

The Paleo Solution

Episode 95

- Robb Wolf: Hey, everybody. Robb Wolf here with the ever large and in charge, Greg Everett. This is episode, we think, 95 of the Paleo Solution podcast. In addition to our usual idiot selves, we have just an amazing person on the show today, Dr. William Davis, author of Track Your Plaque and author of the soon to be released; although I have an advance copy crinkling right in my hands here, advanced copy of Wheat Belly: Lose the Wheat, Lose the Weight, and Find Your Path Back to Health, published by Rodale Press. And that's coming out on Tuesday, actually, the day that this podcast goes to air. Doc, how are you doing?
- Dr. William Davis: I'm great, Robb. Thank you.
- Robb Wolf: Awesome. You are getting ready to drive into the maw of the storm right now, right?
- Dr. William Davis: Yes, during the book release. My daughter is a pro tennis player, and she plays in the US Open. So I've got to be there for her. She'll be playing on the same day that the book comes out. So it just happens to be an odd collision of events and not to mention a hurricane too.
- Robb Wolf: Well, that will definitely keep things exciting. So all of this is going down in New York?
- Dr. William Davis: All this is hopefully going down in New York.
- Robb Wolf: Okay. Assuming that Manhattan hasn't ceased to be an island and actually just disappears under the ocean and stuff, okay.
- Dr. William Davis: That's right.
- Robb Wolf: Cool.
- Dr. William Davis: Yeah.
- Robb Wolf: Well, Doc, I've been following your stuff for a long time. Tell folks about your background. If they're not familiar with you -- I'm sure that probably 80% of our listeners are familiar with your work but tell everybody about your background.

Dr. William Davis: Sure. Well, in a prior life I was an interventional cardiologist, meaning I did all that stent angioplasty, atherectomy, all that kind of stuff. That's what I lived to do morning till night. It took me a few years of that to realize this was kind of a futile thing to do. All you're doing is band-aiding people back together. That's why I started to divert my attentions more towards heart disease prevention, identification of people early at risk and giving them control over it. That's what led to Track Your Plaque as a book and then a website.

Well, one of the things that we do in the website is we try to identify all hidden causes of heart disease, of coronary atherosclerosis. And one of the very, very dominant important cause is something called small LDL particles. There's only two ways -- I know you guys know this, but much of the world does not know this. There's only two ways to get small LDL particles, and that's (1) genetically or (2) carbohydrates. Just understanding that led us down this path of a very strict low-carbohydrate approach to diet, such as a Paleo type diet, and lo and behold we saw dramatic reductions in small LDL.

But it was this odd twist that we stumbled on in this effort to gain control over coronary plaque and small LDL and that is, elimination of wheat proved to be the key. It's not the sole strategy but it's the key strategy, I believe, in gaining control over coronary plaque and then the rest of the ideas, that gave birth to wheat though they came that.

Robb Wolf: Interesting. I'm going to ask you a little bit about how wheat kind of popped up on your radar, but it's just kind of worth mentioning. I've done talks at three different hospital systems, and it's very, very interesting. The buy-in that we've had has always, always been on the cardiothoracic surgery side. It's the people doing surgery that actually look at books like mine, books like yours; look at this material, do a little bit of tinkering with their patients and then see shocking resolution of the problems that these people are facing, and we get buy-in on the cardiothoracic surgery side. And then the cardiology side, the folks that are typically more on the drug dispensing side of the equation, we are in a back alley knife fight with these people trying to get even a tiny, little buy-in on that. Doc, what do you think is going on there?

Dr. William Davis: That's incredibly here because there is -- we still need more traction in the mainstream world. But I think you're seeing what I'm seeing and that is this dietary approach wheat-free, Paleo, there's a lot of overlap between these approaches, but it is so powerful that the need for medicines disappears in many instances, if not most instances. Need for cholesterol drugs is much reduced, need for blood pressure medicine is

much reduced, diabetes can be reversed, pre-diabetes reversed, weight loss, inflammatory diseases.

So I think you're seeing what I'm seeing and that is there is an incredible improvement in health across multiple conditions so much so that we can start talking about backing down on medicines are not starting them in the first place. So this is very scary. I suspect that this -- as this message gains mainstream traction; if I was Mr. John pharmaceutical company, I'd start getting nervous that my revenues will be impacted. They're big and they're powerful. They'll never starve, but if they have a downturn in revenues, that's a big thing, but I think it's a great thing for us.

Robb Wolf: It's interesting to me though because implementing this stuff could put the cardiothoracic surgeon out of business just as easily as the cardiologist. You guys could be sitting around twiddling your thumbs basically dealing with only genetic derivative heart valve issues and electrical conductivity issues which would eviscerate what you guys do. But yet I actually see buy-in on the surgery side of this. We get better buy-in on the orthopedic surgery side. It's just very, very interesting to me. The people actually doing surgery we're actually getting buy-in on this versus kind of like internal medicine. But both camps stand to be just as out of business as the other one. It's just intriguing to me. I just don't -- it's a different personality type in these scenes or something like that. But I mean both camps really could be -- hang the gone fishin' sign because people are going to live through a ripe old age and die more or less if we fix all this stuff. It's just really intriguing to me.

Dr. William Davis: That's really great to hear, Robb, because I often am fearful that a lot of my colleagues have lost this vision that what we're really doing is trying to heal people to help them be healthy. We're not trying to generate procedures. We're not trying to add on a \$50 million wing to the hospital. We're not trying to put another notch in our belt of procedures. It's really about helping people, healing them, getting them healthy. Sometimes that vision is lost. So it's really great to hear that at least some of my colleagues have maintained that vision.

Robb Wolf: Yeah, yeah, it's intriguing to me. It will be interesting to see how all this stuff develops. Well, Doc, so I mean you've literally been elbow deep in a quite literal way with this stuff for a long, long time. How did wheat, specifically like, you put some connections with carbohydrate load then ramifications with the LDL cholesterol particles and so it's kind of the arthrogenic potential of that. We'll talk about some of that stuff later. But for a big kind of macro picture, how did wheat specifically get on your radar as being a problematic food?

Dr. William Davis: Well, it was kind of odd turn of events. We were manipulating carbohydrate intake for the purposes of reducing small LDL particles. Well, there's a very simple observation and we call know this, but it's often not talked about, and that is whole wheat products like whole wheat bread raise blood sugar higher than nearly all other foods. You don't hear that. You hear it's a low glycemic index food. It's healthy for fiber, et cetera. No one tells you that if you look at those glycemic index values, whole wheat bread is among the highest foods of all.

So I use a very, very simple piece of logic. If whole wheat raises your blood sugar higher than nearly all other foods, what happens when we take it out? So I'd have patients with small LDL particles and lots of high blood sugar, I say, "Let's take the wheat out. Let's see what happens. Let's give it three months." Someone would do it. They'd come back and their blood sugar would indeed be lower. Their fasting blood sugar would be lower, their hemoglobin A1c would be low, that is that reflection of prior 60 days average blood sugar.

But they tell me all kinds of stories. They say, "I lost 30 pounds off of my tummy, and my rheumatoid arthritis is a whole bunch better. In fact, I stopped one medicine, and I'm thinking of stopping another. My asthma is a lot better. I chucked three inhalers. This rash I had in my left shoulder for the last seven years, biopsied three times, no one knows what caused it, is now gone for the first time. My swelling in my legs, that I've had for 18 years went away within three days.

My headaches went away. My migraines are now gone. My sleep is deeper. My energy is better. My mood is better. I did it to my son and his behavior is far better. He has autism, and he had behavioral outbursts. Now his behavior is far improved." On and on and on. At first I said, "Gee, that's got to be some crazy coincidence. There's no way your rheumatoid arthritis is better from removing wheat. I'm just looking for blood sugar and small LDL."

I saw this so darn many times, hundreds of times, over and over and over and very, very consistently that it became -- this is really -- this was a real phenomenon, and it was the wheat. It was wheat specifically. That's what got me thinking a lot about this, and that's why I did it in virtually everybody coming through the doors of this practice. I have to say, Robb, there's been no turning back because I've never seen anything like it. I've never seen such as consistent large effect.

Just from a weight loss viewpoint, there's an incredible effect. It's not unusual to lose a pound a day for the first 10 days. What's incredible is -- I don't think that the ideal diet for humans is eliminate wheat, eat anything. I don't think that's the best approach. But if we did that, if we did just that, that is say, "John, you can eat anything you want so long as it doesn't contain wheat because these things have actually been done surprisingly. Odd things happen."

For one, there is an average weight loss of 22.4 pounds over the next six months. There is a decrease in calorie intake of 400 calories per day. So this is without any kind of calorie restriction, no counting fat grams, no pushing the plate away, smaller portions, none of that stuff. If all we do is eliminate wheat, there's a natural reduction in appetite such that calorie intake goes down 400 calories per day.

And interestingly, people start to tell me this, "My hunger is different. I don't get that gnawing, clawing for food kind of effect. I get this kind of soft reminder that it might be time to eat because I had breakfast at 7:00, and it's now 1:00 p.m. I might have something for lunch. Hunger is changed. Calorie intake is changed. So it became clear this was really an effect specific to the wheat. Not to say all other carbohydrates are harmless but wheat seems to stand apart as being the most bad, the most evil, the most appetite triggering of all.

Robb Wolf: I call wheat one of Satan's excrements throwing off fructose and linoleic acid in there too so....

Dr. William Davis: That's great.

Robb Wolf: You know, Greg's wife is essentially a professional athlete. She's a contender for making the Olympic team in Olympic weightlifting. They've seen some really remarkable changes. We've always likened her to -- what's the X-men, Greg, that we always -- Wolverine?

Greg Everett: Wolverine, yeah.

Robb Wolf: It's like she has amazing recovery ability. You can just hammer her with huge volume, huge intensity. She just seems to bounce right back. But one thing that has been a shocking benefit to her is just a gluten-free diet. She tends to eat more Paleo than not, but if she wants to have like some gluten-free pancakes every once in a while or some gluten-free muffins, she'll do okay with that.

We have noticed that it will start becoming a little bit of a problem. Like all grains contain some prolamins that are fairly similar to gluten. I think the orders of magnitude less bad, but it's been interesting following Amy. She just had dramatic improvement in what was already a very high-functioning, essentially like the four class act, then everything got that much better by simply eliminating wheat.

Dr. William Davis: Yeah. I think we're seeing that in some of the high-class athletes like Djokovic in tennis. I know mostly about tennis. My daughter, I finally persuaded my 17-year-old daughter to do this. What she was experiencing was exactly that that is very inconsistent mood and focus, and I saw it happen just in a recent tournament in San Diego. She was wheat-free, and she said, "Yes, dad, I stopped eating wheat." But she didn't realize the Cliff Bar contains wheat.

So she had a Cliff Bar just prior to her finals, and she almost threw the entire match because of, I think, a mental inconsistency and a struggle to focus. She did manage to win the entire tournament, but I think she nearly lost because of the lack of focus from this one silly bar.

Robb Wolf: Yeah. I totally believe it. I am super gluten reactive so I've had a ton of stuff like that. Doc, most people at this point are familiar with celiac disease. I kind of want to walk through celiac versus the non-celiac gluten intolerance and walk people through some of the mechanisms of this stuff. So for the folks listening, most people are pretty savvy on this program, but walk people through what celiac is and the ideology, the gliadin interaction with the enterocytes and zonulin and all that stuff.

Dr. William Davis: So as you know, celiac disease is an immune response to the gluten proteins in wheat. By the way, there's been an escalation of a number of people with celiac disease. There are three studies now showing us that celiac is increasing. There's probably been a quadrupling over the last 40 to 50 years and a doubling over the last 20. There's been speculation about what the cause might be. More mothers breastfeeding, mothers less breastfeeding. I think it's the wheat that's changed by the way.

Robb Wolf: You detail that very clearly in your book, the different hybridized forms and then also the genetic engineering that's gone into that which has really diversified the type of proteins that people are being exposed to, a higher protein load and then a more diversified protein load, which appears to be more toxic to people.

Dr. William Davis: That's why the most bothersome parts of this whole conversation, Robb, that the incredible change is introduced into this plant have really not

been charted. In other words, every step of the way -- if this were a drug, say, every step of the way there would be some kind of documentation of tolerance in humans, but there never was any question that this will just be sold with no human testing, no animal safety testing, virtually nothing.

So the plant geneticists work in the dark. They just work to make the plant more, let's say, resistant to rust or mold or higher yield, but there's always this presumption that it's perfectly fine for human consumption even though they have introduced some very, very dramatic changes into the plant. So celiac as a response to the gluten proteins essentially causes destruction of the small bowel which can be very serious.

One of the odd things we're seeing is not only celiac disease increasing, quadrupling over the last 40, 50 years, it's also changing. People with celiac disease are showing up a lot less with diarrhea, cramps, and gas, the usual types of syndromes. Now they're showing up with dementia, gluten encephalopathy, neurologic impairment like peripheral neuropathies. They're showing up with peculiar symptoms like leg edema, and these people will have celiac disease identified, for instance, when there's an endoscopy and they perform a biopsy.

Another thing changing with celiac is that celiac people used to be emaciated and malnourished because they go for 10, 11, 12 years, no one makes a diagnosis, they're having chronic diarrhea, cramps and bleeding, and then finally a diagnosis had made, and it's a 5'8" male saying he weighs 124 pounds. He's terribly emaciated. That was the old way celiac showed up. Now, over 50% of people with celiac show up overweight.

So that could simply be part of the whole America is becoming overweight, but I think it's something changed in the wheat plant. Its relationship with humans has changed such that celiac is even changing. It's increasing. It's changing its effects in humans. Now, unfortunately, that's where a conversation usually ends. We all know that. In mainstream conversation, sensitivity to wheat is a gluten celiac disease conversation, end of story.

Well, I think a lot of us are thinking that's not true. There's a lot more to this plant beyond gluten. There are other things. As you mentioned, there's the gliadin protein which is an appetite stimulant. I find this is one of the most fascinating, in an evil dark way, aspects of wheat conversation, that is gliadin converts to a morphine-like compound that causes appetite stimulation such that if I have gliadin protein from

anything made of wheat; I want more wheat, I want more foods made of wheat, I want more foods not made of wheat.

So it's an incredibly powerful appetite stimulant, and I believe that is the component in wheat responsible for the increase of 400 calories per day. It is the darling of the food industry because it is their nicotine, it is the stuff that makes you come back, it's the stuff that makes you hungry in a 90-120 minute cycle. And so if you eat more, you consume more, you buy more, and they make more money. So this is, I believe, the reason why if you look at the products on a supermarket shelf, it's tough.

It's really tough to find foods that don't contain wheat because it stimulates appetite. In fact, the only foods that don't have wheat are the ingredient real foods like green peppers and olive oil. Practically every processed food has wheat. I think it's there not because it's necessary, not because it's all that tasty, but because it is an incredible appetite stimulant, and that's the gliadin effect. Gliadin also has been backtracked to numerous neurologic impairments.

So if you give gliadin protein to a kid with autism, they have behavioral outbursts, et cetera. So one of the most interesting aspects of the wheat conversation is the brain effects of wheat, addiction but also effects in abnormal brains. So there have been -- I was surprised at how well-documented the relationship of wheat with schizophrenia, bipolar illness, ADHD, autism, and some other conditions has already been -- this is actually recently well-described in the literature, but it's hardly ever talked about.

Robb Wolf:

I had a woman who's very high up in the Veteran's Administration scene on the East Coast, and she was at one of my talks. And she said that she couldn't say emphatically that schizophrenia was gluten reactivity but sure as heck looked like it. They're tracking this very, very tightly. It's interesting because this is a major food stuff in the military, but then they're paying a pretty heavy price of this on the backend with the -- you subject people to high levels of stress which are going to further compromise the gut integrity, and then you've already got this gut irritating food which then has pharmacological action on the other side of the gut barrier, and you have some really wacky stuff going on.

Dr. William Davis:

Yeah, I agree. It surprised me how much work had been done. In the '60s, there was a psychiatrist named Dohan who was working in Philadelphia at that time and this was prior to requiring consent for human research. Am I coming through okay?

Robb Wolf: Uh-hmm.

Dr. William Davis: Okay. Sorry. He did a curious thing. He worked in a VA Hospital in Philadelphia and he controlled the diet. He and his team controlled the diets of the hospitalized paranoid schizophrenics. These are people, of course, who have auditory hallucinations; they have delusions; they are detached from reality. Well, these are closed wards where the diet was controlled. He took all wheat out of the diet for four weeks. He watched marked improvement in the paranoia, the delusions, the auditory hallucinations.

At the end of four weeks, he added it back, watched them deteriorate. Four more weeks, took it out again, watched them get better. Four more weeks, added it back. So this on again, off again thing he observed schizophrenics not being cured but being made worse by wheat, getting better off wheat.

Now, that sounds almost too incredible to believe but it was confirmed by another group in England. They did the same exact thing and saw the same exact effect; that is wheat exposure doesn't cause schizophrenia but makes it much worse. And we see this more so to more graphic levels in the diseased brains; the schizophrenics, bipolar illness, children with autism, et cetera. But it raised the question, if it does that in a person with an impaired brain, what's it doing to us with more normal brains?

I look back, Robb. I think to myself I know when I started college. I grew up as a poor kid in New Jersey. I got to college, and I got this all you can eat meal ticket. I go to the cafeteria, and they've got everything. They've got waffles and donuts and pancakes and breads and rolls and all that, and I just ate like crazy. And I found myself (1) gaining a lot of weight and (2) barely able to function.

So I almost flunked out because I couldn't stay awake. I would sleep full nights and I would get up, I'd go to the lecture, and I would be out cold. It took me a long time to figure out what was going on. But then what clinched it for me was when I went wheat-free, and I had a little something made of wheat and that all those nasty memories of not being able to stay awake, falling asleep, not being able to learn and remember; it all came back.

So I think this stuff -- and I see this in many, many patients, not just myself. This goes beyond my own experience. But seeing it happen in diseased brains, seeing it happen in more normal brains. There is

something very, very peculiar about this thing being sold what's called wheat and its effects on our brains.

Robb Wolf:

Doc, when we look at some of the work that, say, Alessio Fasano has done at the University of Maryland looking at how the gliadin interacts with the enterocytes. For whatever reason that stimulates the release of zonulin, that breaks down the tight junctions in these enterocytes, then they release tissue transglutaminase which is this ubiquitous enzyme throughout our body, and we tend to get an autoimmune response to the transglutaminase. Folks kind of question. They're like, "Well, okay, so the wheat is hurting our stomach or it's hurting our intestines. How is it affecting our brain? How is it affecting reproductive tissue?"

We're now understanding this. There's the eight different isoforms of transglutaminase. If we get an autoimmune reaction to those isoforms, it can affect any organ, any tissue system anywhere; and depending on genetic susceptibility, that's where one person can end with rheumatoid arthritis, another person can have exacerbated symptoms of schizophrenia. But it sounds kind of crazy because it seems like it fixes everything by pulling wheat out of the circulation. But that's really what it appears to do.

Dr. William Davis:

I agree. It's a fascinating area if it wasn't so bad for humans. But it's tempting, Robb, to believe that wheat is at the root of such an incredible array of illnesses. I don't think we can -- and neither of us would argue that we cause all of those, of course not, but it underlies an incredible range of diseases. That's one of the trickiest but most fascinating part of the wheat conversation I think, and that is the how it allows entry of unwanted antigens, foreign proteins into the body. It essentially unlocks the doors and lets these foreign proteins in.

I think the connection with wheat has only just started, but it's clear that there is a relationship, no question; with rheumatoid arthritis, lupus, other forms of inflammatory diseases, dermatitis or pediformis, et cetera, all from this wacky thing we eat called wheat, or used to eat, that allows entry of foreign antigens. So it's that whole lectin, gliadin and zonulin world that I think is now only yielding to investigation.

But I think it's going to be a damning indictment of wheat, of this thing, of course, that we're told to eat more of by our very own USDA and once again confirmed on their recent food plate conversion from food pyramid to food plates that occupies more than a quarter of a diet in their minds.

Robb Wolf: Right, right. Now, Doc, so you talked a little bit about the blood sugar elevating effects of wheat. Walk people through just mechanistically why that is, like the difference between amylose versus amylopectin. And then also plug in on the backend of that, the insulin mimetic action of gluten.

Dr. William Davis: Oh, I'm impressed you knew that. That's a pretty obscure piece of information. Well, so we know for a fact this is well-established from the very first studies in the early '80s that explored how much did blood sugar go up with different foods? The whole glycemic index notion that came from David Jenkins' work in University of Toronto. We know from then on, confirmed, reconfirmed many times that wheat -- anything made of wheat raises your blood sugar substantially.

So if we compare white bread to table sugar sucrose, white bread raised blood sugar more. If we compare a whole wheat bread to white bread, whole wheat bread raises blood sugar higher than white bread. And so much higher than table sugar, and by the way, much higher than many standard candy bars. So a Snickers bar is far better for you from a blood sugar standpoint than two slices of whole wheat bread. So the reason for that is the unique structure of carbohydrate in wheat.

So the dieticians, the unwitting dietician says, "Eat whole grains and eat whole wheat because it's a source of complex carbohydrate." As you know, that means a polymer of sugars, polymer of glucose as opposed to simple sugars which are only one or two units of sugars. So the form of so-called complex carbohydrate in wheat is amylopectin A, and all that means is it's a specific branching structure of glucose polymer that is oddly and uniquely digestible by the enzyme amylase in the mouth and in the stomach such that it releases glucose faster.

So if I put a piece of bread on my tongue or swallow a little bit, my blood sugar goes up within seconds. This is unlike the branching structure of glucose in beans, rice, and other carbohydrates, so-called amylopectins B and C, which don't raise blood sugar as well. And that's why beans have a lower glycemic index and don't raise blood sugar quite as much, and this is also why it causes gas because the undigested carbohydrates feed the hungry bacteria in your colon, and they produce gas.

So it's the unique carbohydrate in wheat, amylopectin A that accounts for it's extravagant blood sugar effect. You and I know that we have the USDA and other agencies telling Americans to cut their fat, eat more healthy whole grains, and if you get fat and diabetic, it's your darn fault because you play too much Xbox, you drink too much Coca Cola, and you

don't exercise enough. In other words, the advice to eat more healthy whole grains, you and I believe, is causing the problem yet the blame is being turned back on us. Of course, what we see is the exact opposite.

You take the healthy whole grains out of the diet and throw's when you see incredible turnarounds including drops in blood sugar, fasting blood sugar. You don't get the after eating high blood sugars, drops in hemoglobin A1c. So just from a diabetes, pre-diabetes, high blood standpoint, eliminating this thing that is an extravagant source of glucose, that is amylopectin A, is by itself a very powerful strategy.

Robb Wolf: Also, there's that insulin mimetic act, it works similarly to say like a particular hormone or drug and you get a pharmacological action from the gluten on with the insulin receptor.

Dr. William Davis: I'm very impressed you knew that, Robb, because that is very, very new information. If that holds true, that is if consumption of wheat, if the gliadin or component of wheat can block the action of leptin and induces in effect leptin resistance, it would be an incredible piece of the puzzle that tells us wheat makes us fat and removal of wheat restores sensitivity to leptin and you lose weight.

Now, I see that play out in real life in weight loss. I can't tell you that it's from release of leptin resistance. But I got to tell you, it certainly plays that way. I don't check leptins that often. We do a lot of very extensive blood work here and we got to be careful about costs, but we do see drops in leptin with this elimination of wheat approach. So it's very, very tantalizing to believe that might be true, and I hope it is true because it would explain a lot of the phenomena we see because I ask myself a lot, why? Why does somebody lose 70 pounds in six months just by eliminating wheat and not overdoing other carbohydrates? What is so unique about this?

So one, of course, would be the drop in the avoidance of gliadin which is the appetite stimulant, it would be the loss of the cycle of hunger, that frequent searching for food every 90 minute effect, it would be the loss of amylopectin A, the extravagant glucose insulin cycling. But wouldn't it be great to know it's also a releaser of leptin that is it allows leptin sensitivity to be restored? That would be an incredible piece of the puzzle.

Robb Wolf: I think that more and more we need to look at this from a systems based approach, like there's some ideas out there just the basic carbohydrate theory of obesity which I guess we kind of -- Gary Taubes, Atkins-esque

kind of approach which obviously a low carb diet ends up addressing a lot of issues, but then we have these pesky people like the Catavans that pop up that eat a very high carbohydrate diet but don't suffer from obesity, Type II diabetes, cancer, on and on until they start eating a westernized diet.

And then we have situations like the Inuit who eat high fat diet, transition from a high fat diet into a lower fat diet and start developing problems. The commonality there, typically, is some sort of westernized industrially processed grain products typically. This is where Staffan Lindeberg put forward the chemical defense mechanisms in plants, in this case, different lectins and then immunologically reactive proteins, seem to be at play somewhere in this disrupting leptin sensitivity.

Obviously, there's a whole series of things going on. We're talking about potentially breaching the gut. In the process or breaching the gut, we have a bunch of inflammation. That inflammation -- and you could comment on this extensively. When we go into a septic situation, we can induce insulin resistance instantly in an individual. So if we have low grade sepsis then we've got some mild to moderate insulin resistance just because of the kind of sepsis going on.

Then add to that all these pharmacological elements of these grains, action on potentially the leptin receptor side, on the prolactin receptor side, on insulin release, and then add to that the fact that it just tends to spike insulin and blood sugar like crazy. We have multiple variables here, all of them very, very important and all of them pretty insidious when you smack them all together.

Dr. William Davis: Yeah. When I started this project several years ago, I knew it was going to be bad. I didn't appreciate just how bad. This got deeper and deeper. I don't think this is true but I -- it's as if someone created this monster -- it's as if two mad scientists got together in a room and said, "How do we create the most evil, destructive food we can that was going to make people fat, diabetic, cause 50 different diseases and disable an entire population?" It's almost as if this was done on purpose.

The great irony, of course, is the government tells us to eat more of it. We have a food industry that has been hugely successful. We have companies that have grown from two or three billion in the '80s to \$40, \$80, \$120 billion in 2011. This has been along with corn and sugar, of course, an incredibly successful business model. Now, if we're sicker, we have a great opportunity for the pharmaceutical industry. I don't think this was a great conspiracy, but sometimes in the dark of night. I've got

to tell you this, it sure smells like one. It sure stinks like one sometimes because there are too many people who have made too much money from this.

I should point that the origins of a lot of this, that is the transformation of wheat genetically, came from good intentions. So it wasn't two evil scientists. I'm just talking. I'm old enough to remember the great scare about population growth in the '70s. We were all terrified that the world become overrun with people, and we'd all be starving. So there was a great investment in genetics research to focus on the development of high yield plants, high yield crops, and the focus was on soy, corn, and wheat for the most part.

One of the greatest success sorties, if you see it that way, was the semi-dwarf variant of wheat, that is, not a four-and-a-half-foot tall wheat plant but two-foot tall wheat plant. There was a problem back then that if you heavily nitrate fertilize your wheat plant, your four-and-a-half-foot tall wheat plant, the seed head would become very heavy, so heavy it would yank the plant over. The farmers call that lodging, and it was very difficult or impossible to harvest and thresh.

So one of the genetic changes introduced into wheat was the semi-dwarf variant, a mutation for dwarfism in these plants. Now, wheat was a two-foot tall plant, short and stocky, you could grow it very close to each other, and the yield went up eight, nine, or tenfold. So it wasn't uncommon back then to have a farmer producing tall amber waves of grain type wheat getting eight, nine, ten bushels per acre. Now, if you look at the seed being sold by BASF and some other companies, they're boasting yields of 80, 90, 110 bushels per acre.

So we can't blame the farmer because he's just trying to scratch out a living. We can't blame the geneticists, at least back in the '60s and '70s, they were trying to respond to this outcry for high yield plants. But they unwittingly changed this plant and turned it into a frankengrain, a monster, something entirely different, something humans were unaccustomed to consuming. There's a bothersome aspect to this. I ask myself often, how bad is wheat? That is how bad was wheat 10,000 years ago? How bad was wheat 100 years ago?

I think there are a lot of records in history that wheat has always been a problem for humans but not like today. It's gotten a lot worse. So there's even celiac disease described as long ago as 100 A.D. So celiac has been part of the relationship between humans and wheat for as long as humans have consumed wheat. But I think it's just exploded now, and

there's only one reason, I think, that we could have an explosion of all these diseases attributable to wheat. I don't think that we can blame the humans, I don't think it's a virus, I don't think it's the processing necessarily. I think it's the wheat plant itself, the genetic changes introduced in the wheat in the '70s and then unleashed on the public in the '80s are underlying all this.

Robb Wolf:

It's interesting, we did some traveling through Europe last year and spent a good chunk of time in Italy, and they screen all children at birth now for celiac. They are in the midst of a kind of national health crisis with the celiac and then kind of spin-off autoimmune diseases. It wasn't this way 50 years ago. So this is a population that really enjoys their wheat, really enjoys their pasta, and things had definitely changed there for the worse with all this.

The government will subsidize people who are recognized as being celiac to allow them to buy gluten-free pasta and whatnot. But even that isn't solving the problem. It kind of mitigates it a little bit. I observed when all this gluten stuff first got on my radar, and this is probably more than 10 years ago now, I was doing some moderating on one of the really big gluten-free websites which is kind of a clearing house for people to kind of get together, compare notes on their gluten problems, and then there were ton of gluten-free foods being sold by these folks. These people tended to get some better with the removal of gluten, but they didn't get a ton better.

The autoimmune diseases usually were still in kind of a low rumble. They improved but didn't go away, and then it's frequently with the total elimination of grains or being very, very selective about which ones you go for, like maybe white rice being much less problematic or things like that. Folks need to try it out and see. But this remarkable change first with the wheat elimination, but then if necessary, if the person was quite sick or quite sensitive to grain products, then taking these additional steps and pulling out the other grains too but obviously wheat being the biggest factor in all of that.

Dr. William Davis:

Yeah. It speaks to a different beat in this whole conversation, that is, a lot of people go to their doctors and the doctors says, "Well, you don't have any symptoms. So why are you bothering me for?" Maybe they get tested. Maybe they have the transglutaminase antibody or one of the antibody tests. Well, I've seen this happen over and over. You can have flagrant, even life-threatening problems with wheat exposure, yet have negative tests.

I think it's folly among my colleagues to believe that all the testing, all the antigens that cause health impairment from wheat have been identified. In fact, I'm going to propose that of the several antigens like transglutaminase identified, there are probably dozens if not hundreds or more that have yet to be identified. So just because you test negative for a celiac marker does not mean you can't have a very sick -- let me tell you one story.

This is a story I actually relate in the book because it's so graphic. It was a young teacher who was incapacitated with ulcerative colitis. She was having bloody diarrhea, so much bleeding she had to have transfusions every few months, and she was getting three medications, very nasty anti-inflammatory medications. I met her for a relatively minor problem, but she told me this story, and she told me that they're going to take her colon out and give an ileostomy bag, a bag in the surface which at age 38, two young children, a schoolteacher is -- I mean if you have to have it, you have to. But this was a socially embarrassing disfiguring process.

So I essentially begged her to cut out the wheat. She said, "Well, why? They tested me for celiac. They biopsied me for celiac several times, always negative." So I said, "I know. But I can tell you I've seen this happen. Eliminate the wheat and you'll know. They're going to take your colon out and give you an ileostomy bag. You've got nothing to lose."

Well, she did that. She came back three months later. She was 38 pounds lighter. Her ulcerative colitis was gone. It was not just better. It had gone. The bleeding had stopped and diarrhea and cramps that she had every day round-the-clock, it was all gone. She stopped one medicine. She stopped two medicines. She stopped three medicines. It's now been two years, and she's not had any recurrences, and she's off all medications.

That's a graphic instance of a woman who had essentially life-threatening symptoms, tested negative for celiac, but had an incredible cure with elimination of wheat. So what do we call that? Do we just call that wheat intolerance? Do we call that marker negative celiac? I don't know what we call it. But the problem is this was not recognized as celiac disease. It wasn't even recognized as a wheat problem. So this is going to be a very, very tough question.

Unfortunately, some of my colleagues will say, "Well, if the antibody tests were negative, then you're just imagining these effects." This was not imagination, and I have seen many cases like this where there were actually incredible turnarounds; not just in colitis type symptoms but in other areas as well, neurologic impairment, arthritis, et cetera, where

people literally get out of wheelchairs when they do this, and they test negative for celiac markers. So one of the desperate needs we have -- I tend to advocate that all humans; big, small, of all colors, male, female, young, old should all be wheat-free, no questions asked whether you test positive or negative. But the broad public would not accept that.

So it would be very, very nice to have a very reliable battery of tests tell us, "Do you have some potential for very bad effects of wheat or don't you?" That's, of course, ignoring all the other effects beyond gluten. That's ignoring the amylopectin A effect, for instance. But it would be very nice to have that, but right now we don't have that.

Robb Wolf:

I think Cyrex Labs has some interesting stuff brewing, like they have a very, very comprehensive serological panel that goes far beyond typically the transglutaminase tests are just one or two isoforms, and there's eight different isoforms. So they're checking for that, and they're checking for some other interesting cross-reactors. I still have not talked to those folks enough to be able to see the validation studies that they've performed on some of their testing. It will be interesting to see how robust that is, but it's pretty interesting.

The folks that they have working in this program are typically boots on the ground physicians who were helping people with Hashimoto's thyroiditis or all kinds of different autoimmune diseases and getting again, kind of shocking results. But typically the recommended intervention is the same thing. Gluten-free diet is a fundamental thing and then usually some sort of gut repair protocol. But what you're saying is spot-on. If we had some sort of a comprehensive screening that really, really told us, okay, yeah, you have a 98% likelihood of developing neurological problems if you consume wheat with any type of frequency, then that would help a ton.

Dr. William Davis:

It sure would. These Cyrex people are doing some good work. I'm going to hope that they come up with a battery that we could say with confidence, if you test negative, if you have some wheat, it's not going to do that much harm to you. But right now I don't know any such test. That would be wonderful to have.

Robb Wolf:

Yeah, yeah. Well, Doc, I'm thoroughly enjoying your book. It's actually really, really funny. You have a great way to get people started in here. Do you want to talk to them a little bit about the -- just like -- and I assume this is very much right out of your clinical practice, how you get folks going on this.

Dr. William Davis: Yeah. I saw this so graphically, Robb. I see it every day. This is not a once in a while occurrences. This is an everyday phenomenon for me. We have to accept that not all the science hasn't worked out. There is really an incredible amount of science that goes back about 50 years. It's not like this got started last Tuesday. But there are many pieces missing. One of the most glaring missing links in this is in the genetics changes introduced the wheat, there never was a correlation to its effects on humans.

It would have been nice, for instance, to have said, "We examined the records of the genetics research done in Mexico City in 1982 and when that plant was introduced, that's where we saw all these effects." But there are no such records. So we'll never know for a fact precisely what change was responsible for the greatest surge in human disease. So there are a lot of uncertainties in this. But I saw it so graphically so many times in so many people that I said, "You know what? We've got to accept that some of the pieces aren't fully sorted out. This is going to hurt some people."

This is like telling the US in 1960 that "You know what? Cigarettes do cause cancer and heart disease. And I'm afraid there are millions of people who make a living in the tobacco industry and related industries and I'm sorry. I know you pay your bills and support your family and put your kids through college by getting money from your tobacco job, but this is a mess that's going to hurt a lot of people." A lot of bakeries, bagel stores, factories, wheat farmers, there's a whole -- a large, very substantial infrastructure that supports this plant because it does provide, after all, 20% of all human calories.

So it's a very, very substantial part of human consumption. But I found this story so compelling and so powerful with more than enough damning evidence. In fact, I liken this to the O.J. Simpson trial. Boy, this stuff looks guilty. We've at least got to tell the story.

Robb Wolf: Right, right. Well, Doc, you do an amazing job telling the story, and you do delve into a little bit of the evolutionary biology, the kind of Paleo background in this, and you weave that story into the book in a great way. But I'm actually stoked that there is going to be mainstream, well-written, funny, accessible book that is talking about all this stuff, but it doesn't have the Paleo moniker on it because I think at some point we're going to see a backlash on it.

Paleo is hot right now, but I think at some point the mainstream is going to get angry about it. People are just going to be over it; whereas, what you do, you tackle this wheat issue which if I've been -- I don't know how

many podcasts I've had where I've said if I could dive in front of a bus and do one thing, it's just keep people off of gluten; then that's what I do and it's kind of like, well, that or high fructose corn. I'd have to say the gluten. So you tackle this in a really, really good way, and I'm stoked you wrote the book, and I hope it does really well. Now, remind folks the podcast should be going up on Tuesday, the 30th. That should be the release date for the book, right?

Dr. William Davis: Yes, exactly.

Greg Everett: We're going to link to the book on the blog post.

Robb Wolf: Cool.

Greg Everett: So it's nice and easy for everybody.

Robb Wolf: Cool. Doc, anything else you want to wrap-up with, you want to tell folks about or any closing thoughts?

Dr. William Davis: Yeah. Just one small thought. When I tell my colleagues, when I tell people this, they give me this strange look like "This guy is nuts." But I think when people hear the full articulation of the ideas, I think as you have, it's not just about gluten. It's not just some far-fetched wacky idea. There is real science here. There are real people stories here. But I think most of all, because we don't have a fully sorted out science, it's the real world experiences that you can see for yourself.

This is not a fancy drug. It's not a procedure. It's something you can do for yourself. I tell the skeptic in my office, "Listen, try it for four weeks. There's nothing to lose. Eat more meat. Eat more fish, cheese, raw nuts, olive oil, vegetables, avocados. Eat more, just make sure it's not wheat." And they say, "Okay. I can do anything for four weeks." They try it. They come back converts. They come back 22 pounds lighter telling me these incredible stories of arthritis, leg edema, et cetera, going away for the first time in years.

So this is beyond the book. I'm not selling anybody anything. I'm not selling you some fancy procedures, some fancy program. It's just this very simple concept but so darn powerful because I had to suffer this myself. It's a very, very powerful strategy, and I think it's one of the crucial underpinnings of the way to gain back health.

Robb Wolf: It's interesting you coming at this from a clinical standpoint. I mean I worked in a gym, you worked in a much higher text setting, but at the

end of the day the only way that I could see people succeed with this was 100% elimination for a period of time. Then if they wanted to reintroduce and see how they did, that was fine. But this graded approach of trying to minimize or kind of an 80-20 buy-in initially, it just doesn't do anything except deprive people of foods that they really like and are probably addicted to, but they still have a frequent enough exposure that they don't get healthy. So it's just kind of a no man's land where nobody wins on it.

Dr. William Davis: That's exactly what I see, Robb. That's precisely what I see every day, yup.

Robb Wolf: Cool. Well, Doc, thank you so much for being on the show. Maybe what we can do is plan maybe something six months down the road, and we'll get you back on here and see if folks have some questions at that point. We'll put up a post just calling out to the community to see what type of questions they got for you.

Dr. William Davis: That's great, Robb. Thanks for having me.

Robb Wolf: It's a huge honor. We're glad you could make it. And thanks again, Greg, for all that you do, dude.

Greg Everett: I'm just glad I could be here to contribute my profound insights on the matter.

Robb Wolf: They are profound in their profundity so....

Greg Everett: Yes.

Robb Wolf: All right, guys. Thanks a lot.