A Grain of Truth: The Gluten Summit  
Presenter: Dr. William Davis, MD

Modern Wheat: It’s MORE Than Wheat

Dr. O’Bryan: Well, hello, everyone! Welcome to another edition of A Grain of Truth: The Gluten eSummit. It is my privilege to welcome as our guest today Dr. William Davis.

Dr. Davis is a cardiologist and one of America’s leading authorities on using CT heart scans to powerfully impact on heart disease risk. Dr. Davis is the medical director of Milwaukee Heart Scan, founder of the Track Your Plaque international online program for heart health, and a vocal advocate of early heart disease detection and prevention.

He is a graduate of St. Louis University School of Medicine, and obtained his training in medicine and cardiology at the Ohio State University Hospital and Case Western Reserve MetroHealth Medical Centers.

On a side note, I didn’t know that, that he’s from Ohio State. And, that’s a problem for me, given that I’m from Michigan, the University of Michigan.

So, in an effort to reduce blood sugar and based on the fact that wheat products increase blood sugar more than nearly any other food—which you’ll hear about today—Dr. Davis asked his patients to eliminate wheat, including whole grain products, from their diets. The results his patients experienced went beyond anyone’s expectations: incredible weight loss, relief from acid reflux and the gas, cramping and diarrhea of irritable bowel syndrome, increased energy, more stable moods and deeper sleep, relief from arthritis, including rheumatoid arthritis, dramatically improved cholesterol values, reduced blood pressure and inflammatory measures, and more.

Based on his clinical experience, Dr. Davis has come to view wheat consumption as a widespread societal problem responsible for an incredible amount of illness, obesity, and suffering, and he now advocates the removal of all foods made from wheat from the diet. He articulates this approach in his book *Wheat Belly: Lose the Wheat, Lose the Weight, and Find Your Path Back to Health*, which reached number one in the *New York Times* bestseller list, as well as through his Track Your Plaque program.

Dr. Davis has been quoted and interviewed nationwide, including in *Ladies’ Home Journal*, CBS News, NPR, and on and on. He is a frequent expert contributor to *Life Extension* magazine. He is also co-author, along with Chris Kliesmet, of the upcoming book, *Heart Scam: The Multi-Billion Dollar Medical Rip-Off That is Exploiting America, Hiding Cures, and Bankrupting Healthcare*. This guy has guts. [2:30] And, it’s really a privilege to welcome him today.

©2013 theDr.com. All rights reserved.
Dr. Davis, thank you for joining us on the show!

Dr. Davis: Thank you, Dr. O’Bryan! Glad to be here.

Dr. O’Bryan: Thank you. To begin with, what got you interested in food’s impact on our overall health?

Dr. Davis: Well, it started a number of years back where, as you mentioned in your opening comments, I was dealing a lot with heart scans. So, heart scans are just CT devices that show people how much calcified plaque they have. There’s not a whole lot of tools that a person who’s in good shape, walking, talking, and healthy can use to identify how much coronary disease they have. Not a potential risk for coronary disease, like a high cholesterol, say, or hypertension, but the actual disease itself.

Short of a heart catheterization or some invasive test like that, what tests do we have available to actually qualify and detect coronary arteriosclerosis? Well, there’s essentially nothing except for this CT heart scan. So I set up Milwaukee Heart Scan years ago, and we started to scan people and give them their coronary calcium scores.

So someone would come in, say, with a score of 300, and would come back a year later with a score of 420 or something like that. It became clear—and these data began to pour out—that once you have plaque, it grows like mad. It grows at the average rate of about 30% per year. And so I started to ask, “Well, what can we do about this?” And then the data came out.

Let’s take one study, for instance, where we used statin drugs and there was no effect. The calcium scores kept on increasing, no matter what you did with statin drugs. And so some of my colleagues said, “Well, calcium scoring is therefore stupid because we know statin drugs are great!” [Laughs] So I took the opposite approach and said, “Well, gee, maybe the answer is not a statin drug. Maybe there’s other things.” So I started that search for all the things that could stop this awful 30% per year expected rate of rise of coronary calcium scores. And it took a few years, but we figured it out. We published some of these data.

It takes a whole different menu of things. But among the things that it takes is not having a high blood sugar. So I think we all know that, right? If you have a high blood sugar, pre-diabetes or diabetes, you cannot control cardiovascular risk. You’re going to have a heart attack, need stents, [5:00] bypass. It might not be for ten years, twenty years. But, you will lose control over cardiovascular risk, coronary plaque, if you don’t have control over blood sugars.
So that’s when I started to ask, “How can I help patients reduce blood sugars, reduce abnormally high blood sugars, and do so with nutrition, not with drugs?” You know there’s lots of drugs that you can use to do these kinds of things, diabetes drugs. But what about just using nutrition? So I used a very, very simple line of logic. And that is, let’s remove the foods with the highest glycemic index. Well, I’m shocked that this is not talked about more often. You can talk about it because of your focus on wheat and gluten, but the glycemic index of wheat products is among the highest of all foods.

The glycemic index of two slices of whole wheat bread is 72. That of table sugar is 59 to 65. So I had people remove wheat and not indulge in junk food. Very simple. Well, they come back three months later, and their blood sugar would indeed be lower. Their hemoglobin A1Cs would be lower. Their triglycerides would be lower. Their small LDL numbers—that’s the most common cause for coronary disease today in the U.S., an excess of small LDL particles—would drop like a stone.

But they told me all these other stories. They said, “What do you think happened here? I lost 43 pounds in three months. And my blood pressure is so low I had to stop my two blood pressure medicines. And my asthma is now gone, I threw away both inhalers. The funny rash I had for 18 years and used steroid creams for disappeared within five days. My migraine headaches were gone in five days. My acid reflux was gone within three days. The bowel urgency I had from irritable bowel syndrome, gone within five days. The joint pain I had in my wrists and fingers, gone within five days. My moodiness and mood swings, gone within five days.”

In other words, I started to see this transformation of health. And that’s when I started asking, “Now, what in the world...? Why would this happen? What is in this thing being sold that’s called wheat that could account for such an extravagant effects when you remove it?”

Dr. O’Bryan: How did you think to look at the glycemic index of whole wheat bread? Was that one of the initial things that led you down this path?

Dr. Davis: It’s stupid simple, isn’t it? Yeah!

Dr. O’Bryan: Yes!

Dr. Davis: If you look at a table of glycemic index, you’ll see there’s very few foods above 70. So, among the very few foods above 70 are dates, figs, gluten-free foods by the way—cornstarch, rice flour, tapioca starch, and potato starch—and whole wheat. Now, white flour, white bread, is not that much better. It’s a little bit lower, like 69. So wheat products, this thing that has the blessing of just about every official agency, the USDA, FDA, the Academy of Nutrition and Dietetics, the American Heart
Association, the American Diabetes Association. They all agree we should have a diet dominated by grains. They all tell us that.

In fact, 50% of all human calories worldwide now come from grains: wheat, corn, and rice. And if the USDA gets its way, we would increase it. We’d have some grain at every meal. So they’re pushing us to increase grains, yet they forget that the glycemic index of wheat products is among the highest of all foods. So, it’s not uncommon to have sky high blood sugars every time someone indulges—well, I say indulge, but they don’t see it that way—but consumes a wheat product. It could be a multi-grain, a whole grain full of fiber and B vitamins, but it still sends your blood sugar sky high.

**Dr. O’Bryan:** Can you tell our listening audience what you mean by the term “glycemic index?”

**Dr. Davis:** Oh, sorry. So, how high blood sugar goes 90 minutes after you consume food. So, if your blood sugar goes 190 as a non-diabetic person, you act like you have diabetes. Insulin goes very high. It triggers resistance or poor responsiveness to insulin. It provokes the phenomena of glycation, glucose modification of proteins. If I glycate, for instance, the proteins in the lenses of my eyes, I get opacities or cataracts over time. If I glycate the tissues of my arteries, I get hypertension, rigid arteries. If I glycate those small LDL particles—they are very glycation prone, by the way—they’re especially bad and much more likely to become oxidized and contribute to coronary atherosclerosis. If I glycate the proteins and cartilage of my knees and hips, the cartilage over time becomes brittle, degrades, [10:00] and I get arthritis.

And so glycation from high blood glucose is a fundamental process underlying multiple disease states and aging. And so it became clear that part of what we were doing by taking wheat out of the diet was eliminating a lot of this excess risk for glycation, but also taking away this repetitively high blood sugar. One of the consequences, as you know, of high blood sugar is low blood sugar. So blood sugar goes from 100, say, to 190 after a bagel—a whole grain bagel!—it drops, then, to 60 or 70 in about two hours after you consumed that bagel. And that’s where the cycle of hunger kicks in.

Of course, if it were just that bad, that would be bad enough. When we compound that cycle of two hours of high blood sugar followed by insatiable hunger, that effect is compounded by the gliadin protein. That’s the thing, of course, within gluten that is degraded in the human gastrointestinal tract. The small peptides that act like opiates. They bind to the opiate receptors of the brain just like heroin and oxycontin. But they don’t make us high. They don’t provide relief from pain. They stimulate appetite. And they tend to stimulate appetite for carbohydrates—chips, cookies, cupcakes, etcetera. Not for lamb chops and olive oil, but for junk carbohydrates.
Dr. O'Bryan: For junk foods that would kick up the blood sugar again.

Dr. Davis: Yes. And so it compounds the whole effect: high blood sugars, high blood insulin, two-hour cycling of hunger, and then all compounded by this gliadin opiate effect that drives appetite. So the average person exposed to this effect consumes about 400 more calories per day in carbohydrates.

Dr. O'Bryan: May I stay for a moment on this concept that you’ve introduced? You’re the first speaker to introduce this. And I think it’s critically important about the glycemic index and the alteration of blood sugar and the required increased insulin production because the blood sugar goes up.

We all know in healthcare now—and even the general public is hearing this—that obesity and type II diabetes is the number one threat to our economy. Dr. Mark Hyman from the Institute For Functional Medicine shows the studies where if things don’t change by 2044, the cost of just taking [12:30] care of the diabetics in our country will be more than all the taxes the federal government collects. Just to take care of the diabetics!

And, when I came out in practice—I think for both of us—when we came out in practice, it was called, “adult-onset type II diabetes.” And that was in the 1970s, 1980s. They took off the “adult-onset”! It’s happening younger and younger.

Now, the point that I’d like to bring up and ask for your experienced opinion on is that the vast majority of our type II diabetics do not require the medication of insulin to get them stable. They’re making plenty of insulin. But the insulin doesn’t work anymore. And, they need Metformin, or Glucophage, to help the insulin work better in our cells. That’s called insulin resistance, which is the precursor—this is for our listening audience—it’s the precursor in the development of the cardiovascular syndromes.

What percent likelihood, Dr. Davis, do you suspect that these high glycemic index foods that we start early in life and we eat multiple times a day, every day... What percent contribution might they be giving to this epidemic that is going to bankrupt us unless we can stop it?

Dr. Davis: I believe it is by far the dominant force. It’s got to be at least 80%, if not 90%. It is the problem. You and I know that if we look at primitive societies who eat no grains or junk or processed foods, they simply have no diabetes, it’s virtually unknown. Now, if you take people from primitive hunter-gatherer societies and you transplant them into modern life and feed them grains and sugars, they become diabetic. So these observations have sort of been made for years, there’s nothing new in all that.
But, I pick on wheat. People say, “It can’t be just wheat because it’s really soft drinks. It’s carbonated soft drinks made with high-fructose corn syrup and sugars. It’s junk food and chips.” But, here’s an odd thing. See, you and I tend not to talk to a 14-year-old kid who plays Xbox for 6 hours, eating two bags of chips. We’re talking to the responsible adults who think they’re doing the right thing by cutting their fat and eating healthy whole grains.

Well, if you take that [15:00] appetite-stimulating effect away of the gliadin-derived opiates and the high blood sugar, high blood insulin, people lose their appetite. That’s among the most miraculous, wonderful things that happens when people go wheat-free, that is they lose their appetite. They say, “You know, I have my three-egg omelet at 7:00 AM, and noontime rolls around, I’m not hungry.” Or, “It’s eight o’clock at night. I forgot to eat dinner.” I’ve done that myself many times.

So, this urge to eat, this thing that most people have every two hours, this incessant endless search for food, rumbling tummies, all that goes away, and you revert back to what you need. And that’s why it’s a big part of the reason why people lose weight. But if you lose your appetite for carbohydrates, a lot of the phenomena in the majority of diabetics and pre-diabetics simply unravels. So it’s not uncommon to see a hemoglobin A1C, say, at 7.5%—well into diabetic range—drop to 5.5% or something like that in just a few months. It takes a few months because that’s a very slow number value to respond.

But it drops very rapidly because you’re not just reducing carbohydrates. You’re also inadvertently reducing calorie intake, while also experiencing less hunger. And you’re also reducing inflammatory phenomena, so far we haven’t talked about this. There’s a whole long list of reasons why wheat, and to a lesser degree other grains like rye, barley, corn, and rice, are inflammatory foods. And so the gliadin protein is a flagrant cause of inflammation. I believe you’ve already talked about in this broadcast issues like the gliadin-induced abnormal increase in bowel permeability. That’s a big effect. There’s also direct toxicity by the gliadin protein. There’s also direct intestinal toxicity by the wheat germ agglutinin, the lectin of wheat.

That high blood sugar, high blood insulin from the amylopectin A of wheat is also highly inflammatory. And so we have this whole collection of effects that increase inflammation, which degrade responsiveness to insulin. So I would say, in fact, that modern wheat—and, as you know, I say, “modern wheat” because it ain’t traditional wheat that we’re being sold—modern wheat is a perfect obesogen. And, it’s a perfect diabetogenic, diabetes-causing agent. If you wanted to inflict diabetes [17:30] on a world on an incredibly unprecedented scale, you would have them eat plenty of healthy whole grains. That is exactly how you would create diabetes.
Dr. O’Bryan: Well, that’s a bumper sticker statement in itself. That is so accurate and right on the money. And, inadvertently, this goal for what was thought to be a healthy food has turned out to be fueling with jet fuel the epidemic of obesity and insulin resistance and type II diabetes that’s affecting us so severely today.

Dr. Davis: No doubt! No doubt in my mind whatsoever. Now, I should quantify—in case you have haven’t talked about this—that what we’re being sold today called “wheat” is nothing of the sort. It is a high-yield, semi-dwarf strain. It is the concoction of agricultural genetics. So it stands about 18 to 24 inches high. It has a very large seed head. The seed head is very long. It’s a very different appearing plant from the wheat even of 1950 or 1960, a four-and-half-foot tall plant. If you held them up side-by-side, they’re completely different plants.

And the differences don’t end at external appearances, it goes deeper. Genetics are different, its biochemistry, its protein composition, multiple components are different. We know, for instance, that celiac disease has quadrupled in the last 40-50 years. It’s likely due to a change in the gliadin genetic sequence. We have recent data, for instance, a European group analyzed the gene called glia-alpha9. This genetic sequence was virtually absent from the wheat strains of 1950 and 1960. It’s in virtually all wheat strains of 2013. And this is the sequence most likely to trigger the celiac response. So we know, there’s no question that modern wheat is not the same thing as the wheat of 1960 that our moms had.

Dr. O’Bryan: Yes. And, that’s part of the answer. And I’m sure you get this question on stage often, as I do, “But the Bible talks about it. And it’s the staff of life.” And my response has been, “With all due respect to everyone here, no one on the planet is eating the bread that Jesus Christ ate. [20:00] Find that bread, and if you’re exposed to that that first time then you might have a chance of being okay. But once you have the memory B cells to gliadin or any of the other peptides of gluten, you cannot eat any of that bread, even the earlier forms. It’s not the same bread as was found on the planet a hundred years ago, a thousand years ago, two thousand years ago, it’s not the same.”

Dr. Davis: Absolutely correct! So to make the point, we know that modern wheat has 42 chromosomes. We don’t want to get too far into genetics, talk of genetics, but all humans have 46 chromosomes. If you are a Ya’nomamö tribesman from the Brazilian rainforest, you have 46 chromosomes. If you are a four-foot-one Mbuti pygmy from Central Africa, you have 46 chromosomes. If you’re a Wall Street trader in 2013, you’ve got 46 chromosomes.

In other words all humans, regardless of shape, size, or ethnic origin, have 46 chromosomes. Modern wheat has 42 chromosomes. The wheat of the Bible has 28 chromosomes, that’s emmer wheat. The wheat that preceded emmer wheat before
Biblical times was einkorn wheat, a 14-chromosome plant. You know, baboons have 48 chromosomes compared to our 46, but we can tell the difference. But the difference between modern wheat and older strains of wheat, we're talking about strands of genetic difference that are huge. And so I tell people the same thing: "Wheat is in the Bible. Bread is in the Bible. But it ain’t what you got!"

**Dr. O'Bryan:** Right. Right. And, for those that are a little taken aback by this line of thinking, let me say that wheat has saved millions and millions of lives. There's no question when we have sent shiploads of grain over to third world countries that are starving because of drought or other things, it's saved millions of lives. There's no question to that, that you do get some fuel out of this. You do get some protein out of it.

But the effect on the immune system is one that takes years before you see the symptoms, or the effects on blood sugar stability, which begin immediately, will take quite a while before you see the complications of that repeated blood sugar abuse. So it's been used to save many, many lives in the past. [22:30] But in industrial countries one has to question, is there any value to eating this questionable food?

**Dr. Davis:** Oh, what a wonderful, wonderful point! That's exactly right! So I regard grains...that is, the seeds of grasses, by the way. That's what grains really are, grain cereals. These are seeds of grasses. You know, when humans first spied grasses in their various forms and asked, “Can we eat that stuff?” because they watched the ancient cows—aurochs—and goats—ibex—eating grasses. So, it was einkorn and emmer in the fertile crescent ten thousand years ago. It was millet and barley in Sub-Saharan Africa. It was teosinte and maize, the forerunners of corn, in Mesoamerica, now Mexico. It was rice in the swamps of Asia and India.

We ate those grasses and we got sick. We found we couldn’t eat the roots, couldn’t eat the shaft, the stalk, the leaves. We figured it out. We could only eat the seed. And only if we removed the husk, pulverized the seed and heated it, then we could eat it. We didn’t realize that this food we’d turned to in a time of desperation, that allowed us to survive another day, another week, another month, came with a very substantial health price.

And, by the way, what happened to those first humans who consumed the seeds of grasses, like the aurochs? Well, what wouldn’t surprise me is the anthropologist say, “Oh, we’ve known this for years. When humans turned to the seeds of grasses we experienced explosive tooth decay. Now, before we ate the seeds of grasses known as grains, tooth decay was virtually unknown. And this is a time, of course, with no toothpaste, toothbrush, fluoridated water, dental floss, dentists, and orthodontists. Yet, almost no tooth decay.
We consumed the seeds of grasses, and we developed explosive tooth decay, malfunctions of the maxillary bone of the mandible. We developed rampant iron deficiency, that shows up in the skull as something called porotic hyperostosis. And, that’s where hemochromatosis came from. The gene for hemochromatosis is an adaptation, an effort for humans to adapt to the iron deficiency-provoking effects of grains. And so grains were the foods of desperation. Ironically, they’ve become the foods that now dominate the human plate. Fifty percent of all calories now come from the seeds of grasses.

Another part of this conversation that we often don’t talk about is this part of what I call the commoditization of the human diet. If you’re a businessman who wants to make a lot of money—not just a few measly tens of millions, but billions—you try to commoditize the diet, just like petroleum or crude oil or iron ore. You want something that can be transported over long distances, has extended shelf life measured in years, and people are relatively indifferent to quality differences. And there’s a price differential world-wide, so you can sell millions of tons at a time and you can arbitrage your way to great profits. That’s what they’ve done.

They’ve persuaded us that we should be a race of creatures that consume the seeds of grasses, a commoditizable form of food. This is how you control the diet top-down by the government and make a lot of money by people who crave grains. It’s an incredible situation that’s been created, and one that comes with a very, very substantial health price. And, we’ve known this for 10,000 years in one form or another.

Dr. O’Bryan: Well, that’s an overview that no one has identified in our summit so far. And it makes such sense how business interests will encourage where the profits are, at the expense of our own health.

Dr. Davis, can you tell us some of the mechanisms by which our cardiovascular system will be impacted if we’re eating these seeds and grasses?

Dr. Davis: There’s probably a lot we don’t know. But what we do know: we know that small LDL particles, that is, abnormally small LDL particles compared…Sorry, this is not about LDL cholesterol. LDL cholesterol, I call it kindergarten version of heart disease causation. So, by far and away the most common abnormality in people who have coronary disease in any form, in any degree, is an excess of small LDL particles.

They’re smaller. They have a different shape, a different conformation. They’re much more adherent to connective tissue. They linger a lot longer in the bloodstream. A large, more benign LDL particle lasts about 24 hours in the bloodstream after it’s formed. Small LDL particles typically last a week, or even longer in some genetic variants. So small LDL lingers for extended periods.
So, if I had two slices of whole wheat bread on Sunday, I’ve got small LDLs for at least a week. That is, cardiovascular risk for at least a week. Those small LDL particles, because of their unique conformation, are very glycation-prone, that high blood sugar. So high blood sugar causes formation of small LDLs, and then those small LDLs become glycated. And, glycated LDL is more oxidation.

So, one of the most current theories in causation of heart disease is glycoxidized LDL particles—glycated, oxidized LDL particles—not high LDL cholesterol, that is, high cholesterol in a low-density lipoprotein fraction. It’s the actual low-density lipoprotein particles. They’re very oxidation- and glycation-prone. And, that’s the stuff that causes heart disease. So, it’s a two-pronged effect. It’s a high blood sugar that causes glycation of LDL particles. It’s provocation of formation of small LDL particles that are very glycation-prone.

Now, there’s very few things that cause small LDL particles. Grains, sugars, and starchy legumes are the only foods that trigger formation of small LDL particles. You reduce those, and small LDL drops like a stone. So that’s one way by which grains contribute to heart disease. Another is the high blood sugar effect. Part of it is glycation. Part of it is glycation and oxidation of various components of the arteries. High triglycerides come from consumption of grains. And that’s because the carbohydrates of grains lead to a process in the liver called de novo lipogenesis, the conversion of carbohydrates and sugars into triglycerides or fats.

The triglycerides are released into the bloodstream, but they interact with other particles. If they interact with LDL, it makes them small. If those triglyceride-rich particles interact with HDL, it makes them misbehave. It makes them non-functional. It makes them smaller and no longer protected. And high triglycerides in and of themselves probably cause heart disease also, because triglycerides actually occur as a family of different kinds of particles, not really as free triglycerides.

Grain consumption causes hypertension. We’re often told healthy whole grains are good for us. But, what they really mean is healthy whole grains are less bad for us compared to white flour. That’s what those 14 studies show, by the way, the Nurses' Health Study, the Physicians’ Health Study. All those large epidemiologic observations, analyses, that showed that healthy whole grains are good for you, what they really showed is healthy whole grains are better than white flour.

Dr. O’Bryan: Yes, they’re less bad. They’re less bad for you!

Dr. Davis: What they didn’t ask is, “Well, what’s the effect of complete removal?”, I’d also want to see those observations. But they are out there. In other words, that’s what’s astounding when I did the background research for the book way back when
was, you know what? These data already exist. We don’t have to perform millions of dollars of new studies to validate this. These studies have been performed.

If you take grains, or specifically wheat, out of the diet you see a drop in appetite, a drop in calorie intake of 400 calories per day, an average weight loss of 26 pounds for the first 6 months, a drop in hemoglobin A1C and fasting glucose, a drop in insulin, a drop in small LDL particles, a drop in triglycerides, a drop in postprandial or after eating lipoproteins, a rise in HDL.

In other words, we don’t need to do all the studies. We will do more studies. But, the studies already existed. A lot people had not just put it all together and said, “Look at this. If we put all this data together that describes what happens to people when they remove grains, it makes a very damning case against this notion of a diet dominated by healthy whole grains.”

**Dr. O’Bryan:** You are bringing to us a unique view of the dangers of wheat and wheat bread and grains, in general, but especially of wheat, and it’s well versed in the science. When a patient comes to see you, how do you evaluate them? What tests do you do in your office? How do you begin this discussion with them?

**Dr. Davis:** Well, as you know, I start from the perspective that people are coming to me usually [32:30] for coronary disease. They’ve had a heart attack. They’ve had three stents. They’ve survived sudden cardiac death. They had bypass two years ago, and don’t want to have it again. Or people who just have been told such things as, “You have high triglycerides,” or, “You have high risk for coronary disease because your dad died at age 42.” And so people who enter my office tend to have risks for coronary disease or actually have coronary disease.

So, we look for one way to quantify it. If we’re going to try to have an impact on a disease, we want to quantify it in some way. So the one way that we have to quantify coronary atherosclerosis—not perfect, but it’s the best we’ve got—is a CT heart scan, a coronary calcium score, so you know how much you have at the start. You can track whether it’s growing or not growing.

By the way, people can reduce their score. I’ve done it many times. The most I’ve ever seen is about 80% reduction in coronary calcium score. We’re not talking about 1% or 2%—

**Dr. O’Bryan:** Wow…

**Dr. Davis:** —the stuff that we’re talking about is very possible to reduce coronary calcium dramatically. I haven’t seen a heart attack in years, by the way.
Dr. O’Bryan: You know, for our average listener here—there are thousands of health care practitioners listening and many more general public—the reduction of a calcium score may not quite visualize for them. But, if your calcium score is reducing, does that mean you’re cleaning their pipes?

Dr. Davis: Yes, it does. It means that the burden, the volume of atherosclerosis, has been reduced. You know, calcium’s probably the toughest of all things to reduce. We use it because we can see it. We can measure it. We can’t measure, for instance, inflammatory cells in your arteries. I mean there’s no way to quantify that precisely. There will be ways in the future, I believe, where we can be more precise, not quantify just the calcium, but quantify all the components of arteries. But, right now we need this indirect surrogate, and probably the toughest of all, coronary calcium. Nonetheless, despite being the toughest thing of all, we get reductions of 30%, 50%, and as much as 80% reduction in coronary calcium scores. But, it has nothing to do with statin drugs.

I’ll quickly give you the menu because the topic here, of course, is not coronary disease. But, the menu of things I do, that we’ve gravitated to over the last fifteen years to essentially wipe out as close to zero [35:00] as you can get, is follow a diet that completely gets rid of small LDL particles: no grains, no sugars, and that works like a charm. Correct vitamin D deficiency, which I define as supplementation to raise 25-hydroxy vitamin D to 60 to 70 nanograms per milliliter.

Supplement omega-3 fatty acids. Of course, ignore that nonsense about prostate cancer, it’s baloney. I use 3,000 to 3,600 milligrams per day of EPA and DHA, preferably in liquid triglyceride form. Correct thyroid, meaning a TSH of about 1.5 or less, and a free T4 or free T3 in the upper half of normal of the reference range. And identify hidden genetic causes that could contribute, most specifically the lipoprotein(a). ApoE2 and ApoE4 are also important.

That simple menu has essentially wiped heart attacks out of my practice. I haven’t seen one in years. When I was younger, 18 years ago, I would see a couple a week. I’d have to go in the ER at three o’clock in the morning because someone was having a heart attack. We’d have to do urgent angioplasty and open the artery and so on. Well, that hasn’t happened in so many years, I’ve lost track. And so we have essentially cleared it up. Now, maybe I won’t say that in 20 years, but we’ve clearly had a dramatic impact on cardiovascular events.

And most of these people do not take statin drugs, by the way. So statin drugs is this detour that the world has taken. There is some value in it, in some genetic variants, but the vast majority of people do not need statin drugs. What they’re treating is an excess of LDL particles because they consume grains. And so we take grains out of the diet, LDL particle number—that is the actual count availability of particles—drops in size.
I should mention that I don’t do lipid testing, I do lipoprotein testing. There are a number of techniques to do that, like NMR LipoProfile. HD Labs has a similar method. Berkeley HeartLab uses electrophoresis. Atherotech uses vertical auto profiling. These are all different methods to characterize the actual lipid-carrying proteins, lipoproteins, in your bloodstream.

When you take your attention away from silly things like total cholesterol and calculated LDL cholesterol. The LDL cholesterol is a calculated value, it’s not even a real number. If we look at the real lipoprotein value, you start to realize [37:30] this has nothing to do with fat or saturated fat. This is about grain and sugar consumption that created a whole range of abnormalities. You take those things out of the diet, and you have normalization in the vast majority of people.

Dr. O’Bryan: To our listening audience, you have just heard a world-famous cardiologist who has very close to zero heart attacks in his practice. And people come to him with cardiovascular concerns. And, he just gave you the entire formula, the test to do, the nutrients to take, the foods to choose. You’ll want to listen to that a few times and get his books, of course. But, if you listen to this a few times, you take these notes to your family doctor and say, “This is the direction I want to go in. Can you support me in going in this direction?”

Dr. Davis, with this approach that you’ve just outlined, where are the potential pitfalls or the hidden dangers that someone would need to know about?

Dr. Davis: Well, as you know, we tend to generalize in conversations because we can’t account for all genetic variations.

Dr. O’Bryan: Yes.

Dr. Davis: One uncertainty here is bowel flora. So, as you likely know, bowel flora is so miserably disrupted today. We have dysbiosis, we have small bacterial overgrowth, small intestinal bacterial overgrowth. In other words, a bad diet—I would characterize a bad diet as one that includes grains and sugar—disrupts bowel flora, and that leads to all kinds of messy things. But it includes an increase in LDL particles in the bloodstream.

And so a corollary to correcting your diet is to correct your bowel flora, also. It undergoes a spontaneous correction over many months, but it may not go fully back to where it should be. No one knows, of course, what ideal bowel flora looks like, because the definition of normal tends to be average people. In other words, we compare people with ulcerative colitis to everyday people without ulcerative colitis. And we assume that people without ulcerative colitis are normal. They may not be normal at all. They’re
probably consuming grains and sugars. They probably have very abnormal profiles of bowel flora. So bowel flora’s an emerging, though somewhat sketchy, issue. But, I think it’s going to be a big issue for [40:00] coronary health, not to mention health for lots of other reasons, also.

There are genetic variants, such as ApoE4. All of us have two apoprotein E genes, one from mom, one from dad. Most of us are ApoE3/3, but there’s a variant called ApoE4. Some people have ApoE3/4 or even ApoE4/4. Now, conventional wisdom is these people should follow a low-fat diet. Well, I’ll tell you what happens when a person who has ApoE4, one or two genes for APO E4, follows a low-fat diet: they get fat and diabetic and get dementia.

Dr. O’Bryan: Yes, yes! That’s right.

Dr. Davis: So, ApoE4 people have a somewhat increased statistical likelihood of amyloid plaques—that is dementia—higher than other people. We do need better exploration of these data. But, what I do—because people who have these issues need answers today, not in 20 years—is we cut the grains and sugars, just like everybody else. ApoE4 people have sky high small LDL numbers and total LDL particle numbers.

We slash grains and sugars. They lose weight. They have nicer blood pressures. The triglycerides drop. Their HDL goes up. Small LDL drops like a stone. But they don’t respond the same way because they’re much more hyper-absorbers of dietary fats. And so these are the only people where you might have to just be careful of dietary fat intake. I suspect ApoE4 is one of those things we might include on the list of thrifty genes, that is genes that appeared because they were survival advantages in tolerating periods of starvation.

You know, I’m always impressed how many genetic variants there are in humans that make us better at surviving starvation. We are very well equipped to tolerate periods of starvation, which of course has plagued humans ever since humans have walked the earth. I believe ApoE4 is one of those variants that simply prepares you to survive a period of deprivation, but it makes you hypersensitive to the intake of fat. ApoE4 is carried by about 25% of the population, so it can be a factor. Most people with ApoE4, I don’t think, have to limit fat. And, they do destructive things by doing so. But, there’s a subset of people with ApoE4 who are very hyper-absorbent of dietary fats.

So, the diet I use in all comers [42:30] is no grains, no sugars, eat all the fat you want. If you want to have the fat on your beef, go ahead. If you want to have the fat on your pork, go ahead. If you want liver and heart, you go right ahead. You want to eat the dark meat and skin on your chicken, I think you should enjoy it. And I think you should save the oils. I think you should boil the bones for soup and not skim off the gelatin or the fat.
So, I encourage fat intake. The only time we have to be careful about that is ApoE4 people.

**Dr. O'Bryan:** So, for people who are ApoE4... And thank you for that elucidation, that was really brilliant. For people who are ApoE4, would a biomarker of being successful in the protocols they’re implementing be that their small dense LDLs are in an acceptable range?

**Dr. Davis:** I think you mean when should you consider testing for ApoE4?

**Dr. O'Bryan:** Well, if someone has been identified as an ApoE4, and they’re being counseled to eliminate the grains and don’t take too many fats, is a way of telling if what they’re doing is working three or four months down the road... How do you monitor them and make sure that that group with the sensitivity to possibly not using fats as well, that we’re doing okay with them, that all the evidence is that they’re doing well? What biomarker do you use?

**Dr. Davis:** I just use lipoprotein testing.

**Dr. O’Bryan:** Good! Excellent!

**Dr. Davis:** A typical experience with non-ApoE4 would be this: someone starts with 1,800 nanomoles per liter of small LDL particles. They go grain- and wheat-free and sugar-free. They lose 40 pounds, whatever. We repeat the lipoprotein test, and small LDL is 180 nanomoles, down from 1800, or zero. Zero is a very common.

An ApoE4 experience, a typical one, would be they start with 2,500 nanomoles per liter of small LDL. They go wheat- and grain-free and sugar-free. They lose a bunch of weight. They come back, and their small LDL is now down from 2,500 down to 1,400. So, it doesn’t drop like the non-ApoE4 people. There’s something that’s continuing to trigger or allow the persistence of small LDL particles. And that can persist, despite the very strict reduction of carbohydrates like grain and sugars.

So, those people, if they ratchet back their fats, they’ll see further reductions in small LDL. [45:00] Though it’s usually carbohydrate-driven, it can be driven by fat consumption for ApoE4 people. Now, that makes the diet very restrictive, and that becomes difficult. Thankfully, only a few percent of people really have this abnormality that’s bad enough that we have to actually cut back fats. So, these people, thank goodness, are exceptional.

**Dr. O’Bryan:** Yes! But how brilliant to have a protocol to follow to reduce those people’s risk of slowly losing their brain function. And, in our practice, we see that on average
about two to three out of ten that are checked will come back with at least one of the ApoE4s. So, it’s not that uncommon to see. It’s maybe 20% of the population, somewhere around there. And Dr. Perlmutter talked about it in detail with regard to brain function. And now we have Dr. Davis talking about it in relation to cardiovascular function.

And the approaches to take are, once again, about choosing the foods that you’re eating, and just monitoring to make sure—this is for all our clinicians out there, this is quite a pearl—is that you’re going to use lipoprotein fractionations to determine if the protocols you’re using are being effective enough, or do you have to tweak them a little bit more?

Dr. Davis, what complications or frustrations do you see in your patients in implementing your protocols? What’s the most common frustration that they have?

**Dr. Davis:** Well, we should talk about what I call “wheat withdrawal.” That is the withdrawal syndrome that develops usually over the first five days you stop eating all things wheat. The Atkins people called it “Atkins flu.” Some people in the Paleo diet world call it “Paleo flu.” So, people have come up with a variety of names for this thing. But you stop eating wheat, rye and barley, and you get really tired, depressed, nauseated. You can’t exercise, and you get headaches. This is an opiate withdrawal. This is a withdrawal from the gliadin-derived opiates. It’s very similar to the opiate withdrawal—though a little softer—from morphine or heroin or oxycontin.

You can actually provoke it by giving somebody an opiate-blocking drug like naloxone or naltrexone, and actually induce [47:30] the very same syndrome. Thankfully, people all survive. Everyone survives the opiate withdrawal syndrome off of wheat. And then you feel wonderful! So I make it an issue of pointing it out to people because they say things like, “You know, it’s been three days since I’ve had anything made of wheat and I feel awful! My body must need wheat.” [Laughs] So we don’t want people to think that, because it has nothing to do with “need.” It has to do with withdrawal.

You know, if you’re an alcoholic—heaven forbid—and you want to become non-alcoholic, how do you do that? You stop drinking alcohol. And there’s no way around it. You’ve just got to stop drinking alcohol. So, if there is something that has an addictive potential on your brain, which is the gliadin-derived opiates, you’ve got to stop eating the gliadin-derived opiates. But it can be unpleasant, it can be quite unpleasant for about 40% of people, so I’ve got a lot of strategies to help people get through it. We do things like try to choose a non-stressful period. It’s very difficult to weather, say, a stressful period at work when you do this. Hydrate. There’s a diuretic effect when you stop eating wheat.
So, when you lose, let’s say, five or six pounds the first week of stopping eating wheat, about half that will be water. Now, that’s not pointless, you were retaining water, but you have to hydrate to compensate. I encourage people to use salt like sea salt, because you’ll lose salt also. A lot of people develop cramps in their legs, and it really helps to use salt. And a lot of people also get relief by supplementing a magnesium supplement, such as magnesium malate, 1,200 milligrams twice a day.

There’s a ton of thyroid dysfunction in this world, a ton of it. And some of it—not all of it—some of it is due to iodine deficiency, particularly where I live in Wisconsin, I’m actually seeing goiters come back, and large thyroid glands, from iodine deficiency. So I have everybody also using iodine supplements, 500 micrograms of iodine per day.

Now, I also tell everybody to use a high-potency probiotic because there’s so much bowel turmoil during the withdrawal period and a delayed transition to healthy flora. But I think it’s just people are happier if they accelerate that transition by taking a high-potency probiotic. I use 50 billion CFUs every day for at least four if not eight weeks or longer.

Dr. O’Bryan: Those are great recommendations to deal with the withdrawal. [50:00]
And, for our clinicians, as you know, there’s testing out there now that can identify gluteomorphin, prodynorphin antibodies. And if your patient comes back with an elevation of those antibodies, this is when you would want to strongly consider recommending that they implement these protocols, strongly consider recommending them before they begin a gluten-free diet, to make that five to seven day transition easier.

And in general, Dr. Davis’s recommendations would be excellent for everyone who’s going on a gluten-free diet, to choose a non-stress period. Make sure you’re hydrating. Increase your sea salt. Take some magnesium malate. Take some iodine. Use a probiotic. Start dealing with the environment of the intestines. Those are basic recommendations that would likely be of benefit for the large majority of your patients that are coming in.

Dr. Davis, when I’m on stage talking to practitioners or the general public on this topic of gluten sensitivity with or without celiac disease, often a question comes up that there are some nutritionists, some registered dietitians who are saying that a gluten-free diet can be bad for you. And my response has been, “A gluten-free diet is not bad for you. A bad gluten-free diet is bad for you!”

So, from that perspective, what are the dangers in going gluten-free that may impact on one’s health in a negative way?
Dr. Davis: Yeah, I like that! That’s right. Don’t replace something bad—wheat or gluten—with something bad. [Laughs] What I call “gluten-free junk carbohydrates.” So, we know that the gluten-free food manufacturers, looking for a substitute for wheat and gluten, turned to corn starch, rice flour, tapioca starch, and potato starch as the replacement products. Well, when you take starches like that, you dry and pulverize them down, you increase the surface area for digestion exponentially. So we know kernels of corn, intact kernels, raise blood sugar a lot. But if you dry and pulverize that flour, the corn starch, now you have huge increases in blood sugar.

So we know that wheat, like whole wheat bread, raises blood sugar higher than nearly all other foods. The only foods [52:30] that raise blood sugar even higher than whole wheat [are] dates and figs, and corn starch, rice flour, tapioca starch, and potato starch. They raise blood sugar.

So these people who manufacture gluten-free foods made a big mistake. They picked the most awful things they could because food scientists, food processors, choose things on the basis of taste, texture, and production issues. They don't consider nutrition. I talk to food scientists with some regularity. Nice people, but they barely know what the heck they’re doing when it comes to nutrition. They know how to fill a bag consistently on a production line. They’ll add sand—believe it or not—silicon dioxide. They know how to extend shelf life. They know how to use BHT and things like that for shelf life issues.

But if you ask them about nutrition you’ll think you’re talking to a child, because you'll find that food scientists know almost nothing about nutrition. They know something about the palatability and preservability of food. And so we have this crazy issue, crazy situation, where people say, “I hear gluten-free is good.” And they buy gluten-free foods. And they gain weight. And they have sky high blood sugar. And their tummies grow bigger. And they have disruptions of bowel flora. They have small intestinal bacterial overgrowth. They have malabsorption. They have autoimmune conditions. They have changes that lead to cancer, heart disease, and dementia.

In fact, if someone came to me and said, “We’ve organized 50 or 100 people to launch a class action suit against the gluten-free manufacturing industry,” I would sign my name right away because these people have made a huge mistake. And ironically, it’s the gluten-free industry among the vociferous fighting my message and our message, because they don’t see. They’re losing their opportunity because a lot of the gluten-free magazines and shows and stuff are being supported by the gluten-free food manufacturers. So ironically, they are the source of a lot of the dissent among the ranks in the gluten-free space.
Dr. O’Bryan: So I want to make sure our mothers out there who are looking for what they can feed their kids are hearing what I’m about to say clearly. It’s okay to give your child a gluten-free blueberry muffin on occasion as a treat. It’s not a poison that’s going to knock them out. And, Dr. Davis, I want to see if you’ll agree with this. But, if they’re eating those kinds of foods predominantly or regularly, it’s throwing their blood sugar out of balance. But, if the vast majority of their diets are balanced with lots of vegetables, quality proteins, healthy fats, that an occasional treat or a birthday cake that’s made with gluten-free flours…I don’t think we have to be perfect. We just have to be consistently heading in the right direction. Dr. Davis, would that kind of a recommendation, would you and I kind of do battle on that one?

Dr. Davis: [Laughs] I think that’s a reasonable approach. Two caveats. One, corn starch. Corn is often looked at as a safe gluten-free alternative. It really isn’t. The zein protein, it’s the evolutionary relative of the gliadin protein of wheat, as well as the hordein of barley, and the secalin of rye. So, the zein protein of corn still has some of the potential, there’s some overlap in sequence. So, corn is not as safe as people paint it to be. I’d be very, very careful about corn starch consumption, and that’s not even talking about genetically modified corn that has glyphosate residues or genes for glyphosate resistance or even genes for Bt toxin. So we’ve got a lot of issues with corn, specifically.

Now, we’ve got three others: tapioca starch, potato starch, and rice flour. Rice has some issues of its own. Rice, of course, you’ve got another grass. It’s the most benign, by the way, of all grasses because it’s mostly just starch. There’s not very much protein. There’s less than 1% protein in rice. But we do have this new issue, as you know, of arsenic, of inorganic arsenates, at fairly high levels in all rice products. That’s another issue. And the lectin of rice overlaps to a substantial degree with wheat germ agglutinin, the lectin of wheat. So, we have those issues.

So I think it’s okay to indulge, but just be very, very careful. I’ll tell you what I do. I tell people, “Go ahead and have pancakes, cookies, muffins, scones, pizza, all those things, all you want. But make them with healthy ingredients.” So what I tell people is, “We’re not going to use wheat. We’re not going to use gluten-free flours. We’re not going to use barely or rye. We’re not going to use millet or sorghum. Those are grasses also. We’re going to use ground almonds or almond meal or almond flour or walnuts or pecans or sunflower seed or pumpkin seed. We’re going to use coconut flour, we’re going to use ground golden flaxseed.” And you can make very delicious cupcakes, muffins, sandwich breads.

The downside of this is you’ve got to make it yourself right now. There’s not enough food manufacturers who’ve jumped on this bandwagon to make it easy for a busy mom.
So right now, you and I have to make everything ourselves. But I can tell you, I’ve had many delicious pizzas and muffins and Reuben sandwiches by making these things myself.

Dr. O’Bryan: Excellent overview. You’re absolutely right, and I fully agree with that. And there are small bakeries that are coming on board with using non-threatening ingredients: almond flours and coconut flours and things. But they’re not at the national, commercial level. And in your cities, you may find some of these places.

One place to look would be with your celiac support groups and find out what bakeries are in your area, the support groups may know. But, in general, mom, there are many good cookbooks out there that can guide you with some of the recipes that are using these non-high glycemic index foods or non-corn-related foods that are healthy recipes that are delicious. They do not taste like cardboard anymore! If you were at this ten years ago, it was cardboard, and you were telling yourself you were doing a good thing for your body. But it’s not that way anymore. There are many good things out there, many great recipes that we can use.

Well, Dr. Davis, this has been a wonderful, wonderful exposé of the cardiovascular and general health exposures of ingesting wheat and grains outside of the immune responses. This is just on blood sugar. And it’s a critically important concept for our listeners to get. And I hope [1:00:00] they’ll listen to this discussion a couple of times, two or three times, to really get a good, healthy overview of it.

Thank you very much for taking the time and sharing your level of expertise. And I wish you the best of luck on your new book coming out. Do we have a projected date for that?

Dr. Davis: Actually, the next book coming out will be the Wheat Belly 30-Minute (Or Less!) Cookbook in December.

Dr. O’Bryan: Excellent, excellent! And I would encourage everyone, you can assume that the context that all of these recipes will be coming from is what Dr. Davis has talked about today.

Once again, Dr. Davis, thank you for joining us!

Dr. Davis: It’s been my pleasure! Thank you!
A special thanks to our sponsors!

- ALCAT Worldwide
- Cyrex Laboratories
- Celiac.com
- Deerland Enzymes
- Bio-Botanical Research Inc.
- Pure Encapsulations
- Ortho Molecular Products
- NuMedica