



Episode 60: Deep Nutrition & The Four Pillars of Health

with Dr. Cate Shanahan

Katie: Welcome to the Healthy Moms Podcast. I'm Katie from wellnessmama.com, and I could not be more excited about today's guest because I have been a fan of her for a very long time. In fact, her book is one of the reasons that I really got into the health side of things in the first place and it started a lot of my research.

Dr. Cate Shanahan is a Board-Certified Family Physician. She trained in Biochemistry in genetics at Cornell University before attending the Robert Wood Johnson Medical School. For 10 years, she practiced medicine in Hawaii where she studied ethnobotany and the culinary habits of her healthiest patients. She currently runs a metabolic health clinic in Denver, Colorado, and serves as the Director of the Los Angeles Lakers PRO Nutrition Program. And as I mentioned, she is the author of the book "Deep Nutrition" which is one of my favorite books of all time.

Dr. Cate, thanks for being here.

Dr. Cate: I'm so glad to be here, and thank you so much for the kind back story there. I didn't realize that. Well, that's very flattering to hear.

Katie: Oh, absolutely. I have been a fan of your work for a really long time, and it's an honor to get to talk to you today and share you with the listeners. And I think this is gonna be an amazing episode. So I wanna jump right in. So, from what I understand, your own health condition which was a knee problem prompted you to look past the science and into more natural and nutritional healing side of things. And I think your perspective is super valuable because you came from the medical model, and then you dove into the natural and the nutritional model, and I feel like you have the best perspective with kind of a fusion of those.

So can you start with that story of how your own experiences impacted...how you viewed nutrition and how it impacts health, and also how it got you into this side of things.

Dr. Cate: Well, yeah, for sure. So what happened with me was that after I completed my medical training and then I was practicing medicine in Hawaii, I got sick myself and I had a problem with my knee. I couldn't walk. That was the problem. And if I stood on it too long, I'd get fevers and you know, get really tired and it was a bizarre problem and I had all the usual specialists look at it from rheumatologists to surgeons. I even had surgery, and nothing helped so it was like I was A, desperate, and B, because I was a

former athlete, I had all this like free time suddenly where normally anytime I had a day off, I would've been like biking or something for two, three hours. Suddenly, I didn't have that time. I mean I had all this time to think about medicine and what I was doing with my career and what was happening with my health and why like there was no answer.

So, I started looking in the direction of nutrition because my husband, who likes cooking, said to me, "Well, you know, you do eat a lot of sugar and maybe that's good for insects, but you're not an insect. Yet, you eat like one." And so that was the first time I really took him seriously. He had been making those kind of comments for years because I had a terrible sweet tooth. Like if I went for a 10-mile run, I would reward myself with a pound of M&Ms.

So I started just looking into nutritional, other ways of thinking about health actually and medicine, and that led me to nutrition because Andrew Weil had written called "Spontaneous Healing," and in that book, he mentioned something called a mega three fatty acids which were fats that were good for you so this was way back in 2001. Now, like every fourth grader knows what a mega three fatty acids are and everyone's taking a fish oil, but back then, it was a completely new thing and I had...I was actually like somewhat outraged because I had gone to medical school and paid all this money for my medical education, yet, I didn't learn about these essential fatty acids and how they affected our health in ways that had nothing to do with calories.

And so, that was the opening of getting into questioning, how can I put my medical education that I had learned all this stuff about self-physiology and biochemistry, how can I put nutrition into that context? Because I realized that what that thought there, what Andrew Weil's book did was open the door to this whole other idea of how food affects our body which is...became when I understood a mega three fatty acids do and the difference between a mega three and a mega six, it was amazing because what I learned was that omega three fatty acids can actually turn off cancer growth, and omega six fatty acids actually turn on cancer growth, and what that meant was that food was connecting, was communicating information to our bodies. It was instructing our cells.

And so that was really the missing piece of my medical education so that suddenly I had a framework to include all the important biochemistry I had learned, but put it in the framework of food rather than just like abstract, chemical reactions in our bodies that...well, they're going on and everything but really the only way to change them is with drugs.

We, as medical students, learn a lot about that and how drugs affect our cell physiology, and direct changes within our bodies, but we did not learn how nutrition, how food can do this. And so, that's when I decided I was gonna learn everything I possibly could about what we knew about fats and sugar and then from there it just unfolded into what ultimately became our book, "Deep Nutrition."

But the book is a...it's different than any other diet book and I think you...I don't know, I'll see if you agree with that. It's like, a lot of diet books are like, "Well, don't eat grains or eat more fat" or they're...you can summarize the concept fairly quickly. It's very amenable to describing in a sound bite, but for years I've struggled with a way to encapsulate all the information in "Deep Nutrition." And, I don't know, did you feel like it was a little bit more like big picture than... Am I like a...patting myself on the back when I shouldn't be or?

Katie: No, I absolutely agree. In fact, I've said that before. When I first read it years ago, I wanted to tell my husband about it and then also my parents because of certain history in our family. I figured it would be really helpful for my dad. And when I did that, I went to them and I was trying to think of how to summarize it in my head, and I felt I needed to be like, "Okay. Here you go. Take a deep breath. Sit down. I'll try to explain this all to you." And I had bought copies over the years for a lot of different relatives for that reason. But I agree, you really do address the big picture and I felt like you tied in really comprehensively much more so than a lot of diet books like you said that just focus on one aspect. And many of those obviously are very important aspects, but I felt like you made it very cohesive and made it make sense in altogether.

And I know your book is raved about for that reason, especially with explaining what you call the four pillars of these nutritional habits. And so could we talk about that a little bit? Dive into the four pillars and what they are?

Dr. Cate: Yeah. Definitely, I wanna do that, but, before I do that, I wanna explain what's going on with our book. Because you've read the book and yet it's not available. So what we're doing is, we re-released it. So what happened was that we self-published back in 2008, and it did very well, surprisingly because we had no platform or anything, but, it was thanks to people like you who were promoting it and talking about it.

And then over last year, right around last year at this time we were

contacted by a publisher who was interested in re-releasing it, and I had to start thinking about, "Well, what would this book do that's different than the original version?" And what I came up with was that I wanted to just encapsulate a little more clearly what our book is all about. And so in putting the new edition together, I realized that "Deep Nutrition" really tells a story, and it's perhaps it's the most important story that the next generation will hear because it's the story that we are on the verge of losing our humanity, and it tells the story of how we got here where...and the story started back at the end of...right around the Industrial Revolution in the late 1800s where our food supply had become a lot more mechanized and there was introduction of...we were getting away from traditions basically. People were doing a lot more shortcuts. We were using a lot more like white flour, and we were starting to use industrial fats like shortenings.

And as this was happening, doctors, physicians around the world were on the verge of realizing that this shift which had impacted certain cultures much more dramatically...like certain pockets had been really dramatically impacted by this. Like certain areas of...in this country of folks on Indian reservations, and Eskimos and what we now call Native American reservations. Doctors were realizing that where these folks who were still independent, they were not on the reservation or they were not really reliant on the reservation food, they were not getting the diseases that the doctors had seen a lot more back in civilization, like back in the rest of the United States. They were basically not getting cancer and they were not getting tuberculosis the way everyone else was. And this started a huge conversation among doctors to try and understand what was going on here.

And ultimately, one of the forerunners of this kind of way of thinking emerged, his name was Weston Price and he was a dentist, and I'm sure you've mentioned his work before. He has a fantastic book called "Nutrition and Physical Degeneration."

And what he showed was that when people simply followed their traditions, they were resistant to all of these diseases they were calling at the time diseases of civilization which were a lot of the infectious diseases and cancers and what Weston Price was interested in was facial asymmetries that necessitated braces and painful surgeries and all kinds of horrible jaw surgery that he was really distressed about having to do on so many children. This was happening at the end of the 1930s, and Price's book came out at right at that point in time.

We were on the verge, medicine, when I say "we" I mean medicine at this point, were on the verge of taking this big leap into understanding the

importance of vitamins and nutrition and grass-based, animal feeding for our cows, when it was all literally blown away by World War II and the changes that occurred there around the mechanization of food production. And so I've said the forerunner in this way of thinking in this story here of the good way of thinking that we were on the verge of discovering was Weston Price.

Well, his counterpart, his bad guy if you will, the bad guy in nutrition is a man named Ancel Keys, and you might of heard this name before because he's been promoted by Harvard as the father of like I guess it's genius, this father of the diet-heart hypothesis, the idea that fat is bad for heart health, but he came along...when he came along he actually tricked us physicians into discarding or suggesting that people discard what remained of our respect for culinary traditions and culinary practices at the time because he said we should now get rid of, butter and eggs and things like this because they were causing heart disease. And he used statistics to confuse doctors rather than using physiology, right?

So doctors don't typically learn, certainly at that point in time, statistical analysis was not something that doctors learned. It was not part of the medical conversation, statistics, but this was something he brought in and emphasized. And so when doctors heard, oh, well these statistics now it was like well, we really couldn't argue with it because it's...we don't know, we didn't do the survey, we don't know how to analyze these things.

And what Ancel Keys was doing was he was using statistics to promote the kinds of processed foods that made a...that he used to make a name for himself in the first place. So it gets back to World War II because Ancel Keys invented the K-ration which was what the military were fed with during World War II, and K-rations, K stands for Keys. So it was processed food that brought Ancel Keys into ascendancy, and what he did with that position was to use statistics and some chemical confusion, but primarily statistical manipulation to destroy what was left of our respect for traditional culinary practices in the United States. And it was all in the name of promoting the kinds of processed foods he put in his K-rations. And he ultimately was successful in getting Americans to follow a cheap food diet.

And I'm acting a little bit as a medical investigator here and I'm pointing the finger at Keys even though I don't really have a lot of strong evidence that he was connected to. I personally haven't found a lot of strong evidence that he was connected to the processed food industry, but other people have written about it. Other people like Nina Teicholz who wrote a book called the "Big Fat Surprise" and Tim Naughton who wrote a book called "The Big Fat..." Oh wait, oh, "Fat Head." Not a book, it was a movie called "Fat Head."

So other people have talked about how Ancel Keys really was kind of in thick with the processed food industry.

And so, his goal was basically to get people on a cheap food diet, and what that cheap food diet is, is a lot of carbohydrates and a lot of processed vegetable oils. This shift in our mentality though would never have flown if medical doctors insisted that we stop talking about statistics and continue talking about what doctors learned in the first place which is physiology and chemistry. Like I went to school for seven years learning about physiology and chemistry, and when I got out of medical school, suddenly everything was about statistics. And the surveys that they do to try to figure out, who benefits from what kind of a drug for what kind of a disease and we don't think about the physiology of how these drugs affect our body anymore.

And because we're busy talking about statistics, and in doing this, doctors have just...in allowing this to happen, doctors have totally relinquished control of medical practice to statisticians, and statisticians are pretty much bought and sold by whoever it is that is paying their bill at the time, and that's kind of a sweeping statement to make as well, but there was a study that came out in...there was a Cochrane Review that was published on December 12, 2012, an easy date to remember, about this and about how whenever there is a funder for a study, in this case, it was pharmaceutical studies, the findings are, for hundreds of percentages points above chance of finding something favorable for the funder of the study. And so this is how we've gotten into the situation where doctors are not very helpful anymore in terms of helping people eat a healthy diet.

So "Deep Nutrition" tells the whole story of how we got to this point where doctors don't really understand what's causing disease and who the enemy is which is big food, and we talk about the cost of all of this to our genes. What is happening to our genes because we've all been on this cheap food diet for generations now. And it shows what we should be doing to take control back. And so that's where we get to the four pillars.

Katie: Yeah, absolutely. I'm glad you took us through the whole story and I know that that has been part of my own frustration in my own health journey with trying to find doctors who could actually figure out what was wrong with me which turned out to be Hashimoto's. But I went through so many doctors who were like, "Well, there's no...nutrition has no bearing on your thyroid or no bearing on health and that's definitely not the reason."

And just it's very frustrating when you are looking in the medical community and I feel like a lot of them don't have that whole picture and they don't

understand the whole story. And yet, they very strongly stand behind these beliefs that they have that like you just explained trace back to what we now see could be very flawed data to begin with. And I feel like especially where we see this is with saturated fat because it's almost become so ingrained that you can say, artery clogging and most people will say saturated fat. And like you'll hear like heart-healthy, monounsaturated fats and they have all these like very strong programmed responses about which fats are healthy and which aren't.

And thankfully, I have seen some research coming out recently about the sugar industry and how that all played out like you were talking about in the story but let's go back to saturated fat for a minute because I think probably most of my listeners are pretty well-educated on this, but I also think you have some really good interesting, additional perspective on this. So what is the real story with saturated fat?

Dr. Cate: So, the real story with saturated fat is that we only started talking about it because of people like Ancel Keys who gave us this idea, this simplistic image created in our minds of solid fat because animal fats tend to be more solid than vegetable oils, oils are liquid. So solid fat can clog up a pipe under the kitchen sink, and so he created this thought and this image of just eating fat and the fat just gets stuck in your arteries and causes arteriosclerosis and heart attacks and strokes. But that absurd because doctors know that fat doesn't simply just defuse into your bloodstream where it can congeal on the sides of your arteries. Nature knows that oil and water, fat and water, don't mix well and so it's created these particles called lipoproteins which carry fat.

So that model is absurd on its face that eating solid fat will somehow congeal in your arteries. It's no more reasonable to say that we should just all have a liquid diet because liquids can flow in our bloodstream. Just solids are the problem. I mean it's that absurd.

Katie: Exactly.

Dr. Cate: But Ancel Keys was very clever. He knew that doctors didn't understand a lot of chemical terms and we had no idea what hydrogenated vegetable oils were. So now I think, I'm sure your audience knows that they are oils that come from corn and soy that have been extracted in industrial process and then they've been further processed to harden them into a more solid state. And this is what shortenings and margarines were made out of. So Ancel Keys did all these studies on margarines and the effect of margarine on cholesterol and animals, and showed that margarines did

indeed elevate cholesterol and cause arteriosclerosis in animal models. And so when he was talking about his studies though, he said saturated fat even though he was using margarine which is really hydrogenated oil which is going to become a blend of saturated fat and trans-fat which is so toxic that it's been made illegal in like Manhattan and San Francisco.

But when he was talking about his studies to the media, and he did go on a media blitz, he was on TV, he made the cover of "Time Magazine" so he would use words like butter and eggs, and then use saturated fat in the same sentence implying that what he was studying in his animal models that he was referring to that had been published was butter and eggs, but he never used those things. He used hydrogenated vegetable oils which are the worst possible kind of man-made industrial food you could've made so he was...I mean I have to see this as a purposeful deception. He was telling people butter and eggs were saturated fat and then in his studies he was using saturated fat from margarine which is hydrogenated vegetable oil.

And of course, he had this connection to processed food because that's what he made his bones on and by K-rations were nothing but processed food. And so he was essentially a mouthpiece for the processed food industry trying to get people to eat more vegetable oil instead of the natural kind of animal fats that people have been eating forever. Suddenly, now these things are bad for us.

And the consequences of that shift away from natural fat and towards these vegetable oils are still underexamined and that's another reason why I wanted to add to the book that we wrote, "Deep Nutrition" and expand. We have a huge chapter and a lot of focus on what's happening with these vegetable oils, what do they do to our arterial health, to our genetic health and to our brains, to our mental health.

So nobody's talking about this. Nobody is talking about this, but soy oil consumption has gone up about two thousandfold, 2,000 times over the past century since 1909. Nobody is talking about this. Soy oil is not bad for us because soy is bad for us although you can eat too much soy and it's not good for you and it can cause thyroid problems, but soy oil is bad because it is a polyunsaturated vegetable oil that is processed, all the vitamins are stripped away and we end up eating so much of these polyunsaturated fatty acids now that our bodies are literally composed of different chemicals than they were 100 years ago.

I was just speaking to a researcher at UC Davis, and he was telling me that...or he was telling me about a study that he did of where they biopsy

the fat, women fat, fat in women, in our subcutaneous fat. I don't know why they didn't do men, but they did women, and so back in 1945, the composition of female fat was about 6% of this kind of a polyunsaturated fatty acid called linoleic acid which is the most common fatty acid, polyunsaturated fatty acid, and soy oil. Six percent, 6% maybe 7% of a woman's fat was composed of that.

Now, you biopsy a woman's adipose tissue and it's somewhere between 20% and 25% of linoleic acid, okay? So linoleic acid is a polyunsaturated fatty acid, and it is very susceptible to oxidation and these things called free radical cascades which we write about which promote inflammation, and which essentially accelerate aging, they weaken our connective tissues so that we are more prone to developing cellulite because of this and then they don't burn as well for energy so it makes it harder for us to lose weight, plus our brains now are made out of this polyunsaturated fatty acid that is prone to oxidation, and because we have not been eating normal food, we don't have enough antioxidants to control all the oxidation. And so what we have is abnormalities of our fat tissue where we get cellulite a lot more easily than we should. I've seen babies with cellulite.

Katie: Oh, my goodness.

Dr. Cate: Yeah. I mean you're supposed to be able to pinch a baby's skin and it just...you have like an adorable little fold of fat in your fingertips. But what happens now is you can moosh the baby belly fat together and you see dimpling in there. And that never happened before. Well, I remember when I was a kid which is back into the 1800s practically. My little brothers and sisters, their skin didn't do that. They didn't get that dimpling.

And you look at celebrities and the nasty pictures that the paparazzi take and even though their body fat percentage is somewhere...it's low, it's like 10% to 12%, you still see cellulite. And it's because cellulite fat lacks adequate collagen support because it's been eaten away literally by the inflammation caused by the fact that our fat is now composed of this pro-inflammatory fatty acid. We are different chemically than we were 50 years ago, and no one is talking about this so that's why I needed to talk about it by updating our book.

Katie: Absolutely. In fact, I know quite a few women who are so horrified by their cellulite that they've gone to doctors and plastic surgeons trying to fix it and they've all been told across the board, it's just genetic. There's nothing you can do to control it except for surgery or except for whatever the thing is that they're peddling. And so that's why it's really striking to me

that you make that connection because like you said, nobody's talking about this.

Dr. Cate: Yeah. And it's true that once you have the supporting structures in your cellulite, I'm sorry, in your fat, once the supporting structures are worn away by inflammation, it will take a very long time for them to come back. This is like bone replacement occurs on a seven-year cycle. It's a slow process, and while... it's not that there's nothing you can do about it, you get your body fat percentage down low enough, and yeah, you won't have the dimpling but it's not really the way it's... We, in the past, you wouldn't see cellulite until you got up to be somewhere around like 30%-40% body fat. Now you see it in people with 10% body fat which is bordering on an unhealthy low amount of body fat. For reproduction, you need about 10% body fat for your pituitary, ovarian, adrenal gland access to all function normally for optimal fertility.

Katie: Yeah, absolutely. Well, to also tie in another thing that's often lumped into this equation is the cholesterol thing. And I have so many readers who leave comments along the lines of "I agree with you and saturated fats are obviously healthy. I just can't eat them because I have high cholesterol" So talk about how cholesterol fits into this.

Dr. Cate: We have a whole chapter on this because it is so important to understand. So as I mentioned, saturated fat does not travel in your bloodstream freely. Like grease traveling...it travels in these structures called lipoproteins and we can eat more saturated fat and our body will just make more lipoproteins, and the lipoproteins' job is to ensure that whatever fat we're eating, and in fact, whatever we're eating because it's not all just like fat, it's also fat-soluble vitamins and fat-soluble antioxidants and things that we wouldn't necessarily consider fat. So like vitamin A, for example, is in our lipoproteins, vitamin E is carried in our lipoproteins.

So the job of these lipoproteins is to form...they're originally formed in our intestine by our intestine right at the point where fats enter our body, they are packaged immediately into a type of lipoprotein that's the biggest type of all called kilo micron. It's the biggest type of all because it's full of fat and its job is to flow around in the bloodstream and deliver these nutrients to the tissues that need it. So, all of our body tissues...or cell membranes of all of our body tissues are made of fat and cholesterol. And so all of our body tissues need a fresh supply.

And so that's what these things do, and as they deliver a little bit of fat here and there, they shrink down and get a little smaller, and at some point they

get absorbed by the liver that repackages them with some goodies that the liver makes because the liver makes also some fat-soluble vitamins and things. It processes vitamin D from one form into another form, and then can package that into lipid-protein, and also can just keep the lipoproteins refreshed. It's sort of like getting your laundry done. You need to get the lint off and stuff. Well, you need the same thing with your lipoproteins.

They get refreshed in the liver and then they get spit out by the liver, significantly smaller than the original size of the kilo micron, but still pretty darn big and they're called VLDL lipoproteins, and then they circulate around until they're a little bit smaller, little bit smaller and then become LDL.

Now, LDL you've probably heard is the so-called bad cholesterol, but it's not correctly named. It is not bad. It doesn't do anything wrong. It was not designed by nature to kill us. What we are finding, though, is that there's this just big mix up between...we're still thinking like Ancel Keys. We're still thinking that inherently somehow this fat is gonna clog in our artery, and it's because fat is solid and because nature just doesn't know how to solve this unsolvable problem of getting fat to circulate properly in the arteries. So maybe it's not saturated fat that literally clogs and congeals in our arteries, but it's one of these lipoproteins. And right now, they have targeted the LDL.

It doesn't really matter why, but although I do it for the sake of understanding it, but I do go into why for those people who are interested in "Deep Nutrition" chapter seven. But what they're not understanding the whole problem that they have is that it's not that lipoproteins are bad, it's like anything else, they can become dysfunctional. Like every type of cell can become dysfunctional and lead to a disease, and it's caused by the crummy diet that we're all on, all this cheap, processed food.

So what happens when we're on all this cheap processed food, is that our lipoproteins don't function properly. And just because of the way we can measure certain lipoproteins, LDL happens to be one of the lipoproteins that we've had our eye on for a long time because we found it first, basically. And so, LDL lipoprotein, like all the other lipoprotein becomes dysfunctional, and sometimes the numbers climb a little bit when it becomes dysfunctional. But the number is not the problem. The fact that it is dysfunctional is the problem as you might imagine. You might be wondering, "What do I mean by dysfunctional?"

Katie: Yeah, definitely because you're right that they are definitely the bad guys, and it frustrates me because having read your book and seeing some of the same research, they really aren't the problem at all but yet that's

what so much of the conventional model is based on. In fact, even if you go to get life insurance, which my husband and I have been working on lately just because we have small children, they measure your cholesterol and if any of those are high, it's considered a risk factor. So yeah, go little deeper into that. Like what is the actual problem? What is that dysfunction and what does that stem from?

Dr. Cate: So the dysfunction is that the lipoproteins can no longer do their job and their job is to deliver that fat. Their job is to carry the fatty nutrients through the bloodstream, through the circulation until they arrive at a tissue that wants them, and then deliver some of the fat to that tissue and then move on.

So when they're dysfunctional, they can't do that. And so they can be dysfunctional by not being recognized by cells so that they stay in circulation too long and that's when a person's LDL will go up from a bad diet, and that's the whole reason that everybody thinks LDL cholesterol is bad. That is the whole reason right there in a nutshell because when they are dysfunctional in the way that they cannot be absorbed by the cell, LDL stays in the blood circulation, and so LDL numbers will go up because of that. And even though it's just a tiny little bit up, it's maybe 10% higher than it would be otherwise, that little blip has been blamed for all of heart disease, and it's absolutely absurd.

So they stay in your circulation when they are dysfunctional, and it is only because of the processed food diet, because of the high carbohydrates and the vegetable oils that I mentioned our bodies are now composed of because, and I didn't mention this, our diets are composed of them and around...like I did allude to it. I said they went up around 2,000 times soy oil, but the average American is getting about probably 35% to 45% of their total daily calories from these kinds of unnatural fats. And that has never happened before and our bodies cannot handle them. And the consequence is that they...the reason that we can't handle them is because they're prone to oxidation and we can only have so much of them until we start to lose control of oxidation reactions. And its oxidation reactions that cause the lipoproteins to become dysfunctional because the oxidation destroys the functionality of the lipoprotein particle.

It's like a laser...imagine like Star Wars where they're having like...they're attacking like the Death Star with all those lasers and stuff like that, and the laser beams are making stuff on the surface of the Death Star blow up. Well, that's kind of what happens to the lipoproteins because the oxidation reactions cause free radical cascades which kinda sorta blow up the proteins

on the surface of these lipoproteins that are trying to direct their job is to make sure that that fat gets delivered. And when those proteins are destroyed, that functionality is destroyed, the fat can't get delivered so they just stay in circulation and they stay and they stay and they stay, and eventually, the lipoprotein just disintegrates over time, and now you have fat that cannot stay suspended and now you're getting to that congealing on the lining of the artery situation. And that's how you get arteriosclerosis, that's how you get plaque building up.

Katie: My sons will love your Star Wars analogy to help explain that. So based on what you've said, then how do statins fit into the equation because you hear a lot about them and they're one of the most commonly prescribed drugs right now if I understand it and there have even been suggestions of giving them to children and putting them in the water supply. But based on what you just said, it seems like not only is that not gonna be effective, but it could be pretty dangerous. How do statins fit in?

Dr. Cate: So statins do help some people and they help those people who are unwilling or unable to stop eating these pro-inflammatory vegetable oils, or they're unwilling or unable to reduce their dietary carb intake because both of those things will damage your lipoproteins, and the third thing is they're unwilling or unable to quit smoking because smoking promotes oxidative stress and also damages lipoproteins. So statins are going to help those people a little bit, and the reason they help those people is because when you poison your liver with statins, your body is less able to manufacture cholesterol so it becomes hungrier for those lipoproteins so that they're absorbed more quickly. So it gets them out of the circulation more quickly and that's a good thing because the longer they stay in circulation, the greater chance they have of that laser attack damaging the proteins that are on the surface of the lipoprotein particles.

So statins because they like...I mean they really do poison the liver and the rest of the body tissues that they enter, they block enzymes for the manufacture of a precursor to cholesterol so that they impair even your brain's ability to make cholesterol. And ultimately, they're going to cause some other problem, they're gonna reduce your risk of heart disease and stroke, but my belief is that they will almost always...they're just shifting around what disease you're gonna die from because they poison your body's ability to make not just cholesterol, but also some important things for immune system function and muscle function, so they weaken the heart muscle, they weaken muscle tissue in general, they reduce the brain's ability to manufacture cholesterol so I believe we're going to find that they shrink brain tissue. They actually use a statin to promote or to cause an animal

model of dementia. So, you know, what does that tell ya?

Katie: Yeah, that's definitely...it should give people pause before making that decision and should I change my diet or should I just take statins.

So before we get too deep into this, I wanna circle back and talk about the four pillars that you have in your book because I feel like we're touching on a lot of the points that are really relevant to them. So can you give us an overview of what those four pillars are and how they're so important?

Dr. Cate: Yeah, so they're important because the four pillars are how we can take control back, take control of our health back. And what they are, is they are elements of all traditional cuisines that are universal to every traditional cuisine that I looked at which is hundreds around the world. And the four elements that are common to all traditional cuisines...they're actually strategies more so than like ingredients. So, do you want me to list them?

Katie: Yeah, that would be awesome.

Dr. Cate: Okay. So we have fresh food like salad or unprocessed, uncooked animal products, so like sushi is an example of fresh food or raw milk. I'm a big fan of raw dairy products. And then we have fermented and sprouted foods, and those are like sauerkraut or yogurt or live-cultured Lacto-fermented foods and sprouted being like you can soak your grains or you can soak your nuts and seeds for a little while before cooking them. And it actually enhances their nutritional value. And that's pillar two.

And the third pillar is meat on the bone so you cook the whole meat part of the animal like with all the fat and if it's appropriate, like with chicken with the skin as well and even the bones, and you go beyond that and you make use of the bones and all the joint and connective tissue that holds the bones together, and you extract some really important compounds that act like growth factors for your joints and all your collagen materials.

And then the final pillar is organ meat. And organ meats are really...they were the first thing to disappear from the American table because I think...well, partly because they were diverted for things like glue, carpet backing and pet food, but also because they're not gonna taste good unless they're absolutely fresh, and part of what happened with the...over the past 50 years is that, we centralized everything so that our food is processed thousands of miles away from where we live and it just...you can't always get those organ meats circulated around fresh. And they also take a lot of skill to prepare so most Americans have some experience with liver.

But, when this country was founded, actually, there's a...George Washington and our Founding Fathers, they ate like heart and they would have sausage made with kidneys stuffed inside it and bone marrow and ears and nose and everything. And this is what all traditional cultures did, and all of these different body parts are loaded with a different profile of nutrient. And so that's why they're important because muscle meat is important too. It gives us a lot of protein and we were talking about cow, it gives you also iron when you're talking about chicken, it gives you also B vitamins and pork the same. But the organs also have their own unique nutrient profiles and they're loaded with a lot of vitamins and other things that we don't always think about as vitamins like choline and lecithin and different types of fatty acids and stuff. And its stuff that we need, but that we're just not getting now because we're really mostly focusing on animal products equaling muscle meat.

So those four strategies are how people all around the world for thousands of generations extracted the maximum amount of nutrition from their environment. And that is the definition of really a healthy diet, no matter where you live. So it worked in Alaska where people didn't have a lot of fresh vegetables but they still had a lot...what they did instead was have a lot of raw and animal, like raw seal and they would actually ferment like whale because a whale is so ginormous that you can't eat it all so they buried some underground where it would ferment. They never cooked it because where were they gonna get...it's not like they had a lot of firewood around.

Alaskan natives, really northern climates, ate a lot of their animal products raw and when you do that, you don't need so much vegetable material because one of the best things about vegetables is that they give us a lot of antioxidants but if you're not cooking, you don't...you're not destroying the antioxidants in meat. So your animal products are gonna be loaded with antioxidants as well.

Katie: Yeah, I feel like you have the most balanced view of it I've ever seen and that's because it's not like let's all jump on the Mediterranean bandwagon and eat the exact same foods that they eat in the Mediterranean that work for them, and it's not just let's all jump on whichever dietary thing is popular at the time, but looking at all of them across the board and finding the commonalities. And what I also love about your approach is like you meld the traditional and all the wisdom that we know from thousands and thousands of years of just traditional cultures eating in an intuitive way with the science of today.

So you talk about how food directs our cellular growth and how food can actually alter our DNA, and I love this. This is the research that I love reading and it keeps me up at night because we once thought that DNA was stagnant and that it doesn't really change and once you got it, that's...you're stuck with it, but your research contradicts this and you have found some fascinating stuff that you talk about so I would love to delve into how does food impact our DNA and that whole picture. Explain that to us.

Dr. Cate: So yeah. So I mean the idea is that our DNA is just, it's really old, it's humongous, there are billions and billions of bits of data encoded in our...the DNA that's in every single one of our cells, and it's a survivor. It's been around for as long as life on earth has been around. So, some folks think that life on earth began three and a half billion years ago and so that means that our DNA can have extended back all that time. And every year it survives by getting smarter and learning new strategies and actually getting longer.

So we have some pretty long DNA now compared to the original life forms on earth that weren't even bacteria, they were archaebacteria which were very different and can live like thousands of years. They've actually found some discovered in solid rock. It's really amazing what life on earth can do, but all this time DNA has survived by making decisions and it's really impossible to talk about this without anthropomorphizing a little bit and acting like DNA really has its own intelligence because it responds to what we eat.

For example, if we eat less protein, well, our DNA responds by preparing the next generation to be physically smaller because our bones are like 90% protein. If we eat more protein, then our DNA responds by, of course, if we're a child by programming us to grow bigger, but also by preparing the DNA that's in a woman's ovaries or a man's testes to prepare the next generation to be ready for all that protein to make use of it. It's not just protein, it also has to come along with all the minerals that bones are made out of and all this other stuff. But this is why some races are taller than others. It's just because for generation after generation they've gotten relatively more or less protein and all the other bone-building minerals. So that's just one example.

But, all the difference between all the species are based on examples like this so it's not random mutation and selection. So that model was proposed as one of the possible models in 1880s but there were also people that were saying there's something else. There's something inherent to DNA that

directs this, the decisions that DNA make. So it's not all random. This isn't actually, I'm not saying really anything brand new. We just have lots of new evidence now as to what is the mechanism by which our DNA has always made intelligent decisions that were non-random. And so, you know, I'm kind of offended by the idea that all life on earth is just a series of random mutations. It's not random. There is intelligence encoded in our DNA, and we're just beginning to understand the incredibly complex mechanisms behind that.

But what we're talking about though is how...not just how gene expression changes so that like you can have the same DNA maybe as your father but end up being taller because your bones...the expression of the cells in your bones for making more bone material was just greater. So they grew faster. So you can have the same DNA, but it expresses differently. But over time, you do that over and over again, and you can actually get mutations.

I mean, we call them mutations but they're not random, not entirely random and they are actually changes to the letter code, and they can be beneficial or they can be detrimental. They tend to be beneficial and something that we can adapt to when it's driven by an excess of nutrient and it tends to be maladaptive when it's rapid and it's driven by toxin, okay, and so we now have been consuming these toxins for 50, 60, 70 years, these polyunsaturated fatty acids, and one of the biggest discoveries, biggest breakthroughs in understanding autism was that we understand that it is 50...almost 50% of it is genetic and by genetic I mean there are new mutations in the children with autism that their parents did not have.

Katie: Wow. That's really, really striking.

Dr. Cate: Yeah. And so about 50% of it is caused by these genetic mutations, and it's not just one mutation, it's like 10 new mutations that children with autism have that did not exist in their parents and that don't exist in their siblings. And I make the case that it's coming primarily from these vegetable oils because when they break down, they break down into known genotoxins. One of the examples is 4HNE, it's a chemical name 4-hydroxynonenal that is a known carcinogen and it causes DNA breaks. So it causes DNA mutations in a random way, in a maladaptive way that whatever this intelligence system is that's built into our DNA, cannot handle that because it is a literally random toxin.

It is like radiation. We can't handle all of it. So there's like no antidote to it. The only solution is to avoid it. And so this is why I say one of the most important things for pregnant women to do is while they're thinking about

cutting down on their alcohol and staying away from people who are smoking, it's important to stay away from chips, fries, snack food, store-bought salad dressing, store-bought dips and fast food, anything fried fast food certainly because that is going to be absolutely loaded with these horrible toxic compounds from vegetable oils that have been heated and reheated.

Katie: Yeah, that's such important advice and I think it's scary and amazing when you start looking at labels how pretty much every processed food has those kind of fats in it, almost without exception. And so you talk a lot about going back to the traditional types of food and making as much from home as possible. I think that is so key but especially like you say during pregnancy because you are quite literally building a human being during that time.

Dr. Cate: Yeah. And it's not just women. Men actually have been found to have an increasing number of mutations in their sperm as they get older. And so I like to think about it as like if you are a guy and you're walking into McDonald's and you got...you had your giant pail of fries or maybe it's KFC, have your greasy chicken, by the time you walk out, you've consumed enough toxic compounds that you've actually aged your gonads significantly. And you're accelerating that process of creating new mutations in the DNA that is inside your sperm by that meal. So the fewer of those meals that you have, if you're a guy, the fewer of those mutations that are gonna accumulate.

Like we talk a lot about how important it is for women to be healthy and what we need to do for fertility, but it's actually the men who are producing these furious amounts of sperm. Like I think they produce a brand-new batch every 28 days whereas we're born with all the eggs that we're ever gonna have. But they produce like billions, and that is a scenario in which if you are not having a good diet, there's gonna be a lot more mistakes being made, and those mistakes, many of them are permanently going to affect the future of your family legacy.

Katie: Yeah. How important is that to know and also, I have to ask because I feel like this...there is more knowledge right now about genetics and people can get the tests like 23andMe to find out about gene mutations and that kind of thing. So understanding that DNA is not stagnant and that it's adapting for very important reasons, can it adapt in the course of one's lifetime? Like could a person actually see different results on a test like that based on changes they make or do we know?

Dr. Cate: Well, yes, because usually, it's not going to be a good change, unfortunately. So one type of cancer called chronic myelogenous leukemia is a mutation that develops during a person's lifetime. It's called the Philadelphia Chromosome, and it causes white blood cells to divide out of control, and that's what leads to that type of leukemia. So absolutely. But in terms of like can you fix like a previously developed...or like in a mutation that you inherited. That's not likely, unfortunately. I'd love to say yes, but the fact is that it's not likely.

But if you eat a really good diet because I insist that our DNA is quite capable of adapting, it has this intelligence which we don't really understand, it's able to better make decisions about okay, well, so maybe this gene has been taken out of commission so we won't rely on it so much. We'll try to make more of this other gene instead. And there's actually evidence that certain areas of the brain called hot spots are more prone to mutation than others, and these were found in the course of trying to understand autism, they found that there's been a lot more mutations recently around...or, I'm sorry, that the mutations that we see in children with autism are in these hot spots. And these hot spots are in locations where the DNA winds around a histone which is an organizing part of the DNA in the cell very sharply, so has a very sharp turn there so it's more like chemically, it's under more stress anyway.

So that is occurring more often in areas that are recently...or that distinguish us from chimpanzees. That where we have different genes for making brain than like a chimpanzee because our brains are so much bigger than a chimpanzee's, well, those are fairly recent changes and they are these hot spots that are now susceptible to all these mutations with autism so the structure of DNA is...what I'm getting at is the structure of DNA is such that you're going to have mutations in certain specific places that were adaptive, right? Whenever we went from, you know, having smaller brains to having bigger brains that was because our diets were changing in such a way that we had the extra material to make bigger brain but now our diets are changing in such a way that our brain material cannot be manufactured properly.

And so again, the DNA is trying to adapt by changing our brain. It's just that this is a toxic kind of exposure that we've never had to deal with before. There's just nothing in our genetic history that can cope with this so it's not going to lead to positive changes. It's only going to lead to disease and that's what we're seeing. So that's why we have to get away from these things.

Katie: That makes so much sense, and so we hear more and more about things like epigenetics and I feel like that's where this comes into play, and I have much less of an understanding than you, but it seems reasonable to me, and feel free to correct me, that when you're giving your body building blocks that it's essentially not use to so your body has to use what it has. And that old saying of you are what you eat is eventually true, but when you've given your body cells that it doesn't recognize and doesn't know how to use, but say it has to so in like a skin cell. Does that increase the likelihood of certain types of cancers?

For instance, skin cancer because we know the sun is vastly important in a lot of ways, we need it for vitamin D and light signaling and circadian rhythm, but also now people think that sun equals skin cancer and sun exposure is bad. How does that come into play there and could it be that basically altering our cells in our body is causing this to some degree?

Dr. Cate: Yeah, absolutely, because as I mentioned when we tested what the adipose tissue is made out of, it's changed from being 6% to 7% of that polyunsaturated fatty acid called linoleic acid to somewhere around 20% to 25%, Well, those polyunsaturated fatty acids, when they get hit by UV radiation, they can cause a lot more inflammation than when monounsaturated or saturated fatty acids that are in our skin get hit by radiation. So that inflammation is going to ultimately, well, they call it free radical cascades which are the very things that...the very reason that radiation causes cancer has to do with free radicals and high energy molecules that damage DNA.

So when your skin...you've got this ticking time bomb of linoleic acid sitting in your skin...I guess you could compare it to like a dry tinder in a dry forest. And a lightning strike is going to cause a lot more fire if it's dry and that linoleic acid is the dry tinder. Whereas, if you had more antioxidants or more saturated fatty acid, it'd be like a more moist forest so that if you have a lightning strike from the UV, lightning is the UV analogy of the sun, you're going to have that be much more that energy, but much more rapidly quenched. It's not gonna cause a widespread wildfire.

So that's why I think that we're seeing so much of a increase in the incidents of skin cancer.

Katie: That makes sense. Does it go the reverse also? So I asked about whether we can change our DNA which you said is probably not likely once we have a mutation, but can we effect to some degree how much a mutation is expressed? In other words, like someone may have a genetic

predisposition to cancer but can they...do they have some control over if that's expressed or if they actually get cancer?

Dr. Cate: Absolutely. So yeah, we know that there's one of the most common cancer, breast cancer genes, the BRCA1, some of them have what's called an 80% penetrance, and what that means is that 80% of the people with that gene will get breast cancer, but 20% won't. So you can if you have that gene I believe that you can increase that percentage for you. You can stack the odds in your favor with a better diet. You can increase the chance that you'll be in that 20% that won't ever get breast cancer, just by improving your diet.

Katie: Yeah, I think that's important for people to hear because I feel like sometimes you feel like you are a product of your genes and a victim of that, but that's what I like so much about your message is that you give the hope for we actually have maybe more control than we once thought we did. And the question I also have is a follow up to that is how much control do you think we have going forward as far as the future of humanity because you said at the beginning that we're kind of on a teetering point there, like a very important point. And I know when you read the book at first, it can seem very overwhelming and that we're kind of...all hope is lost. But based on what you know, how much do we have control over the future and if we all made these changes, is it reasonable to think that we could reverse some of these problems over the whole long term?

Dr. Cate: Yeah. So it is a crisis. The fact is we need to react very quickly and it's an urgent need or it will be too late but we are still here. We are still able to reproduce. A lot of us without surgical help. And that's a whole other conversation why is that? Why do we need so much surgeries and cesareans all of a sudden, but as long as we're alive and able to reproduce and our mental functioning is we've still got it cognitively, then yeah, then there's hope.

But, I'm not going to say that it's gonna be easy. I can't say that. Everybody always wants to hear, "Well, how can I break it down so that I don't have to spend any more money or any more time and I can, suddenly have all these healthy, nutritious foods in my life?" And there's ways, and I'm sure you've done this actually, I know you've done it because I've seen your recipes. You do a fantastic job of making it as simple as possible, but I don't think you would go so far as to say, "Oh, no, you kids, it's all just as easy as like popping something in a microwave," right? If you plan ahead, it can almost be, but you still have to do that planning ahead part. And you do have to make it a priority, but that is our only hope.

So I think we need to move in that direction, and there's a lot, a lot of hope because the fact is, our genes are smart and are smarter than me. So I can't say, it's hopeless. I think that if generation and then another generation and then another generation get away from these vegetable oils and get back to the traditions that you can have people being every bit as strong and sturdy and robust as we were 100 years ago, and as our founding fathers were. And I think the strongest men in history, the toughest men in history, our heroes, all ate these foods, so that's a message for men.

Katie: Yeah. That is the converse of that so hopefully, that will be the outcome and within three generations we will see drastic changes for the good, but if people don't and if we continue on this path, what would you expect? Because like you just mentioned, we're seeing unprecedented levels of infertility and reproductive problems and like autism issue you mentioned before, how quickly could we actually see the really devastating effects of this?

Dr. Cate: Yeah, that's unknown territory but I'd have to say based on the fact that, when I moved from Hawaii back to the mainland, in Hawaii almost nobody had food intolerances. It was very rare to see that somebody had like a thyroid or couldn't eat soy or couldn't eat dairy or couldn't eat wheat. It's so extraordinarily common here that, that one... It's an immune system problem and that one change occurred basically while I was in Hawaii for 10 years, and we went from having almost nobody really having a problem with gluten to, who knows, maybe 5% of the population, 10% of the population, who knows what it really is, having a problem with just that one molecule because their immune systems aren't working right.

And the other thing that is really, really scary, like I did mention autism but it's not just autism, it's IQ, these gene changes, these mutations are...even if a child does not get diagnosed with autism, the more mutations they have, the lower their IQ and that's what...that's our brain, that is our humanity. So we shouldn't be messing with that.

Katie: Yeah. And I will definitely encourage people to read your book because it can go into so much more detail than we can in a podcast, but for those who are maybe overwhelmed or who are definitely willing to make changes after hearing you put it in such perspective over this last hour.

Let's talk about the practical side a little bit because you are the Director of the Los Angeles Lakers' nutrition program which is incredible, and every time we have a bad season, I'm a Cincinnati Reds baseball fan, and every time we

have a bad season with injuries I'm like, "They need Dr. Cate." But let's talk about the practical side. So if you're a mom and you're raising the next generation and you're willing to make changes, what does that look like? What would be the most practical steps that you would need to be taking on a daily basis to help?

Dr. Cate: Yeah, so it's just like what we do with the Lakers, Gary Vitti, the trainer who just retired who was the one who brought us on board said that you just have to do baby steps, and with the players we couldn't get them from not knowing the difference between broccoli and celery to suddenly demanding huge salads every day. We take it slow, and that's exactly the strategy for the household too.

The women who have written me who have said, "I started your program whatever years ago and now my whole family's on board and we just can't believe the changes." When I ask them, "Well, how did you start?" To a woman or to a man, if it's a man who changed a diet, they started with one simple change. And it wasn't just like, "Okay, I accomplished that, now I'm ready for the next thing." It was that change created a benefit, an immediately visible or palpable benefit.

So for example, one woman said that she just stopped drinking soda in the afternoon. She ended up losing weight, and because she lost that weight, she just felt better about herself and she felt better about herself, I don't know, like as a woman or what or what it was, but she just started cooking more, she was more inspired to be in the kitchen cooking for her family. And then when she did that, she got the vegetable oils out of her family's diet and her own diet. And then she was more like focused herself, she said, that she was able to take on a lot of the challenge, she had a big family, I think she had like five or six children, and she was able to really drill down and to take it on the challenge of changing a child's diet too because her brain was functioning better.

So just start with something like whatever you think your worst habit is, and for me, I got away from vegetable oils and because of that, I didn't crave sugar as much, and because of that, of course, I lost weight but then I got better. My knee started getting better once I got the vegetable oils and sugar out of my life, and I could start walking again. And ultimately, it got completely better. It took a year but it got completely better.

And so it has to be a change like if you try something and you don't feel a benefit, then maybe try something else. And usually, it's gonna be a timeframe of that you define. Like if you wanna find something that's gonna

give you a benefit immediately, then start your day with something other than sweets for breakfast because you will notice by lunch time that you are less hungry and you've got a little bit more mental focus.

Katie: Yeah, I love that. I actually have an e-book I just finished. It's not out yet but it's called "Broth for Breakfast" and it's around that because it's like...especially I have one child for a while who just didn't do well with eggs. And so if you can't cook eggs and you're not eating carbs, what do you do for breakfast? And so that was my solution was anything that could go into broth.

And I love your perspective on that and I have a question also that I get from readers a lot and that is when does all the benefits of modern technology come into play with this? I know we focused on traditional diets, but is there a place for, for instance, liver capsules for people who can't handle eating liver at first or omega three capsules, for people who are just trying to work on liking fish more. What do you think about those kind of things?

Dr. Cate: Yeah. So there are a few actually, supplements and things that I recommend. For example, I even would recommend calcium and vitamin K if somebody can't have a lot of dairy. And so absolutely, and we can definitely use those crutches. They're not gonna be as good as the original so if you can do the original, if you enjoy it, it's better. If you hate it, then I wouldn't say to force yourself. Although, there's some tricks that you can do about making yourself trying to...you can sort of play with your appetite.

First of all, getting sugar and vegetable oil out of your diet help improve your natural appetite so you actually enjoy food and you can develop healthier cravings, but if you work up an appetite by exercise, don't reward yourself with sugar or candy because you like that stuff anyway. The time to develop new habits is when you're hungry. So if you're starving, and you've got something in your fridge or somewhere that you know is good for you but you really don't love it, well, that's a good time to have it because you're going to enjoy it right there in that moment.

If you have whatever it is, if it's sauerkraut or if it's...like some people I recommend if they don't do dairy to do bone-in sardines because there's lots of calcium in there, so it's a good time to have that. You're gonna enjoy it more, and so I like to make eating enjoyable. I like what Michael Pollan said something about luring people back into the kitchen rather than, shaming them back. And I think that food can do that.

Katie: Absolutely, and that's why as a mom I always try to have my kids involved as much as possible in the cooking process because there so much more likely to eat it, but also we really don't do snacks between meals much and it's partially so that my kids are hungry at meals and they're willing to eat what's there and occasionally if I get a child who's like, "I don't like this." I'm like, "That's fine. You don't have to eat." But hunger's a great teacher, and they hear me say that a lot. Hunger is a great teacher.

I love your work, though. I think that everything that we talked about today is so important for people to hear, but especially moms because we're there day to day and raising the next generation and forming their habits that they're gonna pass on to their children.

And I'm gonna make sure I link to everything we've talked about, and especially your new book which comes out in January. Can you talk about it a little bit and how people can find it?

Dr. Cate: So, yeah, January 3rd it's going to be released. You can find it at bookstores everywhere, at Amazon. If you preorder, wait, actually, that probably won't be possible. There's a little special I'm going to be running, if you come to my website where you can also get access to our...another one of our books, "Food Rules" if you order it through a link on our website. So that's at drcate.com which is drcate.com. And what else should I talk about the book? It's beautiful.

Katie: It's amazing. Yeah. And I've read both. I should have explained that more clearly at the beginning that you were re-releasing it, and I've read both and they're both incredible, but I really do love the new one and how you go into depth on the story so much. And it's like you make an incredibly compelling case for all these changes, and it gives me hope that people will make them and we won't see these problems going forward like we are now.

Dr. Cate: Yeah. I mean I so hope that that you continue to inspire moms to do what you are doing because it is the most important thing. And I would say dads too, some dads do it I'm sure. You got dads doing this, don't you?

Katie: Absolutely, yeah.

Dr. Cate: Oh, good. Yeah, well, somebody should. I mean somebody needs to whether it's a grandma or whatever, but this is the most important job and if we don't get this job right, then pretty soon we're all going to realize that that was our biggest mistake we've ever made. So let's end on a positive note. And that wasn't it.

We do have a plan in the book, we also break it down. Probably it's completely compatible with everything that you recommend too, but, it's a few pages of different meal templates to give people ideas of how to start thinking about making healthy meals.

Katie: Yeah. Absolutely. I will make sure to link to your website so that people can get the information on the bonus book, and also to your social media so people can find you and follow you and stay up to date with you.

But thank you so much for being here, Dr. Cate. I love your information. I've been a fan for a really long time, and it's been so wonderful that I get to chat with you to get to share you.

Dr. Cate: Thanks, Katie. Thanks so much for what you do. It's been a pleasure.

Katie: Thanks. And thanks to all of you for listening, and join us on the next episode of "Healthy Moms Podcast."

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