to have low serotonin, it's going to affect your mood and you're going to have low melatonin and it's going to affect your sleep, and not sleeping is going to make you... And you know... You know, more than anybody very susceptible to viruses. There was a study published in the British Medical Journal recently that showed that people who are chronically sleep deprived have an 88% higher risk of coming down with a virus. And for every hour of sleep you get, your risk decreases 12%. So, the sleep susceptibility thing is really key, and again, it ties back to what's going on in your gut.

**SHAWN STEVENSON:** You're the best. We did a master class really talking about the sleep connection with COVID, and I mentioned that specific study. Another thing, there was multiple studies on this as well, looking at melatonin and its interaction as even a treatment, being used as a treatment for reducing symptoms of COVID and transmissible and all those things, and there's a lot of efficacy there too, but your body can make it, your body...

**DR. ROBYNNE CHUTKAN:** The body can make it.

**SHAWN STEVENSON:** That's what we want to do.

**DR. ROBYNNE CHUTKAN:** You don't need to take it.

**SHAWN STEVENSON:** We want to see conditions... Exactly. Exactly. And so, speaking of creating more robust health, reducing our susceptibility, there is a specific phenomenon in our culture, it's a certain category of food, and not only does this tie back to the need for NSAIDs because it's so pro-inflammatory. So NSAIDs are trying to reduce inflammation or address those signals, but something that's a big driver of inflammation, but also a big driver of susceptibility to viruses to damaging our gut health is sugar. So, let's talk a little bit about that

because one of the craziest things... So, I just spoke at this event, and you see when you go to these events, you see the barrage of snacks for people, it's all these different types of muffins and cookies and sodas, they had all these sodas and sodas that you only see in other countries, we don't really see the Shasta here, you know what I mean?

**DR. ROBYNNE CHUTKAN:** Yeah, like 60 grams of high fructose corn syrup.

**SHAWN STEVENSON:** Crazy stuff. And so, this is what the array of options are, if you want to grab a snack while you're at the conference, right? And it's just, for me, even when I was on stage, I'm just like, "We're still drinking soda? Like are we actually still doing this?"

**DR. ROBYNNE CHUTKAN:** You need to check out the physician's lounge at the hospital.

**SHAWN STEVENSON:** Yeah.

**DR. ROBYNNE CHUTKAN:** I'm always like, "I'm going to do a Washington Post expose. Why is this here?" Why do we... Neil Barnard, who runs a Physician's Committee for Responsible Medicine, which is a great organization, they push a... They have a plant-focused agenda, but he has a petition going around amongst physicians, I just have to give him a little shout out because the petition is very simple, we are asking that hospitals not serve known carcinogens to patients, bacon, sausage, known carcinogens. If you want to eat that on your own time at home and you know the risk, fine, but as a hospital, the World Health Organization says these things are known carcinogens containing nitrates, et cetera, and we are serving them to patients in the hospital, soda right up there with probably... If you had to ask me, "What's the worst thing you can consume on a regular basis, it's soda." So, beyond the calories and the calorie thing we're dealing with major obesity epidemics, not just here, but in the developing world, where I come from in Jamaica, the rise in obesity, we've seen the dramatic rise in the last decade or so, is almost entirely due to these sugary drinks.

And so, if you think about an average soda, 150 calories times 365 days, 54,500 calories divided by 3,500 calories a pound, it's about 15.7 pounds in a year, just from having a soda a day. And my math may have been off by half a pound or so, but it's somewhere around 15 or 16 pounds in a year, just from a soda day. If you do nothing differently, and if you think, "Okay, well, I'm doing diet soda," even worse. Because the artificial sweeteners mess up your microbiome, they turn regular, healthy, nice, friendly, helpful bacteria into pathogens, they're harmful to the gut lining, and it turns out that insulin, the hormone that of course causes all these calories to be stored as fat, insulin is released in response to sweetness, not sugar. So, diet sodas still cause that insulin surge there as big a risk factor for diabetes if not bigger. I mean, it shocks me that doctors recommend diet products to patients, I'm like, "Have you not read any of the literature in the last 10 years showing that these artificial sweeteners are detrimental to the gut? They

still cause weight gain." So, if you're drinking a diet soda and you're seeing zero calories, zero calories experimentally, but the same surge of insulin, if not bigger, the same weight gain, in addition to the fact that the chemicals and the high fructose corn syrup, terrible for your microbiome, feed the wrong species, you get imbalance, you get overgrowth of a lot of the pathogenic species.

The sugar thing is tough though, we've seen sugar and alcohol during the pandemic, people have been scared, people have been anxious, people have been in terrible circumstances where they've lost their livelihood, they've lost loved ones, and so they turn to things that are comforting. And those things are often alcohol and sugar, and as you know, Shawn they're also addictive, right? Because you get that dopamine, those dopamine receptors in the brain being triggered. And there are lots of studies that show that the sugar high is as powerful as an opiate high in some people, so it's really a problem, but yeah, I mean, at a health conference, as I said in the physician's lounge in pretty much every hospital in America, you're going to find soda, you're going to find donuts, you're going to find Cheetos, and if we can't feed ourselves properly as practitioners, how are we expected to take care of the patients? And I think what it speaks to is the idea of, are we really promoting health or are we creating a market for our medical-industrial complex?

**SHAWN STEVENSON:** Right. Right. Just feeding right into itself. Yeah, so one of the things that you just mentioned is so powerful, by the way, but just looking at this so-called artificial sweetener phenomenon and these "diet products" first of all, we're slapping that label on there, you should be very suspicious, it's marketing. But there are really well-meaning physicians out there who are, in cases, they're getting results for people, maybe it's through weight loss with them utilizing artificial sweeteners, diet products and the like, but they're missing out on some very key science because again, we can get this tunnel vision and one of those... Here's just a logical piece.

We're utilizing these artificial compounds that have never been used before for human beings in our entire evolution. First of all, it should have a little red flag come up, like what is... We don't have any biological association with this newly invented synthetic compound, right? So automatically... And also, what it's doing, again, it's one of those things where we're tricking your body, trying to trick your body, and even that is very ignorant because it's like stupid human brain with all your magnificent capabilities, we're going to trick you here with this calorie-free sweetener, but not understanding, we'll put this study up for people to see as well, we see a significant increase in dementia with folks that are utilizing these artificial sweeteners. And what's going on here, we're looking at the impact that it likely has on our nervous system.

More data needs to be done, but also on the other side, if you're advocating for people to have these artificial sweaters, we need way more data than what people are advocating, these little spot studies, and maybe it's just geared towards weight loss, for example. Sure, I get it. But what are you doing to the person's overall metabolic health, their microbiome, their hormone function, their nervous system, the list goes on and on. These things don't come without a cost, it's not real. It's literally called artificial.

**DR. ROBYNNE CHUTKAN:** You hack it, tell people all the time, you cannot cheat mother nature. You're going to pay somewhere. You're not paying here, you're going to pay somewhere else, so... I'm so glad you mentioned the issue about the contribution to dementia, and it's something I think about a lot. I have a strong family history of Alzheimer's, and realizing that dementia and Alzheimer's even more specifically, is multi-factorial. I remind people that in the 13 years of the Human Genome Project from 1990 to 2013, no, to 2003, which was a bulk of the human genome project, but we didn't finish mapping the entire 100% of the human genome until January of this year. January 2022, there was a missing, some missing information on the Y-chromosome. So now we have 100% of the human genome, and it took from 1990, okay? So, took 32 years, cost somewhere around \$3 billion, over 50 institutions, and how many genetic diseases do you think we have cured? Zero. Zero. Because the genes are often just a suggestion, this idea of it's your genes, your genes can play a role, but it is the environmental influence, it is nature and nurture. Nature, the genes, what you inherit that are fairly static. There's some movement with genes they can be turned on or off, but they're more static, but it's the nurture, how we live, what we do, the foods we eat, the activities, the environments, even the thoughts that we think, and certainly the medications that we take, that ultimately determine our health.

And so, when we look at something like dementia and we look at the rising rates. When I was a kid, I didn't know anybody who had a grandparent with Alzheimer's. Now, I don't know anybody who doesn't. It's crazy. It's like cancer. I know fewer people who have not had cancer than who have had, and maybe that's 'cause I'm a physician, so a lot of the people I know are in the medical system, but the point is it's multi-factorial, and we know that all these drugs that affect your brain, if you look at antihistamines, anything that's going to affect your state of consciousness make you hyper or make you drowsy. So, you look at things like benzodiazepines, like the Valium and the Ativan, and you look at the drugs that our kids are being given. Our kids are being medicated with these heavy-duty psychotropic drugs, these are all things that ultimately can contribute, so if you take somebody who already has a genetic predisposition who's on multiple drugs that can affect this, who is eating a crummy diet with few prebiotic foods, who's eating food with artificial sweeteners, and you start to see... You start to see how this stuff develops. You follow the breadcrumbs. But the cool thing is you can follow those breadcrumbs backwards too, and you can start to figure out what are the risk



factors, what are the things that are propelling me towards disease and how do I step off that road?

And Shawn, honestly, from the bottom of my heart here, this is why programs like yours, work like what you do, which is incredibly well-researched and scientifically-backed and really only has one goal, which is to empower people, is so important. Because the sad truth is, and I'm second-generation physician, my dad's a surgeon, my brother's a surgeon, I'm proud to be a doctor, but at the same time, I'm also incredibly disappointed in the medical system that we're not doing the kind of advocacy for our patients that we need to do. And we're way too influenced by the pharmaceutical industry, by the medical device industry, and we've really got... We have got to get back to the basic idea of who we work for, and we work for the patient. So anyway, all of that to say kudos to you, power to the people, let's keep this information coming, for sure.

**SHAWN STEVENSON:** Yes. Dr. Chutkan, I got chills. Thank you so much for sharing your voice and your perspective and your experience and your tools. You're one of the best. And you've got a myriad of amazing books that people can check out and you've got a new book coming, which we're going to have you back on it to dive into that one, of course, it's going to blow everybody's mind and also, so I want people to be aware, as of this recording, within the next week or two, you're going to be dropping a podcast, a brand new podcast, and I think everybody's already picked up the vibe that you're somebody to listen to and to hang out with. So can you let everybody know the podcast name to have an eye out for and also just where they can follow you right now to stay connected.

**DR. ROBYNNE CHUTKAN:** Absolutely. So, it's the original name, The Gutbliss Podcast, you can find us on gutbliss.com, G-U-T-B-L-I-S-S. You can see there's a consistent theme, here of gut bliss, and again, we get down and gritty, we get into it in the podcast, and we'd love to hear from you. I'm so excited about it. I've been encouraged by people like you, Shawn, and you saying, "Just do it, just put it out there," and we're always interested in what people think, so check us out at gutbliss.com, and Instagram is @gutbliss and the podcast will be out in a week or two.

**SHAWN STEVENSON:** Awesome. Again, thank you so much for hanging out with me. It's such a joy just to see your face and to chat with you, and so it's just been a highlight of my day for sure. I just appreciate you so much.

**DR. ROBYNNE CHUTKAN:** I feel the same way. I'm looking forward to coming out west out to Cali.

**SHAWN STEVENSON:** Let's go west side.

**DR. ROBYNNE CHUTKAN:** And meeting the family seeing the set up.

**SHAWN STEVENSON:** Yes. He'll be right here, right here where I'm standing right now. Very soon, so I'm looking forward to it.

**DR. ROBYNNE CHUTKAN:** Awesome.

**SHAWN STEVENSON:** Awesome. Dr. Robynne Chutkan, everybody. Thank you so much for tuning into the show today. I hope you got a lot of value out of this. We covered so much territory on this episode, literally that internal territory, and taking a journey throughout the human body and really looking at the impact that our gut health and this internal terrain has on our susceptibility to external insults, to bacterial infections, to viral infections and the like. And what we really need to do is to be empowered in understanding that we can reduce our susceptibility dramatically to all manner of things and radically improve the efficacy of our immune system mounting an appropriate response. Now, we even touched on the fact that even testing for COVID is a very strange phenomenon. And she mentioned, and I don't know if you missed this, the fact that what's coming out the other end can be more telling as far as a COVID infection. So, what's coming out in the stool, so versus a nose swab, for example. Yeah, one of the ways to test for COVID has been through the hole.

Alright, and this is why, again, you got to make sure you listen to the after the interview, because you might hear something profound. This was published by the way; this was just a year ago. This was March 3rd, 2021, published in the New York Post. The headline of the report, "China makes COVID-19 anal swabs mandatory for foreigners". That's right, you want to come and kick it in China, you're going to have to get your anal swab, you're going to have to get a little dibble and dabble from the back door. Now, I know this is a lot, okay? I know this is wildly inappropriate, but this is really happening out here in these COVID streets, alright? Anal swabs to test for COVID. The nose is not enough. But just the whole phenomenon, obviously with the testing is very strange, very inconsistent, and here we are well over two years later now, and we're still seeing these crazy outbreaks happening as far as people testing positive, but largely asymptomatic or very, very mild forms of disease, but that can shut down a whole situation, it could shut down a school, a graduation, an office building, the list goes on and on.

COVID has such a strong grip psychologically that the very name can incite a lot of fear without context. And so, to think that any of these things are strange at this point that you know again, China's mandating foreigners, yeah, you want to come here, guess what? Guess what? I'm going to need to see the moon. And so crazy, crazy stuff, but at this point, you should feel like nothing... They can't put anything past you that's too crazy. Alright? But ultimately, again, what we want to do and strive to do continue to do, is to help folks to be empowered and educated

and to understand that you are not a victim in this world, you come here, you are born very well equipped to not just survive in this world but to thrive. And we've been indoctrinated with these beliefs that we're not enough, we're so inadequate, our immune systems aren't good enough, we need this thing, we need that thing, we need people profiting from our sickness or profiting from our belief that we are not enough. And we have to break through that paradigm and not allow this to intercept our logic ever again. And for that to happen, we've got to get our brains healthier so we can even have these conversations, we got to get our bodies physically healthier and really open the door for healthy conversations and logic to become the way of the world, where right now, we live in a severely sick society.

Here in the United States, we are knocking on the door of 250 million of our citizens being overweight or obese, we've got 60% of our citizens having some degree of heart disease right now, at this very moment, about 130 million of our citizens have type 2 diabetes. The list goes on and on and on. Those are just a couple of the issues. Not to mention all of the issues that really never existed before in any substantial amounts throughout human evolution, let alone these big killers, but autoimmune conditions skyrocketing, depression, anxiety, ADHD skyrocketing, dementia skyrocketing, Alzheimer's skyrocketing, non-alcoholic fatty liver disease skyrocketing, I can go on and on and on. We live in a severely sick society, you being healthy is abnormal. That's the state that we're in right now, you being healthy is strange, it's weird, you are the exception and not the rule. We have to flip this around to where being healthy is normalized again, until that point, remain weird my friend, I remain strange, remain being the exception, until we can help to usher in and shift society, you have to be the example, you have to be the model for what's possible.

And I'm so grateful for you being on this journey with me of empowerment, of education, and we've got so much more in store, so make sure to stay tuned, we got some epic guests coming your way. This is gut health week, our next guest fire. Absolutely incredible. World-renowned gastroenterologists we're going to keep this conversation going, you're going to learn a ton, so make sure to stay on the lookout for that, and again, we're just scratching the surface on what we got coming up here. So again, make sure to stay tuned. I appreciate you so much for tuning into the show today, make sure to share this out with a friend, family member, somebody that you care about, let's keep this moment rolling, I appreciate you so much tuning in. Take care. Have a amazing day. I'll talk with you soon. And for more after the show, make sure to head over to [themodelhealthshow.com](http://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 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.