

EPISODE 297

## The Truth About Collagen, Genetic Plasticity, & Sugar Bombs – With Guest Dr. Cate Shanahan

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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 with me today.

We're having a great time, great summer thus far. We just saw *The Incredibles II*, alright? Fourteen years in the making. It's pretty weird because when I saw the first one, I actually took my oldest son who's now seventeen. He's a grown fella.

Sometimes I say, "You're becoming a man," but then I quickly let him know like, "I can kick you out any time, so just let's relax on that."

But anyways, he was a little kid and I took him to see *The Incredibles on Ice* and everything, and he was kind of timid with stuff when he was little. And he doesn't remember that, but they gave you these little bracelets that all the kids got to wear, and during the Ice Capades that they were doing, they'd tell the kids to push the button on the little wristband thing, and it lights up.

And he looked at me like, "Should I push it, Dad? I don't know." I was like, "Push it, go for it, Jordan." And he felt like he was controlling it, it was just the cutest thing. He felt like he had an impact on the world.

And now so he's the big brother. I took him and his little brother and my wife. So my youngest son Braden is six, and I know you're like, "That's a big range, Shawn." Yeah, I started over. I know, but I have a built-in babysitter for the most part, which is all good.

And so summer blockbusters, and guess what? We've got a summer blockbuster for you on *The Model Health Show* today. Alright? We've got one of the greats. I'm talking about this book is the 'Tom Sawyer' of nutrition books.

This is the 'To Kill a Mockingbird' of nutrition books. 'Deep Nutrition,' and my friend, Dr. Cate Shanahan is in the house, and we're going to be talking about some things that are just critical information for you as a human. Right?

We should just know this stuff, but oftentimes it's not a part of our traditional education, you know? And things take time for the books to change. I went to a traditional university, I learned -7% of this stuff, you know?

But that's the great thing about this new phenomenon with media, and podcasts like this, to be able to get that information into your hands so you can apply it into your life and you don't have to wait around for the big news to get out, alright?

So on that note, listen, one of the things that we enjoy the most and that I employ with my kids on a daily basis, we make sure that we're getting real food superfood concentrates.

Instead of this whole paradigm with these so-called multi-vitamins where these are synthetic, right? These are chemical isolates. This is just a guess like, "I think this vitamin C is kind of like the vitamin C in food. Let's throw it in here."

There's various forms of all of these nutrients, and it's just questioning, "Can my cells use this the same way that it does with food?" And you know, just to be real, with our busy lives, with all the stuff going on, with deficient soil in the foods that we are eating a lot of times, even if they're organic, we can be missing some critical elements, some critical nutrients.

And so I'm a big fan of superfood concentrates, so whole food concentrates of various like really dense- these 'superfoods.' And so you guys know I'm a big fan of the Organifi green juice, but do you know about the gold?

They're getting a little bit obnoxious with Organifi. They've got the gold now. They had the green juice, the red juice, now they have the gold, and the gold is highlighting one of my all-time favorite things, which is turmeric.

And check this out, so this was a study published in the June 2006 issue of 'Life Enhancements,' scientists found out that turmeric curcumin, which is one of the compounds found in turmeric, can aid against symptoms of sleep deprivation such as impaired locomotor activity, memory dysfunction, and depression.

The group that received the curcumin treatment before the sleep deprivation (that's the key, be ready, be proactive), and they found that if they had it beforehand, the sleep deprivation period, it showed significant decrease in anxiety-like behavior and oxidative stress caused by lack of sleep.

Alright? It protects you in a really profound way. Also, if we look at something like cancer, you know? This is- a lot of people don't realize this, but turmeric has antiangiogenesis effects, alright?

So this is things that have the ability to cut off the circulation of the food supply to cancer cells. You can't get that with Fruity Pebbles. You know? It doesn't have antiangiogenesis properties. Turmeric does.

It's one of the things in the gold, and gold- listen, when I was saying they're obnoxious, because this gold formula, a scoop of that into your smoothie- so I did a

vanilla smoothie and threw a scoop of that in there. It makes it taste like a cinnamon cookie. Alright?

It's not right! But they're using non-glycemic sweeteners, they're utilizing the turmeric, they've got the coconut milk in there, and they also have a biopotentiator in black pepper.

So traditionally if you look at cultures in India, for example, they're not just doing the turmeric. They're combining it with these biopotentiators that have been found to actually- your body absorbs them better when it's combined with the pepper rind, which is kind of the active component in pepper and black pepper.

So that's in there as well. It just tastes good. It tastes good and it's good for you. Alright? So get on the gold. Get on the gold.

Oh, by the way, they have turkey tail in there. Alright? They're just going- they're just getting out of hand. They're going to throw the medicinal mushrooms in here too.

Turkey tail, 2013 researchers in China conducted a study on turkey tail extracts and found that it had anti-ulcer effects and it could selectively inhibit gastric cancer cell viability. Selectively targeting cancer cells.

Again, Pop Tarts can't do that. Alright? Turkey tail can. Get the gold, alright? Head over, check them out, [www.Organifi.com/model](http://www.Organifi.com/model). That's [www.Organifi.com/model](http://www.Organifi.com/model) and you get 20% off all of it. You're welcome, alright? 20%. So make sure to utilize Organifi Gold.

This is the new thing, and it is- it's delicious, alright? It's just really, really good. Alright? So [www.Organifi.com/model](http://www.Organifi.com/model) for 20% off. Now let's get to the iTunes review of the week.

**iTunes Review:** Another five-star review titled, 'Love the show. Best podcast out there,' by JenD925.

"I've been listening to podcasts for awhile now, searching for health, fitness, and a little fun, and had not found the one. This is it. Shawn is knowledgeable, funny, and makes the complicated seem not so complicated.

I genuinely look forward to listening every morning. He's a total health guru, and I'm so happy to be benefitting from his and his guests' knowledge. Thanks, Shawn. Awesome show."

**Shawn Stevenson:** Awesome, that is so powerful. When you said 'the one,' you found 'the one,' I was like, "Am I Neo?" You know? I know all of us kind of like- we want to be Neo, but I felt it right there.

So thank you so much. Guiding folks out of the Matrix, you know? I appreciate that immensely. Everybody, thank you for heading over to Apple Podcasts and leaving me a review. That means everything to me, alright?

And whatever platform you're listening on, we're on Spotify, iHeartRadio, Stitcher, SoundCloud, wherever you're listening, leave a review. Share it up, alright? Share the love. Sharing is caring.

Alright, on that note, let's get to our special guest and our topic of the day.

Our guest today is Cate Shanahan, MD, and she's a board-certified family physician. She trained in biochemistry and genetics at Cornell University before medical school.

Practicing in Hawaii, she discovered her older patients who grew up eating traditional foods were healthier than their own children and grandchildren who grew up eating according to government recommendations, and realized that what dietitians and doctors learn about nutrition is dangerously wrong.

She's the author of several books, and has served as the Director of the Los Angeles Lakers Pro Nutrition Program, and currently works with professional athletes to optimize their metabolism for energy and performance.

She also directs a corporate metabolic health program for one of Florida's largest family-owned companies. And I'd like to welcome back to *The Model Health Show* my friend, Dr. Cate Shanahan. How are you doing today, Cate?

**Dr. Cate Shanahan:** I'm good, thanks so much for having me on again.

**Shawn Stevenson:** It's my pleasure. It's my pleasure, totally my pleasure. I'm very happy to see you, and also again, I just want to thank you for taking time to put your time, energy, and experience into writing 'Deep Nutrition,' which as I've mentioned is the 'Moby Dick' of nutrition books.

It is the 'Tale of Two Cities,' it is the 'Treasure Island' of nutrition books, and it's just so important and so special in our world today right now. So thank you for being amazing and writing this.

**Dr. Cate Shanahan:** Thanks so much, Shawn. We do promise in the first line that it is the diet book to end all diet books.

**Shawn Stevenson:** I'm saying- I'm saying. And also you coupled that with kind of leading in like, "We're not talking about this diet or that diet, Mediterranean Diet, Paleo Diet, Vegan Diet. This is the Human Diet."

**Dr. Cate Shanahan:** Exactly. The philosophy maybe bears mentioning because it's so simple. It's just that we really need to eat the way we used to eat because our genes are expecting us to do that.

And so we just want to kind of dive down into what is it that people used to eat? And the best way to do that is look at cuisine, and cookbooks, and traditional stuff people are doing around the country, see what they all have in common.

So that's really what the book is based on, is that simple philosophy, and it expands out from there, the implications of failing to do that for generations, and then the implications of what you can accomplish with your health by getting back in alignment with what your genes are expecting.

**Shawn Stevenson:** That's so profound, and you do such an amazing job of breaking it down. Because you said a really important key word here, 'genes,' and what our genes are expecting.

So let's dive in and talk a little bit more about that. So first of all, just a recap for people. You know, people might not be familiar since high school or college biology class, what are genes? What do they do? And how are we actually able to influence them with our food?

**Dr. Cate Shanahan:** So that's a really important and good question. You know what? No one's even ever asked me that before, but when you hear about the word DNA, that we're talking about genes, and in a nutshell it's the instruction manual for operating a cell. A single cell.

And the fantastic thing is that all of our cells have to coordinate with each other, and our genes help that as well. So it's extremely complicated. It's billions and billions of individual letters in the genetic code that make up our DNA, and it runs everything.

It runs the enzymes that direct everything in the cell, and so when we talk about- well actually the differences between people, a lot of it boils down to genes, and the letter codes being different.

And so when we talk about mutations, we're talking about changes to the letter code and the instruction manuals of every cell in the body.

If you're born with like a genetic mutation for something like Sickle Cell, then every cell in your body has that mutation, and what it does is it causes you to have an abnormal type of hemoglobin, and that's a genetic disease, and it's a mutation that's not going to change.

But what does change in our lifetime is the expression of our genes. So that's how food interacts with it. So if we do get everything that our bodies expect us to get, then our genes- the function of our genes, the fancy word for gene function is 'expression,'

all goes well and we can live a long time, we don't get a lot of these chronic diseases, we don't have anxiety problems, or we don't have cancer, and we can be healthy all the way into old age. That's the interface between a good diet and good genes.

**Shawn Stevenson:** Oh man, you know what? In the book you said something that just blew my mind. And of course, like I read your book awhile back, and I went back and recapped some things in preparation for today. And you talked about- because I was like, "How is it that food is so influential on our genes?"

And you mention in the book that there are tags, right? That our genes get tagged, and simple nutrients like minerals, vitamins, fatty acids, or even things are influenced by the presence of those nutrients, tag these genes and essentially there's no middle man between the food that you eat and the influence it has on what our genes are doing.

And this is talking about epigenetic influence. So can you talk a little bit about epigenetics?

**Dr. Cate Shanahan:** So for an example, epigenetics is the word that really literally means 'upon the gene,' and it's talking about what can attach to the gene, those minerals and other nutrients, and how they affect the way our genes work during our life.

And so a simple example is if we don't get enough vitamin D, or calcium, or minerals, then that effects the expression of the proteins that help us grow bones as a child, and as an adult, help us maintain our bones.

And so if we don't get enough as a child, well we don't grow as tall as we could, and if we don't get enough as an adult, then our bones get weaker as we get older.

And none of that actually has to happen. We can be as tall as our parents and even taller if we do get all the nutrients that enable the genes for bone growth to express more often.

So the more often that those genes express, the bigger and stronger our bones will be, and very often the bigger and stronger we will be.

And a really cool example of exactly this is a basketball player for the Lakers for a couple seasons back named Jeremy Lin, who is Chinese. And when he told me that when he was a kid growing up he was really short, and his parents aren't particularly tall, he was sick and tired of people patting him on the head and it just was demeaning, he didn't like it.

So he asked his mom, "What can I do to grow taller?" And she very wisely said, "Eat more protein and drink more milk." And so he did that, and he also looked into it more about where do you get more protein? Where do you get more calcium?

And he did all that and he's six inches taller than his parents and he's a basketball player.

And so that is- he was young when he asked that question, and it was just at the perfect time, and boom. It's amazing, it's just like Miracle Grow basically.

**Shawn Stevenson:** Wow. You know, so our genes are controlling obviously these kind of physical traits, but also we have this kind of twisted belief in our culture that our genes are also controlling whether or not we have a disease manifest and we have no control over it.

But that's not exactly true, is it?

**Dr. Cate Shanahan:** You know, it is not exactly true. There is some truth to it, like because there are genetic diseases, there are mutations like Sickle Cell, which I was talking about.

But really we have so much more control by our diet than with the- depending on family history. For example, so many people have hypertension in their family history, it's 90% prevalent in adults by the age of sixty.

But that's actually not genetically programmed, it's really more a manifestation of our current lifestyle and our diet, and you know, the big bad things in our diet that are making us unhealthy, and then the absence of nutrients.

So these two things combined to work against our genes, so they don't get to work normally. When we don't get enough of what they're expecting, we don't get enough nutrition, and when we get too much of some of the most toxic things out there that we talk about in our book, sugar is one of them, and another one is vegetable oil.

**Shawn Stevenson:** Oh, definitely want to talk about those two things. But you call this plasticity of genetic response, right? So what does that mean exactly?

**Dr. Cate Shanahan:** It means that your genes are really listening to what you are asking them to do. It's a constant conversation between your DNA and the world outside that's mediated mostly by the food that you eat, that you are able to eat, and that information comes into your body and is translated into- it's digested and brought to your cells where your DNA binds with it literally, and that's where the action happens in terms of decision making in your cells.

Like DNA is like the brain, the command central of every single cell, and the foods that reach it enable the cell to function normally. So if it's a bone cell like we were talking about, then it's going to be able to lay down more protein for bones.



If it's a- say like it's a muscle cell, then it's going to be able to develop more mitochondria, and hypertrophy, and more muscle protein so that you can- when you go work out, your muscles will actually get bigger.

So it's a combination that works- the foods work in combination with what you do. So exercise and sleeping are also very important factors for your genes to function normally, not just the muscle genes, but everything.

**Shawn Stevenson:** Wow. You know what? I think that there's a big issue- and I just want to talk about this really quickly because in the same way we both grew up, we just saw food as kind of like 'energy,' or it's a source of calories, and maybe there's like a few vitamins thrown in the mix.

But we weren't thinking in terms of this food is changing what my genes are doing. This is changing what my DNA is doing. Like this is actually determining what kind of copies are getting made of me, you know? And that's such a profound shift in our psychology to even think in those terms.

And even to stretch that out a little bit further, it's not just how it's impacting us right now, but you have research indicating that what you're doing with your nutrition right now can have an impact on future generations, on your offspring, and even their offspring. So can you talk a little bit about that?

**Dr. Cate Shanahan:** So that's where it gets really exciting because like if you are planning on having a child, but you've got a relative who maybe has a child with special needs or something that you would- you're worried might be affecting your future children.

Well it makes a huge difference if you plan ahead. In fact, all traditional cultures used to plan ahead. It wasn't like they would be like, "Oh wow, we're pregnant, what a surprise," because really it was a matter of life and death. There was no other way of guaranteeing a woman would survive childbirth other than having been properly prepared nutritionally.

And guess what? When you prepare a woman nutritionally properly so that childbirth is easy and doesn't kill her, it also makes- nature has this like way of trying to make things easy, right? What's good for mom is good for baby, what's good for baby's genetic expression.

And so that the development of your future child's brain can go very well if you take the time to prepare ahead and make sure that you're avoiding the real toxic things that are out there in the food chain, and trying to get back to closer to what a real traditional diet looks like.



**Shawn Stevenson:** Right, and you have study on top of study of showing how future generations can be influenced with our diet right now. And like you said, just being prepared beforehand, like you cited some examples of certain tribes.

Like they have a certain amount of time before they can even get married so they can make sure that their mineral density is up, they're eating certain types of foods, and also this period of this kind of lag time before you have another child, right? Why would we want to be aware of that?

**Dr. Cate Shanahan:** Well something happens when a mom's body makes a baby. She's actually donating her parts, right? Her body is a storehouse of food for the developing embryo. It is physically made out of her body as well as what she's eating.

But let's say your diet is deficient in omega-3 fats, or you don't get enough nutrients for bone building for the baby, well then the baby's got- the part of the baby called the placenta, which isn't really the baby, it's the afterbirth actually.

That is a part that is responsible for sending out hormones that say, "Okay we need more of this. We need it now."

And so it sends out these hormones and releases nutrients from wherever it can get it. So if the diet doesn't have enough calcium it's going to come from mom's bones. If the diet doesn't have enough omega-3, it's going to come from- the best place to get that actually in mom's body is the brain.

And so they have done MRIs that show that a woman's brain actually shrinks if her diet is deficient before and after gestation. So we know that it's important to eat right while you're gestating, but even after that before you have another baby, now you've got to replace all those parts that got taken from- as far as the placenta is concerned, your body is a storehouse, so the storehouse has been emptied out, and now it's your job if you want to have another child to fill it back up again.

And again, even if you didn't do this before your first baby, if you want to have another baby, you can do it. Your body is always changing and always capable of adapting to what you're doing. So it's never too late to start eating healthy.

**Shawn Stevenson:** Man, there are so many things I want to ask you about. It's so powerful because again, we don't usually think about these kinds of things, and the impact that it has.

But when you mentioned the brain shrinking, literally shrinking, you would think immediately like, "What about this postpartum depression? Maybe that's related."

Like just Captain Obvious stuff that we're not talking about, and that we need to be in order to be of service to all of these amazing mothers going through this process,

to make sure that they're being taken care of, because they're taking care of this precious cargo. You know?

So- but also in the book, and it's kind of startling when you hear this, but then you have the data to back this up. You mentioned how it's incredibly frowned upon if not like just really, really clear of when you're pregnant, not smoking, and not even drinking moderately with alcohol, for example. Like these things are frowned upon.

You feel in many aspects the consumption of processed foods, and processed sugar specifically, is even more dangerous, and we're going to have some big health warnings come out on that.

So why sugar? Why is sugar such an impactful thing for all of us?

**Dr. Cate Shanahan:** So sugar is sticky. So if you've ever had like jelly or cleaned a baby's face, it's sticky because the sugar molecules actually start to bond with the protein on your skin.

So when touch your skin and pull it apart, and you feel like a tacky resistance, that is actually a reflection of how sugar behaves inside your body as well.

It starts bonding to things, it's like swallowing glue basically, and it starts making all your tissues stick and malfunction. And so that is extremely disruptive, and obviously if you pour glue all over the inside of an engine in a car, you can't imagine it working.

Or inside your kitchen, right? The cabinets are going to start sticking closed, and nothing is going to work. Well the same kind of thing happens within your cells and within the tissues between your cells.

And so the body has to regulate the blood sugar level to prevent that from happening. And the body works so hard to regulate this level. We have like at least a dozen hormones that do this, insulin is the most famous, and there's glucagon that's another one.

But growth hormone, and pretty much every hormone you've heard of actually play a role in pushing insulin levels either up or down depending on whether they're a growth kind of a hormone, a storage hormone, or an energy releasing hormone.

So we do have a need for a little bit of sugar, but the amount in our bloodstream is a total- the total amount in our bloodstream is at three quarters of a teaspoon.

So you can imagine if you're drinking a soda that has something like twenty-two teaspoons in it, that your hormones are going to go haywire trying to control all of that, and after awhile of all that sugar highs, and hormones being released, the system essentially wears out, and this is how people start to get pre-diabetes and diabetes.

And then diabetes, once you have diabetes, you cannot control your blood sugar levels anymore, and then that toxic stickiness starts to cause all the complications of diabetes, which we know are- people get nerve damage so that they can't feel their feet, and they often get amputations from infections.

They get kidney damage, these are well known, blindness. But another one that was just recently kind of untangled is Alzheimer's has a lot to do with elevated blood sugar.

So even before you're diagnosed with diabetes, your blood sugar is constantly a little too high and it damages the nerves in your brain. And so it can cause memory and learning problems.

**Shawn Stevenson:** Man, that's so fascinating. This is- and there are several experts referring to Alzheimer's as Type III Diabetes now, you know? Because of that profound impact.

**Dr. Cate Shanahan:** Yeah, I think that's a really catchy way to think of it. But I always like to remind people that it's before you have diabetes, right? It's not just once you get diabetes, it's even before.

So one of the most important numbers that I want people to know when they go to their doctor and get an annual physical, the doctor always tests the fasting blood sugar, and more than half the time, when the number has come back slightly elevated and then I see the person, the doctor never told them because we don't learn the profound problems that are resulting from this mildly high blood sugar level that we call pre-diabetes or even just like hypoglycemia.

Like a lot of folks have noticed that they get shaky or weak when they get hungry, they feel like really like brain foggy and bad, and they call it hypoglycemia.

That is a precursor to pre-diabetes, and that's telling me that your body is not able to regulate your blood sugar properly anymore, and that's already a problem.

**Shawn Stevenson:** Is there a connection- and I already know the answer, it's in your book, but between- and just to kind of take a pivot back, with pregnant mothers consuming sugar having an influence on the potential for their child to be obese?

**Dr. Cate Shanahan:** Absolutely yes. So gestational- mothers who develop gestational diabetes, the diabetes of pregnancy, have smaller children for one thing. They have less- the children are smaller in terms of their lean tissue.

They may be big overall because that's one of the complications of- oddly enough when you're a gestational diabetic, your children are at risk of being both too small and too big.

But what happens really is that the body is building less bone, less muscle, and just more fat, and programming that child to build more fat because that's what mom's body is busy doing.

When you have gestational diabetes and your blood sugar level is high, in order to regulate that blood sugar, half of those hormones that are trying to regulate blood sugar are busy turning sugar into fat. So they're building fat.

So this is why some women during their pregnancy just gain massive amounts of weight, because their body is trying so hard to keep that blood sugar regulated properly so it doesn't damage the growing child, that it's making mom really just massively pack on the fat. But it programs the child to also massively pack on fat for the rest of its life potentially.

**Shawn Stevenson:** Right.

**Dr. Cate Shanahan:** And so that's where we're discovering that we really need to diagnose and treat gestational diabetes. And so the guidelines- thankfully one of the aspects of medicine that has changed in a positive direction nutrition-wise in the past ten years has been obstetricians being much more proactive about identifying women who have gestational diabetes.

So it used to be that not every single woman would have to do that sugar test. Well now, every single woman almost has to do that sugar test. If your blood sugar level is even minimally elevated fasting, they do the test. And so many people now have minimally elevated blood sugar, that a majority of women now are getting that test.

And what I'm talking about is it's called a glucola. You swallow this disgusting sweet liquid, it's got as much as like a big gulp of Mountain Dew, and then they test your blood sugar and see how much does it go up, and if it gets past a certain amount, that's an indication that you've got a problem.

**Shawn Stevenson:** Interesting. Very interesting. And this really goes back to- and just kind of talking about this subject matter, and why it's important, and even just really important to me in doing the work that I do is looking at how did we get in this situation in the first place?

Because you know, when you're pregnant, you're going to have some cravings. The Häagen-Dazs, I don't know, something is going to come up. But it's realizing- and it's just like, "Is that a problem, Shawn?" No, that's not what we're talking about here.

We're talking about we're so far removed from how we evolved. We didn't have access to this kind of stuff. So of course you're going to have cravings for these various things that you've had before, and it's not to say you can't have it, it's just

being more mindful that I need to regulate these things a little bit better for my baby, and focus on some of these other things.

Because I think a big part with the cravings is imbalances and what our hormones are doing. And there's already a hormone imbalance if you want to look at that when you're pregnant, just because there's so much- there's like a hormonal soup going on. And what can we do proactively to support that transition, support ourselves, support our babies as we move forward?

And so just to pivot back now to kind of moving forward again, sugar affecting all of us, advanced glycation end products. Can you talk about what that is?

**Dr. Cate Shanahan:** So when I mentioned that sugar is sticky, that is a spontaneous reaction called glycation. Glycation just means glucose, the molecule glucose combining with another molecule.

And so when it first happens, it's actually reversible and after a certain amount of time, the reaction progresses and it becomes irreversible, and then it's just technically called an advanced glycation end product.

And it's basically damaged sections of a cell. So if you imagine a cell like a giant beach ball, the cell membrane is the beach ball itself, and inside the cell where all the action is, is air inside the beach ball.

But on the surface of that beach ball, imagine like certain patches of the rubber now becoming really stick, and rough, and like raggedy. That's what- that's almost exactly what happens when you develop a section of your cell membrane that's damaged by these advanced glycation end products.

It stiffens and makes it so the cell membrane just doesn't function anymore. Just like the beach ball won't bounce.

**Shawn Stevenson:** Wow. Nobody wants that if you're at a game and the ball is going around the stadium and it's not- that's terrible, you know? "You messed it up, Shawn!" It's not my fault, it's the beach ball.

So yeah, that's crazy. And I think more than anybody, your research has influenced my thinking and understanding of the importance of collagen. And so I want to talk about first of all what collagen is, why it matters, and also the impact that sugar, and this cross linking potentially can have on our collagen.

**Dr. Cate Shanahan:** Yeah, so you know, collagen from a geek person, I love the molecule collagen. It is why we have multi-cell life on Earth. In other words, like all animals, we depend on collagen to hold our cells together. That's the job of collagen in its simplest form.

But it is what holds- it's also like what holds our body parts together too. So it forms the backbone of our skin. When you're looking at your skin, you're looking at a kind of collagen.

When you're looking at bone, you're looking at mostly collagen. So we talk about bone as being made out of minerals and stuff, and yes there's minerals in there, but it's collagen, very much like what's in our skin, that's had minerals like stuck into it, and that hardens it and makes it bone.

And so it's also what forms the backbone of our gut, and so a lot of folks who are natural health practitioners, they use bone broths that are loaded with collagen to help heal children and adults with gut problems because the way collagen works, it is like this amazing glue that it literally attracts to- damaged collagen in your body has a different chemical charge than healthy collagen.

And so it magnetically attracts the collagen that you ate. So it basically knows where to go. If you have bone broth, and you've got some damaged collagen somewhere in your body, then it's going to attract the collagen that you just ate in the form of bone broth as well as all of the other fancy molecules that you got when you ate bone broth, by which I mean like glycosaminoglycans, and proteoglycans that are other supplements that people are buying.

**Shawn Stevenson:** And we can see that with even like- is it radio labeling I think, and you can see-

**Dr. Cate Shanahan:** Yeah, you can watch this happen. So what they do is they gave mice with arthritis radioactive bone stock components, and so they would light up on x-ray, and you could just take an x-ray of the mouse, and track where the bone stock was going.

And after a short while, like just a couple hours, they saw most of that radiation- it didn't end up in random places. It distributed- it was concentrated where the little mice had their arthritis.

**Shawn Stevenson:** Interesting.

**Dr. Cate Shanahan:** And so- and when it goes there, it's basically like repair product. You know? It helps the joint work better, it keeps more fluid in the joint, it helps to stimulate the cells inside the joint that make joint fluid to make more joint fluid.

And it also helps stimulate the cells in your skin to make more collagen. So you know, you can go to a plastic surgeon and get collagen injected in your skin, and Botox, and all this other stuff, or you can actually eat collagen, and eat bone broth, and it really makes a difference.

I've had patients tell me their friends were asking them if they went to a plastic surgeon and got Botox, and they said, "No it wasn't Botox, it was bone broth." So that's quite a testimonial.

**Shawn Stevenson:** I love that so much, and I told you before, I think we're going to straight up- we've got to put that on a tee-shirt if it's not already on a tee-shirt somewhere.

You know what? Is this- and of course I would imagine this being the case, but with your work with professional athletes, and your work with the Lakers, for example, is bone broth kind of one of the things that was in the protocol I would imagine?

**Dr. Cate Shanahan:** Absolutely. And you know what? It is one of the most popular things because it's so tasty, right? You can use it to make soups, and chilis, and you can actually use it to make vegetable soups, and it helps them to get more vegetables, and it's just a great one two combination because of all the antioxidants.

But you know, a couple players told me- like one guy, he had had knee pain for years, and then within a couple months of doing regular bone stock, that his wife was actually making him chicken soup, it was gone. And it was like he'd just dialed back the clock, you know?

And guys are saying they feel like it's going to extend their career, or it has extended their career. So you know, it sounds almost like snake oil but it's something that our genes have come to expect, and so when we don't get it, and then get it back, you can really notice the difference.

I feel it, you know? Like if I don't have some for a few days, since I'm always typing, that's like my main exercise is typing and working on the next book, I'll feel it in my hands.

And then you know, I'll have some more, and then the next morning they just feel better again. It's really amazing.

**Shawn Stevenson:** Yeah, I have some stories myself. Just it's really, really profound, you know? And I haven't talked about this before, but I guess this is a good time to share it.

So it was a random Sunday, lazy Sunday, and oh my goodness, I'm not the daredevil type guy, you know? But we were hanging out with the kids, you know I was kind of laying around.

Worked so much, just kind of like on the grind at this point, and you know sometimes I just feel like doing stuff. Like I just want to be active. You know?



And so I felt kind of out of place just kind of laying around all day, so I was like, "You know what? Let's take these scooters down this hill." So these are like the little pedal scooters. What are they called, Shoe?

**Shoe:** Razor.

**Shawn Stevenson:** Razor, yeah it's called a Razor, alright? And we have the steepest hill. We call it the Manmaker or the Hill of Destiny or the Hill of Truth. We have all these names for it.

And so we just decided, "You know what? We're going to go down this hill on these Razors." Right? And I forgot that it has a brake until like the very end.

Because you know, you push down on the back pedal with this little thing, and when I did it was literally like sparks flying. And I'm like, "Oh man, my shoe is going to catch on fire."

And now I'm at this point where I'm getting to the bottom of the ditch, I'm like, "I'm either going to go in this creek over here, or I'm going to have to bail." Alright? And so I decided to bail, and I'm going like- I don't know, probably thirty-five miles an hour, like I'm flying, right?

If we had this on video, it would definitely make the rounds on the Internet. And I'm a pretty graceful fellow, you know? Like I don't ever have this kind of- even the way that I fell was pretty like- I almost stood up, you know?

But I decided, and I bounced on my derriere, you know? Because I got the squat butt, you know? Bounced and I bounced on my shoulder. And I got up, I was all good. My kids were at the top of the hill like, "Dad, you alright?" I was like, "I'm fine."

But my shoulder was just a little bit off for like two or three weeks, it just wouldn't get right back together. And I used bone- then I hadn't used bone broth this whole time. Then I had some bone broth for like two days, and then like I just realized that it was gone like a week later.

Like, "Wait a minute. Wait a minute, that's crazy." And of course there's these anecdotal stories like this, where it just got in there and did something.

And when you're sharing that research of like we have data showing it actually knows where to go in the body to these damaged tissues, and helping to heal things. I think it's such a profound gift.

And one of the stories, if you could talk a little bit about it, like kind of this legendary lures, like Kobe Bryant would have the hotels make bone broth to his specific instructions. Talk a little bit about that.

**Dr. Cate Shanahan:** So there was a game, they were playing against Atlanta, and he did a jump shot fade-back and landed on somebody's foot, and horrible ankle sprain. It swelled up within minutes it was swollen and Kobe took pictures, and posted it and said, "The worst sprain of my life."

And so what we did, because we were watching, is I called up the hotel and they had already been- I had asked them if they wouldn't mind making some chicken soup, just because a lot of the players like it anyway.

And so what we did was when he got back to the hotel, we had two bowls of the chicken soup waiting for him, and he drank it down, and he was back playing again within less than two weeks. And the time previously when he had a similar ankle sprain, he was out for six weeks.

So you know, I mean it's a natural anti-inflammatory, there's all kinds of reasons why it works that I could go into, but the bottom line is it's really amazing, and it works really well.

And I mean you almost wonder does it work too well? Because we don't know. Just because you have less swelling and less pain, are you really ready to go back and play?

This is- I'm bringing this up because another player got knee surgery, and he was back on the court also in less than two weeks, and normally you're out for six weeks after knee surgery.

And so after the knee surgery, just because he had no swelling, they let him back in playing, and that's because that's their normal guide. But then he developed like a complication of the surgery, like there was like a weakness, maybe part of the surgical- like one of the small cuts you have to make to get into the joint space hadn't repaired properly.

And so it's like this stuff is so effective it's almost dangerous. You really have to be careful.

**Shawn Stevenson:** That is the best and worst advice with bone- that is amazing, and I totally get it, you know? It's just it does such a good job at what it does that we can kind of throw caution to the wind.

And you know what? My son, he actually- last year football season he broke his leg, and then leading up to this season he sprained his ankle, and just he started to add in collagen.

So he wasn't doing the bone broth, he was adding in- doing some collagen protein. It's like from the Primal Kitchen, Mark Sisson's products.

And it's just like the turnaround, even with stuff like that. And so what we recommend, and I know Cate, she's like all about let's get it from the source, you know?

So number one, utilizing bone broth, utilizing real collagen. But then we do have products out there- and I get mine, by the way, from Thrive Market because 25% to 55% off what you would pay at awesome stores like Whole Foods that have a nickname, Whole Paycheck sometimes. You know?

But 25% to 55% off the prices you'd find there. And so I get the collagen- there's a collagen- one product called Collagen Fuel, and it tastes good, it has like coconut milk with it, and he would do that.

And by the way, you want to take that on- not when you have other proteins because these could- potentially these different protein compounds can compete with each other.

So just having the collagen by itself. And there's like a vanilla flavor that's pretty tasty, and just throw that into maybe some almond milk, or just have it by itself with some water and some ice.

And so they have that, and of course, like we get all of our staples there. Like the non-perishable items, snacks for the kids, coconut oil, olive oil, avocado oil. We get all that stuff from Thrive Market, and we save so much money.

We've already saved this year hundreds of dollars. Like I think maybe \$600 to \$800. It's crazy how much money we're saving.

And I want to make sure you're not missing out, and you're just flushing your money down the toilet. Just take it and flush it down the toilet or burn it, alright?

Or you can save that money and buy yourself, I don't know, with the money you save, you might be able to get a little Gucci bag, maybe a small one. Not like a big, but a small. Alright?

You could save that money, head over there, check them out. It's [www.ThriveMarket.com/modelhealth](http://www.ThriveMarket.com/modelhealth) together as one word, and you get 25% to 50% off already all their products, but when you go to that link, [www.ThriveMarket.com/modelhealth](http://www.ThriveMarket.com/modelhealth), you get an additional 25% off your entire first purchase and free shipping, and a free one-month membership to Thrive Market.

And you're going to want to keep the membership because it's just going to keep saving you money, alright? So just another option there.

They do have bone broth as well, like you could actually get bone broth from Thrive Market too, alright? So keep that in mind. [www.ThriveMarket.com/modelhealth](http://www.ThriveMarket.com/modelhealth).

Alright so collagen, super important. You mentioned something earlier when talking about the skin. So folks are like- they're getting proactive, they're like- you know, they're trying to treat things from the outside in, but the inside out is really the approach.

So let's talk a little bit more about the implications with beauty with collagen and just with our diet period.

**Dr. Cate Shanahan:** So yeah, the most incredible thing about the word 'beauty' and 'diet,' is that we don't normally connect them really much beyond the skin or maybe the hair and nails and surface.

It goes so much deeper, and this of course is more obvious, or more like powerful I should say, when we're talking about the younger you are. So again, during gestation.

And 'beauty' is a very kind of almost political word. It's a powerful thing, 'beauty.' And to say somebody is beautiful is of course the ultimate compliment.

It has nothing to do with your internal- like whether you're a good person or not, but it does reflect optimal genetic expression and healthy genes.

So in 'Deep Nutrition' we talk about something called Genetic Wealth, and the sad thing is that around the world today, so many people are living off the land, and basically we call them impoverished, but they are actually sustaining their DNA and their genetic health much more so than we are in this country with all of our- much more money.

**Shawn Stevenson:** Right.

**Dr. Cate Shanahan:** And conveniences and everything. Because we are not living off the land and getting the kind of nutrition that we used to.

And it turns out that beauty, even though they say it's in the eye of the beholder, there's a formula for it, a mathematic formula, which to me suggests that it's not so much in the eye of the beholder.

What's in the eye of the beholder is the response to beauty and how exactly you respond. But we all agree on the geometric construction of movie stars. They all have very similar bone structure mathematically.

They have high cheekbones, they have big lips, they have eyes of a certain spacing, certain angle to the jaw, and the nose, and the eyebrows, and everything like this.

And it all boils down to a mathematical formula, a mathematical principle, constant really, called *Fi* as related to the Fibonacci sequence, which is what *The Da Vinci*

*Code* was about, and what- you know, like the Illuminati and stuff. It's like it really goes deep, and it's really wild stuff when you start looking into it.

But there is a formula for human growth. It's a complicated formula, it needs this thing  $\phi$  to work, and when we have for generations built up our genetic wall, and we've continued to feed ourselves properly, so the genetic expression goes well, we grow- our skeletons grow in accordance with this geometric principle.

And it's not just people, it's all living things, and in fact all things that grow. Like the universe, which grows, right? It grows and there are spiral formations to galaxies that are based around this  $\phi$ , this ratio called  $\phi$ .

And like anything that has a pattern in it in nature. So it's the waves in sand dunes, it's the seeds- the spiral seeds that you'll see growing out of a sunflower.

All of that relate to just the way the universe works, the way the universe is growing. And so it sounds a little bit like metaphysical, and I guess it really is, but when we eat the way our genes expect us to eat, we are in harmony with the growth of the universe.

I mean it sounds like something a hippie would say, but it's really true. And you can see it most easily, you can actually measure it very objectively with teeth.

So this insight first became apparent to me reading the works of a dentist named Weston Price who lived at the beginning of the 1900's.

And he went around to all different cultures looking just for what did people eat when their teeth were straight, because back then it was a big deal to have crooked teeth because there wasn't really anesthetic that worked very well, you could die getting your teeth pulled.

And so he actually wrote a book called 'Nutrition and Physical Degeneration' which also talks about what people around the world used to do to feed themselves, and how different it was, and how much more nutrition they got.

But he found that when people ate that way, their teeth were straight and they also didn't have cavities too, right? That's nice as well, like you're not eating the sugar.

But it changes the way your teeth can be straight because your skull has enough space for the teeth to be permitted to grow in accordance with this ratio.

And so it all fits together in the natural plan of the universe. There's another dentist actually, a dental surgeon named Stephen Marquardt who actually he was the guy who discovered this connection between the human face and this mathematical principle called  $\phi$  or Fibonacci.

It's a ratio, so the ratio is 1.618. So you know how like if you remember grade school, and Pi, the circle that's 3.14, it goes on forever. Well this is another constant, 1.618.

And that amazing number enables growth to happen in a way that keeps everything the way it should be. So like just a baby's hand, right? A baby's hand grows up to be an adult hand.

And no matter the size of the hand, whether it's a baby or an adult, when you fold it into a fist, your fingers are lined up here in a line so that when you make a fist it's strong.

And so this is an example of how we need geometry to be strong. If we folded up our fingers and one was like way longer than the other, we couldn't have as strong of a grip.

And it has to do with that mathematical principle enabling the growth to happen that way so that we look like basically a human no matter how big or small we are.

And this is where like I'm out of my depth, because I'm not a mathematician, but it is a benefit of nutrition and a benefit of beauty.

So like one of the things when I work with athletes, athletes are very attractive people generally, and it's not a coincidence. They have grown, their skeletons have grown in accordance with this principle, and they are stronger for it, so their bodies are more durable and they can jump higher, and lift heavier weights, and throw things farther, and fall more, and bounce better when they fall, and get right back up again because of this more ideal growth.

And this is something that struck very- it's very important to me because I didn't have this. So like when I was an athlete too, and I was always getting injured, more so than other people.

And when you look at me, I have a short waist, and my hips are all kind of weird, and stuff like that, and it's a reflection of the fact that my skeleton didn't develop properly, and so my hips aren't quite deep enough, so I was always getting hip injuries, and you know it's just one of these things that it's a real bummer, you know?

And I don't want other children to have to deal with this, and I totally believe that it's preventable. I don't know how far back you'd have to go, whether it was me as a child eating better, or my mom as a child because she ate lousy too.

But it is ultimately preventable, and it is ultimately something that you are going to benefit your own children if you keep eating healthy and help them learn what real healthy food looks like and tastes like.

**Shawn Stevenson:** Wow. And this was a story you shared, and this was the catalyst for you learning about all this stuff that you're sharing with us today, and sharing with the world, was trying to kind of fix yourself and the pain that you were in from your experience, you know?

And playing- like competing at a pretty high level when you were doing your- you were doing like middle distance, like 1500's, right?

**Dr. Cate Shanahan:** Yeah. Yeah.

**Shawn Stevenson:** And so that story- and by the way, of course we'll put that first episode in the show notes for everybody. But there are so many things to speak of- and shout-out to anybody who made a fist when she was talking about making a fist. Alright?

And you know, it really kind of is a realization for us that when we talk about beauty is in the eye of the beholder, we can find beauty in anything, but what we're talking about here is an appreciation, a natural inclination towards being attracted to pattern, right?

There's a certain structure and pattern, and you even got some research in the book from like animals just wanting to stare at a certain pattern, and how we can have things be just a little bit off of these numbers that can kind of withdraw and take away from this pattern that we tend to be attracted to.

And by no means does this mean that any of us are seeking to be perfect, or that there is such thing as a perfect, but there are these patterns, and I think you really detailed that in a fascinating way in the book.

And this term that you used, 'dynamic symmetry,' right? So with that said, us trying to maximize and working on even for our future generations the best expression of our genes is avoiding certain things.

So we talked about sugar a little bit, we talked about some things that we want to add in, in the form of collagen is one of the things we covered. But there's a story, there's something else that's pretty messed up going on, and there's a story about you had something on your desk, it was a run-in from the CIA President. Alright? Can you talk about that?

**Dr. Cate Shanahan:** So this is while I was in Napa, California where they grow a lot of wonderful California wines, and there the CIA is not the government entity but a private culinary college, Culinary Institute of America, which is one of the most prestigious places a chef can get trained.

And they actually have sponsorship unfortunately from Unilever where the- Unilever is like one of the biggest manufacturers of canola oil, and my husband and I, while



we were living there, we did a recurring article called 'The Stock Report' in the newspaper.

And one of the- a little play on words there, because we were all about bone stock. Not good with the other stock market at all.

And one of the articles we did was called 'The Canola Blob' because it turns out that like 90% to 95% of the restaurants there, even there, use canola oil instead of olive oil, or even like butter, right?

Like you can use these cheap substitutes and save pennies per meal or whatever, but that's what's been happening in the country, in all of our restaurants, so that we actually- the majority of a person's fat calories now come from things like canola oil, and soy oil, and sunflower oil.

And these are processed vegetable oils that when you talked earlier like sugar cravings, one of the things that's going into my next book is the research that shows that these oils cannot be used by the body to produce energy as efficiently as the body needs.

And so that they are the reason that actually our cells start requesting more sugar, and so that we actually have these sugar cravings because of this vegetable oil problem that we have in our restaurants.

And if you go- try to find salad dressing. I challenge you to find salad dressing or mayonnaise anywhere but Thrive Market, where they sell a bunch of mayonnaise that's made out of avocado oil.

But most of that kind of condiment type stuff is going to be made using these cheap oils because the word has not gotten out about how bad they are.

You know, we know cigarette smoking is bad, and people talk now about sugar much more intelligently than we used to, but the vegetable oil thing is still like- it's no one is talking about it.

And it's- you know, I am actually a little bit nervous because I am one of these people that is talking about it, and I've heard about other people losing their jobs, and not getting funding.

**Shawn Stevenson:** It's that CIA. It's that CIA.

**Dr. Cate Shanahan:** Yeah, it's the other CIA. Maybe that's why I was actually- when I saw the letters, it did occur to me. I was like, "Uh-oh, now my number is up." But not yet. Hopefully you're safe, Shawn.

**Shawn Stevenson:** It's such a crazy thing because in our world, it's just like so Captain Obvious. It's so obvious, we've been through this, it's just like why are we still talking about it? But like you said, the word has not gotten out.

Even companies like Whole Foods, you know? They're doing a lot of stuff right, and trying to provide things better. You go to their hot bar, you get food from their restaurant, they're using canola oil. It's just like, "Guys, really let's get together on this."

So talk about what it is, first of all what the heck is canola oil, and why is it something that we should really be mindful to avoid?

**Dr. Cate Shanahan:** So canola oil is just- it's a vegetable oil. Like so it's a cooking oil, and it's used in place of more expensive oils like olive oil. You can hydrogenate it, makes it even more unhealthy, and you can use it in place of butter.

There's six major vegetable oils, three C's, and three S's. So we've got corn, canola, cottonseed, soy, sunflower, safflower.

And those are the ones that you're going to see in ingredients in the grocery store. There's two more that are used in restaurants, and that's like rice bran oil and grapeseed oil.

But those are refined, bleached, and deodorized oils. They are also the precursors for biodiesel. Soy and corn is now grown for biodiesel. It's really- we shouldn't be eating this stuff.

And the reason it's bad for us is it's got to do with its molecular structure. It's kind of a fat, right? We've heard of saturated fat, and like we've been told that's the bad kind of fat, and that's actually not true. Nature doesn't make bad fats.

But these polyunsaturated fatty acids that we've been told to eat more of because our bodies can't make them, that's why we've been told to eat more of them because our bodies can't make them, but when we eat so many, we're in trouble because they're unstable. And that's what makes them ultimately unhealthy when they get processed.

So I used the term refined, bleached, deodorized before. So when you take the soybean and you extract the oil, or a canola seed and you extract the oil, you get a messy product, and it's all stinky, and smelly. They use all kinds of stuff to clean it up.

That's refining, bleaching, and deodorizing, and that's very damaging to the molecules, and by the time you're done, you've got almost no antioxidants, no minerals, no vitamins, no flavor.

And that's really your key to whether or not an oil is healthy. Say you can't even remember, but somebody serves you something in a restaurant. You taste it, if it

doesn't have much flavor, if it doesn't taste like olive oil powerfully, it's probably been diluted with one of these flavorless oils.

And just like your tongue, it doesn't have a taste, your cells can't use it because it's not shaped in a way that they can use at all. It's waste, it is liquid waste, it's high calorie waste.

And the only thing we can do is store it in our body fat. We try to burn it. When our cells try to burn it for energy, it actually damages the cells.

And so depending on your genetics - this is where genetics does play a role, an important role - your genetics determine whether or not these oils are going to make you fat, or whether or not they're going to give you cancer, or whether or not they're going to give you Alzheimer's. What is the bad thing these oils are going to do?

But they do something bad to all of us. And so if you have diabetes in your family, well it's probably partly due to these oils that we've all been consuming.

80% of the average person's fat calories comes from these oils.

**Shawn Stevenson:** Crazy.

**Dr. Cate Shanahan:** So it's not just junk food, it's in health food. And like you said, some of the best grocery stores, you shop only there, you're still going to get this stuff.

**Shawn Stevenson:** Wow, this is- you're the best in the world in this subject, and again I highly recommend people to connect with you online, to get your book 'Deep Nutrition,' and to get more educated about this because you've been out here advocating for this even though the CIA is on your back.

By the way, you shared a story, you guys- I think you had lunch or dinner together, and just so happened to be doing an olive oil tasting. And he's like telling you, "It's not that bad. Canola is not that bad." And what did you tell him?

**Dr. Cate Shanahan:** Yeah, I never finished the story. So yeah, the whole reason we were meeting is because of the Unilever sponsorship, and he came to invite us to dinner to try to convince me that I shouldn't badmouth canola oil.

And at the start of the meal, he brings out this flight of different olive oils, and he's talking in detail about the chemical reactions that could happen to damage olive oil, and how hard they work to prevent these reactions from happening.

And I said, "You know what? You're talking about this high level chemistry here. How come you don't acknowledge that the same thing that can affect olive oil can affect canola oil?"

And the minute I said that, he completely changed his argument and he said, "Well there's not enough olive oil to go around."

**Shawn Stevenson:** Okay, so we're going to get real basic, alright? We're going to get like Fred Flintstone on this one. And I think even being like, "Why are we not having a canola oil tasting, by the way?" You know?

**Dr. Cate Shanahan:** Yes. I literally- I asked him that. I said, "Why aren't we tasting canola oil?" And the answer is like, "Because it tastes like nothing."

**Shawn Stevenson:** That's nuts. That's nuts. And it's just something that's not a part of our paradigm, yet this is something that's in like the majority of folks' food, eating right now, are these heavily processed oils that you're talking about.

So Dr. Cate, you're amazing. I think that you are just brilliant. I think that you are courageous. I think that you are- you articulate things in such a great way through your writing.

And so can you let everybody know where they can find 'Deep Nutrition,' and where they can find you online?

**Dr. Cate Shanahan:** So my website is [www.DrCate.com](http://www.DrCate.com), which is [www.DrCate.com](http://www.DrCate.com). And from there you can link to the two books that we've written, and our books are available in pretty much any online bookstore, and select bookstores around the country. Actually you can order it from Barnes & Noble if it's not already there.

It was actually just re-released in paperback, so there's a good chance that it's going to be in paperback somewhere too.

**Shawn Stevenson:** So get it! Get it! Alright, final question. Cate, what is the model that you're here to set for other people with the way that you live your life personally?

**Dr. Cate Shanahan:** You mean like do I hope people do what I do? Really the model is I guess I would really like to be a model for people to understand why they have to take control of their health by- as simple as to make it as simple as a fifth grader can understand, get back in the kitchen.

There's really no way around it right now. You know, I wish I could say you could go out to eat, and have fast food, and there are certain fast foods you can buy that would be healthy. To a tiny extent that's true.

There are certain processed foods and ready-to-eat foods you can buy, there's more and more every day, but being in the kitchen is- it has been since the fifties seen as like a menial task, right?

But it's really- it's where life comes from. The cooking that we do, and the knowledge that we can pass on to our own children as to what healthy food is and how to make it themselves.

And so I work every day to try to get people to enjoy being in the kitchen because I want to have it be easy, fun, and the end product taste delicious and make them feel better.

**Shawn Stevenson:** I love it. Thank you so much. Dr. Cate Shanahan, you are the best. I appreciate you.

**Dr. Cate Shanahan:** Thank you, Shawn. It was great to be on your show.

**Shawn Stevenson:** Awesome. Everybody, thank you so much for tuning into the show today. I hope you got a lot of value out of this. Wow, 'Deep Nutrition' is- I just think it's a really, really important book in our lifetime.

And I've learned so much just kind of like sparking interest in things, and also a deeper understanding of things from Cate Shanahan's work, and so I highly recommend checking out that book.

And listen, I think in her closing note there, it's something that's so important but also very much- it's kind of pushed to the side today, you know?

We've got a lot going on, and her saying that it's seen as a menial task, like doing the kitchen work, but this is what she said, this is where life is created.

You know? We are literally the food that we eat, you know? As I'm standing here, what I'm looking at as I'm looking down at my own body, this is the result of what I've eaten, and how powerful is that? You know?

Your body, when you see yourself in the mirror, that's the food that you've eaten. That's the greatest interaction that we have with our environment.

It's the most powerful and profound experience in our life. We get to decide stuff that's outside of us like, "What am I going to make my body out of today?" Right? We get to pick. You are your own artist.

You're creating your masterpiece, and that masterpiece is you, you know? You can make your masterpiece out of some Laffy Taffy, that's all good. You know?

Get the banana. The banana flavor is the best. If you're going to do it, go out. Go out with a smile.

But for the majority of us, we're going to choose to make ourselves out of sustainable powerful nutrition that guide our genetic power in the right direction. Right?

So we have this genetic plasticity that she talked about where we get to literally determine what our genes are doing. We get to change our genetic expression based on every bite of food that we eat.

Alright? Our genetic determination was not already laid out for us, alright? The idea that genes control life, that genes control us is just false. You know? This was an ideal to- in many ways, in industry, to make money.

We can create some designer genes, we'll never have this again, you'll never have that again. But our genes are far too complicated.

We give ourselves a lot of credit as humans. We've got rockets. We do. We've got iPhones. But for us to create designer genes, and to plug holes in certain things in our genetic code is really farfetched.

What we've evolved- because we're talking about millions of years of evolution based on going up against something that's been done for a couple of years trying to figure this thing out.

We only know a small amount of what there is to know about nutrition right now. We're still just scratching the surface on this. What we do know is that nutrients in food is what leads to the most profound impact, like a direct impact that she's talked about today on what your genes are doing.

You can determine your genetic expression based on your food, alright? You've got thousands of different possibilities of what your genes- what one gene can do based on what you eat.

Alright? So you're the artist, you're creating your masterpiece, and so it's time to be more mindful of that, more proactive, and more empowered.

Alright so if you got a lot of value out of this, make sure to share this out with your friends and family on social media; Twitter, Instagram, Facebook, all that good stuff.

There's tools right in the app with the podcast now, with the Apple Podcasts, Stitcher, Spotify, you can just push the button and it has that share feature that you can share it out. Sharing is caring. Get this information into the hands of more people.

We really want to make sure that we are not having this conversation about canola oil anymore, alright? People need to know, we need to get this message out there, so we can really get on the good stuff.

Alright, so I appreciate you so much, and when I tell you we've got some great stuff coming up, I'm telling you be ready. Alright? Be ready. We've got some amazing guests, and amazing show topics coming up for you so stay tuned.

I appreciate you immensely. Take care, have an amazing day, and I'll talk with you soon.

And for more after the show, make sure to head over to [www.TheModelHealthShow.com](http://www.TheModelHealthShow.com). That's where you can find all of the show notes, you can find transcriptions, videos for each episode, and if you've 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.