

Speaker 1: Bullet Proof Radio, a station of high performance.

Dave Asprey: You're listening to Bullet Proof Radio with Dave Asprey. Today's cool fact of the day is that the small intestine is mightier than we thought. There's a new study out that challenges our assumptions about how your body actually uses fructose. It looks like your small intestine, not your liver, is the first step in processing fructose. To you use fructose, which comes in fruit or high-fructose corn syrup, or something, your body has to convert it into glucose other smaller molecules. We knew that fructose could be metabolized in your liver, in your small intestine, but we always thought it was mostly about the liver. The new mouse study says that moderate doses of fructose, you might find it in honey even, it's transformed in the small intestine and that the liver only steps in when the small intestine is overwhelmed with fructose.

It seems that the small intestine might be your Captain America's shield, so if you have say a piece of fruit after dinner, which is something that I would recommend on the bulletproof diet, if you're not going on a full keto part of it, that you're doing okay. If you have a huge crazy amount of fructose, you're definitely going to jack up your liver. It turns out that fructose is tied to fatty liver disease, gout, Type II Diabetes, obesity, and all sorts of other bad things. You don't want to have more than probably 20, 25 grams of fructose in a day, at max. If you're looking to be full keto, you're going to have much less than that. That study was published in Cell Metabolism, if you're a geek and you want to find it.

Before we get into today's show, I don't know if you know about the bulletproof cacao butter. This is something you'll find at [bulletproof.com](http://bulletproof.com), and this is something that I've really enjoyed, because it turns out that where your chocolate comes from, and how it was created determine how it's going to make you feel. What we found is that 80% of South American chocolate sampled recently in a third party study had malt contamination in it, and that's because about 64% of the microbes used to ferment chocolate create mycotoxins. Those toxins even at levels that are safe for commodities, can contribute to you not feeling great, but they're not going to kill you, so they're considered safe because they're economically feasible.

The upgraded cacao butter is made using an optimized process to create chocolate without those toxins and is lab-tested so that you're getting a much cleaner chocolate. What you do is you take a little bit of cacao butter and you toss it in your bulletproof coffee, and it adds this amazing chocolate finish to it. Chocolate, or cacao butter, which is just the fat from chocolate, is unique because it melts at the same temperature as your body. When you put it in your mouth, it's solid, and as it warms up in your mouth, it melts and it just has that amazing chocolatey taste, but without the strong chocolate upfront. It's really cool to just blend even a teaspoon or two in your bulletproof coffee just to feel like, "It's not a mocha, what is that? Well, it's delicious, that's what it is."

It's called upgraded cacao butter, it's at [bulletproof.com](http://bulletproof.com). Today's guest is Dr. Tom O'Bryan. He's an internationally recognized speaker about wheat, its impact on health, and auto-immune diseases in general. He practices functional medicine and looks at this chronic diseases and metabolic disorders. This is relevant to you because there are huge numbers of us listening right now who have a little bit of chronic disease, or metabolic disorder, but you don't feel it until it really, really hits you years later. There's a huge number of people walking around today going, "I feel really good. I'm doing well," but they've got the markers, like a little fire is smoldering. If you want to remain high performing long into your old age, or you want to maybe join me on my quest to live at least 180 years old, you need to stop this stuff before it becomes, "Oh, look, I've got an extra 20 pounds. My liver is fatty and my life sucks."

I invited Tom on the show today to talk about, well, what's going on in this thing. He just did a docu series called Betrayal, The Auto-Immune Disease Solution, and just came out with a book called The Autoimmune Fix. You want to know if you have this going on, and more likely, someone in your life has it going on, and what the early signs are, and what you can do to stay strong for a very long time. Tom, welcome to the show.

Tom O'Bryan: Thanks, Dave. Thanks, it's a pleasure to be with you.

Dave Asprey: Now, as a functional medicine practitioner, you're always looking at root causes of dysfunction in the body, and you look at it as a system the same way that I do. What made you get into looking at the body as a system instead of well, what a lot of medical practitioners do, which is, "Well, this is a liver, this is a kidney, they don't really have that much in common."

Tom O'Bryan: Well, it started before I actually even got into my internship, that my wife and I could not get pregnant. I called the seven most famous holistic doctors that I had ever heard of at that point, this was 1979. I was able to reach all of them, and I asked them, "What do you do for infertility?" They would say, "Well, do you know what a category one is?" I'd say, "No." They say, "Learn." Okay, okay, I'd write it down. I wrote down the notes talking to these seven doctors, and I put a program together, and we were pregnant in six weeks. My neighbors in married housing heard about this. We lived on campus at that time, and they've been through artificial insemination, nothing had worked for them. They asked if I'd work with them, and I'd say, "Well, I don't really ... Sure, why not?" She was pregnant in three months.

Before I got into practice, we had people coming to us, because we're telling our friends. We're so excited that we were pregnant, and moving forward, and we tell our friends, and they'd tell their sister in Wisconsin, and I went to school in Chicago. The sister would drive down from Wisconsin and come to our dorm room, I'm living on campus, and I was treating about them. I was called into the President's office one day, and he said, "Dr. Tom, rumor has it that physiological therapeutics are being administered on this campus outside the confines of the clinic." I said, "Dr. [Jansey 00:06:25], no." He said, "We must be cognizant of the

laws and regulations." "I fully understand, thank you, sir." I kept doing what I was doing, I just kept going because I have this passion to share with the world. We opened our practice, and with an emphasis on hormone imbalances and infertility.

What I discovered very early in practice is that the symptoms are never the system that you treat, except for temporary relief, that you have to look at where are the symptom's coming from. I'll give you an analogy of this. I like this analogy. When you go to the doctor with symptoms, irrespective of what they are, it's like you've fallen over a waterfall into the pond below. You swim up to the surface and you spit out the water, right? You're trying to stay afloat in the pond of blood sugar problems, or diabetes, or in the pond of recurrent miscarriages, or in the pond of chronic fatigue. Whatever the pond is that you're stuck in, you're trying to stay afloat, and everyone's looking for a life jacket to stay afloat in the pond of their symptoms, and that's important. Once you've got a life jacket on, and you're okay, you're stable at the moment, you have to swim over to the side of the pond, get out of the water, walk up the hill, go back upstream to figure out what the heck fell in the river that eventually took you downstream and falling over the waterfall.

That's functional medicine, is, what is it that's going on way back there that has triggered or is fueling whatever the symptoms are that you have going on right now.

Dave Asprey: It's funny that you started with fertility, because all animals, single celled organism all the way up, plants, humans, the number one thing we're going to do is respond to an immediate threat. Number two thing we're going to do is make sure we don't starve to death, number three thing we're going to do is make sure that the species reproduces because these are core drives.

Tom O'Bryan: Yes.

Dave Asprey: I had the same thing, my wife, Dr. Lana, was infertile when I met her. We put together what became my very first book, the Better Baby book that was published by Wiley & Sons. It just had 1,300 references in, like, yeah, let's turn down the inflammation in the body, and autoimmunity is a part of it. Here you are doing that 25 years earlier, we have an, what is called, an epidemic of IVF, where In Vitro Fertilization can absolutely help you have a child when you're otherwise be unable to do it, but before you do that, you might want to just consider getting your house in order because that's what Lana is doing with her ... Her clients are usually like CEOs and Hollywood people now. It's amazing what happens when you take people who can't even succeed with IVF, you get rid of their autoimmune problems, get rid of their inflammation, and then, all of a sudden, they're getting pregnant.

Tom O'Bryan: Exactly.

Dave Asprey: It's really satisfying to know this core of thing that's so important to so many of us. It can be done, and the inflammation is at the root of it. Oftentimes, what you're putting in your mouth is part of it.

Tom O'Bryan: Well, here's a heads up. This is a heads up for all the guys out there. They did a meta analysis that was published last year, a meta analysis is when you look at a number of studies on one subject. It was 186 studies that they looked at, and the subject was sperm count in healthy men, between 1974 and 2011, so 37 years. Has there been a change in sperm count in healthy men, not in fertile men, in healthy men in the last 37 years? The consensus statement was there's a 59% reduction in sperm count in healthy men. Now, what that means, scientist worry about extinction of a species at 72% reduction in sperm count. We're at 59% in 37 years, what the heck do you think is going to happen in the next 15 to 20 years?

Dave Asprey: I can tell you, I am not, after I did the research with the Better Baby book, I am not at all worried about a global population problem. We are solving that ourselves because if you look at this over the course of the next 150 or so at least years, I'm going to be around, we are not going to be having babies as we do now unless we do something about it. It starts with our soil, and it ends in our guts, and in our bodies. I like it that you're talking about this in your work. Talk about what's going on with autoimmunity, is autoimmunity on the rise as well?

Tom O'Bryan: It's so on the rise in the last 30 to 40 years. What most people, and even doctors don't put together is that we think the number one cause of getting second dying, morbidity and mortality, is cardiovascular disease. Well, every doctor knows, or should remember from their studies that cardiovascular disease, the plugging up of your pipes, atherosclerosis, is immune driven. It's an autoimmune mechanism. This topic of autoimmunity really becomes a primary concern for all of us, but we've never looked at it that way. Once we understand this, that this is prevalent in almost all of us, that it's an auto-immune mechanism, meaning, your immune system, attacking your own tissue, whether it's your blood vessels, or components in your blood vessels, the fatty membranes of the blood vessels, or it's your brain, or your joints, or whatever it is, your immune system is attacking your own tissue.

That goes on for years, it's called the spectrum of autoimmunity. It goes on for years before you ever have a symptom. I'll give you an example, because this study was a paradigm shift for me, back in 2003. Dr. Melissa Arbuckle, an MD, PhD, she went to the VA and she looked for people with lupus, the autoimmune disease lupus. She found 132 people in this one VA center that were being treated for a diagnosis of lupus. Now, if they're being treated in a VA center, they're veterans. If they're veterans, they were in the armed forces. If they were in the armed forces, they had their blood drawn many times over the years when they were healthy, in the Navy, in the Air Force, Marines. What most people don't know is that the government has been saving and freezing most of

that blood since 1978. They've got tens of millions of samples of our service people's blood. Dr. Arbuckle-

Dave Asprey: Hold on a second.

Tom O'Bryan: Yeah.

Dave Asprey: Does this mean that vampires were on the military?

Tom O'Bryan: Well, that's a really good question, Dave. I really don't know why they're doing this, but they're doing it.

Dave Asprey: No, it's awesome they're doing it. Keep going, I love this study, by the way. Thanks for talking about it.

Tom O'Bryan: Yeah, yeah. Dr. Arbuckle knew this and she asked for permission to look at the blood of the currently diagnosed autoimmune patients with lupus when they were healthy in the Navy, or in the Coast Guard, or the Army. She got permission, and what did she find? There are seven antibodies to lupus, and all seven antibodies were elevated years and years before there were ever any symptoms, years. Now, why do you have antibodies to your own tissue? If you get a blood test done for a physical, they look for antibodies to your thyroid, comes back and says, "You're normal. You're in the normal reference range of antibodies to your thyroid." Why do we ever have any antibodies to our own tissue? It's how we survive. That Mrs. Patient, you have an entire new body every seven years, some cells reproduce really quickly, like the inside lining of your gut, every three to five days, depending on what study you read, and some cells are really slow, like your bone cells.

Every seven years, you have an entire new body, how does that happen? Your immune system has to get rid of the old and damaged cells, antibodies, go after the old and damaged cells to make room for new cells, to grow and develop. There's always a normal reference range for antibodies to your thyroid, and your liver, and your brain, and your nerves, and your skin. There's a normal reference range. When you have elevated antibodies on a blood test, it means you're killing off more cells than you're making. This goes on, it's called prodromal period, meaning, before symptoms, this goes on for years. Depending on what autoimmune mechanism you have determines how many years, but it goes on for years, killing off tissue, killing off tissue, killing off tissue, until one day, you cross the magic line, you've lost enough tissue. Now, you start having some vague symptoms of thyroid dysfunction, or joint dysfunction, some stiffness in the mornings.

It keeps getting worst over the months, and over the years. Finally, you go to a doctor, and the average is you go to three and a half doctors to get the right diagnosis, and it takes between three and five years to get the right diagnosis, after the symptoms begin, because they're so subtle, and they're so diffused.

You're just killing of enough to get some symptoms. Then, you finally get a diagnosis of rheumatoid arthritis, or lupus, or Hashimoto's thyroid disease. When you finally get the diagnosis, now, you're put on drugs to deal with the symptoms of lupus, or Hashimoto's thyroid disease, or MS. Of course, you want the life jacket to deal with the symptoms, of course, you do, but you have to go back upstream and figure out, "What the heck fell in the river that triggered this whole mechanism of killing off more cells than you're making?"

That is the autoimmune fix. That's what the whole message behind Betrayal is. We've had over 500,000 people that watched Betrayal, and it's all free. When you watch this, you go, "Oh my God. This just makes perfect sense." Because we interviewed the scientist, we interviewed the world leaders in autoimmune diseases, and then, interviewed the clinicians, our friend Mark Hyman, and many others, who were applying the principles of these scientists. Then, we interviewed the patients of those clinicians who were showing, "Look, I used to have eight lesions on my brain with MS, and I couldn't walk. Two years later, there's only one lesion left, and I have no symptoms." We show that when you go back upstream and figure out what the heck is going on for you personally, there's no magic pill to fix Hashimoto's, or lupus, or rheumatoid arthritis, or psoriasis, there's no magic pill.

You have to figure out why this is happening to your body. That's the reason why everyone needs to understand as a consumer what is autoimmunity and where am I on the autoimmune spectrum.

Dave Asprey: What percentage of people have autoimmunity going on right now?

Tom O'Bryan: Clinically, when you do the right test, you will find somewhere between six to seven out of every 10 patients to come in your office, when you do the right testing, have elevated antibodies to their own tissue, six to seven out of 10. That's how frequent it is.

Dave Asprey: That's why I wanted you to do this episode. If you've been listening so far going, "Oh, this probably doesn't apply to me." Look, 60%, 70%, and I found some research I'm doing for my next book, which is not about autoimmunity at all, it's more about human performance, but part of that research was I found a study where they're using a very conservative marker, or measure of autoimmunity. They're saying, "Well, 20% of people have it, but it's growing annually at 20%."

Tom O'Bryan: Yes.

Dave Asprey: These are using basically full on symptoms, and what Tom and I are talking about here is this whole other perspective that says, "What if we were able to get this right when it starts?" I care about a lot about this. I had arthritis in my knees when I was 14, Tom, I think we talked about that.

Tom O'Bryan: Yeah.

Dave Asprey: I had Hashimoto's and all these other things, and the more you control it, the longer you're going to live, and the better you're going to perform in the meantime, which is why this episode is just ... it's so important.

Tom O'Bryan: Dave, you brought up a really important concept there, and the study you're referring to, I'm assuming it's ANA antibodies. I'm assuming.

Dave Asprey: I believe so.

Tom O'Bryan: Yeah. Now, ANA antibodies mean anti-nuclear antibodies. Meaning, the antibodies are attacking the nucleus in your cells, and there are many different diseases that can manifest when you're attacking the nucleus in your cells. The question is, why is my body attacking the nucleus inside my cells? The answer is, there's more than one answer, but the majority answer, it's the environmental toxins that are accumulating in your body, the Bisphenol A, the mercury, all of the crud that we're exposed to every day, that minute amounts it's not a big deal, but it accumulates, and accumulates, and accumulates, until you cross the threshold. When you cross the threshold, your immune system says, "That's it. No more." Your immune system starts attacking to go after that.

Dave Asprey: It doesn't just accumulate, which is a big issue. It also cross reacts.

Tom O'Bryan: Exactly, exactly.

Dave Asprey: One of the things that just drives me nuts, I've looked at lot at the ... mold toxins. These are toxins that we didn't introduce into the environment. They're ones made by mother nature that cause autoimmunity. They'll say, oh, the level of this one's safe, but oh, if you put it next to this other safe level of another one, they cross react with each other, and then, these two safe levels together are not safe at all. Then, you stack that with mercury, and you stack that with these other things that are ... the codings and whole grains and all, and what you get is, people who will do this short site that says, "Oh, eat a lot of whole grains because over the course of 90 days it lowers cholesterol." Or, some other kind of relatively meaningless thing.

Then, over the course of 20 years, you're really not going to like your life. It's that short term versus long term study thing and this idea that medicine wants to study a single thing, what does that toxin do. We don't live in a world with that toxin. We live in a world of an environment, with millions of variables that change every second, and your body measures them, and reacts to them.

Tom O'Bryan: All the time.

Dave Asprey: That's what we're getting to.

Tom O'Bryan: Exactly.

Dave Asprey: What are the biggest triggers? You mentioned mercury, you mentioned Bisphenol A, I'm assuming glyphosate is in there. What are the other big toxins that are actually causing these multi decade things that you can detect now, that aren't going to hit you for 20 years?

Tom O'Bryan: For the vast majority of people, the most common source of toxins that trigger your immune system, eventually, to protect you, is what's on the end of your fork.

Dave Asprey: Amen, brother.

Tom O'Bryan: That's it. Sorry, guys. It's what you, "Well, I can have a little of this once in a while." No, you can't. You can't fool your immune system.

Dave Asprey: What about your macros? What about your calorie counting?

Tom O'Bryan: Yeah. Well, historically, there was some validity to thinking that way, but as science improves, we hope that the scientific mind also improves.

Dave Asprey: In the bulletproof diet, I'm like, for step one, stop doing this stuff that makes you weak, and the stuff that pisses off your immune system makes you weak. Then, eat the foods that are full of energy, and flavor, and stuff like that. I think a lot of us have just gotten down this path of, food is fuel. No, food is actually toxins, and fuel, and nutrients.

Tom O'Bryan: Yeah, yeah.

Dave Asprey: If you look and you ignore the toxins, and you look only at energy, and you look only at nutrients, you're missing it. That's why these autoimmune perspective that you've got is so important. Let's zoom in on grains. Talk with me about the differences between a wheat allergy, gluten sensitivity, gluten intolerance, celiac disease.

Tom O'Bryan: Sure.

Dave Asprey: I got all these Yahoo's out there saying, "Well, only 2% of us have celiac, therefore, we should all have gluten smoothies. What's the deal?"

Tom O'Bryan: Right, sure. Let's break down the different categories of problems to wheat. The first one, the most common that we're familiar with is when a doctor does pin prick test on your back to see if there are some food you're sensitive to. Wheat is one of those foods that can come up. If you have a reaction there, that's called an allergy, because it stimulates an immune reaction called IGE. There are five different immunoglobulins, IGE is the one that's related to allergies, and that's histamine responses. Do you want to know if you have too much histamine? A simple test to look to see if you have too much histamine right now, when you have excess amounts of histamine, you're red. You're red.



Meaning, do you have red cheeks? I've always had red cheeks. You've always been inflamed. There are some trigger you have for excess histamine.

The test for that, just pull your shirt up, and just scratch your tummy, not hard where you're tearing skin, but just scratch it like a modest little stimulating scratch three times, one, two, three. Wait 15 to 30 seconds and look to see if you can see the scratch marks. If they come out as red streaks, that's excess histamine. That's suggestive of excess histamine, it means there's something in your body, that your body is producing histamine because something you're putting in there is triggering an immune reaction.

Dave Asprey: Tom, I'm trying to do this, but my abs are just so rock hard. I'm really having a hard time with it.

Tom O'Bryan: Just, a minute, I'm going to pull up my violin to play it for you, Dave. I'm so sorry. I'm so sorry.

Dave Asprey: I'm totally kidding.

Tom O'Bryan: Allergy. Wheat allergies are the ones that most people are familiar with. With wheat, the second most common one because of the science, there's over 20,000 studies, literally, 20,000 studies on celiac disease. Celiac disease is when you have a sensitivity of wheat and it manifest as chewing up your gut. When your gut gets all chewed up, there can be a lot of different manifestations for every one person with gut symptoms with celiac, there are seven that don't have gut symptoms. They've got brain symptoms, or skin symptoms, or some other symptoms, but their symptoms are because their gut's being chewed up, and because of nutrient insufficiencies, and systemic inflammation and other reasons. Celiac disease is when your gut's being chewed up from a sensitivity to wheat. The third category is non-celiac wheat sensitivity, and that's the big kahuna picture.

Non-celiac wheat sensitivity can manifest as brain dysfunction, autoimmune brain disease, skin diseases, joint disease, there's no tissue in the body that might not be affected by a sensitivity to wheat. I'll give you an example, in the presentations I do to medical groups. I often start with this study, a three and a half year-old girl, she was diagnosed with celiac disease, she had lots of gut problems. They did an endoscopy, that's where they put her under a general anesthetic, and they put a tube down her throat to look at her stomach, and look in her intestines, and snip out a little piece of the intestines to look at under a microscope, and they found out, yeah, she's got celiac. Well, she had a reaction to the procedure, and it took a couple of weeks for her to get back to normal again.

When they did that procedure, the gastroenterologist said, "There's something wrong with your daughter's eye. We're going to get you in to see an ophthalmologist right away. They went to the ophthalmologist a week later.

They got in to see an ophthalmologist, and the ophthalmologist identified a tumor on the surface of the little girl's eye, above the pupil. It was called a conjunctival tumor. You see a picture of it in the research article, it's big, ugly, mucousy looking tumor. The diagnosis they gave for that was Kaposi sarcoma, which comes from HIV. The mother was HIV negative, so they were, "Wait a minute. What is this?" Excuse me, the mother was HIV positive, the little girl's blood was HIV negative. They said, "Wait a minute, this isn't Kaposi sarcoma, what is this?"

They wanted to do biopsy, they wanted to snip out a little piece of the eye and look at it under a microscope. They told the parents, "We have to put your daughter under general anesthetic. We'll do it now. We'll get a ... " They said, "No, no, no, our daughter had a reaction to the general anesthetic a week ago, and she's not quite fully recovered. Please give us a few days so she can fully recover before we do this again to her. We will come back." They came back a week later, the ophthalmologist was about to do, about to put her under a general, and he had looked in her eye and he said, "Wait a minute." He pulled out the picture he had taken a week before and he said, "This tumor is smaller." You see the picture, the original picture, you see the picture a week later, and so, he didn't do the biopsy. He said, "Well, let's just see what's happening here."

Then, you see the picture two months later, the tumor is gone. Completely gone. The only thing different they did was the day that little girl was diagnosed with celiac disease, they put her on a wheat free diet. Nothing else. No drugs, no med, nothing. They just put her in a wheat free diet, which completely resolve the conjunctival tumor misdiagnosed as Kaposi sarcoma. There are hundreds of case studies like that, that if you have celiac disease, it can manifest as anything in your body. You would never suspect it. That's why with any degenerative condition you've got, whether it's cancer, or an autoimmune disease diagnosis, or just symptoms that nobody can figure out, you always want to check for a wheat sensitivity, because it may be a wheat sensitivity that's manifesting in another tissue in the body.

Dave Asprey: Now, you're saying wheat, but I have seen a lot of people who will say, "Oh, I'm not going to wheat. I'm going to eat this handful of other grains, other whole grains, like spelt, and kamut, and all these things." Are they going to cause a similar problem?

Tom O'Bryan: Well, that's a really good question. The family of wheat, if you will, of toxic gluten proteins. There's gluten in rice, and gluten in corn, but there are different families of gluten. It's the gluten in wheat, rye, and barley, that have been shown to be toxic to all humans. In the family of wheat, it includes spelt, it includes kamut, it includes the ancient grains. They're included in there, unfortunately.

Dave Asprey: I found that white rice is one of the less reactive ones out there. What's your take on brown rice versus white rice for autoimmunity?

Tom O'Bryan: Well, you're correct on that. Some people can eat white rice and they cannot eat brown rice without having a reaction, and those people usually have a lectins sensitivity. It's the lectins in the rice that are causing the problem. Not always, but when people can eat white rice but they can't eat brown rice, take a look at the lectins. Take a look at the lectins that are found in white potatoes, and most grains, the family of lectins maybe the category sensitivity as to why someone can eat white rice but not brown rice.

Dave Asprey: For all of you listening out there, the bulletproof diet takes into account lectins sensitivity. Lectins are protective proteins that are found on pretty much every grain and seed. Your body actually makes its own lectins inside of it. These are basically proteins that stick to the certain types of sugar, and depending on your genetic background, you may or may not be sensitive. When you look at the bulletproof diet roadmap, there's a bunch of suspect foods. Those are foods that caused problems for some people, not others. Like for me, if they give me bell peppers or anything from that nightshade family, I have the symptoms, like sore joints, and back pain that just plagues me for my life, until I found out that those for me are suspect food that's guilty. You may eat those, and it turns out red peppers are full of lycopene. It's actually good for you if you don't have it.

Most of these grains have a variety of compounds in them, not just lectins, but some of these other inflammatory proteins, or things that bind metals in the body. Look, if you really want to live 100 plus years, you really don't want to get autoimmunity. You should minimize grains, and for things like wheat, and barley, just don't eat it. It's not necessary for you to perform well, and you can make really good food with things that are far safer for almost everyone, things like white rice.

Tom O'Bryan: To take it out of the category of just don't eat because it's a good idea not to, for something that's so primary in people's diet as wheat, what our recommendation is get the proper testing done. Read the instrument panel of your body. Look at the immune system to see, is my immune system is telling me I've got a problem with this food? Because body language never lies. If you're immune system is activated to protect you against a particular food, stop eating that food.

Dave Asprey: Now, seven out of 10 of us have something going on in with autoimmunity and what percentage of those people do you think is caused by grain?

Tom O'Bryan: Oh my goodness. Grain is likely fueling that inflammatory cascade, and that autoimmune response, my suspicion would be certainly 60% to 70% of people, it's grains that are fueling it. It may not be exclusive. There could be other foods, and excess sugars, and bad fats, and all of that, but at least 60% to 70% of our patients, when we reduce their grain consumption, they just start feeling better right away.

Dave Asprey: It seems to be that way with people across the board. Even my father-in-law, who's an incredibly robust, 70 plus year old, he goes out moose hunting every

year and complains that none of his friends can go with him because they're all too old, and I finally got him to try the bulletproof diet for a little while. He says, "I do feel better when I don't eat grain." He tells me this while he's eating a sandwich, a full whole wheat bread.

Tom O'Bryan: Yeah, I like it. Well, some people have the guts. They've got the microbiota that can handle it. Most of us don't anymore. By the way, and this is a big pearl for people, when you're giving up wheat, which is a really smart thing to do, many people can get sick months down the road after that. For example, in the largest study ever done on celiacs, now this doesn't relate just to celiacs, but here's an example of it, they looked at 39,000 celiac patients, and one of the things they found was that there's an 86% increase risk of death within one year after diagnosis in adults from cardiovascular disease. 86% increase risk of dying within a year of diagnosis of celiac compared to someone the same age, same socio-economic class that's not diagnosed with celiac. What's different? The only thing different is that when you're diagnosed, you go on a wheat free diet. 86% increase risk of mortality from cardiovascular disease.

Dave Asprey: What's up with that?

Tom O'Bryan: That's because for people in the U.S. and Canada, 70% of their prebiotics come from wheat. The foods that they're eating that feed the good bacteria in their body, 70% of those foods that are feeding healthy bacteria come from wheat, wheat is not just completely bad for you. It's just got too many bad things that the weight is stacked against it. There are good things in wheat, and we are dependent, most of us, on wheat consumption to feed the good bacteria in our bodies. When you go on a wheat free diet, you must focus on prebiotics. You must focus on replacing the [inaudible 00:34:42] with other inulins. Fancy words, but just eat the prebiotics. Just go to Google and download list of prebiotic foods, and make sure that you eat at least two of them a day.

Dave Asprey: By the way, check this out, I'm definitely aware of this research, and if you look on the back of a bulletproof collagen bar, it's full of inulin. I think it's the number two ingredient in the bars, because it's a prebiotic fiber. This is something, for all of you listening who are on the full on keto diet, I did, essentially zero carbs for three months. One serving of vegetables a day, I'll try and eat like an Eskimo, and it completely triggered food allergies I didn't have before. It actually disrupted my sleep and all, and that's why the bulletproof diet, like look, it's a cyclical ketogenic diet without toxins, because the toxins trigger inflammation autoimmunity. If you never feed your gut bacteria, you'll be able to measure this on a [inaudible 00:35:37] test. You can see that it jacks you out, so you got to be eating this.

That's why if you can find a way to get that inulin, or any of these things in, you don't have to eat wheat. I love that you're just calling this out, because this was a problem even on [crosstalk 00:35:51] for a long time.

Tom O'Bryan: Critical. Critical. There's a lot of people that are saying gluten free diet is not good for you. Well, nonsense. Gluten free diets are necessary for most people, however, you have to know how to do a healthy gluten free diet. We tell all of our patients, you say, "Listen, here's what you do. When you go shopping, you're buying your vegetables, always get organic." Critically important to get organic, but buy a couple of every root vegetable that's there, turnips, parsnips, rutabaga, Jerusalem artichokes, sweet potatoes, carrots, and every day, you have a couple of root vegetables, and download the list of prebiotic foods and includes other prebiotic foods like bananas in your diet, artichokes, and just make sure every day you're getting a few of the foods that are high in prebiotics so you can feed the good bacteria in your gut.

Dave Asprey: That is probably the most important thing that we've shared in this episode so far. If you're listening to this, and you're on a keto diet, if you're not eating any carbs at all, the bacteria in your gut will not have any food. You don't have to have insulin, or genic carbs, and that's why, if you look at the carb count on one of our bars, there is a gram or two of carbs that come from cashews, which are actually natural cashew sugars. When you look at those carbs, they're not insulin stimulating, because the benefits of these prebiotic fibers are that when they're processed in your gut, they turn into short thin fatty acids anyway. You're not going to affect ketosis when you do that. Even something like sushi, which magically has cooked and cooled rice, when you cook rice and cool it, it forms a form of starch called resistance starch that feeds gut bacteria.

You always see me posting on Instagram, by the way it's, I think dave.asprey on Instagram if you want to follow me. There's always pictures of me doing that, and I take that and I add Brain Octane to it. I do the Brain Octane oil because it gives me ketones even though I have the carbs. I don't get cravings, but I fed my gut bacteria, and things work really, really well for me that way.

Tom O'Bryan: Critically important for all of your listeners who are dialing down their diets and really focusing on fine tuning for high performance, you've got to have prebiotics. If you don't, your probiotics die. When they die, when the good guys die, the bad guys that are stronger and more resistant, but just minor amounts of them, they don't have the army suppressing them anymore. They wear their ugly heads three, six months down the road and here come more autoimmune mechanisms because you've got this toxic bacteria causing intestinal permeability getting into your bloodstream and your immune systems starts working overtime trying to protect you from this stuff.

Dave Asprey: Let's talk a little bit about intestinal permeability, which is a very exciting topic. I see it trending on Google, oh actually, you don't. What is intestinal permeability and just walk me through how that works.

Tom O'Bryan: This is patient. Your intestines are a tube. It's 20, 25 feet long. Imagine you've got a doughnut and you could just stretch a doughnut out, one big long doughnut. Look down the center of that doughnut, that's your digestive track. When you swallow a food, it's not really in your body, it's still in the tube. Now,

that tube is lined on the inside with cheese cloth. Only really small molecules can get through the cheese cloth into the bloodstream. That's one of the reasons why your intestines are 20, 25 feet long, because proteins have to be digested. Now, I'm going to go to proteins, and I'll come back to the tube. Think of proteins like a pearl necklace. Hydrochloric acid made in your stomach [inaudible 00:39:34] the clasp for the pearl necklace. Now, you're holding a string of pearls.

Your enzymes made by the pancreas and the gallbladder, and the liver, and the microbiota in the intestines, the enzymes act as scissors to cut that pearl necklace, the proteins into smaller clamps of the pearl necklace, smaller clamps of amino acids, smaller, and smaller, snip, snip, snip, snip, snip, until they're down to each individual amino acid, the pearl of the pearl necklace, each individual pearl. Those individual amino acids can go right through the cheese cloth into the bloodstream. Then, your body can use those amino acids as building blocks to build new muscle, new brain cells, new enzymes, whatever it is that you need, but they're the building blocks of your tissue. It takes a lot longer to break down the proteins in prime rib than the proteins in a banana. That's why your intestines are so long, because snip, snip, snip, snip's got to occur all the way down the intestines.

The intestines are lined with these cheese cloth. Now, intestinal permeability, the leaky gut, is when you get tears in the cheese cloth. You get tears in the cheese cloth, now larger clamps of the pearl necklaces called macromolecules, these larger clamps get through the tears in the cheese cloth into the blood stream before there's been an enough time to snip them down into little individual pearls to go through the cheese cloth. Now, they go through the tears in the cheese cloth. These macromolecules get into your bloodstream and your immune system says, "What the heck is this? I'd better fight this." You start making anti-bodies to wheat, or antibodies to tomatoes, or antibodies to bananas, or to basil. These are the people that do 90-food blood test panels, and it comes back they're sensitive to 25, 30 foods.

They say, "Oh my God, that's everything I eat." Well, of course it is. Your body is trying to protect you from these toxic crud they got in there because you got tears in the lining of your intestines. You've got intestinal permeability. Fix the intestinal permeability, wait three to six months and test again, now, you'll see you're sensitive to one food, maybe two.

Dave Asprey:

How do you fix intestinal permeability, Tom?

Tom O'Bryan:

The first thing you have to do is identify why do you have intestinal permeability. What's missed by so many of our healthcare practitioners is that the environment of the intestines, the microbiota has developed over years of abuse to be a microbiota that's inflammatory. The microbiota itself can cause tears in the intestines, and cause leaky gut. Our foods can cause the leaky gut, wheat. Hollon, H-O-L-L-O-N, just Google Hollon and his team at Harvard, he published a paper in 2014, it's free online. It's on my website also, that every

single person, they looked at celiacs, they looked at celiacs and remission. Meaning, they had been on a gluten-free diet for at least two years, so recently diagnosed celiacs or those on a diet for two years. Those with a sensitivity to wheat that did not have celiac disease, and those that did not demonstrate any problems with wheat, whatsoever.

They looked at all four groups, what did they find? When they eat wheat, every single person gets tears in the cheese cloth. They get intestinal permeability every time. They said, "All humans have this reaction." Anyone that's listening to this podcast, if you are a human, you get tears in the cheese cloth every time you eat wheat. Now, the fastest growing cells in the body are the inside lining of the gut. You'll heal every three to five days. You have toast for breakfast, you tear the lining, it heals. You have a sandwich for lunch, you tear the lining, it heals. Pasta for dinner, you tear the lining, it heals. Day, after week, after month, after year, until one day, you don't heal anymore. You cross the line. When that happens, now, you've got intestinal permeability.

Dave Asprey: This is why those diets we have on a cheat day, once a week, they're just a bad idea.

Tom O'Bryan: Oh my God, yes.

Dave Asprey: I first tried that back in about 1996, '97. The first to get to talk about cheat days was from the bodybuilding community, and I cleaned up parts of my diet, hadn't figured out what I know now. I was like, "All right, I'm going to do this thing every Friday night. I'm going to have cheesecake, and-

Tom O'Bryan: Beer and pizza.

Dave Asprey: Yeah, half a loaf of bread and I just love it. The rest of them would be really good low carb, and avoid gluten, and all. What I found was that it took me four to five days, just like you're saying, before I was like, "Okay, I'm done with cravings. My brain fog is there. I can stay focused all day." Of course, five days later, I'm like, "Oh, great, Thursday is pretty good. Friday is pretty good. You do it again Friday night." On a cheat day, you still don't eat wheat. You don't eat gluten. You don't do that kind of stuff. You might have some sugar, which is still isn't good for your gut bacteria, but it's nothing compared to these whole grain toxins.

Tom O'Bryan: Right.

Dave Asprey: This has to be said.

Tom O'Bryan: Cheat days, cheat days are very healthy for the emotional side of health. It's very healthy to have a break, to just rest and congratulate yourself that you're doing really well. You find the least toxic, the things that your immune system don't say are a problem. A little bit of sweet maybe not a problem, but certainly,

not wheat, because when you're exposed to wheat, let's say you do the right type of blood test. It comes back and shows you got a problem to wheat. Now, you go wheat-free for six months. You do the blood test again, it comes back, you don't have a problem anymore. Now, you think, "Well, can I have wheat?" The answer is, no, you can't, because there's something called memory B cells. Just like when you get a vaccination for measles, they give you a shot of the bug measles.

You make antibodies to fight measles. Well, once all those measles bugs have been destroyed in the shot they gave you, the production of measles antibodies calms down. You don't make measles antibodies, so that if you do a blood test today to see you have measles antibodies, you shouldn't have any at all, unless you've been exposed. If you're ever exposed again, there is now what's ... I call it general measles, this memory B cell is produced to measles and his job for the rest of his life, if you're ever exposed to measles, he just has to flip the switch to turn on the assembly line to make the antibodies to measles. He just have to build the assembly line again. That's why if you go to Africa, you need vaccinations months and months ahead of time for yellow fever, and dengue fever, all these weird diseases.

If you go back 15 years later, you just need a booster shot two weeks before you go. You just have to wake up general yellow fever. General yellow fever is called a memory B cell. You have elevated antibodies to wheat. You now have memory B cells to wheat. They never go away. If you clean up your diet six months later, you see that, "Oh, look, the antibodies were all gone. I can have wheat now." No, you can't, but you can say this to patients all the time, "If you want to try, go ahead. You'll see. Then, we'll do the blood test again in a month, and you'll see the antibodies come back again. Then, if you're weak link in the chain is your brain, you start attacking your brain again from these wheat antibodies." When people do that, not many people will go through it three times like the blood test. They'll just say, "Okay, okay." Then, they'll abide by it, because they know they feel worse when they do it.

Those that do it, I've never seen anyone able to eat wheat again, I've never seen it, when we do the blood test. The instrument panel of your body, your immune system says, "We got a problem here." It pops right back up again.

Dave Asprey:

What's particularly nefarious about this is that when you're feeling really good like that, like, "I'm feeling good. I can have wheat again. I like to eat my pizza that doesn't have a gluten-free crust." Then, you go ahead and you do it, and you don't feel bad right away. You might get cravings right away from something called gluteomorphins, where when you metabolize it, it makes like a morphine like compound, so you crave it. Then, it's like a month later, like, "Oh, you know what? I've got these love handles I didn't have before and my brain isn't quite as sharp." It's a slow decline. If you're looking at your blood work, that first meal is going to be triggering that inflammation, but it takes a while for the inflammation to soak in throughout your tissues.



Tom O'Bryan: That's exactly right, Dave. That's exactly ... That's the prodromal period that I talked about earlier. When you've got elevated antibodies, but you don't have the symptoms yet. You go back and eat the food again, you develop the antibodies to the food, they get turned on right away, but it takes about a month before that you can measure the elevated levels three weeks to a month, but that mechanism turns right back on. Then, if your genetics say that your brain's vulnerable, that's where the antibodies will start being produced to your brain, that's the prodromal period, and you go right back to producing lesions in the brain, and here comes the MS again, for those people that had reversed their MS. That's what you see in Betrayal. You see people just testifying to this, and what their experience has been.

They get it now, it's like they read from the book, the true book of life. I've never thought of it this way, but if you want to know the book of life to live a long life, ask your body. Learn how to read the instrument panel of your body, your immune system.

Dave Asprey: Yeah, it's pretty important, and you're talking about some testing there, but I've got one more question about this trigger for gluten. When I was looking at doing my documentary on toxic mold called Moldy Movie, if people are interested, moldymovie.com, and I went around, I found several studies that showed that if you're exposed to a water damaged building, one that has toxic mold growing in the walls, and this is something that probably 100 million people in the U.S. are having specific health problems with right now. Somewhere between 60% and 80% of buildings have some water damage from condensation in the U.S. right now according to the people I interviewed. Some species of toxic mold have the same protein on them that's on gluten. Even if you're not exposed to gluten, if you're exposed to basically breathing the stuff in a building, it can trigger that same antibody reaction in you.

What do you think about environmental toxins that you breathe from these molds that don't belong in our houses as being a trigger even for original gluten sensitivity, or case insensitivity?

Tom O'Bryan: Well, that's an extremely sophisticated question, Dave. Just yesterday, I had a consultation with a patient with MS who is in a wheelchair and can't speak, that is that far advanced. She's been squeaky clean, I swear, has been squeaky clean, no cheat days with wheat for three years now, two or three years, I think it was three years. Yet, her test just came back, sky high antibodies to wheat. Where is the trigger coming from? Top of the list is, have you ever checked your house for mold? Mrs. Patient, if you go out, if you go out for a week or two weeks on vacation or something, and you come back, do you have to open the windows to air the house out? "Well, yeah." You got mold in the house.

Dave Asprey: Yup.

Tom O'Bryan: Have your house tested.

Dave Asprey: Tom, I started a company about three years ago called Homebiotic. It makes a probiotic you spray around your house that eats toxic molds. It's a bunch of different soil bacteria whose job it is to keep mold away in soil. We just got our test results back three weeks ago from a third party lab. They showed that even after, they sprayed dry wall with this stuff, even after two weeks in a 96% humidity environment, at 100 degrees Fahrenheit, a really warm moist environment that would cause any dry wall to sprout with toxic mold, that there was 100% protection against it. After a month, there was 80% protection, but the unprotected dry wall was basically half destroyed after a couple of weeks. For me, I really inoculate my environment in my house, in my car, and places like that, because this is a trigger that's as important as what you eat. If you're breathing something that pisses off your immune system, you get inflammation.

If you're eating something that pisses off your immune system, you get inflammation. You have to look at your entire environment like that, and I feel for people who are saying, "Well, I'm doing so much for my diet." They go home and you're like, "Your ceiling tiles are all stained." That's as important as what's on your fork. It's that complexity that I think is really messing up a lot of science, where they're trying to boil this down to a single variable. It's that old story, and if you got a thumbtack in three of your fingers, well, I take out my little finger, now, that wasn't it, so you put it back. You take out the next one, you got to do all of them at once. What are the other things though that might be autoimmune triggers that people don't think about?

Tom O'Bryan: Two comments I want to make on what you just said. In functional medicine, it's called the tack's rule. You sit down on two tacks, it hurts a lot. Take one tack out, sit down again, and you don't reduce the pain by 50%.

Dave Asprey: Exactly.

Tom O'Bryan: This thing about mold, it's critically important. We know that one of the five types of Alzheimer's is called inhalation Alzheimer's. Dr. Dale Bredesen, the guy who's on the frontline with the research on this now says that he estimates up to 60% of Alzheimer's patients actually have inhalation Alzheimer's. That's the trigger that set off the inflammation in the brain. It's a critically under recognized component. What you're talking about with Homebiotics, I wasn't aware of this. That's a really important field that we all should be looking at, so thanks for that.

Dave Asprey: You're welcome, Tom.

Tom O'Bryan: The trigger for autoimmunity, number one, food, number two, what you inhale. Number three is bacteria, lipopolysaccharides. Lipopolysaccharides or LPS is such a huge topic that very few are talking about. This bacteria in our gut, the exhaust from the bacteria in our gut is called LPS. If you want to know how bad LPS is, the most common cause of death in the U.S., I believe it's still the most common is called sepsis. Sepsis, most of our elderly that die of disease die of sepsis. Meaning, their bodies are just full of toxic bacteria. They've done many

rounds. It's over 225,000 people a year that die of sepsis in the U.S.. It's just LPS bacteria that has accumulated over the years inside the tissue from a leaky gut.

Leaky gut, this LPS gets in there, and it accumulates in your spleen, and your liver, and your lungs, and your brain. Your immune system is trying to fight it, and the collateral damage from that, and the molecular mimicry, as you describe with mold from that, triggers more inflammation, more tissue destruction. It's critically important. The three things that I think are most important to address on this particular topic is what's on the end of your fork? What's going up your nostrils, and what's in your gut? You attack those three, you spend three months, four months, six months, focusing on dialing down on this, learning those three categories and what works for your body, and what doesn't, you will help enhance years and years more of quality life for you, for yourself.

Dave Asprey: I love those three pillars. If you only do two of the tree, you don't have a stool that will stand up on its own. Do you see what I did there? Still we're-

Tom O'Bryan: Yes, I did.

Dave Asprey: Sorry, since we're talking about [crosstalk 00:55:23].

Tom O'Bryan: That was cute. I caught it.

Dave Asprey: You might caught it after I said it. I'm like, "Oh man, that was bad." Anyway, the thing about LPS in the gut is so critically important. I've been doing a lot of work lately with [inaudible 00:55:37], which is really interestingly looking at your gut, and I got my test results back. I've had 15 years of taking antibiotics every month because of just chronic strep throat and sinusitis as a child and as a teenager. Funny, those are symptoms of living in a water damaged building, which was I was in a basement that had been flooded and not cleaned up properly, because we didn't know that in the 70's and 80's. I had all these symptoms of it, so I was getting my immune system just whacked repeatedly, and then whacking my gut. These are like two of the three pillars. Of course, I was eating lots of gluten and wheat. I had done all three of them wrong.

LPS is a major part of this, and what they found in the [inaudible 00:56:21] test was that basically my gut bacteria showed a heavy insult, but that it was recovering because of the way that I eat, but I still do have some LPS forming bacteria, and we all do in our guts. Basically, mine were being kept in check because I'm on a high polyphenol diet. These are these plant compounds that you get when you eat the bread ... they call it vegetables, herbs, spices, coffee, tea, chocolate, things like that. Even though there were some species there that they were basically being pushed down, but that I saw I had a room for improvement. One of the things I found on my own path here when I learned about the science of this, when I was writing the bulletproof diet, are there's these two compounds that are protective for LPS.

One of them has been known for 5,000 or more years. It's called activated charcoal. Of course, yeah, bulletproof makes one of these. It binds the LPS in the gut. If you have this bacteria and making this stuff, you can actually make it stick to something that you eat, so it will stick to that, and so it will stick in you. That seems like a good protective strategy for toxin binding it, and that's something that I do. What's your take on charcoal as a potential LPS binder?

Tom O'Bryan: It's one of the recommendations for all autoimmune patients, is to take charcoal in the evening, a few hours. Certainly, don't eat before you go to bed. There should be three, four hours that you're not eating, but then, take charcoal. Charcoal acts like a big sponge, which is just to suck up whatever LPS it can in your gut.

Dave Asprey: Now, seven out of 10 people have autoimmunity, it seems like this is a really important thing.

Tom O'Bryan: That's right.

Dave Asprey: It's not even an expensive kind of supplement.

Tom O'Bryan: No, it's cheap.

Dave Asprey: It's not the [inaudible 00:58:02] side of your grill. You make activated charcoal by taking a clean source. We use like coconut shells. Then, you basically light it on fire, and then put it out by taking away oxygen, so you have lots of surface area on it. That's one. The other thing is that if you're on a high fat diet, hey, listen up, if you're all keto all the time, you're on a high fat diet, fat escorts LPS across the gut most effectively. Especially things like lauric acid, which is the cheapest and most abundant MCT in coconut oil, the one that we don't put in Brain Octane. That stuff, as well any of the other longer chain fats will pick up these molecules and bring them across the gut. There are some types of fat including the stuff that we used in Brain Octane that are shown in studies to help the liver be protected from the impact of LPS on it. There's a reason that's in there with the butter in bulletproof coffee, because you want to be able to have some protective stuff in there.

Tom O'Bryan: Dave, I just want to give you kudos on this. You didn't know I was going to say this, but you may remember, it was five or six years ago that I said, "Dave, you can't use palm oil, man, in your octane, because palm oil enhances lipid raft transcytosis, which is this LPS being carried into the bloodstream right through the cells. You do not need a leaky gut." High fat diets have the potential of doing that and palm oil is one of those. You, to your credit, you got palm oil out of there, and you did.

Dave Asprey: Yeah, that was more of an environmental decision. Almost all MCT oil in the market uses palm as a source oil, but I think the study, Tom, was around palmitic acid. Basically, when you use palm oil as a source to make something

like Brain Octane, you're basically breaking the fatty acids off of it. There would be no palmitic acid in MCT oil made out of palm oil. Unfortunately though, you're still basically causing habitat destruction and things like that. That was what drove that decision there, because as long as you're getting the right molecules, right links of fat, you shouldn't be seeing the symptoms from that study.

Tom O'Bryan: Yeah.

Dave Asprey: I do see people out there saying, "Oh, let me make a fat coffee kind of thing." They're saying, "Oh, put some palm oil in there, because it has some vitamin or whatever." I just don't think you want to be putting palm oil in your body for those reasons. If you do, you want to make sure that you're getting enough fiber and all of that, [inaudible 01:00:25] on a zero fat diet. That's a bad idea, but if you're eating a lot of palm oil, it's probably not a good choice.

Tom O'Bryan: I fully agree. I think we're going to find in the next couple of years that a lot more people are going to be talking about LPS and the high levels of LPS. Most doctors aren't really checking for it very much. As they start seeing the contribution it makes to degenerative diseases, to autoimmune diseases, then, we start checking for it more often. We're going to find that it's pandemic and that high fat diets have that potential. Anyone that wants to be on a ketogenic diet, you just want to check and see, do you have elevated levels of LPS in your bloodstream? If you do, you want to take preventive measures so that you're not toxifying your structure, your internal structure by having too much LPS in there.

Dave Asprey: This is one of those things that's fundamental to performing really well, because what are the symptoms? What are you going to feel like the day after you have a spike in LPS?

Tom O'Bryan: Oh my goodness. It depends on where it's accumulating. It could be in your heart, and you're short of breath, if your heart muscles is inflamed and not functioning properly, most commonly, I think, just in my clinical experience, most common is brain. People just have stinking thinking.

Dave Asprey: Exactly.

Tom O'Bryan: They just know that they're not on their game. They don't feel up. They don't feel engaged, that they really have to rev it up to give their best, because they're feeling toxic. They just feel toxic.

Dave Asprey: It's actually measurable. Your IQ drops when your LPS levels go up. IQ varies substantially on a day by day basis.

Tom O'Bryan: Yeah.

Dave Asprey: Just based on what's going on biologically. If people don't believe me, try and do anything functional, say the morning after a bender, you drink a lot, and the next morning, you're like, "Oh, I just feel like crap. My brain doesn't work." Well, okay, if that can happen, maybe you can just have 20% of that on the average day. When I was interviewing Dr. Daniel Amen, who's Change Your Brain, Change Your Life, Amen Clinics, same thing. In fact, it was, I think in Moldy, the quote was like, you can lose 15 IQ points from toxin exposure, just like that. You can add that back in by removing the toxins, eating the right foods. Then, there's other brain training, and brain enhancing, and neurotrophics and things like that. If you're listening to the show right now and you're going, "What does have to do with me?"

Look, even if you're relatively healthy, if you do stuff that causes LPS to spike, because your gut bacteria is wrong, you can have a brain that's functioning 10% less than you're capable of tomorrow based on what you put on your plate today.

Tom O'Bryan: Yes, exactly right. Do you know, on those days when you feel on, and you're just sharp, and everything is great, and you see the world with clear eyes, why don't we feel that way every day? It's because what you're putting in your body is having an effect on how your brain and nervous system is registering and responding to the environment you're in.

Dave Asprey: That's what affects your day to day performance more than anything else. You got to get good sleep and things like that. I have a deeper, maybe more personal question for you, Tom. You talk about in your book how you can eliminate trigger foods and things that you're basically allergic to, and fix your gut, and then, you can reintroduce those trigger for this. I don't mean things like wheat, or something like that, but a lot of people have this leaky gut problem going on. They're allergic to everything they eat. Let me tell you what happens with me. I want to get your advice on this one. When I was doing research that led up to writing the bulletproof diet, I wanted to test this Eskimo style diet. I went for three months with one serving of veggies a day, and I eat lots of fat, and some protein, and was really careful about it, and have all the problems I mentioned early on the show.

One of the food allergies that I got from that, that I did not have before was eggs. Eggs are something that are super healthy food for you if you could tolerate them. I eliminated eggs from my diet. I fixed my leaky gut, and I'd say I'm probably 70% less sensitive to eggs than I was, but I want to eat more eggs just because the egg yolks are so full of phospholipids, they're good for you, but I haven't fully limited that. What do you tell the people who have developed a food allergy they didn't use to have? They fix their gut. They eliminate it for six months. What are the other tricks for giving yourself, basically undoing the damage you may have done with a high fat zero carb diet?

Tom O'Bryan: Yeah, yeah. Good question. In my experience, there's one answer, and only one answer that I know of that looks long term, with the vision of health and vitality

for many, many years to come. That answer is, rebuild a healthier microbiome. It's the only way that I know of to be exposed again and not have an inflammatory response, but using the panels such as biomes panels of evaluation to see, what's my current state and how do I get to where I want to go in terms of my microbiome? How do it get there? First, where is it? What's the deficits? What are the things that are way out of balance? Then, how do I get to where I want to go? Apply the principles and then recheck, six months later, you recheck. It might take a year to two years to rebuild the microbiome that would allow you to have eggs again, but for some people, if that's a genetic vulnerability, like wheat, there's no question on wheat, memory B cells.

Now, if you talk to immunologist, any time you have elevated antibodies to foods, if you have elevated antibodies, you're going to have a memory B cell to that food. Only immunologists talk about that, gastroenterologists don't talk about that. Internal medicine docs don't talk about that. They think, "Well, you can have a little once in a while, depending on how you feel." Immunologists say, "Absolutely not, because you trigger this whole prodromal period to come right back again." The only way I know around that, and it has to be confirmed by repeat checking of your immune system's monitoring, the only way I know around that is to rebuild a stronger, healthier microbiome.

Dave Asprey:

I would say I'm definitely pretty far along on that front. I've got some tweaks I'm playing with right now, and I'm planning to write a post on how I reversed my egg allergy, because I'm mostly there, but there's probably some hacks to be done around changing, or just digesting, or removing memory B cells from the body, or otherwise engaging them. This is where functional medicines gets really interesting, where as bio hackers, we want to have control of our own biology. If my body is inappropriately targeting molecules that it doesn't need to for my long term health and safety, there is a control mechanism, a reprogramming mechanism in there and we will find it. This is pretty cool, because if you're listening to this, and you're saying, "Well, I can't eat this food." Maybe you have a genetic reason like with lectins from nightshades, or grains, or something, where your people didn't eat it. You're not going to eat that. You'll never thrive on that.

Tom O'Bryan:

Right.

Dave Asprey:

Who knows? Maybe that's hackable. For the rest of the stuff, if you're fine on it, you got exposed like I did, it was not just to that diet, but also you get exposed to some mold at the same time, all of the sudden, literally, from one day to the next, you can't eat stuff anymore. We are going to get on top of that. We're going to be able to, whether it's an injection, or some kind of other thing. We're going to own all of that over the next five to 10 years because, Tom, when you talk about this stuff, when you write it in your book, it comes out. Now, all of the sudden, it's in our public discussion, and then, the functional medicine guys, the immunologists, we're all going to be working on this stuff and saying, "All right, there's a huge market for this. We will get to the point not so far away.

We're going to be able to say whether it's a capsule, a pill, a lifestyle thing, who knows, you might run an electrical current, but we're going to get there."

I'm incredibly stoked because we're about to understand why now that we understand what. You're really doing a great job of spreading the word about what's going on. Then, we can fix it.

Tom O'Bryan: Well, that's really exciting, Dave. It really is. There's a lot of research right now in the world of celiac disease and wheat sensitivity. Lots of different teams are working on pills, or enzymes, or genetic modifications, that they're trying a number of different approaches to see how can we help people eat wheat without triggering this immune response. The key, of course, is going to be a reprogramming, and it seems to me that reprogramming has to be comprehensive so that you can't expect to reprogram to eat wheat and to go around eat sliders every day, or drink a six pack. I bet that it really is reprogramming for a higher function and allowing to eat certain foods that you currently can't eat.

In my limited experience, I think, demands that you are living a high performance life in terms of taking care of your machine. If you treat your body like a Lamborghini, it's going to run like a Lamborghini. If you treat your body like a Rambler, and expect it to run like a Lamborghini, you're going to be in trouble.

Dave Asprey: That's an apt analogy. I can tell you that if I was running General Mills, or Coke, or Pepsi, or one of the companies that has highly affordable, highly palatable food that's sold on a mas scale, I'd be putting my R&D department looking at gut bacteria that can properly metabolize the types of food they eat, because I would actually love it. If I could just go out there and eat complete and just crappy junkfood, and I have super engineered microbes in my stomach that would just turn it into like DHA, and EPA, and all the right building blocks. We might actually be able to do that some day.

Tom O'Bryan: I love sliders. I love slides-

Dave Asprey: Yeah.

Tom O'Bryan: I dream of sliders and I grow up on it, Big Macs, I agree, it will be marvelous to have a microbiome that can say, "All right, bring it on. I'm ready for it."

Dave Asprey: Maybe that's the direction. If you're heading R&D at one of these big companies, and I know there are a few R&D people listening to the show, go out there and make us some microbes that can completely eat the worst junkfood and just completely break it down and make us feel great, because I will take that probiotic every day for the rest of my life and then I could just eat whatever was in front of me, whenever I wanted to and not get fat, not get inflamed, and not feel crappy. That's actually where, I think, we're going to get the world, to



the point where we take care of the world around us, it takes care of us, and we still have control of our own biology.

Tom O'Bryan: Yes.

Dave Asprey: That's the most epic future I could think of, not where we get to just pick out on junkfood all the time, but where our resilience as a species just goes up, because we start paying attention to what's going on in our guts.

Tom O'Bryan: Yes, amen to that, Dave. Amen to that.

Dave Asprey: All right, Tom, where could people find out more about your book?

Tom O'Bryan: The thedr.com, The Doctor dot com. The book's on the homepage, and it links you to Amazon, but there are some downloads you get if you go through there. Of course, you can go right to Amazon for it, it's called the Autoimmune Fix. I'm very proud of it. I think it gives a big picture overview, and people then understand much more about what's the path in front of them to develop higher performance.

Dave Asprey: Well, thanks for that. I know also you are ... you gave a special URL, which is basically a gift for people listening today, if they want to watch your documentary about autoimmunity, that contains a lot more detail with ... just about what we talked about today. Also, it features some of the other people who've also been on Bulletproof Radio, guys like Mark Hyman and all. It's at thedr.com/bulletproof, that's, what, nine episodes of the doctor series. Is that the whole thing? I actually didn't see it as well.

Tom O'Bryan: It is. Yes it is, yeah.

Dave Asprey: Well, thanks for letting everyone see that. If you enjoyed this episode, and you just realized, "Oh, wait, there's ... " Even if I don't have autoimmunity that I know of right now, if you flip the coin, the odds are very high that you've got at least one of the many different types of autoimmunity starting somewhere in your body. You want to get on top of that. If you're in your 20s, heck, you're in college, and you notice this, your grades can go up if you turn down inflammation. Your resilience goes up. You'll look better. You feel better, and just understanding what's going on with this when you're young prevents you from feeling like absolute crap when you're 45, or 50, or 100. That's the game that we're playing now. Maybe even beyond 100, because if you're 20 now, and you look at what have happened 100 years ago to 20 year old, the whole world is different.

You have the potential to live 100 plus, or maybe even 200 years if you take care of what's going on right now. That's why I think it would be useful to read Tom's book, look at Betrayal, it's the thedr.com/bulletproof, and just take care of the hardware you've got and it will serve you very well. This is something that I

didn't know when I was young. I didn't know how to do it. I didn't know how important it was. If I had known the stuff that I know now, when I was 20, man, my life would have been very, very different with a lot less work in it. That's one of the things that drives me to do Bulletproof, and thanks, Tom, for your work as well.

Tom O'Bryan: Well, thank you, Dave. It's really a pleasure, really a pleasure. It's an honor to do this work and follow the passion. I wish for everyone that they have the fuel, the internal fuel in their brain, in their bodies, to follow their own passion to make this world a better place.

Dave Asprey: Very well said. Normally, I'd ask you what are your top three recommendations for people who want to perform better, but you already answered it when you're on Bulletproof Radio last time, so we're not going to do it this time. Thanks again for being on Bulletproof Radio, Tom. Have an awesome day.

Tom O'Bryan: Thanks.

Dave Asprey: If you like today's episode, you know what to do. Head on over to [bulletproof.com/itunes](http://bulletproof.com/itunes) and leave a review. It turns out that I spent a huge amount of time doing Bulletproof Radio for you. As you know, I'm running Bulletproof, which is getting to be a rapidly growing company. We're national at Whole Foods with [inaudible 01:14:38], and the team's growing. I have committed to my team and to you, guys, I'm going to keep doing two episodes of Bulletproof Radio every week, because I think this is one of the most important platforms out there, just for sharing new information like you learned today, and just for helping you understand what you can do for yourself in order to feel better and perform better now. One of the things that tells me I'm doing a good job or not doing a good job is reviews, so [bulletproof.com/itunes](http://bulletproof.com/itunes) was just a link that takes you straight to the Apple site, where you can tell me whether I'm doing a good job, and whether this is helpful for you. I'd be really grateful if you'd just take a minute out of your day and do that. Thank you.

Tom O'Bryan: Dave, may I comment on that?

Dave Asprey: Absolutely.

Tom O'Bryan: Listen, everyone, this guy is ... He's got a great company and all of that, but he's doing this twice a week while running a huge company to carry the information out to all of us. My opinion, we all need to pay it forward a little bit. Do something nice out in the world without any reward for it to make the world a better place. If Dave's asking for comments, please give him the comments, so that he can make this even better. Thanks so much.

Dave Asprey: Thanks, Tom.