# Paleo Solution - 288

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Robb Wolf: Hi, guys. Thank you for your continued support of the PaleoSolution podcast. I also wanted to take a moment and thank two of our wonderful podcast sponsors. The first is Thrive Market. Thrive is a new online marketplace offering the world's bestselling natural and organic products at wholesale prices. If Costco and Wholefoods online got together at a rave and got liquored up, their child would look a lot like Thrive Market.

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Hi, folks. Robb Wolf here, another edition of the Paleo Solution podcast. I'm very excited for today's guest. Dr. Amy Shah is an MD. She is a double board certified physician trained in both internal medicine and immunology and allergy which we're going to talk a lot about immunology today. She's also a recent RobbWolf.com contributor with her very popular topic These Little Bugs Decide If You Get Fat.

Dr. Shah, how are you doing?

Dr. Amy Shah: Very good. Thanks for having me on. I'm excited.

Robb Wolf: I'm very excited to chat with you. So doc, you have a very interesting story getting into all of these health and wellness stuff. Could your share that folks?

Dr. Amy Shah: Yeah, sure. So I went to--I did undergrad nutrition at Cornell so I knew that I wanted to do something in the nutrition and health round. But at that time, becoming a nutritionist or dietician was kind of like my cup of tea because you had to basically learn about artificial nutrition and how to treat hospital patients who can eat. It was this whole world. I was like no, I want to learn about how I can help people with nutrition. So I went to med school which I thought was going to help me do that.

Robb Wolf: You can probably become a plumber and had better more direct route to helping people with nutrition.

Dr. Amy Shah: Oh my god, it was like especially this is a while ago before nutrition. There was nutrition course in our med school but it was very--it was a short, I think two weeks out of our four years and it was very much based on like carbohydrates, have this many calories and fats, have this--If you have renal disease, you will need protein this kind of diet and so it was very like knots and bolts if someone is really sick what would you and they never really talked about what would you do before someone gets sick or like how would you prevent someone from getting sick that was like not a topic of conversation. But I was always interested in immunology and allergy so I did that. I did first my training in internal medicine then allergy/immunology. And then while I was in my fellowship training which basically means like the 19th year of like schooling that we did, I was living in New York City and I had two little kids and I was starting to have a lot of symptoms myself that were like really weird and I couldn't put my finger on it. So basically I was really tired no matter how much I slept. I thought oh I have two little kids and I'm in my 30's now like this is probably just that's what it is and then I would have kind of like difficulty focusing and thinking and I had a lot of GI issues like bloating and constipation. I had been very fit all my life and I just could not lose my post baby stomach and I was just really feel like I didn't know if I was down about just being so busy and having so many responsibilities in my research project or whatever or whether there was something really wrong. And so I've really started to look into my lifestyle nutrition. Guest what? I was this "healthy" person but I was living that healthy USDA healthy life which I was eating like whole grains and I was having a lot of like protein bars for snacks and all these processed foods.

**[0:05:18]**

That' when I really--That really peaked my interest and I started getting back into the nutrition and wellness stuff. And so basically overhauled my whole diet and basically followed--it just so happen that when I stopped eating wheat and dairy, all those processed foods and started adding

more vegetables, I just all of a sudden slowly not overnight but started feeling really a lot better and I started looking at stress and sleep because I never really put all these together and that's why I thought that was a lot of what you say about this is what I kind of say to people I work with. It's like they're all interconnected. They're not all this separate parts of your life. I was like, who needs stress relief? Who needs meditation or yoga? Like that's for people who have time for that, you know? And it wasn't until my own crisis or mini crisis and I would ask my doctor friends about it and they would be like you're fine. I got my blood testing done; it was fine. There was nothing wrong that anybody could find but I didn't feel right.

Robb Wolf: I'm thinking like 15 things here. One of them is that it really does seem like the additive effects get inadequately appreciated. So if you would had been living in Nicaragua on a permaculture farm, getting sun on your skin, eating coconuts but also eating wheat and dairy, probably a different outcome, right?

Dr. Amy Shah: That's exactly right and I feel like that's I what I think people. I say once you fix yourself or like "air quote to fix yourself" by really working on that stress and that sleep and fixing your gut and all that other inflammation then you can experiment with adding back some of the foods that you had been avoiding for a long time. So yeah that's kind of have worked for me.

Robb Wolf: So where did you go like what was the--I don't want to ask too leading of a question. But what was kind of the epistemological shift that took out of say standard immunology. So you did your blood work and you weren't dying at least not immediately.

Dr. Amy Shah: Yeah, exactly.

Robb Wolf: So you know you weren't going to end up in the ER but there was something wrong so where do you look beyond that?

Dr. Amy Shah: Exactly. So for me since I was a woman and I just had my kids, I went to the OBGYN and I told her about my symptoms and she said you know-- She basically did not have any answers for me and I asked about hormonal testing and she said no, that's not mainstream. That's not worth it. There's not going to be anything. So I happen to be doing my research on immunology on chronic urticaria which is hives basically in women and the hormonal effects and so I was drawing, physically drawing blood from a lot of my female patients and looking at their hormone profiles and so I did one on myself. It was pretty much a very

difficult to analyze let's put it that way because hormones just are. If you're checking randomly, you may not be getting especially in women, estrogen and progesterone are very variable throughout the day and throughout their cycle and stuff. So there's just no answer. I kept looking and I kept asking and I was like well I'll ask my--I did primary care. I did general medicine and there was nothing that I can find. I thought maybe it was thyroid and it was not my thyroid. So yeah I was looking everywhere but found no answers at all and I just had to do my own reading.

Robb Wolf: And so what did that reading finally boil down to like where was kind of the watershed moment where things started crystallizing for you?

Dr. Amy Shah: So basically I realized that for me, I had been ignoring like you're saying there're multiple insults that are happening all at once. I was living in New York City, a lot stress, not enough sleep and there's a lot of pressure on me, an academic university. I had all these responsibilities outside of work and I was not really--I think we just think that's part of life and we don't even think about how to tolerate that. One time I was reading all these stuff I realized okay, there is a connection between your cortisol, your adrenalin all these stress hormones and the way you feel and also what you're eating into the way you feel and they all kind of come together and either make you sick or make you feel energetic and well.

**[0:10:08]**

And so I started really look into ways to decrease my stress and improve my sleep. I sleep was maybe the number 1 thing and I started to be like a sleep evangelist after that. So my husband dismays like you're so weird. I would like make everything like pitch black and like really cold and wear earplugs all this weird stuff which is not weird now but it was back then. He would say go to sleep at 10 o'clock. In New York, that's like unheard of.

Robb Wolf: Right. There's probably a law against it somewhere.

Dr. Amy Shah: Exactly. So it's like seemingly radical things like the mainstream population which was basically us but it really fixed me and in about three months, I felt like a different person by doing all these experiments on myself which is basically sleep, managing my stress through--I started yoga which is my way of doing it and running which is my way of kind of escaping from things and then cleaning up my diet. Basically I took out all processed foods, wheat and dairy. And then I noticed immediately, a different scene on how I felt. So that's why I started being like--and then

in my office, I started seeing--I continued that for a couple of years into my practice and I started seeing people that were avoiding foods for certain reasons which we can get into and they were getting these unexpected side effects of more energy weight loss, improved memory and focus. And they weren't even expecting that. They were doing it for this diagnosis eosinophilic esophagitis which we ask them to stop eating certain foods which are basically wheat, dairy, certain nuts, soy that kind of thing. So it was like kind of like oh, I'm seeing the same thing in my patients that I say in myself. I think we're on to something.

Robb Wolf: That's just fascinating. I think it was back 2000 or 2001, I was talking with Loren Cordain like literally sitting in his office and my mother had suffered from rheumatoid arthritis and celiac disease and I worked with a number of other folks that had similar autoimmune type complexes and I notice on their blood work that if they have elevated eosinophils. Eosinophils are usually associated with parasitic infections and I was kind of thinking about the mode of activity in celiac disease where the intestinal barrier gets broken down and what not. And I noticed that most of these folks went through this progression where they ended up with GI problems, gallbladder issues possibly reaching gallbladder removal, acid reflux and then ultimately kind of dysphagia or aphagia like inability to swallow. They end up losing enervation in the smooth muscles in the esophagus and that seems to be kind of the end road on this stuff. So the eosinophilic esophagitis was something that was really early on my radar and it's something that is still waiting for a PhD perspective student. Like Loren has a stack of research projects that we're just waiting for somebody to tackles these things but it seemed insane at the time but we had a really nice proposed mechanism and we just needed to get it and test it but it sounds like in your clinical practice you were seeing exactly these things.

Dr. Amy Shah: Oh my god, that's definitely something that is coming up on a horizon because we're already noticing that these people that have eosinophilic esophagitis which is like basically difficulty swallowing. They also have really bad acid reflux, other GI issues and often suffer from all these other kind of nonspecific symptoms like fatigue all these autoimmune issues. I mean there's going to be so much coming out because it's such a new diagnosis. So far we've seen that just having people fix their diet for about four to six weeks can almost reverse these symptoms and the clinical--take the eosinophils and leave the esophagus on endoscopy. So it's really amazing and I think that was where it all came together for me because as I said I was like this is not just popular science. This is actually happening in patients. It's proven in the clinic. It's starting to be proven in the clinical literature at least about eosinophilic esophagitis mechanisms

and then it happened to me. So for me it was like this is where I really feel like it's my calling and something that I'm really, really interested in helping people with.

**[0:15:14]**

Robb Wolf: It's awesome. I was never able to help my mom. There have been a lot of other people that have reported getting some success from doing these diet and lifestyle modifications. So I really applaud you championing this area that affects a lot of people and its debilitating process and really has a very not good end point with it. This is the best I could say. Doc, why is this stuff happening the way it is today? I think we've kind of danced around it a little bit.

Dr. Amy Shah: Yeah, yeah.

Robb Wolf: We don't sleep as much. Our foods are more processed. To what degree are these different vectors occurring? There was a great paper I don't know if you saw it. It came out a couple of years ago, talking about dense acellular carbohydrates being very problematic for gut health that it increases intestinal permeability and small intestinal bacterial overgrowth. So it really place into that changes in the gut microbiota.

Dr. Amy Shah: Yes.

Robb Wolf: But I mean how big are each one of these factors and how do we unpack that?

Dr. Amy Shah: So I think one of the biggest leading theories as you know is like the hygiene hypothesis that we just don't--basically the hygiene hypothesis is that our modern world is very sterile and we don't get enough both bacterial and parasitic infections when we're young and then our body starts to create its own--like you know it needs infections to learn. Our immune systems are very, very active and looking for infections to learn from and if we don't have that, we start to create autoimmune issues and we also feel that the lack of bacteria decreases the gut diversity, the gut bacteria diversity so it's like you're sterile on the outside and then you're sterile on the inside but if you're sterile on the inside, that's not a good thing. You want a lot of diversity in your--it's almost like the more diversity and the more gut bacteria you have the better it is.

So hygiene hypothesis is still one of the leading hypotheses why some of these changes happening at least in terms of autoimmunity and food allergies and allergies in general. However, they can't really pin point

exactly is it that plus modern food? Is it that modern antibiotics? Is it that plus plastics? Is it because of stress level or is it all of the above? We don't know the causal but we know that people have looked into each one of those as clues. You know people, kids that get antibiotics in childhood and adults who have antibiotics, are they more likely? Yes, they are more likely people who take NSAIDs, ibuprofen. How about Tylenol? How about plastics? So it's an unanswered question but we know that there are some theories around sterility and being too clean as one of the underlying factors.

Robb Wolf: Got you. Doc, one of the kind of conundrums that I find people end up in the night I would put myself in this campus that when they figure out this health issue, usually what they end up doing one of the solutions is kind of a lower carb approach to eating which seems to help with a lot of the brain fad, the insulin dysregulation, blood glucose dysregulation. But we're learning more and more that we need to feed that gut microbiota but the things that we need to feed it are fermentable carbohydrates. But if we have small intestinal bacterial overgrowth and gut permeability then often times people will find that they feel worse on you know like fad maps and what not. What are your thoughts on all that like I have figured out how to crack that open. I know Grace Liu has some interesting protocols using what she calls bionic fiber and some really aggressive probiotic interventions and what not. What are your thoughts on that?

Dr. Amy Shah: Yeah. So I think that part of the problem, the part of the reason you feel better on a lower carbohydrate diet is at that point your gut is pretty leaky or what we consider leaky and damaged and as you build that up by eating more vegetables and maybe lower carb things that are healthy meaning green vegetables and whole foods rather than processed, you start to rebuild the gut and usually what I say is that once your gut is working again and we have protocols for that. I'm actually starting a program for that in October. So basically once your gut is rebuilt then you can add back some of those other--kind of doing it stepwise process rather doing one or the other.

**[0:20:34]**

Robb Wolf: Got you. Got you. Doc, this is going to be an incredibly speculative question but I'll throw it out there and see what you think. So if we were to try to control things, let's say we still had the same stress levels so we've been implicating some things like wheat and potentially some legumes and dairy and stuff like that in food reactivity but it seems like the processing of foods is a big factor. Let's say that we didn't head down

the road of processed foods and if we ate wheat, it was like a pearl barley that was soaked sprouted and it wasn't milled into flour.

If we just had a split peas and lentils that again were like properly processed and everything, we had none of these milled processed grain and legume type flours, we didn't eat protein bars, are we going to see the same end point do you think? I mean you know I'm totally the paleo guy and everything and this is kind of what I've hang my hat on but I've been asking that question more and more if all other things being equal, would it be as deleterious if we just didn't process those foods as massively?

Dr. Amy Shah: Right. I mean the answer is probably yes. Because we don't really know much about processed foods like for example we have no way yet of testing people for sensitivity, I mean chemical sensitivity of meeting like the things they put into processed foods to process them and additives and preservatives. That's like an area that still of course you know nobody wants to pay for that research. It's still an area where we don't really have a lot of answers. We know intuitively like you know you and I intuitively know that that's probably the case but there's really not a good set of research that we can say like yes, processed foods has this bad effect. We know that processed food harms the gut and we know that processed food causes immune reaction. But is that one of the reason or causative factor for all this rise in food allergies and sensitivities? It's hard to know for sure.

But I would say like you know and most of us know that once you fix yourself again, meaning like you're eating right, you're sleeping right, you take care of your stress level and one day you're at a birthday party and you had something with wheat and it's not a processed wheat. You don't feel as bad as you would if you had a like a big slice of cake with frosting or something like that. so I mean intuitively that is true and I think we'll know more once we have more research on these food processing chemicals. For some reason, we really don't know what those kind of processing does to our body. Like I've looked through the literature, there is some but not a lot.

Robb Wolf: Doc, talk to me a little bit about the innate versus the adaptive response with the immune system and then we'll maybe use that to parlay into non-celiac gluten sensitivity.

Dr. Amy Shah: Okay. So basically innate response is what happens when you first--it's the most primitive form of the immune system. It's basically innate immune system are in every kind of animal species basically. It's this

inborn mechanisms to fight off bacteria or foreign substance and then we have the adaptive immune system which is our immunoglobulin, our T-cells, our very smart, we call it a smart part of our immune system because it learns and that's why it's really important because that's where vaccines work because they will teach the immune system something and they'll remember it's like that's why when you get the chickenpox once your body remembers it and has antibodies towards it later. You may get a virus once and then your body learns. That's adaptive immune system response and so that kind of is usually more delayed and usually takes a little bit longer, whereas the innate immune system is like your first line of defense.

**[0:25:18]**

Robb Wolf: Got you. And so like in celiac disease for whatever reason we have folks that do too some genetic predispositions which the reading that I've found on that is that folks with high likelihood of developing celiac disease, they tend to have some evolutionary adaptations where they tend to fight gut pathogens more effectively than most people. So they actually got a little bit more of heightened immune response particularly on the adaptive side but these folks react to the gliadin protein. That protein tends to release zonulin which loosens the tight junctions in the gut and then we get intestinal permeability and then typically the gluten then or the gliadin protein binds to another protein creating a hapten which then becomes immunologically reactive. Our body can mount an immune response to that and that's how we develop celiac disease. So that's kind of on the adaptive immune response where we get antibodies.

What about this non-celiac gluten sensitivity? And there is so much hullabaloo around this saying that it doesn't exist and I'm just--another layer to that just--I'll shut up and let you actually talk. Maybe it's not gluten per se, maybe it's wheat germ gluten and some of these other things but clearly something is going on there.

Dr. Amy Shah: Yeah. I think that there's a few different ways that you can get, you know gluten sensitivity. We know obviously there's this IgA related one which is celiac then there's an IgE related one which is a true food allergy to wheat where people go into anaphylaxis. And then there's a third type which is like the innate response which is not antigen specific its very nonspecific. It just basically immediately reacts against invading organisms. It doesn't have a memory. It basically reacts to everything that looks foreign and releases inflammatory factors. So it says oh, something foreign is here like come me and it releases all these inflammation which kind of give you symptoms of fatigue or joint pains or

fever or that kind of nonspecific not feeling well symptoms can come from the immune system.

And so they say that non-celiac sensitivity can be innate. It can be IgA which is adaptive and it can be a combination and it can be a different type of adaptive which is basically what I'm talking about with the eosinophilic esophagitis. They think that T-cell mediated as well as IgE mediated so there's like basically the gamete of reactions to gluten that can happen. Basically the medias or not media but a lot of people consider this gluten craze this gluten-free craze as stemming from this non-celiac sensitivity but there's so many other kinds of gluten sensitivity including the T-cell mediated, the IgE mediated and also the IgA mediated. So there's more than just innate non-celiac sensitivity.

Robb Wolf: Man, and you know for me like clearly I'm a big fan of the scientific method but when we're trying to do this reduction as process. if you can have one singular input of food and then depending on your individual genetics and then even the epigenetics the gut microbiome of the individual, it's impossible to really do that airtight. We're going to compare and apple to an apple scenario because we're not entirely clear about the genetics and then even if the way that those genetics are expressed are interfaced with the epigenetics of the gut biome are really problematic in them.

Dr. Amy Shah: Yeah. Like for this new diagnosis that eosinophilic esophagitis diagnosis, they didn't know where it was coming from so they did like T-lymphocyte proliferation assays and they saw that it's really is T-cell mediated which is even more adaptive in a way than the IgA mediated sensitivity. So this one protein or food source can cause many, many different reactions depending on the person but they all tend to get better once you go off of it.

**[0:30:03]**

Robb Wolf: Interesting. Interesting. I think it's worth mentioning if one part of the immune system is kind of on high alert, the other parts of the immune system tend to be kind of upregulated so if we address one part of this, we tend to mitigate the effects elsewhere and so addressing the food sensitivity side often improves allergies and autoimmune symptoms.

Dr. Amy Shah: Exactly. Exactly.

Robb Wolf: Doc, where are you at on the low carb versus low fat deal? Like where are you playing out with that?

Dr. Amy Shah: I'm definitely like the lower carb, not no carb only because I think that for most people's active lifestyles--I know you're pretty active and so am I. I think that I feel my best and I think it's a little bit individual, depends on the person. I feel my best when I'm eating lower carb. My only carbs came from potato, sweet potato or some kind of starchy vegetables then I do when I've no carb. I just feel more energy. For me it just works better in regular life but I'm thinking is a little bit dependent on your lifestyle. I'm not really a big fan, I'm not a fan for sure of the high carb low fat. I think that is for sure. But whether you want to be low-ish carb or no carb, I think it's up to the person but I do tend to tell people. Like I'm Indian and my Indian parents and my family and my family friends, I mean these people are eating carbs it's like 90% of their diet. Traditional diet is carbs.

And back in the day when those carbs were not processed and not fried and not covered with sugar. You know that was okay maybe but now and it's really evolved. Even they say that their grandparents didn't eat like this. And so I always try to get people off that bandwagon but I don't tend to be--I don't know are you completely no carb? I thought you need some carbs but--

Robb Wolf: You know I feel cognitively pretty good in a ketogenic state but my athletic performance kind of blows and I've been fiddling with that. You know the trying to figuring out my life history stuff, vaginal birth but no breastfeeding, soy formula, lots of antibiotics like tonsillitis you know every single year. I think some serious dairy reactivity. I went on tetracycline at the age of 13 until 21 for acne.

Dr. Amy Shah: Oh my god.

Robb Wolf: So yeah I mean you know looking back now it's like oh my god. You know I am still trying to figure out how to tolerate the carbs better. The nice thing for me about being quite low carb and full on ketosis like I just don't get hungry, I don't have blood sugar crashes. I don't get any of those hangry moments which is really pretty liberating but it's also pretty damn boring and already eating kind of paleo. It's kind of an exclusionary kind of thing and then if you're ketotic too you can't even do like sweet potato fries. So I've been playing around a lot with that and doing tons of probiotics, doing what Grace Liu calls bionic fiber which is rotating through a variety of fibers. I'm feeling like I'm tolerating carbs better but you know I'm probably right now like 15 or 20% protein, 50% and then 25 to 30% carbs which ends up being around like 150 to 225 grams of carbs a day which isn't sky high in the super ketotic world but it's very, very modest compared to other people.

Dr. Amy Shah: Yeah. I think you're right. I think it does depend on the state of your GI tract and how you feel and how much you can tolerated without feeling-- A lot of people feel really, really good in ketosis and some people just do better with a little bit of carbs but I think there's no doubt that being on the lower end of carbs is probably going to be good for most people and the traditional American diet is so sadly high carb and low fat. I mean we think it's so mainstream now but I see people every single day that have no idea that they're eating so many carb like they don't consider half the things that they eat carbs. And so they don't even know that they're on a very high carbohydrate diet because they're just eating this regular breakfast of whatever, bagel and juice or something.

**[0:35:21]**

You know it's like funny because we feel like oh, everybody kind of does that stuff now. But really there's just still so much work and education to be done about and every time I tell somebody to try something like that for some reason they--for whatever mechanism it is, they just feel so much better. I know obviously you have tons and tons of people that you've affected and changed their lives by just changing their diet so it's a real thing but there're still people that don't even know about it.

Robb Wolf: Oh man. Fortunately or unfortunately we have huge job security in that like we will not solve that problem anytime soon. I was cruising. I did a talk back and Polyface Farms a couple of weeks back and I was in the Charlotte North Carolina Airport and I was just looking around and I'm like yeah, paleo hasn't had a massive penetration here.

Dr. Amy Shah: Yeah, yeah. I think intermittent fasting, I don't know do you do some fasting? I know I think you talked about it in the past but--

Robb Wolf: I do a little bit. I mean because of our girls' schedule, they tend to wake up early and so we try to have dinner pretty early so we try to have dinner buttoned up like on the table by 5, wrapped up by 6 and then I will usually not eat then until about 9 a.m. maybe 10 a.m. the next more. So it's like a 15-hour deal and that seems to work pretty well and isn't a big deal for me if I'm going to do some sort of physical activity. I'm actually at a point now where I will throw a little bit of food in before the physical activity. I think I've just burned the candle at both end and you know adrenal issues and all that stuff and so I make it a little bit easier on myself in that regard but I play with the intermittent fasting a little bit. Where are you at with that?

Dr. Amy Shah: I like intermittent fasting but I like it like what you're saying especially for a woman I think it's very important for--I've seen a lot of stuff coming out on intermittent fasting and then just women doing really poorly on that just because our hormones are really, really sensitive to any even hint of starvation in our lives. I think that that's probably the root of the issue but it seems like if you do it every day or do this extended fast especially starting out, out of the gate trying kind of a really long fast seven days a week, it's just been really problematic for a lot of people. So what I usually tell women is that start out really gently maybe a couple of days a week even 12 to 16 hour fast a couple days a week. As they're getting off the carbs, it becomes easier and then increasing as once they get really, really comfortable with that scenario which I have found that people kind of jumped right into it and have pretty bad outcomes.

Robb Wolf: I don't know if you followed Bill. I'm going to butcher his last name, Lagakos over at Calories Proper.

Dr. Amy Shah: No.

Robb Wolf: Really brilliant guy and he just did a blog post recently on kind of the mixed bag of intermittent fasting. Some people seemed to get really enhanced dawn effect where they get dramatically elevated blood glucose levels. They get increased gluconeogenesis you know breakdown of protein for glucose and so for some people it seems to be a really nasty stressor. For other people, it seems to be a hormetic stressor where it actually seems to be doing them some favors and so at a minimum, it seems like start at the shorter end, start maybe one day week and then two days a week and kind of keep an eye on things. One of the things that I've seen that is very misleading about intermittent fasting is that because it is a stressor, in the initial stages you get elevated catecholamine and so you get some elevated adrenalin and noradrenaline and everything and so you feel pretty good. You're like you are in that fight or flight, you know low grade and so you're like man, I have great energy and I'm just motoring along and then a month into it, the wheel just fall off the wagon. You got hit by a bus.

**[0:40:01]**

Dr. Amy Shah: Yeah. Exactly. That's actually kind of what happened to me but it happened a lot sooner than a month into it. So I definitely learned that the hard way and I also realized that I don't think I knew at that time that it would be such a stressor on your body for some people and I guess I was one of them and so I always tell people to kind of ease into it. Basically, I do kind of what you do and I do it only a couple of days a

week. And now it's become easier that's what I tell people and I'm sure you've noticed too. In the beginning I just feel like count the hours and be like okay, I get to eat at night. Now sometimes I'm at work and seeing patients, I forget at all. It's much later in the day and it's just become something more natural rather than planned.

Robb Wolf: Right. Right. I like that. Doc, what about this? So I was looking at my jar of coconut oil and like I've hold and husk coconuts before and I was thinking about the amount of work that's necessary to get a can of coconut oil and I started thinking about things. I'm like hold on process foods. Coconut oil is pretty damn processed so I've shifted around and even on my--The bulk of my fat sources and I'm not totally neurotic about this, you know I'll still throw a little bit of coconut oil on my sweet potatoes and stuff like that. what about you know even the fat sources that we're using like nuts and seeds like really trying to get that from whole sources again. Part of what I'm thinking about here is that fermentable fiber content in the diet to feed the gut bacteria and I was looking at whole coconut and it actually has some pretty appreciable fiber content and some of it appears to be fermentable carbohydrate.

Dr. Amy Shah: Yeah, yeah. It's a great source of fermentable. You know one of the best things you can do is really you know those green coconuts that you can get that you can drink the water but then eat the coconut meat right of the green coconut is a really, really--and obviously I think you know and I know that conventional oil even virgin all these processing methods, no matter how good they are, they're still processed and you're still losing kind of the whole aspect of it. So I don't think it's possible for us, for me or you or any of us to never use an oil again for cooking or something.

Robb Wolf: Right.

Dr. Amy Shah: But I agree with you that the more whole coconut as a fat source you can use the better it's going to be for your gut and just in general.

Robb Wolf: Yeah, yeah. it definitely seems to make sense. I feel like we covered a massive range of stuff. What else do you want to talk with folks about?

Dr. Amy Shah: No, that's perfect. Yeah, the fermentable fiber stuff is really, really interesting because you want to eat more. I talk to my husband about this all the time because he does gastroenterology and he always says you know this probiotics, all these people think that probiotics are the answer but really most of the bacteria die by the time they get into where they're supposed to go and so it's not necessarily the best way to get this bacteria into your gut. It's much better to do it through these

food sources. And so that's what I'm starting to go towards as well. You know kind of talking about maybe having some like oat bran or whole oats or something like that as a really good source of fermented--once you've been on the low carb thing for a while and maybe adding that back a little bit.

Robb Wolf: I like it. I've been playing around with black-eyed peas cooked with ham hacks and that seems to be going pretty well. Black beans and red beans will give me acid reflux in one go deal. I mean just bam! But kidney beans, I'm fine, split peas, black-eyed peas. So I've been rolling those in and trying to do like one legume meal like that that would be really dense and fermentable carbohydrates trying to play around with that once or twice a week and so far so good. but it's funny there are certain things that you know like black beans and it doesn't matter how they're cooked and red beans absolutely wrecked me on that acid reflux deal.

Dr. Amy Shah: Interesting. I think that everybody's a little bit different on what they can tolerate with these legumes. I'm actually--I think legumes are a great, great thing to add to once you're ready for them. I think a lot of people say good and bad with beans or other things because of how they feel initially. But once you are able to tolerate them, adding them back for fermentable fibers, awesome idea.

**[0:45:17]**

Robb Wolf: Right. Right. And when you look at the glycemic load on some of these things like making humus, you have to find a private detective to find the insulin response to it like there is none you know. And I'm still confused on things like humus because it is kind of processed. I still curious about the acellular carbohydrate element you know like is that still digesting more in the small intestine versus large intestine but who knows?

Dr. Amy Shah: Yeah. I'm not really--I'm a fan of humus for sure but I think that we all agree that it's a little bit like nuts can be like a domino food and sometimes it's processed and it's often coupled with things that are unhealthy.

Robb Wolf: Right.

Dr. Amy Shah: So you just have to really be careful about that. But yeah in general it seems like it's a good kind of snack choice.

Robb Wolf: Right. Right. For sure.

Dr. Amy Shah: Thank you so much.

Robb Wolf: And it's pretty damn tasty.

Dr. Amy Shah: Yeah, it is.

Robb Wolf: It's so great having you on and thank you again for doing the blog post that you did recently. I was incredibly popular, very, very well received. Amy, where can folks find you on the interwebs?

Dr. Amy Shah: Oh yeah, so I am at AmyShahMD.com and that's my Facebook page as well, Amy Shah, MD on Facebook and Instagram and all the Twitters and all the social media sites.

Robb Wolf: Okay. Great. We'll have links to all of that in the show notes. And Amy, thank you again for coming on the show. It was really a pleasure talking with you.

Dr. Amy Shah: thank you so much for having me.

Robb Wolf: Okay. We'll talk to you soon.

Dr. Amy Shah: Bye.

Robb Wolf: Buh-bye.

**[0:46:57] End of Audio**