New Solutions for the Growing Allergy Epidemic – Dr. Kari Nadeau with Dave Asprey – #768

Bulletproof Radio, a state of high performance.

Dave Asprey:

You're listening to Bulletproof Radio with Dave Asprey. Today it's all about food allergies. Why? You could say that you don't have food allergies. The odds are actually that you probably have some that you don't know about because it's not like allergies are binary, where you either have them or you don't. You just may have some things that cause a little bit of inflammation and some may not even be allergies at all.

This is something that is a vexing problem for huge numbers of people. It's something that really played a role in helping me to become, what, do I say Bulletproof, in terms of understanding why I had joint pain inflammation and all sorts of other things. The allergic response is something that's still mysterious and I've found an amazing expert for you. A physician and scientist named Dr. Kari Nadeau.

You could call her one of the world's leading experts on food allergy, both in adults and kids, because she's the Director of the Sean N Parker Center for Allergy and Asthma Research at a little university you might have heard of called Stanford. She's looking at how we can prevent allergies and cure allergies and asthma. She's spent about 30 years looking at environmental and genetic factors that cause these things. By the way, I did have asthma as a kid and I still have some food allergies, less than I did.

This is personal to me, but I think it's going to be of great service to listeners. I mean, Kari, you're looking at 25 clinical trials. You've got a team and a lab at Stanford. In your book which just came out called The End Of Food Allergy, you say 32 million Americans have food allergies. How do you know?

Dr. Kari Nadeau:

Thanks, Dave, and thanks for inviting me on your show. I'm so excited to be here. I know because we work as part of a team, and no one person can do this all. That's for sure. We work as part of a global network of teams to be able to combat this epidemic. We only know it's an epidemic because we have to know the numbers. How do we know the numbers? That's because we've worked really hard to be able to go across the world and get good questionnaires out to people and understand, do you have a doctor's diagnosis of food allergy?

We did just that thousands and thousands of questionnaires throughout the globe. I, before the time of COVID, used to travel throughout the world to try to understand if these numbers were real or not. Unfortunately in the US, it is true. We have quite a few people with food allergies diagnosed by their doctors. For children, it's about 8% of kids. For adults, we were really surprised to find out it was 10% of adults in the US.

Dave:

Now that's interesting because you did mention an epidemic of food allergies. And that seems like a very useful word. However, in almost all epidemics, you have the number of people you've tested and then you have the number of people who are actually affected. If that's the number of doctor-diagnosed food allergies, how many undiagnosed food allergies might we be dealing with?

Kari:

That's an excellent question, Dave. That is the key issue, that we're only as good as our doctor's diagnosis. There aren't many allergists in the country, and that's the problem. If you go to the emergency room, for example, it might take nine months before you get to get into the office of an allergist. That nine months is too long. We need to figure out what people are allergic to. So we are developing at-home point-of-care testing to be able to use, for patients to use, to be able to figure out if they have a food allergy or not. But that's coming.

In the meantime, you're right. There are a lot of people that have difficulties, and appropriately so, between, what's a food sensitivity? What if I get a headache? What if I start getting a fever? What if I start getting bloating to a food? We talk about that in the book. That's a food sensitivity and you should go see the doctor as well for that. You don't need to eat those foods. Avoiding those foods will probably help you.

A food allergy is something that within two hours of eating that food, it could lead to a near fatal or fatal event. Those reactions are different. They cause itching. They're not associated with fever. They're not associated with bloating. They're not associated with a headache. This is where it's itching, rash, whizzing, blood pressure drop, diarrhea, vomiting. That can happen in food allergies. Then there's a third topic that we all are really getting more knowledge about, which is celiac disease, and wheat, and wheat sensitivities, and wheat allergies.

I talk about that in the book, these three different things. I want to make sure your listeners know that there's a lot of science now. In the last five years, we have been able to deliver on the hope and promise of that science so that your doctors now have the ability to use tests to differentiate these things, so that when I talk about doctor's diagnosis of food allergy, you're right. It is what we know right now. But if we were able to test everyone, it would probably be higher

Dave:

Probably be higher is less quantitative. Now, as a leading expert in this stuff, I want you to take a stab in the dark with full asterisks saying, "We don't have numbers, but I'm well-suited to estimate the number of undiagnosed that are out there," what would you say, knowing that we can't prove it?

Kari:

We're probably missing about, I'd say, three to 5%-

Dave:

That's it, really.

Kari:

... of not knowing. Of on top, let's say it's from 10% to 15%, or this is the way we did our analysis. So probably it could be between 10 to 15%, and for the kids probably about eight to 13%. But each country's a little bit different too, and that's a snapshot in time now in the US, what we know now. In 10 years, that number could be totally different because environment is playing such a critical role. Like you speak about inflammation, treating your body well.

If you don't treat your body well within any given year, you might develop a food allergy. You might not have a food allergy now, but if you don't take care of yourself, that's what we talk about in the book. You've got to take care of yourself because any one person can develop a food allergy newly, even if they didn't have an allergy before. Then of course, there's lots of countries out there that thought, "Oh well, we're South America. We don't have to deal with food allergies." And unfortunately they do now.

This is a growing epidemic, so we talk about that in the book too. It's just not a US-based disease anymore. It's growing around the world.

Dave:

Do food allergies vote? I mean, do more Republicans or Democrats have food allergies?

Kari:

There are no boundaries.

Dave:

They don't care.

Kari:

I'll tell you. That's the hard part. There is no boundaries. There is no discrimination when it comes to food allergies in ages, in any color, and in any political venue.

Dave:

What about socioeconomic status? I mean, do rich people have more food allergies than poor people or vice versa?

Kari:

What's important there is that we only know what we know. For underserved people that unfortunately don't have good access to doctors, it's harder to know if they have more or less. But for that we know, socioeconomic status doesn't play a role, that it is what it is as well. There are families that come, unfortunately, from very destitute families of which they can't have access to healthcare. Those are the families that are the highest risk for having a bad reaction that could lead to a fatality because they don't have the same medications.

So everyone could get food allergies, but some people are at higher risk of having bad reactions that could lead to fatalities because they don't have the access to those medications. So we need to democratize this better so that people do have access to meds and make sure they know if they have that food allergy or not.

Dave:

How would I know if I'm dealing with a food sensitivity versus a strict allergy? I'm going to assume I'm not having an anaphylactic reaction. But if I'm getting some of what you're talking about, but then I just feel like crap for a couple of days, how do I know?

Kari:

Yeah, it's a great question. Usually within the first two hours of having a food allergic reaction, you know if you are having an allergy to that food, because it happens pretty quickly. With food sensitivities, a lot of those reactions can happen. You start to eat a food and then you might feel queasy. You might feel a little nauseous. But then those could last up to three days, and that's more of a food sensitivities. A lot of chemicals can do that, preservatives.

That doesn't necessarily have to last your whole lifetime, and it doesn't necessarily have to be in your childhood. All of a sudden you can be fine with a certain food, and then by the time you're 30 or 40, you develop food sensitivities to that. With food allergies, it's itching, and rashing, and swelling. It's not bloating, or headache, or fever. That's more like a sensitivity. Sometimes there's overlap in this Venn diagram. Sometimes there's not.

Dave:

It's really interesting. Incidents of food sensitivity, is that higher than allergies, or lower, or about the same?

Kari:

We don't know as well about that number. It's a great question, but we just don't have the absolute numbers for that. Food allergies diagnosis, we have a pretty standard diagnosis, but food sensitivities, we have to do better. Now we do have blood tests to test for sensitivities at Stanford, for example, but it's still in its research phase.

Dave:

What do you test for in a food allergy, specific IgG molecules? How does that work?

Kari:

Yeah, Dave, we test for the match that lights the fire underneath allergies, and that's called IgE. IgE is a blood test that you can get in your doctor's office. It can be false negative though. For anything in medicine, you don't want false negatives. But it's only false negative about 7% of the time. So seven out of a hundred tests that are negative, you might actually be allergic to.

Blood tests are helpful, and that's IgE. IgG tests, not so helpful. We also use skin tests, and then the most gold standard, the highest threshold for knowing if you have an allergy or not is to actually do the food challenge, which doesn't seem like fun and it's pretty anxiety provoking. I believe, and I talk about this in the book, that by using a combination of blood, skin tests, and clinical history, we should be able to forego the food challenge in a lot of people because that's not fun to go through.

Dave:

No, it's definitely not fun. I've done all of the tests you're talking about there.

Kari:

I'm sorry.

Dave:

Oh, it's all right. I mean, it's part of... I used to weigh 300 pounds and I lived in a house with toxic mold, which can predispose you to food allergies. [inaudible 00:10:47] Lyme disease, fibromyalgia, all that kind of stuff. But I'm incredibly resilient and healthy now, but I went through a lot of crap and spent a lot of money that I would have rather not have done, where I ended up on the Bulletproof diet recommendations, like, hey, for a couple of weeks.

Eat a limited number of foods that generally make you feel really good and don't have a lot of potential allergens, and then eat a bunch of crap for a day and see what happens. If the next day you feel like a truck ran over you, now we know that something in that meal was bad for you. It's the poor

man's version of an elimination diet, which can take a year or two to do. Then you start saying, "Okay, I've become aware that food is something," and that will capture sensitivities and allergies, unless, of course, someone has an anaphylactic reaction. But generally, they know that already because those-

Kari:

That's right.

Dave:

... really get you going. One question I have there, for people who go to the doctor like I did when I was younger, and they said, "Oh, you're having asthma. You're whizzing. You have really bad hay fever," and all sorts of stuff. "We're going to draw this grid on your back. We're going to inject you with all sorts of stuff." It turns out I did have wheat and dairy allergies. They didn't detect those. They said, after exhaustive injections on my back, and my back felt like it itched for like a year afterwards, they said, "Dave, you're allergic to cockroaches and kapok," which is a weird life vest preservative or something, life vest stuffing that they used a long time ago.

Kari:

Oh, man.

Dave:

But what the hell? That didn't make any sense, and it wasn't actually accurate. Granted, that was a while ago, but if someone really knows that there's something, they're going to quest for it. They could come to your lab and they could get an IgE test, and you could pretty much tell them, "It's this and this, and it's not this and this."

Kari:

That's right.

Dave:

Okay.

Kari:

Again, I feel for patients, I also, like you, had terrible mold allergies. I had terrible asthma. I remember sitting there in the doctor's office and going through that prick as like a five-year-old. That was not fun. I didn't understand, why are they doing this? The doctor's supposed to make me better, not worse. I too feel compelled to make sure that we can do something better. If we have that knowledge, if we have that science, we should do better and make people's quality of life better in general on the therapy side, on the convention side, as well as on the diagnostic side.

Yes, at Stanford, especially, and a lot of places around the world, we have better blood tests now. I'd say that we're getting to the point where all you need to do is take two drops of blood. You could try to do this at home. I'm working with bioengineers at Stanford so that we can do some really easy-to-use testing that you can link up to your iPhone or your smartphone phones, so that you could get that right away in red so that you know if you have allergies or not, definitively, not this, "Well, you might have cockroach allergies, but we really don't know because this is what happened on your back. But we don't know if that might happen in your lungs. So we can't really send you out today knowing for

sure what your allergies are." That, to me, doesn't seem too scientific, but it also doesn't help the patient in the end with their lifelong management skills.

Dave:

How far out are we from having access to food allergy testing like that?

Kari:

I think we're pretty close. I'm pretty excited about that. I work with a wonderful team of engineers at Stanford. It's really thanks to their amazing brain power. They developed this microfluidic device. Let's see if I have it, where you actually can have a chip that goes right into your phone. And with that, you can take two drops of blood and have it read out on your smartphone. So it's pretty cool.

Dave:

Stuff like that makes me so happy. It's easy to get caught in this idea of, "Oh, the world's a bad place." It is such an amazing miracle of science and engineering in our knowledge of our own biology that you could even do something like that. The amount of human innovation that went into even be able to do that in a lab, it's mind boggling. I just love it. It makes me excited to be around now.

Kari:

Yeah, I am too. I'm inspired by students and inspired by people. Our biggest inspiration is patients. We deserve to know better as patients. But also as scientists, let's do better and let's make sure that we have something that works. I think it's going to come in the next two or three years.

Dave:

You mentioned that you had mold allergies. You also had food allergies?

Kari:

I did not have food allergies.

Dave:

You didn't? Okay.

Kari:

No. Yeah.

Dave:

Have you cured your mold allergy? Is your immune system non-reactive to that?

Kari:

Yeah. I grew up in New Jersey and I grew up. My dad worked as a marine biologist, so I grew up on a houseboat that was totally full of mold, so in the humid New Jersey weather. So when we moved away, I grew out of it.

Dave:

Also, you were not exposed in the California type of mold, is different species than New Jersey mold. A lot of people move, they're fine.

Kari:

That's exactly right. The amazing difference, also that. But if I went back there, I probably would have the allergy again. I don't know about your mold allergies, but especially with the black molds, you do need to be careful and make sure we don't get exposed to a lot, because they're not fun.

Dave:

They're not. The reason I was asking was I want to know know, did you, when no one was looking, "I know how to do this. I'm just going to hack my own self to not be allergic"? But it sounds like you didn't do it. You did that, move away. Let the immune system calm down and things are generally okay if you don't get re-exposed.

Kari:

Right. But if I didn't have that opportunity, absolutely. I would have undergone therapy to get rid of my mold allergies.

Dave:

Well, let's talk about, first, the most common food allergens, and then I want to get into immunotherapy and what that is and how it works. What are the main offenders for people?

Kari:

Sure. There's the common allergens, but what I've seen in my lifetime taking care of a lot of people is that anything can cause a food allergy, as long as it's a protein. Now what's interesting is the one protein that I've never seen people become allergic to is coffee bean. Coffee is a bean, just like many other things that cause food allergies are seeds and nuts, but there are those nuts and seeds that are really rich in proteins. So is shrimp, fish, wheat, soy. These are protein-laden foods.

You could ask, "Why milk, egg? Why these top eight foods? And why around the whole world?" Well, we're trying to understand that better, but those are the top offenders. They cause a lot of food allergies, and especially the nuts, I think because those proteins are so strong, they were meant to grow whatever that nut was, whatever that seed was, into a large plant. So they're really concentrated and they tend to be the ones that are the most allergenic.

When we're trying to understand what causes food allergy, it helps to understand those proteins because we think through the skin, allergies can begin, through the gut, allergies can stay quiet, and hopefully, through the diet, allergies can stay quiet. We say that in the book because we mean it. What happens is in the skin and in this era where a lot of detergents are used and we're using a lot of chemicals on our skin, we're leading that skin to become dry and open and irritated.

A lot of babies now have dry skin where they wouldn't have 20 years ago. Then the food that's on the breakfast table, the food that's in the air that people are eating becomes the most allergenic food. For example, in Italy, they don't really have a lot of peanut allergies. They have hazelnut allergies. Nutella is hazelnut. Nutella, it's been in the diet of a lot of Italian food. There's hazelnuts, and that's important to know.

In countries like Lithuania and other countries like the Ukraine, the food that's the highest food allergen there are carrots because they have a lot of carrots in your diet. So for those babies that are

exposed to the carrot dust, we think that that's a way that it gets into the body and unfortunately causes the immune response to think, "Well, that's a danger signal." But if you start eating those things naturally, if you do have dry skin, but you also start eating those things in a way that's every day, that's based on your circadian rhythm, that's based on a good diet with fresh vegetables, good food, that actually decreases your chances of having that food as an allergy.

We've learned a lot in the five years, and that's thanks to a lot of global work. That has helped us learn how to treat it as well.

Dave:

You mentioned something that's near and dear to my heart about coffee. There's a company called Cyrex, which a lot of functional medicine practitioners will say is the gold standard for food sensitivity or food allergy training. They do find that some people have coffee allergies. Any ideas why they're finding that, but you're not?

Kari:

I think you can have coffee sensitivities. Caffeine, in general, with the coffee helps you so that the one known item that actually stops you from having an allergic reaction is an epinephrin device. So that's great. That is pretty much similar to an espresso in Starbucks, for example. There's two injectable epinephrin device. These are some of the examples. But with that, coffee, i.e, caffeine, helps you fight allergies. But I wouldn't say if you're having an allergic reaction, to go grab your Papa Joe. That's not the way to do it. You just definitely want to use injectable epinephrin device if you're having an anaphylactic reaction.

But I've never seen, and maybe the company is way more advanced, and I would love to speak to them more, I've never seen a food allergy to coffee. I've seen sensitivities, that's for sure, with caffeine, with coffee, with different tannins and different products in the coffee. For sure, yes.

Dave:

I called them and asked what they were using in their tests as the antigen for coffee. It turns out they were using instant coffee from the grocery store. As the guy who knows a lot about mold in coffee, because I changed the coffee production process and lab test my coffee to make sure there's no mold in there-

Kari:

Wow.

Dave:

I can tell you that instant coffee is the moldiest of all the coffee out there. I think they're getting a mold sensitivity there when they say people are allergic to coffee. But yeah, that's just me.

Kari:

You're probably right. That'd be interesting to test. Well, we can test that now. So we should.

Dave:

Oh, that'd be super cool.

Kari:

That'd be very cool.

Dave:

I will talk with you offline about that. I'd love to, because I quit coffee for five years because I was convinced that I was allergic to it. I would drink it-

Kari:

I'm so sorry.

Dave:

... and within two hours, I'd get the energy crash, sugar cravings, sometimes swelling in my forehead. I was like, "Oh." Then I just needed more coffee or a snack. Magically, when I drink coffee that doesn't have mold in it, I don't get any of that. So it's a major problem, especially in North America because we don't have legal limits on mold and coffee. So when it's illegal to sell it in China, Japan, and Europe, they send it to the US. We drink it and then we get all angry after we drink it. It's an issue.

Kari:

Well, Dave, thanks for teaching me about this. I mean, this is one thing that I really want to understand better, and this is why I love interacting with people throughout the globe and yourself. We talk about in the book, in fact, that before we eat something, like my food allergic patients, they always want to know, well, how do I know that that soup that that person just gave me in the restaurant, that they say for sure doesn't have peanut in it, how do I know it doesn't have peanut in it?

How do I know if a coffee maker that says for sure this doesn't have mold in it, how do I make sure that it doesn't have mold in it before I ingest it? There's a bunch of companies that are out there that actually have little probes that you can put into your food to be able to test for different items like mold like-

Dave:

Is there a mold? I've looked, I haven't found it for mold if-

Kari:

Yeah. They're doing it so that we can also test for pollens and molds and other items. I'd love to talk to you offline about that because I think that's what [crosstalk 00:23:33] people better.

Dave:

Okay. I will hope those companies become popular because it's a major issue, especially in some food things like wine as well.

Kari:

Yes.

Dave:

It's amazing. You drink a French wine where the levels of that, that are much lower, two parts per million or less, versus an American wine where it's 10 parts per million, you feel different the next day.

Kari:

Yes. Yes.

Dave:

And so, I know, because I'm dialed in on that stuff, mostly because my biology was so screwed up, that a small percentage swing that you might not feel if you're feeling good, for me, I sure felt it. Okay. One of the other things that really confuse me about food allergies is that if I eat leftover pork or fish, or fermented soy, which are sources of histamine in the diet, I get what sure, from your description, looks a lot like a food allergy. But I'm just directly eating histamine. How do people deal with that and differentiate eating histamine from a true allergy?

Kari:

That's right? No, you're absolutely right. I have patients that they're very sensitive to histamine, and you can go online and look at the lists of foods that contain histamine, or in their breakdown products have a lot of histamine. When you get food poisoning, sometimes it's the bacteria in those foods that are causing the release of histamine. So that oftentimes can look like an allergy, but it's actually food poisoning.

However, an allergy is an allergy. Histamine is histamine. Histamine can create horrible reactions that leads to whizzing and blood pressure drop. So you've still got to be careful with those foods that have histamine and to be ready for the fact that it is an allergic reaction. It's just that you've bypassed eating the food that could cause the histamine released. You're eating the histamine itself that could cause the allergic reaction.

Dave:

Okay. When I'm going to do something like that against my better judgment, I actually take half a Benadryl when I'm eating the leftover park and I still enjoy it.

Kari:

Okay. Good.

Dave:

The reason I'm asking, there's a lot of listeners who just think, oh, there's such a thing as a pork coma, and I just deal with it, but that there's a cause. It's so hard for us to know, is it an allergy, a sensitivity, or is it lipopolysaccharide, or a mycotoxin, or oxalic acid, or a lectin?

Kari:

Right. Right.

Dave:

Let's talk about lectins. Are lectins allergy triggers or is that something different?

Kari:

Yeah, that's a good question. I know there's a lot of interest in that. I, to be honest, I'm not an expert in lectins. I'm sure you and others are way more expert. They are not particularly allergy triggers, although foods that have lectins in them can become food allergens. But it's not the lectin part that causes the allergy. Does that help?

Dave:

That makes a lot of sense.

Kari:

Okay.

Dave:

One of the theories I have, and I love being able to test my weird theories with someone who actually has gone so deep as you have on analogies, is that we know when people are exposed to things that trigger inflammation. And exposed regularly, they're more likely to get food allergies. At least I've seen that and I've heard that from other functional medicine doctors. First, is that true? I'll just vet that with you.

Kari:

Yeah. I think having a heightened sense of inflammation, and I saw that a lot in identical twins where they're the same genetics. We know that genetics don't play such a critical role in food allergy. A little bit, but when they do, you should see them across identical twins. But we have tons of identical twins where one will get food allergy and the other one will not. The one that does not, they tend to be the adult twin that doesn't smoke, doesn't have a lot of preservatives in their diet, doesn't have a lot of dry skin, doesn't use a lot of bad detergents.

So there's this phenotype of someone that does not have food allergies. The person that has food allergy, oftentimes they either got a bad viral infection or they started to eat foods that caused a lot of inflammation. And then years later they started to develop an allergy.

Dave:

Okay. So it can get turned on. My hypothesis here is that when people are exposed to really bad stressors, like I said, a chronic... Or not chronic, a bad viral infection, a divorce, moving into a house with toxic mold, that when the body can't figure out the source of stress, it starts looking for proteins that might be the source of stress. And then it correlates those things. The immune system's very intelligent that way. It's like, "If I can't find what it is, I'm going to find what it is." And it sometimes gets mismatched there. Is that a good model so why your stress should be loaded to not get out?

Kari:

It's really a perfect model because it's a misfiring. You think evolutionarily whatever came through the skin, our skin is our most critical organ to combat the outside world. We have skin inside our lung, skin inside our gut, anything that touches the air is made of skin cells. When we were stressed, oftentimes that meant that our environmental cues were stressing us out. There were maybe parasites out there in the field. There were insects biting us. There were parasites trying to get through to our skin. Our body's immediate reaction is, okay, create itching so that we can swipe that insect out of there, create itching so that we can get that parasite off of our skin initially.

Create lots of mucus in our lungs to expel that parasite, get rid of that worm that we were initially exposed to, or create swelling so that we tighten up those junctions and get the insect out, get the parasite out. That now happens a lot in stress. Now with things that we otherwise should see as nutritious, and we have a misfiring and pretend that it's a parasite, pretend that it's something we shouldn't have. And so, that's why we think food allergies are happening.

But I agree with you. There's a prompting. Especially in the adults that are getting food allergies, there seems to be an event that either it was a move, like you said, to a different place, a different environment, and it might have been a stressor, and that's what we're trying to link all these things together. Everything's not perfect. Each person's a little bit different, and we stress that in the book. You've got to think out of the box because people don't fit into their own box. Everyone's a little different, and that's a good thing. But we need to figure out, for each person, what's best for them.

Dave:

The individual nature of these is very frustrating. It makes me wonder if presidential elections might increase food allergies because some people will at least get really, really stressed about it. If you feel like you're going to die based on who's going to get elected, that feeling of impending doom plus novel protein might equal something weird. I'm not saying that that does cause allergies. I'm just like-

Kari:

Be careful.

Dave:

The giant spikes in stress are just never good for you. They aren't that likely to, but they're just tipping the risk in one direction or another.

Kari:

They are. I would not be smearing peanut butter on my skin today. That's for sure.

Dave:

You keep talking about skin, which is really intriguing. I grew up, I had all kinds of weird rashes. I was sleeping in a bedroom that had black mold in the walls amongst other things. That's probably not very good for you, but we didn't know. I definitely had dry skin and I'd have oily skin. Generally, it's pretty good now. But let me ask you this first, how often should people be showering?

Kari:

Well, that's a toughie. Obviously, I'm not going to tell people not to shower. You've got to clean your body. That's [crosstalk 00:31:17]-

Dave:

Right.

Kari:

But you probably don't need as hot a shower. You probably don't need to use as clean a soap as you think you do. Some of the soaps are really important to look at. Don't use the ones that have proteases. Don't use the ones that have all these detergents in them. If it's safe for the earth, it's probably safe for

your body. When you go and look at detergents, take a shower. That's fine. Don't probably use as hot water as we do. Don't stay as long in the shower as we would like to, because that can cause irritation of the skin. Importantly, just make sure you use the right detergents because the detergents can really chew up your skin.

Dave:

Are you better off using a soap or a detergent?

Kari:

Soaps that do not contain antibiotics are the best like-

Dave:

So real soap. Okay.

Kari:

Yeah. The soaps that don't have proteases and don't have nanoparticles or microparticles. The liquid soaps tend to have antibiotics or tend to have these nanoparticles and microparticles in them, those aren't helpful. Those are like little plastics on your skin. So soap is probably better.

Dave:

Okay. Soap and lukewarm. What I do now, because I just monitor my skin hydration, all that stuff, is I generally don't use soap everywhere on my body because I don't need it. There's a few parts that might smell worse than others, and those are generally the sweaty parts and you wash those. The rest of it, you rinse off the stuff.

Kari:

That's right.

Dave:

I feel like my skin health has improved pretty dramatically from doing that. And that reduces allergy risk too apparently.

Kari:

Absolutely. Everything's a balance, and you'll know it... Just like you said, when you start eating really well, your body gets used to that. It starts craving good food because you're going to be good to your body. It wants that. You start putting other things in, and the same thing, you start putting other things outside your body, and you've developed really good habits. You probably sense that difference if you do start to put the soap throughout your whole body.

So I think your methods are appropriate. Be careful of hair shampoos as well, as well as the things that we use for our clothes and our dishwashers. Unfortunately, those have such potent detergents, and they have something called proteases that for babies, that those proteases are left on dishes, they're left on clothing and they could chew up the skin. Taking care of yourself and using less toxic detergents are important for your skin.

Dave:

What about lotions? I mean, if I use almond oil and a lotion, am I going to be more sensitive to almonds?

Kari:

That's a great question. We've noticed that if people have really dry skin and eczema, if they start using the peanut oil, the cashew oils, the almond oils, coconut oils, some of them can develop those allergies.

Dave:

Do you see a lot of coconut allergy?

Kari:

I do. I see some coconut allergies.

Dave:

Interesting.

Kari:

But it's... Yeah. It's rare.

Dave:

One of the reasons I like MCT oil is that at least a properly made MCT oil has zero protein from coconut oil in it.

Kari:

That's exactly right. That's what I was just going to say. A lot of the oils, if they're really well made, they don't have any traces of protein. And so, if they don't have protein in them, you don't have to worry about getting allergies from them. They're such-

Dave:

I know one company that triple distills their C8 MCT oil for a very specific reason. That might be bulletproof.

Kari:

Well, that's good.

Dave:

You don't want the proteins when you don't want the proteins.

Kari:

Exactly. That's right.

Dave:

Since milk is such a major trigger, I've seen a lot of conversations about A1 versus A2 milk, based on basically the breed of cow. The cows that make less milk can have A2 which is a different molecule than

A1. So if you're getting corn and soy-fed milk, you're getting one molecule in a slightly different version. How big of a difference is that for milk allergy?

Kari:

The people in Europe have done huge amounts of studies on milk. I recently went to the Netherlands where they have an entire milk institute. It's amazing. I was very humbled by how much people know about, if the cow is fed this, if the cow has that, if the cow is put out to pasture, and exercises a lot, or stressed, all of these different proteins are made. And it makes sense. I mean, we would probably make different proteins if we were stressed or if we were eating different things, we probably do as moms who are breastfeeding.

In that, I've learned a lot about different milk proteins. Pasteurizing the milk is fine. However, nowadays, when we put milk through the average US manufacturing plant, it goes through so many different features and it gets modified with detergents. So, again, there's detergents in that milk. The A1, the A2 is important to make a different definition about, which I agree with you.

But when we look at people with milk allergies, they can have allergies to different portions of the protein. A lot of it is the fact that the proteins are so riddled with detergents at the end of the day, that that's what they're allergic to.

Dave:

No kidding.

Kari:

Yeah, unfortunately. There's this whole movement on raw milk and on getting milk from organic milk and making sure it has no preservatives or detergents, but also milk from animals that are grass fed compared to corn fed. I think that does matter. I think getting back to our roots.

Dave:

Awesome.

Kari:

Grassroots as well will play a big role.

Dave:

Thank you. As a Stanford scientist, to say that grass fed matters, I really appreciate that. It was a core part of my learning on health and everything I do is grass fed. I run a small farm with grass-fed sheep, because it seems like you get a different result at the end of the day when you do that.

Kari:

Absolutely. We've got to go back to our roots. That's what it was meant to be. Yeah.

Dave:

All right. Now, I wrote a book. It came out in 2011. It was my first book. It was on fertility and epigenetics and what you can do before and during pregnancy to have healthier, smarter kids, more resilient, all that. It still sells lots of copies and many, many babies have come about as a result. My wife

is a physician, Karolinska trained. She was infertile when I met her. Actually, a lot of the time in Palo Alto, I'd go to the farmer's market in Mountain View, and I'd do all the cooking and we restored her fertility and put the book together.

The one mistake, this is now 10 years after the book's published, that I know that I made, because we didn't have any of the science you work with now, is I said, "Look, these allergies in kids are a problem, so stay away from the stuff that triggers them." But it looks like now, post publication, research came out. It was about three years I think after I'd published, that said, "Hey, it looks like low-dose exposure can be beneficial." Talk to me about immunotherapies, structured exposure to allergens to reduce the effects.

Kari:

Yeah. Thank you. First, congratulations. I'm so glad, and I want to get a copy of your book. I think that's fantastic. We do a lot of work in epigenetics and how the environment can change the epigenetics. If you change the epigenetics in a mom, that oftentimes could be inherited into her, maybe as well as a dad. That's what's so amazing, is this epigenetic profile plays a role in both.

We tell people that if you can eat that food to diversify the diet, we saw, as well as many other people around the world, that if you could diversify that diet early and often between four to six months of age in a baby, that that can reduce your likelihood of having allergies in general, as well as asthma and food allergies. So that's right.

Dave:

So there's a window, four to six months?

Kari:

You start four to six months, but that's where most of the data's coming from. But one of my other study shows is that if you do this during pregnancy, if you do this during adulthood, you can also decrease your risk of having food allergies later. So to your point about being pregnant and being fertile, that eating a little bit of a diverse diet every day, not withholding natural good foods, as long as you're not allergic, that that really helps.

Your body needs to sense and taste a little bit of this, a little bit of that in a good way, to stay tolerant to those foods and to know that they are natural and they're not dangerous.

Dave:

One of the things that I've struggled with as a parent is that I am happy to have my kids exposed to things. But if they're things that also cause a sensitivity, you still want to minimize that. One of my kids has my HLA-DR genetics. When you give him nightshades, and even if they're hidden in food, he'll say, "Daddy, my neck really hurts. What's going on?" To the point that he's like, "I'm not eating those because I know how I feel." And having your neck hurt all the time is just no fun.

Kari:

That's right.

Dave:

And so, for him, even if it's not an allergy, he's just not going to eat those because it's not worth the sensitivity cost. How does a parent know if you're trying to avoid allergies but you're triggering your sensitivity?

Kari:

Yeah. Food sensitivities we do not keep... We do not use immunotherapy for food sensitivities [crosstalk 00:40:50]-

Dave:

It doesn't work.

Kari:

... giving the food back. Exactly. You have to avoid those things like neck pain, bloating, headaches, fevers. Those things, I would say, avoid that food and that individual because you're right. Food sensitivities can be related to the immune system in a very different way.

Dave:

Now, does this mean that there's powder, and I've certainly heard about this, but does this mean you recommend powders you might sprinkle on your breasts or put in your breast milk starting age four months that are really good to program the immune system in a certain way?

Kari:

Yeah. There's a company spoonful one that has 16 of the top foods that could become allergens. They're just proteins. It's all organic, it's all natural, but you could easily put that on to one packet instead of having to make it and stir it in a pot, give it to your baby. But that way it's all in just one packet and you sprinkle it on. We have fed it to moms who are breastfeeding and moms who are pregnant, as well as their babies. We start around four to six months.

There's no magic window period. We like to start there because that's what naturally they would be trying to eat foods outside of their mom's breast milk anyway. But it is amazing to see that this powder has now gone throughout the world. We just started in China and this is a patent by Stanford. So yeah, might be a little biased here, but it's pretty exciting to see that no one has gotten sensitized and that people are saying, "This is great. This is really helping our family."

Dave:

Now, does this mean by extension that we should just blame moms for their kids' food allergies?

Kari:

Absolutely not. Do not blame the mom. I have five kids. I get blamed enough.

Dave:

I just said that to trigger you.

Kari:

Don't ever blame your parents.

Dave:

You can't. Yeah.

Kari:

Exactly. We make mistakes, don't get me wrong. But importantly is that it's really not genetics. It's not pregnancy. It used to be thought that while you're pregnant, you should avoid the peanuts. And when you're a baby, you should avoid the peanuts, and that's actually turns out not to be true. That was based on really small studies. Now we have an enormous amount of studies to say, we've got lots of sample size, lots of data now, to say, "Eat what you want when you're pregnant." Eat healthy. Don't eat fast food. Try to avoid preservatives and that will lead to a better, healthy lifestyle for you and your baby.

Dave:

You've mentioned detergents in food quite a few times, which is really interesting because that's outside of what most people know about. But most people do know about preservatives and coloring agents and things like that. What are the role of those in turning on food allergies?

Kari:

It's as a great question. We don't know exactly. It's hard to try to take out this question in terms of GMOs and different products, because a lot of our foods now, especially in the US, it's just part of what we eat. We don't think the GMOs play a role in food allergy. We don't think the dyes play a role in creating allergies, but they might for sensitivities. So in all humility, we don't know the exact answer to that question yet, that you should always triple think what you're eating and go to the farmer's market instead of having to eat a preservative in a can. But that's just my training, being practical.

Dave:

Okay. So we're not sure. What about things that we know poke holes in our gut lining? Those are more likely to encourage food allergies, right?

Kari:

Absolutely. Detergents that poke holes in our lining, again, a lot of the dishwasher detergents, if you don't do that extra rinse, they can definitely poke holes in the gut skin. The other thing that you need to be super careful about are preservatives, that those are not something our gut is used to seeing. Those can be toxic to the gut. Just be super careful and, and look up what you're eating. Because even if it might be in a small amount, it could be harmful to you or your child.

Dave:

One of the compounds that has me thinking a lot is actually black pepper because there's plenty of studies that show black pepper, and especially black pepper extract, pokes holes in the lining of your gut. In fact, some vitamin companies will use black pepper extract with turmeric because, oh, look, it raises blood levels of turmeric by 10,000 times or whatever. But wouldn't it also raise blood levels of everything else in the gut at the same time?

Kari:

Yes, absolutely. One of the things we see is black pepper as well as... I think this has been known for centuries, but if you drink alcohol, that that increases absorption. Doesn't poke hole in your guts, but it

definitely increases the absorption of foods, which is good for the diet as long as you're not allergic or sensitive to wine or alcohol. But it's things like that where, as we get to know a little bit more about the gut, like you said, let's get to know about what those features are that we want to avoid so that we want to preserve the gut as well as make sure that it's healthy.

If it does undergo some kind of injury, how well can it heal itself? We want to make sure that injury doesn't cause an irreversible aspect. Like in your case, thank goodness you were able to show through your Bulletproof behavior that things could get better. But how many people have to undergo their health problems, but they might not be reversible. So I think, for all of us, the human body is pretty amazing. To the most degree, it is reversible. We just have to act on.

Dave:

Yeah. You've got to find out what is the thing, or really what are the many things that it takes to reverse it, which I spent way more money than I should have, like a million dollars, and way more time and energy. Now, of course, I'm kind of an expert in this stuff, which has been able to help a lot of people. But I just want others to not go through that. So if it means that your mom can do a few things when you're a baby, or if you're a mom and you can do it for your babies, I really think it's one of the highest return on investment in health behaviors that exists.

Kari:

Yes.

Dave:

I'm happy that you've participated in that research on figuring out when you can expose things because we just didn't know.

Kari:

No, we didn't. Yeah. I think we can, especially through epigenetics, there is food epigenetics. We know that moms who take care of their allergies and get immunotherapy, their babies tend not to have as many allergies.

Dave:

That's a gift.

Kari:

So it's very interesting.

Dave:

Yeah. Now, all right, I'm mostly done with some food allergies, but I still have an issue with eggs and I did not have an issue with eggs even when I had all the mold and stuff like that. It only came about after I did an experiment for probably four or five months where I was saying I'm going to replicate an Eskimo diet. This is when I was testing the edges of the Bulletproof diet before I published the book. I went on a pretty much zero vegetable diet, very similar to a carnivore diet. But I included a meaningful amount of eggs in that.

I did it for four months and destroyed my sleep and my digestion and got inflammation. Kind of what happens when people go keto today and don't read my book or similar things about cycling and

gut bacteria. To this day, I eat eggs I get a rash around my lips, and I get within two hours, meaningful symptoms. I would like to incorporate more eggs because egg yolks are awesome. So how do I turn off my egg allergy?

Kari:

Yeah. How to turn that off, and that does sound like a food allergy to eggs. Eggs are, like you said, they're a good source of protein. They could be helpful, but they should not be sources of irritation and they are to you. The way to turn that off, as long as it's an allergy to that protein, is to give small amounts of that egg powder, including the yolk powder, in your body. You start with minute amounts, like milligram amounts, like little specks of sand.

Then you increase it by about 25% every two weeks. You'll get up to a whole egg's worth of protein. That'll take probably about six months, but that's totally possible. Everyone's body has the capacity to become non-allergenic because people naturally lose their egg allergies. And so, we've developed therapy, thanks to a lot of people around the world as well, to be able to have your body, your immune system look like an immune system of someone who naturally loses their food allergy to egg.

That's what we want to achieve because when someone naturally loses their egg allergy, the rate of having that egg allergy come back is almost zero. So we want your immune system to look like that of someone who naturally loses their allergy. And that's the way to do it. You build up your immune muscle over time, gently, carefully, small doses. And then finally you've lost your egg allergy. That takes time-

Dave:

So you start with a milligram and you just double it every two weeks?

Kari:

Pretty much. But you do it in a personal approach. You wouldn't want to do this at home. We do this through the clinic because you want to be super careful. And then you'd personalize it so that if there are any reactions, because people can have reactions through this immunotherapy. That's one of the things we talk about in the book that it's really the beginning of the end of food allergies. FDA just approved, for the first time, a peanut drug.

But as you know, it's egg, it's milk. There's other multiple food allergies. We need to make sure that we get people's food allergy cured. There's a lot more drugs coming out through this pipeline, and that's really important. But for egg, yes, it starts with milligrams and you'd go up ever so carefully in a doctor's office.

Dave:

What if I just didn't want to go to a doctor's office because there's a pandemic and I just bought like a kilo of egg powder and I have a milligram scale and I just toss some [crosstalk 00:50:50]-

Kari:

Okay. Now you're making me have an allergy. [inaudible 00:50:51]-

Dave:

I guarantee you that was some of the quarter million people listening might go do that. I mean, is it really necessary to go to a doctor's office?

Kari:

I would not promote any other way. Sorry.

Dave:

That's okay.

Kari:

Not because I'm a doctor, just because I've seen so many bad reactions. I don't want anyone to be in it-

Dave:

Because of anaphylaxis.

Kari:

Yeah.

Dave:

If I was anaphylactic, I wouldn't do that with a 10-foot pole, but I'm not. It looks like I'm wearing lipstick and I get pouty. So it's not the end of the world for me.

Kari:

Well, the problem, and I'm sorry, the problem is if you had a cold and you ate the egg, or if you had other features in your environment or stressors, that could actually take that, what normally is rash, and make it into more severe reaction. That's the problem.

Dave:

Okay. So then you're looking at people's stress levels when they come in. Are you doing at [crosstalk 00:51:42]-

Kari:

Absolutely.

Dave:

... cortisol labs or how do you do that?

Kari:

We look at stress levels. We do questionnaires on stress. We do menstrual cycles. We'll actually pay attention to that. We'll look at their circadian rhythm, how much sleep have you lost? Then the other thing we look at is have you been exposed to wildfire smoke? Have you been exposed to tobacco smoke? Do you vape? Because that changes your threshold. You have a much lower threshold for reacting to a food if you've been exposed to those toxic [crosstalk 00:52:10].

Dave:

So people who vape are more likely to get food allergies?

Kari:

They're more likely to have more severe food allergies. You don't know the answer to your first question.

Dave:

Okay. Is that because of the additives? I don't know if they put detergents in there, but they put some weird stuff in vape mixers.

Kari:

Oh yeah. There is detergents. There's weird stuff. There's heavy metals in there that definitely immunosuppress the immune system.

Dave:

What's the connection between heavy metals and food allergy?

Kari:

There's not a direct connection that I know of, but heavy metals, and unfortunately they're in the earth now, especially in the Central Valley. There's arsenic, there's cyanide, there's lead. And so, these things are not good for the body, so they tend to kill off good immune cells, but let the other immune cells live. They create this bad balance of immune pro inflammation, more inflammation than controlling that inflammation, and that you need that balance on any given day.

Dave:

Okay. It's sounds relatively technical in terms of executing it right, which is why you have to go to an expert. Okay.

Kari:

Well and just avoid having [inaudible 00:53:20].

Dave:

Yeah. It-

Kari:

Toxic heavy metals.

Dave:

It's tough. I mean, people are into their brown rice protein with 80 times more arsenic than white rice. Guys, if you're going to eat rice, it's not really a good source of vitamins even if it's brown. So just ditch the outer layer because you don't need arsenic. Besides, brown makes you fart. It's not necessary.

Kari:

There you go.

Dave:

That's a medical thing, right?

Kari:

Right. Exactly. Exactly. Yes.

Dave:

Now, and Dale Bredesen, who's a friend, who's been on the show a few times, the end of Alzheimer's, similar title into food allergies, into Alzheimer's, he definitely identified both chronic inflammation, which can include food allergies if you're eating them regularly, and heavy metals, and mold toxins as triggers of different types of Alzheimer's. It's interesting that there isn't a direct connection other than basically metals make you weak, and from a biological perspective. If you're in a weak state, you're more likely to get an allergy.

Kari:

Yes. Yeah. It is interesting how these general connections are a part of who we are as people. But someone like you can link up the dots because I don't work in Alzheimer's. But as you are the nexus of many of these other complimentary issues that overall, how are we going to improve our health in general and improve our quality of life?

Dave:

Well, thanks for describing it that way. Biohacking was meant to be this idea of bringing together lots of disciplines around creating human resilience. I am constantly amazed at the different connections between specialties. Someone who's really into food toxins can suddenly go, "Wait, but there's mycotoxins, but I never studied those." It's like there's a threshold. I think food allergies are what happen when our stress threshold gets put over and you get chronic illness, not just allergies, but everything gets worse.

Kari:

That's right.

Dave:

It's usually the type A people. In fact, in one of my books, there's a small part on that. The more type A, the more having to go get it, I'm going to burn the candle at both ends. That's when auto-immunity is likely to happen, and that's when everything bad is likely to happen because we haven't figured out the art of recovery as well as we could have. What about sleep and food allergies? If chronically deprived of sleep, what happens?

Kari:

Yeah. It's not like chronically deprived sleep will cause food allergies, but we definitely know it worsens it.

Dave:

It worsens it, yeah.

Kari:

And it worsens inflammation. And so, sleep is key. This is separate, but when you look at those people that have that resiliency and are octogenarians and noted generians, and they're out there riding their bicycles, they're totally healthy, and they don't get COVID because they're so healthy. Not that I want them to be exposed, but importantly is what do they get? What are all the commonalities? Is they get sleep.

And so, we did this big aging study, thanks to the Ellison cohort at Stanford. We did identical twins that were in their older age group. I call wiser age group. With that, we looked at all these different features to their health. We thought, "Oh, their health and their brain health, it must be due to Suduko or other things. It was due to, number one, sleep, number two, diet, number three, exercise, and number four, social, keeping been well connected with their social universe.

Dave:

So those are good practices for resilience and highly resilient people. If they get food allergies, they're not as bad and they're less likely to get them. Okay.

Kari:

Yes. That's right.

Dave:

All right. I like that.

Kari:

Good. Good.

Dave:

In the context of immunotherapy in your book, you talk about four types of immunotherapy. Can you walk me through each of the types?

Kari:

Sure. Thank you. We've talked a lot about prevention today. We've talked a lot about how we can be proactive to improve our quality of life and proactive in terms of trying to help our children, if pregnant or otherwise. But now moving forward with therapy, what if you already have a doctor's diagnosis of food allergy? Well, the first we talk about is this oral immunotherapy where you're eating small amounts of food over time. And that's captivated in this protein pill, peanut pill that we talk about, that was just approved by the FDA.

That's just for peanut. Peanut, though, is a small percentage of the overall allergies. And so, we talk about, as the second category of immunotherapy, breaking out of the peanut box. We need egg, cashew, tree nuts, sesame. And so, that's multiple food therapy, and that is being made by Alladapt. Other companies are looking at making products for multiple food allergies so that you could get rid of your food allergies all at the same time. So that's great. That's synchronous. That helps you.

Dave:

Those are available now?

Kari:

Those are coming through the FDA right now.

Dave:

Okay. Got it.

Kari:

That's great. The FDA has been incredible. They really want to be able to solve the food allergy problem. They've been a little busy now with COVID, but I really do appreciate our FDA and NIH colleagues who've kept food allergy as part of the top thing to think about. The third category to talk about for immunotherapy are biologics. When you talk about, as you could probably imagine, well, if I take this egg powder and I could have reactions, how can I decrease the likelihood of having those reactions?

Well, oftentimes, we'll try to put like a protective blanket on this immunotherapy, i.e a biologic that you can take to decrease the likelihood of having a bad reaction while you're taking your immunotherapy. We talk about that in the book. There's a drug called xolair and dupilumab that are being used right now in clinical trials to try to reduce the risks of immunotherapy.

And then, finally, the fourth is that moonshot and saying, "You've got vaccines." That's true. We have vaccines that can try to permanently turn off allergy. We have a blocking antibody that you could just take once a month and then you're done. You don't have to worry about your food allergies. You don't have to eat them. Instead of having egg powder at home, you could just take a shot every month to try to decrease any reaction at all for food. Those are the things we talk about in the book.

Dave:

Kari, you just said the V word.

Kari:

Yes-

Dave:

Now-

Kari:

So...

Dave:

I have to ask. Is it possible that vaccines, if you get too many of them at the same time, could contribute to food allergies? I'm not trying to put you on the spot. I'm not saying they cause.

Kari:

It's fine.

Dave:

I'm just thinking about overstimulation of the immune system.

Kari:

Yeah. This we have a lot of data on. Vaccines in children, the typical vaccines that are used in kids do not induce food allergies. I can say that for sure. They also don't induce autism. That's another whole topic. But importantly is that the vaccines I was talking about that are therapy for food allergies, those are a little bit different types of vaccines. They actually have little bits of peanut in them, and you inject them underneath your skin and you become tolerant to the peanuts with the vaccine. So that's pretty incredible. That's a lot of science that went behind that.

Dave:

That's so cool.

Kari:

But that's what we talk about for vaccines. Yeah.

Dave:

For people listening, like half of you are like, "Vaccinate the heck out of me." Other half of you are like, "You bring a needle near me and I'm going to go crazy." Usually the middle ground is the place to be. Just like having high cortisol is bad for you, having low cortisol is bad for you. I'll just go on the record, if I could take an injection that had appropriate studies behind it, that made me not allergic to eggs... Dude, control of my own immune system is something that I kind of want.

If it doesn't do what I want, I'm going to make it do what I want. That said, I really appreciate appropriate safety testing and all that. So I would just tell you-

Kari:

Thank you.

Dave:

... you don't have to be that polarized, whichever side you're on.

Kari:

Yes. That's right. That is absolutely right. Let science and data dictate how this goes. But also make sure you're aware of your personal body. You know what you can do and not, so I'm always humbled.

Dave:

Yeah. And so, it's not saying that every vaccine at all times makes sense for everyone, that's not it. The flip side probably isn't also true.

Kari:

That's right.

Dave:

So, guys, you don't have to be so reactive about those. Now let me ask you this, could we make a vaccine for fear or over love of vaccines? I'm kidding. Now I've just made everyone very mad.

Kari:

I wish.

Dave:

But a vaccine for food allergies, can I buy one? How soon will I be able to buy one?

Kari:

That's also in clinical trials. This we can only be as fast as this whole development allows us to be through the regulatory bodies and FDA. But yeah, there's different clinical studies going on in the world, one in Germany, one in Australia, one in Stanford. So if you're allergic to peanut, you're welcome to try the vaccine. You don't even have to buy it. All clinical trials are for free. [inaudible 01:02:28], here, when you've got an FDA approved drug, third-party payers are hopefully paying for that fully as therapy so that people don't hopefully have to pay for their vaccines.

Dave:

Okay. So right now it's covered. When it is widely available, it doesn't sound like it's going to be that expensive. You've got some doctor visits and you've got some relatively affordable powder stuff until there's an injection maybe.

Kari:

Exactly. I think, for the most part, third-party payers will pay for that. And then we need to make sure it's widely available because food allergy is an epidemic. I think these things are being discussed right now, but the best thing to do, if people are interested in doing this for themselves, because food allergy is so infrequent in our population, go to your local site that has a clinical trial, look at that first because that's free and clinical trials are so needed to be able to help food allergy. The second thing is go to your doctor and ask them about FDA approved drugs.

Dave:

It's probably also worth saying, so maybe you were too polite to say, which is, you might want to read this little book out there called The End Of Food Allergy. That's going to give you a roadmap for this. I want to thank you for taking the time to write the book. A lot of people think, "Oh, I'm going to go write a book either because I want to be famous or I want to make a lot of money."

Books take an enormous amount of time to write. And if you look at your hourly rate as an author, even for a successful book, it's not epic, and you have lots of other things in your life, I imagine. I look at your book and as I read it, it's clearly meant to be an act of service to share your knowledge with the world. So thanks for doing it the right way.

Kari:

You got it. Thank you very much. We all want to make an impact, live a life of legacy, and to help out. So thank you. That's exactly right.

Dave:

I appreciate you coming on the show today, entertaining my odd questions and shining some light-

Kari:

Thank you.

Dave:

... on the topic that matters.

Kari:

They were great questions. Thank you so much, Dave. It's really great to meet you, and I hope we can connect again.

Dave:

Count on it.

Kari:

Okay.

Dave:

If you like today's episode, you probably already know what to do. Pick up the book, The End Of Food Allergy, and read it. You may be one of the 10 or maybe 15% of people with food allergy. But if you're not, look in your family, look around. This is something that affects everyone emotionally, and it's actually a major cause of disruption in life. It can be your colleagues, your coworkers, things like that. So just be aware of it, and there's higher than you think chance that at least food sensitivities, if not food allergies, are a part of your life.

Learn about those as one of the many forms of kryptonite in the world around you. But this is one we can actually recover from now, and 10 years ago, I would have said there's nothing we can do. So science is progressing. Have an awesome day.