

Dave: You know how important it is to eat meat that's 100 percent natural, meaning it hasn't been injected with hormones and that the cows were fed high-quality sources of food. Not everyone has the access or time to hunt around for high-quality grass-fed meat. That's where Butcher Box comes in. They deliver healthy 100 percent grass-fed beef, organic chicken, and pork directly to your door, and their products are humanely raised and free of antibiotics and hormones.

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Speaker 2: Bulletproof radio. A state of high performance.

Dave: You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact of the day is about the largest muscle in your body. If you don't know what it is, it's actually your gluteus maximus. As they say, baby got back. What's the smallest muscle? This is one you probably haven't really thought about, so listen carefully. It's called the stapedius muscle and, of course, it's in your inner ear, which is why you're listening carefully. It's about five hundredths of an inch, and it stabilizes the smallest bone in your body called the stapes or stape-is. I have no idea, these Latin words, I have no idea how to pronounce it, but it looks like staples without the L.

It also helps protect you from loud noises, or even the sound of your own voice. Believe it or not, I believe it's absolutely possible to train that muscle, too. It's just hard. There's a couple technologies let you do that, but we're not going to talk about ear muscles today, because we've got some bigger things to deal with. That's kind of a bit foreshadowing who our guest is today.

Before we talk about today's amazing guest, who I've wanted to interview for years, if you haven't heard about the benefits of camel milk, it's totally worth your time to look into this as something you could add to your Bulletproof diet. Camel milk is something that I learned about from Walid, the owner of Desert Farms, who's the largest seller of camel milk out there. Camel milk got its start in the autism community because it's nonreactive the way cow milk is, and now it's just become one of the new superfoods

that's out there. One of the reasons is that it's full of lactoferrin, which is a natural substance that's present in mother's milk that has antibacterial, antiviral, antiparasitic, anticancer properties, and it doesn't have lactose or lactoglobulin, the stuff that makes lactose intolerant people unable to process milk from cows.

Desert Farms camel milk is also organic. It's tested for heavy metals and actually 900 different contaminants. It is keto certified, GMO free, has no bovine growth hormone or anything weird like that, and is pasture raised, so it's all grass fed. Desert Farms is offering a really good deal for Bulletproof listeners, because they were at the Bulletproof conference and we got to be friends. They're giving away a free bottle of camel milk for you. All you have to do is pay for shipping and handling. Just head over to desertfarms.com/bulletproof to get your free bottle of camel milk right now. That's desertfarms.com/bulletproof.

I wanted to talk to you about Fat Water. If you haven't heard about Fat Water, this is the brand new Bulletproof beverage. We'll ship it to you with free shipping. It's bottled water with zero sugar, sweetened with things like stevia, but it contains Brain Octane oil, so you get these micro-droplets of Brain Octane that go directly to energy without affecting insulin or blood sugar in any way, shape, or form. It's a really delicious thing. It's something we've worked on for years to be able to get the small amount of fat to stay suspended. It's also got a bunch of B vitamins in it. The idea is it helps you burn fat instead of sugar. It tastes really good, and when you just don't want to drink another glass of water or another coffee, it's a cool opportunity. There's lemon, pineapple, and grapefruit, and it's awesome. Try it at bulletproof.com

Today's guest, I'm so excited about this, is Charles Poliquin. Charles is a world renowned strength and conditioning educator and coach. He's helped some of the world's most elite athletes completely kick ass with hundreds of medals, wins, and personal best in 17 different sports. He's worked with champions, Olympians, athletes, NHL, NFL; written a few books, one of which you're going to learn about today, and hundreds of articles about his techniques; decades of global training; and he runs Strength Sensei, a valuable online resource around training, performance for athletes and coaches.

He's also, just on a personal note, he's one of the first biohackers out there. When you look at the world of biohacking, there's the strength and conditioning side, there's the nutrition side, there's the medical side, there's the crazy biofeedback, there's military, special ops, resources, and all sorts of things. We're doing freedivers, Wim Hoff kind of polar bear people. What Charles has been doing for longer than most of those people is looking at the details, the things that happen inside your body, things that happen outside your body. How the signal you send to your muscles changes your body, and come up with things that were absolutely pissing off the world that he said in the '80s that have been proven today to be true.

Charles, it's an honor to have you on. Welcome to the show.

Charles : Thank you very much, David.

Dave: I'm looking at you now on the YouTube video version of this, and you're about what, 55 now?

Charles : 55 exactly, yes.

Dave: Can I see your biceps? Look at that. The guy's completely ripped. You've got about 16 years on me. I'm hoping that I look as good as you, or, heck, halfway as good as you when I'm 60, given I probably don't train nearly as much as you do. Why do you focus on maintaining muscle mass as you age like this? What's important about that?

Charles : As early as the '80s in Boston, they did quite a few studies at Tufts where they looked at what could predict aging. The number one antiaging parameter that you could, was actually muscle mass. The number two was strength. It out-shined cholesterol, high blood pressure, resting heart rate, max heart rate, and all these other factors. The thing is that there's a phenomenon called sarcopenia, which is death of muscles, and we lose strength, but one phenomenon now more studied by the Italians is actually dynapenia, loss of strength.

There's a lot of exciting research now on peptides that would slow down dynapenia and sarcopenia. One of the ways to stay young is actually how much muscle mass can you retain and how much strength. The more you train the less you age, basically. People say okay, big muscles, "doi." What you have to consider is when you have large muscle mass, you also have more insulin receptor sites. We know that insulin is the hormone of aging. That's what you're all about. If you have a lot of muscle mass, your ability to control your glucose, control your insulin is enhanced.

In their late 80s people will break hip bones and whatever, but if you have strength you have more balance. There's actually a very good study done on what was the most important in a Parkinson patient. I was consulted on their protocol, but they asked should they do balance exercises, should they do aerobic work, or should they do balance and weight training, or balance and aerobic work. It was one of those what I call a no-shit-Sherlock study, which is that the results showed that balance and strength training helped. I told them, I said, "Aerobic work will worsen the patients," and it did. I said you don't need to do the study, but they said, "No we need to." I said, "Okay."

They did the study, and one of the problems of aerobic work is that it oxidizes the body. If you look at studies on long-term athletes, the ones with the less cognitive ability are actually the ones who have done the most aerobic work in their lifetime. So cross-country skiers or rowers, if you meant to compare their cognitive ability in their 70s compared to a weightlifter or a wrestler or volleyball, their brains are sharper. I always tell my students, we were designed to throw a rock at a rabbit, not chase it. We don't feed ourselves aerobically.

I think people are now ... There's been a change in attitude toward strength training. Now we know, for example, to prevent osteopenia, which is loss of bone, strength training is very valuable and [inaudible 00:10:15] are probably the best researchers right now.

Dave: You said a couple things that I want to dig in on. One of them is definitely around the peptides, and we'll get there, but the other thing you said was just that aerobic exercise isn't going to be good for your brain. I've seen some studies that kind of make me mad around telomers that say if you if you're doing 50 mile runs, these ultra long-distance runners who I believe are kind of beating the crap out of their bodies, they get really long telomers. Some interesting antiaging stuff that Bill Andrews has talked about. I am in your camp firmly after many years of doing both cardio and weights. I do occasional very heavy stuff that bends my bones as much as I can. I have machines that bend my bones to cause bone density, and I measure it on DEXA and all that kind of stuff. But what about the studies that say aerobic exercise does have antiaging. Can you tell me your perspective on those?

Charles : I haven't read those, so I'm not going to comment.

Dave: Okay.

Charles : But in my ... I've seen plenty that show that ... For example, we did a sports kind of did research on osteopenia in female Olympians for the '92 Olympics, and what they found is that there was also a direct correlation between mileage of aerobic work and loss of bone. That's been confirmed by other groups of researchers around the world. Maybe it helps the telomers, but if you don't have a hip to support yourself on, so what?

I grew up in the '60s, and there was Cooper, and aerobic was great and blah, blah, blah, then then they suddenly pulled a 180 on us on that. If you look at mitochondrial damage or even gut lining damage from aerobic work, the results are not promising. The problem with science is that you have to take one variable and that's the one you measure, and you can't look at everything. Also, in real life you can't look at the world through a straw. This may help this, but at the expensive of what, right? That's why I prefer studies on long-term athletes, and then say, "Okay, let's compare a weightlifter to a wrestler, or let's compare whatever."

Dave: I did a lot of looking at this just for Headstrong, the new book on mitochondria that's really meant for the brain, just through the lens of what's going to grow the most mitochondria. There's a set of research that says lifting heavy is going to get that for you, and then there's a set of research that says walking for 20 minutes a day is going to get that for you. But not running. Not the intense stuff. So the recommendations are move a little bit every day, which is going to stimulate that.

Charles : Yes.

Dave: I use the Bulletproof Vibe, the whole body vibration, because it's a little faster than going for a walk and you get stimulation there. Then like lifting heavy, in my case my goal isn't to be as muscular as you, but to be muscular, or I guess the New York Times called me almost muscular, which is from an antiaging perspective, I think, where I want to be. That was a compliment, I hope. The goal is that. Once a week, or even once every 10 or 15 days, seems to be enough as a non-athlete.

Charles : Correct.

Dave: Do you think that I might be under-training on strength if I'm maintaining the muscle mass I'm looking for?

Charles : The thing is that I would probably increase the volume to maybe twice a week.

Dave: Twice a week. Wow.

Charles : The thing is, is that are you trying to what they call Barbarian. No, right?

Dave: Nah.

Charles : The thing I would say is it would be better to have a short workout twice a week, so let's say 20 minutes twice a week, then 40 minutes once every 10 days.

Dave: I only do 15 minutes once every 10 days, but I'm doing it with computer-driven feedback equipment, so I'm basically using the ARX, which I'm fighting against a winch, so it's essentially like isometrics against a moving plane, so you get really rapid muscle exhaustion. I don't think I could do a 40-minute workout on that machine. It would kill me.

Charles : Okay, but that's why you may want to up your frequency.

Dave: Okay. I'll play with that. I'm in my mid-forties. Let's talk about peptides. You said there's some new stuff about peptides. I put on 12 pounds of muscle in the last month with basically three workouts, which is unbelievable to me, but I'm using SARMs, Selective Androgen Receptor Modulators. Are those the peptides you're talking about, or something else?

Charles : A peptide and a SARMs is a different thing, as far as compounds.

Dave: Okay.

Charles : The SARMs, that's another thing that's very exciting, like the RAD140, it seems to be very efficient.

Dave: I haven't even tried RAD140. I'm doing 4033 and 50156. By the way, for everyone listening, there's a blog post on Bulletproof about the different selective androgen receptor modifiers. They're all research chemicals. Some of them are probably banned by sporting bodies, but they seem to work really well. The reason I did it was because one of them gives you a 50 percent increase in mitochondria. I'm like, "I'll take that, thanks."

Charles : Yeah.

Dave: Anyway, just for some people. I don't want to be too technical without defining terms. Go ahead.

Charles : The thing is, just for example, there's a peptide I just got a paper where they took ... Okay, it's an animal model, but they on purpose damaged the sciatic nerve, and then injected with a peptide called cortigen. There was regeneration of the nerve with that peptide.

Dave: Wow.

Charles : The interesting thing is that one reason why we lose muscle mass is the damage done to the nerves as we age. That compound, in my opinion, is the way to go. Last week I had a conversation with Jean Claude [inaudible 00:16:33] at the University of Montreal. he's going to do a PhD thesis, and he was asking me, "What protocol do you recommend?" I said, "Well, go to a retirement community, after you go lift weights inject bacteriostatic water and have the other ones have the cortigen and see what it does." Apparently that's what he's going to do for his PhD.

Dave: Wow.

Charles : Dynapenia is now the word in antiaging in my field.

Dave: Dan Pena, you said?

Charles : Dyna, like dynamic.

Dave: Oh, dyna. Okay, cool. Okay.

Charles : Loss of dynamics to muscle strength.

Dave: Oh, sorry. I had a glitch there. Dan Pena has been a guest on the show. I'm like, "He's like a gazillionaire in the UK. What?" So sorry, you completely lost me. He does antiaging stuff. Okay. This idea of loss of strength versus loss of mass. Being bulky and weak is actually probably worse than being less bulky and strong?

Charles : One of the things is that you can't separate the nervous system from the muscle, so if you lift weights and get bulky, your nervous system gets the benefit, but probably the ideal combination for antiaging would actually be something that works at the nerve level and something that works at the muscle level. I'm quite excited about that. I'm thinking in the next few years we're going to see more and more papers that illustrate dynapenia and sarcopenia together.

Dave: That is fascinating. When I did this thing with the SARMs, just because this is the top of mind for me, I have a computer that's tracking my max, like the max I can lift on just the big four movements, squats, and presses and things like that, pull downs. I did at least 12 percent higher on my max and on one of them 20 percent higher, just over the course of three weeks by increasing mitochondrial density. I was completely blown

away. That really exceeded my expectations. My max before was reasonable for a guy my size, not that insane, but not weak by a long shot.

What would a listener today who wanted to reverse their muscle loss maybe without going to SARMs or wanting to increase their strength? What is the fastest way they could go about getting even some kind of gains like that? Do they need to go to SARMs or is it just a training thing?

Charles : Okay, I would say training would have more of an impact, but the SARMs in conjunction with training would be two plus two equals five.

Dave: Okay.

Charles : It has a multiplying effect. But I think if you just did the SARMs and sat on the couch, it wouldn't be a two, it would be a point two.

Dave: A point two.

Charles : So you do need that stimulus. It's like basically you have a fire, and if you blow air on the fire, the fire goes. The SARM would be the amount of wind that goes on the fire, but you still have to light up the flame, or the wind will not do much for it. Then there's the MK177 that shows promise. I think, this is theoretical, but I've done a lot of stuff theoretically in a practical way that's shown up to be truth 30 years later.

Dave: That's why I like you.

Charles : If you put a gun to my head and said, "Man, give me what you think is your best guess," I would say you would do two weeks of let's say 8-12, then change completely the exercise, change completely the speed, and-

Dave: When you say 8-12, do you mean 8-12 reps stacking weight up, for people listening?

Charles : Yeah, 8-12 reps where you reach muscle failure, okay?

Dave: Okay, so a single set of 8-12 until you can't do another one. All right.

Charles : Or multiple, but the point is is that you work in that intensity zone which would be about 70-78 percent of your max.

Dave: Right.

Charles : Then for another two weeks I would change the SARM or change the peptide, and then go easy, like 4-6 reps. Then next month start with another peptide and keep going with that, because I think with these things is that there's the law of diminishing returns. One thing I tell people all the time is that strength training is like learning a foreign language. You need repetition. If I said a word to you in a foreign language once, you're not going to remember it. Research shows that you need to repeat that word at least six times.

But if you do, let's say a Swedish lesson every 10 days, the odds that you grow your Swedish will be low. There's such a thing as frequency. But if you're doing Swedish lessons seven times a day, you will say, "My brain can't handle it." There is a need for rest. There is a need for stimulus.

The thing is that when you learn a foreign language, how do you know that you mastered the language is when you're funny in it, right? Think for example the sentence, "Did he really say it?" If I typed that in an email, does it say, "Did HE really say it," or "Did he REALLY say it," or "Did he really say IT." Just by putting emphasis on one of the words, a sentence doesn't mean the same thing at all, even though it's the same words, right? So with strength training you have to put emphasis on different things, so that's how you build up your training vocabulary. I think the peptides would be ... Strength training would be the vocabulary and the peptides would be grammar, right?

Dave: Wow, what a great analogy. That's cool, Charles.

Charles : Yes. Thank you.

Dave: All right. I think that answer for our listeners is basically mix up your strength training a couple times a week, and if you did decide to use SARMs, you mentioned several there. I think I covered it all, but I haven't talked about cortigen on the blog post about SARMs. Have you written about SARMs? Are they in your new book?

Charles : No, but I just heard last night the guy I believe from [inaudible 00:22:54] to start writing on the peptides and SARMs.

Dave: Okay, so where can people find that stuff? If you like Bulletproof Radio and you've been listening for a while and you like the people, Charles is like, oh gee, like really knows more about biohacking and not the ... There's definitely a body building or muscle mass component to what he does, but body composition and performance are actually more behind what he does than just the muscle building stuff we're talking about now. So if you're not following him, where's your URL or where do people go to get your newsletter? I read it. It's really good.

Charles : Strengthsensei.com.

Dave: Strengthsensei.com. All right.

Charles : I'm 55 and obviously my goal is a lot different than when I was 25. Like [inaudible 00:23:46] said, if at 45 you were the same guy when you were 18, you know you wasted quite a bit of your life. I have different goals. But I think that the peptides are very exciting, especially some of the stuff to regenerate collagen, cartilage, like BPC-157, the TB-500. I've seen a lot of my students who've for reason X, Y, Z they've torn something with their meniscus and they go on peptide therapy and then their lives change because they can finally get out of the pain. One of the things I really like, unfortunately, they stopped making it in [inaudible 00:24:28] was Actovegin, which was basically-

Dave: How do you spell that? What is it?

Charles : A-C-T-O-V-E-A-G-I-N. It's a veal blood extract, and pretty much everybody that's famous in the world of soccer or track and field has had Actovegin injections.

Dave: Wow.

Charles : This stuff will regenerate cartilage, and I can swear by it, because my doctor's from Luxembourg, and he prescribed it to me, and on my right shoulder it completely regenerated the cartilage. But now only Lithuania makes it, so it's been harder to get. If you're creative, you can get it.

Dave: That's interesting. I'll have to do some research on that. By the way, if you're listening and you didn't catch that, all of these compounds will be in the show notes on the Bulletproof website, and there's a full transcript you can read as well, so if you want to go back and take notes on this, that-

Charles : I will send you a picture of the product. I can send that to you.

Dave: Oh, cool. That's really helpful. I'll have to find a way to get some and give it a shot myself. I think that there's probably some discomfort from people listening. We're talking about using some research grade chemicals, things that have been proven in labs, but we don't have 25 years of data to show that they're not going to make you grow new eyeballs or cancer cells or whatever else, but you have athletes using them, you've obviously used some of these things yourself. I've used them because I looked at the risk/reward, and the reward is pretty big and the risk looks pretty low given the mechanisms we know. How concerned about safety are you for all these things?

Charles : I want to make a note here. None of my athletes have used them because there possibly could be [inaudible 00:26:16] any data.

Dave: Okay.

Charles : But I have students, lots of students, who are non-athletes that have used them.

Dave: Okay. I hear you.

Charles : I get a lot of feedback from the trenches on how great they are. But personally I have used peptides and Actovegin to regenerate soft tissue, and I think they work really well. I have no qualms about that. The thing is there's not a lot of research yet, but it's one of these things how much risk are you trying to take from ... Put it this way, I'd rather be pain-free than not, to be in pain. Or if I'm using like oxycodone or anything like that. And it actually regenerates the joint. Actovegin, I first heard about it around 2004, and I can tell you pretty much there's a country, I will only use it's initials, Germany, where a lot of the soccer players have been treated by this doctor out of Munich with Actovegin. It's not a banned substance. They wanted to ban it, I've heard, in [inaudible 00:27:41], but it's a miracle compound. I've seen a lot of retired athletes fly to Munich, get treated

with that. Golfers have been there. The compound is time tested. I've never heard of anybody in the last 15 years having any issues with it.

Dave: If a 50-year-old CEO who's got an extra 20 pounds of gut, flies all the time, and exercises a couple of times a week if he's lucky, and he's looking at, "All right, I don't like the flab. I don't like my muscle mass," is it appropriate for guys like that to start thinking about incorporating peptides, or should they just go straight on testosterone replacement, because you know if you're 50 your testosterone is low anyway.

Charles : The first thing they should do is get a full panel, right? Because a lot of time guys have low testosterone because they don't manage their insulin properly.

Dave: Let's go to that, yeah.

Charles : The second most important factor, and some people think it is the most important factor, and I would tend to agree, is sleep quality. If you look at ... There's a lot of research on what does boost testosterone, but one thing that we know that works in 100 percent of subjects is deep sleep. But people look at screens. I tell people if you want good sleep, stop looking at screens three hours before you go to bed.

Dave: Yeah.

Charles : There's that. It's affecting their pituitary gland and whatever else. Magnesium deficiency will disrupt your sleep. I would say to your listeners, there's seven cheap tests you can do, even if you don't have insurance and you pay out of your pocket. You can go to a place like Any Test or Any How or whatever that brand is, and write your own script. The thing that's most important in my opinion is HbA1c, glycated hemoglobin.

Dave: Yes.

Charles : If you say you only have \$40 to invest in your health, check that out. Of course, the lower percentage of that molecule the healthier you are, but if you're 6.8 then you're maybe diabetic after your next soda. That's when you're on the edge. Soda is like, [inaudible 00:30:03] says it's liquid sin. You get your HbA1c and you try to bring it down at least below 4.8. So those are the tests. Vitamin D3 is [inaudible 00:30:15] all the causes of mortality. If your D3 is horrendous, you're more prone to depression, you're more prone to suicide, with also glucose and insulin management, is horrendous. So get your D3 status. Then I would measure my morning insulin, my morning glucose.

Just look at math. In the US they tell you your morning glucose should be between 70 and 99. That's a stupid way to look at it, because for every mg percent you're above 70, your risk of heart attack goes up five percent.

Dave: Above 70? Not 87, which is the gold standard for antiaging forever? 70 is damned low, Charles, wow.

Charles : If you're 99, you're at 145 percent more risk of cardiac-

Dave: But your risk is so low ... I mean your risk is really low anyway on average, so 145 percent more relative risk is kind of a small change, right?

Charles : Yeah, but the problem is the doctor will say you're fine.

Dave: That's a fair point. I get that.

Charles : Okay? What would you rather have 70 or 99? Not taking care of your health is a very sure sign of low self-esteem, right?

Dave: Yeah.

Charles : I would look at that. Another test I would do is a reactive insulin test. Sometimes you pass morning glucose, morning insulin, but you don't pass a glucose challenge test. So we have glucose, insulin, reactive glucose, HbA1c, vitamin D3, and the last two are red blood cell magnesium. I didn't say serum magnesium. Red blood cell magnesium, and then red blood cell zinc. If you look at it, magnesium deficiency impacts four major systems. You can't make DHEA properly if you don't have enough magnesium. Magnesium regulates how much cortisol you put out under stress. People without any red blood cell magnesium are low stress responders in the sense that if you give people the same amount of stress, somebody with a lot of magnesium reserve will handle it, and the person with poor magnesium will freak out. The French would say, *une tempête dans un verre d'eau*, a thunderstorm in a glass of water. It effects the people that overreact to everything. That's a clinical sign of low magnesium.

Zinc is known as the great organizer. Anything that has fluid is organized by zinc. Your tears, your semen, is zinc related. If you have poor zinc status, you also have poor immune status. Both magnesium and zinc are involved in insulin and glucose management. That's why I like a lot of those seven tests. You do what I call the manifesting seven, and it's a cheap way to get it. If you have more money, then you could look at your telomers and whatever else. For listeners out there, it's interesting, because some of your listeners may be from Sweden, and to get a D3 test in Sweden, you've got to fill out a three-page questionnaire. One of my Swedish friends go over and stay at my house, they go to Any Test, Any How, and they get a full panel for about \$600 that would cost thousands in Sweden and you would have to go through days of paperwork.

Dave: My wife is a Karolinska-trained Swedish physician who practices ... Well, she's not formally practicing, but she has a fertility coaching practice now, but, yeah, sometimes it's weird because Sweden is very progressive on some medical things, but like vitamin D in a dark country you'd think they'd hand that out at the 7-11s, but it doesn't make sense.

I love it that I said, "What should a 50-year-old do in order to put muscle back on," and instead of saying, "Use SARMs, use peptides, use testosterone," you're like, "Get the core data about what's working and what's not working." So given ... Okay, you've got a guy who probably doesn't sleep very well, or a woman, doesn't sleep very well, probably

doesn't train very effectively, lots of job stress and circadian stress because they're flying around and things like that, what of those lab tests would you predict would be off in the average person who's carrying 20 extra pounds and not quite happy with how they look?

Charles : All seven.

Dave: All seven, okay.

Charles : That's why with years of experience I found out those seven are the cheapest way to do it, because I always have questions from my readers like, "I can't afford this test, I can't ..." I say, "Okay, this is the cheap bastard way to find out how healthy you are."

Dave: Cool.

Charles : If a guy came to see me and all those values are off, I don't think there is a point to go on testosterone until you fix your insulin, because if a guy goes, "Okay, I need testosterone," so he goes to see a doctor that is lawfully prescribing testosterone and he gives him testosterone, but he's fat. Some of that testosterone will aromatize many odd nickels [inaudible 00:35:38] within a week. He's going to squat to piss because his estrogen's way through the roof, right? The first thing you need to do to improve health is to improve insulin sensitivity. So lose your 20 pounds. If he has a testosterone count of a catholic mouse in a church, then go on testosterone, but the thing is that insulin is a castration and aging hormone. Learn how to eat. Learn how to sleep. There's so much data.

Dave: How do you recommend eating. I know the answer, but I think listeners would also just appreciate your take on it. What should your plate look like?

Charles : My diet looks like? I'm a big believer ... Okay, rule number one, the diet has to suit your genetics. So how I eat is different than how someone should eat. For example, there's a lot of studies on the amount of copies that the amylase digestion gene-

Dave: First start.

Charles : First start. So if you're from Cashmere, you can eat a lot of starch and stay lean. With my ethnic background, that does not work for me. If you're from-

Dave: What's your background?

Charles : I'm French Canadian, but I have quite a bit of native blood.

Dave: Okay.

Charles : So for me, meat is great. So let's say if I wake up in the morning, this morning I had yak. I love yak.

Dave: I love yak.

Charles : What I do is I put goat butter, I roast some cashews, and then I throw in meat, some salsa and spices, and eat that. Then I always believe in morning [inaudible 00:37:24], for a guy like me, so that's what I do, but it may not work for you if you're from Vietnam. The average percentage of carbohydrates [inaudible 00:37:35] is 40 percent, that's optimal if we looked just on average, but for a person like me, 25 is a lot.

Dave: Twenty five percent, not 25 grams, right? You're not like ultra low carb or anything?

Charles : No. Then because I've got a lot of muscle mass, I can afford more carbs, so the rule of carbohydrates is that carbs have to be deserved. If you're fat, you don't deserve carbohydrates. Maybe if you have 30 percent body fat, your carb intake should be 10 licks of a dried prune at Christmas.

Dave: You would recommend radical carbohydrate restriction for fat people.

Charles : Correct. But up to a point. If you're from Serbia or Slovenia, you tend to have very low fat in your diet, even when you're fat, and most people do terrible on low-carb diets for fat loss. It's the quality of the carbohydrate you should have. It's the low carbohydrate, which is [inaudible 00:38:32]. That's common sense. Mark Twain once said, "The problem with common sense is it's not that common." If you do have common sense, the curse is the amount of people you have to deal with each day. That's what I would eat. As a source of fat I use MCT oil, I use fish oil, I may use two tablespoons of coconut oil. Then my brain's on fire and I'm in flame. I can write, I can coach.

Dave: Are you looking for ketones from your diet? You're eating too many carbs to get ketones. What's the MCT oil for? Is that to raise ketones?

Charles : To raise ketones, but also to make my insulin curve be as low as possible. For lunch I typically go for a white protein. So fish, chicken, turkey. There's nothing magical about white, but there's a lot of people who like things that are simple. So red in the morning, white ... So people don't have to worry about it. Then that's when I would have two or three vegetables or salad. Then my dinner usually is another protein. I could have duck breast. I really like to have more fats. I'm not a guy that does very well on lean meats. Yak is a very lean meat, but because I use goat butter and all the other oils, it takes care of that.

Dave: Is the goat butter because you're allergic to cow butter or because it has higher butyric acid in it.

Charles : That's the reason, but also you get taste fatigue.

Dave: Ahh, okay.

Charles : Sometimes I use cow's butter, but I find that for me probably because of butyric acid I feel better on goat butter. It's funny because everybody that comes here, now we're

filming videos for the upcoming membership site, and I had a guest and it was the first time he ate yak with goat butter, and he's like ... Now he's a convert. I use quite a bit of that. At dinner, that's when I would add starch for the day, so typically sweet potatoes or purple potatoes or some type of starch. Some rice. Most people should stay away from grains. One thing that I found that's really useful is for people to get food intolerance tests. There's only one lab that does it correct for the intolerance test.

Dave: Which is the lab you recommend? I'd love to hear your thoughts.

Charles : You know what? I've tried every lab using player's insurance from different federations, because they can afford whatever they want. The federation doesn't care. The only one that has value is Cyrex Labs.

Dave: You like Cyrex. Okay, that's the one I've been recommending for a long time.

Charles : I love Cyrex. The thing with Cyrex, they can tell you if your gut is compromised, which is the first series of tests you do. They also look at what does the food do to your blood-brain barrier. I just had a class in Phoenix with Cyrex, and every student did the test, and every day they'd be like, "Man, that test changed my life." For example, I had a student from the Czech Republic, and she ate daily oats and dairy. This girl was very lean, but there was no visible sign of an abdominal audit. A week after abstaining from all the right foods, she had deeply etched abs because of the inflammation created by the forbidden foods.

With Cyrex what I've seen is that there's ... For example, depression. A few years ago I had periods of severe depression. Depression where I was a loser, I wanted to shoot myself in the face. I was this close. It would only happen one day a month every month, that's it. I can't have PMS. I don't have uterus or ovaries, so what was wrong? I did the Cyrex lab, and it turns out I was the patient at that time with the worst wheat allergy they'd ever seen.

Dave: Wow.

Charles : Why would I have depression? I was also intolerant to cow products. I would fly home to see my daughter, and I'm not the type of guy to carry his food in Tupperware to stink up the first class area. I would eat whatever there was. And I'd say, "I'm having one bun a month with one slice of cheese, so what?" Well, it was evident so what. Within 12-16 hours I'd be having these stupid thoughts. Monday's I'd feel like shit, but then by Tuesday I was fine. I did the Cyrex test and abstained from all the foods, and then six months later I retested and the wheat was still severely there, but I was not intolerant to eggs and dairy anymore.

Dave: Wow.

Charles : You get what you call a cross reactivity. Cyrex saved my brain, that's for sure. That's why when people say, "I can't lose weight," or "There's something wrong and I don't know what it is," usually it's a food intolerance.

Dave: Yeah. My experience has been the same way, both personally ... I would have my one cheat day on a Friday night. I'd have a cheesecake or something. I'd be okay on Saturday, a little tired on Sunday, and Monday I was just a total jerk and a zombie. It took me like a couple years, this is going back like 15+ years, to figure out that it's what you did a few days before. It was personality changes, like I'm angry. My middle finger on Monday morning is really ready to go. You kind of feel like you're a little bit crazy or something, because why is this going on? It's environmental. It's what you put in your body, right?

Charles : Yeah. The two worst sources of stress come from the mouth. What you put in your mouth and what comes out of your mouth.

Dave: Well said. If you put the wrong stuff in, you're going to not like what comes out, that's for sure.

Charles : Yeah, and then it's funny because one of my Russian clients got her test done and it's amazing how her brain has changed from just not eating those foods. And it's interesting, because some of the foods are thought of as being healthy. For example, I've got a strong intolerance to quinoa. I would rarely eat quinoa, but every time I eat quinoa, I thought I ingested napalm, because it ... "Why is my stomach killing me?" And flax? I'm very intolerant to flax. By dropping those foods, my health ... Then joint pain went away. Food intolerance is [inaudible 00:45:37].

Dave: I'm grateful that you're going into those details. One group of people would say, "Well, this guy obviously is weak because he can't eat everything on the planet." If people are watching the video, dude, you're not weak. You kick ass on multiple levels. Your brain is sharp, you're in really good physical shape. What's going on is you found the stuff that's biologically compatible with your system, and you avoid the stuff that makes you weak, right?

Charles : Correct. Then, but the thing is that ... One of my friends is Serbian, and he's done the test. He's very lean. If I ate what he ate every day, I'd be on welfare and depressed and unmotivated. If he ate what I ate, he'd be sluggish. The key with nutrition is to find what works for you. But there's a very simple test. You can find it on my website. It's the breakfast test. I ask people to wake up, write on a scale 1-10 how their brain works, so they put something like a 7, and then they do the do the meat and that's breakfast, which is explained also on my site, and then an hour later they should rate their brain, and most people will have an increase in their scores. They feel better. Some people say, "Actually I feel sluggish."

Then the next day I make them do the opposite, so 70-80 percent carbohydrate breakfast, and then rate yourself before breakfast and after breakfast. A guy like me, if I had pancakes for breakfast, I'd be waiting for my welfare checks. I would never work in life. But some people thrive. For example, my daughter's mother could probably go to work drinking a liter of maple syrup before going to work and it wouldn't bother her, but she has high tolerance to carbohydrates. To sum it up, you have to eat according to your genes. Not your Levi's, but your genetic profile.

Dave: One of the things that I did in putting together the infographic or the roadmap for diet is there's a group of things that agree with most people, like the non-offensive vegetables that most people aren't allergic to. Most people can handle butter. Even if they're dairy sensitive, they can eat butter. And a few others simple foods that are high in nutrients. I'm like, just eat that for a while. You don't have to be low carb. You can eat some rice, but just the clean sources of starch that don't go up a lot. Do it for two weeks and see how you feel. Most people, to your point, they're like, "Wow, I feel great." There's a huge list of suspect foods, lentils, nightshades, all sorts of other things, and there are grains where, you know what? A huge percentage of the population aren't going to do well. Unless you're going to go out and do a Cyrex panel, you're probably just not going to know. The idea is eliminate all the potential suspects just to get a baseline.

For me, the big difference was, wow, all this pain I've had my whole life, I've had three knee surgeries, it all went away, which was remarkable. Then you can add stuff back in. Of course, I have my lab tests and all that from different food tolerance labs, just like you, but most of them didn't pick out ... For me nightshades are a big thing. The whole point for listeners is, it's okay if the guy next to you is eating something and you like that food and you just choose not to eat it because it's not compatible with your system. There's no weakness. Anyone who tries to shame you or tell you that you have to eat that, just tell them to go screw themselves. Don't eat stuff that makes you feel crappy and act like jerk. That's what happening to us.

Charles : Yeah, because if I could invent a pill that makes Krispy Kreme tolerable to everybody I'd be a billionaire for sure. The thing is that ... One thing that people do notice when they start eating clean is that the so-called cheat foods start to have no value. They'll be like, "Now I know why you stopped." I remember in 2006 I had to go back to Canada for nine months after a long time, and I stopped at one of those gas stations with no healthy food. I was like, "Aw, fuck this. I'm going to have ..." And I picked a chocolate bar that I used to like as a kid. After the first bite I go, "Holy shit. I know why I stopped." I threw it in the garbage. The thing is that as your cells get smarter, you can tell which food or not. For example, most people ... Nope. I don't know anybody that's ever been mugged by a dozen donuts. They're all voluntary choices. It's sort of one of these things we do have control over. We don't have control over the elections, but we do have control about the food we put in our stomachs.

What I tell people is that what is your body and your brain worth to you? If you pick those M&Ms and stuff because you don't have raisins and cashews, you're telling me you have low self-esteem. The most read article on my website is called the Myth of Discipline, and I blow away the myth of discipline because I don't think there's such a thing as discipline. It's whether you love yourself or not. If you love yourself, you make the right choices. If you have low self-esteem ... If you say to me, "I really like to eat two dozen donuts a day," and I'm a recovering Catholic and I know how to put the gift of shame on you, and I'm going to tell you, "You prefer your taste buds than a well-functioning brain. That's your choice, but it's not a matter of discipline."

Dave: You and I are both focused on cognitive function, and you said something that's controversial, but something that Dr. Perlmutter and Dr. Amen, two very well known

neurologist types who are friends and guests on the show, they said the same thing, but I think you might have been the first one to say it, the link between IQ and fast food consumption. What's your take on that?

Charles : Okay, well, there's a very good researcher out of Calgary, Richard Johnston, who all he did was measure the amount of Kentucky Fried Chicken outlets there were per capita. The enteric way to measure trans fats consumption. There is an inverse correlation between the amount of KFCs and your IQ.

Dave: Oh no. Trans fats and MSG. They both are going to jack your brain in every way. You mentioned you ate your grain and cheese thing once a month and it made you feel bad. I know people are like, "Well, I went out drinking, so I had (insert name of junk food place here)." How often is okay? Is it okay to have fast food like that?

Charles : Okay. I think you've got to look ... Let's say if you have four meals a day and you have 28 meals a week, and one is a cheat. I don't think it's going to be that bad because you have 27 that are good. But that's not a 100 percent commitment. So if you want 100 percent results, it's 100 percent commitment. I don't think that meal is going to destroy the other 27.

Dave: No, it's not.

Charles : I think one thing that I find successful as a clinician is to allow people to have ... I prefer to call it a refuel meal than a cheat meal. Or a permissive meal than a cheat, because cheat implies Catholic guilt. I don't like that. Then I tell people ... What I do is that on purpose I tell them, "Eat the worst shit you can think of that you really like." And people say, "What do you mean?" I say, "If you want to park a tent at Mrs. Fields and eat cookies for 24 hours, eat cookies for 24 hours." Then what I make them do is I make them train the next day, and their muscles are full of glycogen and they feel good and they're not going to retain water or put weight on the scale, but as soon as they do a certain movement, they go, "Shit. I've got so much elbow pain," or "I've got knee pain," or "I'm so stiff," and I go, "Dude, that's the food you ate yesterday."

Next week when we do the permissive meal, let's try to stay with sticky mango rice instead of donuts. I think people learn better from experience than from verbiage and charts. When they feel it, then it's a much easier pressure point to hit.

Dave: Well said. I recommend after the two-week Bulletproof Diet, then we avoid all those things. Have pizza, beer, and ice cream, and just wake up the next day and see what you're made of. I think that's why for the average listener I don't recommend eating garbage once a week, because the recovery time is too high for you. It takes a lot of willpower and effort, but if once a week you do higher carbs, you might even, God forbid, have a little sugar that day, but not like deep fried sugar bombs with glyphosate frosting. The different in how you live your life is measurable. I think that the angle of your ascent will be measurably better.

Charles : I think a good kick in the balls or punch in the face teaches you better than a slap.

Dave: It does.

Charles : If you have a kick in the ball meal of pizza, ice cream, and beer, the next day you'll feel like shit, and the next weekend you say, "Okay, let's try other sources of carbs that will not bring inflammation." Then they realize nobody hit them on Saturday night and they feel good. Then they can say, "Okay." I find that when you go too low on carbohydrates for too long, your glycogen stores go down too much. I like to gift people a refuel day. What's the frequency of a refuel day depends on how much muscle mass you have, and also sociological factors.

For example, when I used to train a lot of NHL players, they would have a permissive day, a refuel day, and two of my players say, "Is it okay if I get Saturday night?" And I'm like, "Why Saturday night?" "Because my family, I've got to spend quality time with them. This is the off season. Can I have cheesecake and wine that day?" So they were actually doing it less frequently. I'd say, "Go ahead." It worked for those guys. They would rather have a permissive meal every seven days and do it with their family, then every five days alone sort of thing. You've got to look at that factors. The key is progression, not perfection.

Dave: Well said.

Charles : It's one step at a time. The thing is that a really good book I recommend to your readership is actually from Gretchen Rubin, Better Than Before.

Dave: Oh, yeah. Yeah.

Charles : She's probably someone you should have on your podcast.

Dave: Absolutely.

Charles : I've listened to her and I bought her book. It explains a lot of things. Like I kind of figured it out over the years, but I did not have a name for it, but she did have a name for it. How some people are upholders and love everything you do and all those [inaudible 00:57:24] some people, and there's people that will comply all the time, they don't even think of themselves. There's questioners, and there's rebels, or whatever. Some people could listen to you and I's advice on managing insulin, but because they're rebels, say, "Fuck these guys." I mean they eat too much insulin producing. I always say those guys are hard to convert. They will only convert if they convince themselves. My approach is that, "Are you better than yesterday?" That's what matters to me.

Dave: Very important approach. In fact, I think if people walk away from this interview with just one thing, that might be the most important thing.

Charles, we're up on the end of the interview, which kind of makes me sad, because I wish that we'd booked like four hours to chat, because I think listeners would benefit from that, and maybe I can invite you on again.

Charles : I'd love to.

Dave: If you're listening and you want that to happen, when we post this on Facebook and on iTunes, give us a lot of likes and share this with some friends, and I'll definitely ... Maybe we can do it in person, too. It's always more fun to do that.

There's a question I want to ask you. I think you might have some really good insight here, and I've asked every guest out of more than 350 guests on Bulletproof Radio, and it's if someone came to you tomorrow and said, "Look, I want to kick more ass at everything. Not just in the gym, not just on the field, but I just want to be kick-ass at life. What are the three most important pieces of advice you have for me from anything you've ever lived. The most important things."

Charles : Number one, what you appreciate, appreciates. You have to be grateful.

Dave: Gratitude, love it.

Charles : The clothes you wore today, there was some reason you chose them. We live in a country where we can pick the clothes we want. A large percentage of ... I think that if we every day have a grateful log and you make a list. It's not like, "I'm grateful for my dog." Try to come up with three different things. You could lower the bar on gratitude. Let's say if you're traveling and in a Radisson Hotel, and the bedsheets are better than staying at the Hilton, so I'm grateful that I'm sleeping in a great bed. It can be something as menial as that. When you start to appreciate the little things that things change. When you appreciate things, things change for you. For example, you get a big check, you should write, "I really like the big check I just got today," and you'll have more big checks. "I appreciate the progress I made in the gym today," and you'll make more progress. So what you appreciate, appreciates.

Number two, I would say if I were to relive my life and then give you this advice on my deathbed, sleep better. I think sleep is the most underrated health factor in people's lives.

Dave: That's the third time you've said sleep better, not sleep more.

Charles : Right.

Dave: That's another thing that's really interesting about you, because I am so in that camp with you. On the next episode with you, it won't be the next one, but the next time I interview you. I want to go deep with you on sleep, because that's one of the areas I've spent a lot of time writing. I know you know some stuff that we didn't get into. We're going to save that for number two. What's your third answer to that big question?

Charles : Stay away from grains. It doesn't matter what genetics you are, right?

Dave: Yes.

Charles : Yeah, because if you ... Let's say you make me Emperor of all the galaxies tomorrow. I can't force people to have a grateful log and to go to bed early or whatever, but I would ban grains. There's one problem with that, 58 percent of all the population would die within the week because they'd miss caloric intake. Let's say ban grains in the top countries of the world. It would have a huge impact. Grains rob you of minerals. They create inflammation. Some genotypes do better, but if went grain-less ... Also their brains would work better. I have a few private Facebook pages, and I see questions on there like, "My son had pancakes for breakfast." There's a good study from Harvard on eating pancakes for breakfast is 19-20 percent. I mean, temporarily. The thing is that in a society that's so carb addicted, we can't get people's minds to function properly. If everybody was just 20 percent more efficient with their brain, our whole society would change.

Dave: That is my experience, and we're certainly in alignment there. You have a book that you're going to release for just a couple of weeks for people who are listening to the show today, similar to what you did with Tim Ferriss when you were on his show. Tell listeners the kind of stuff you put in this book and what they have to do to get it.

Charles : What we learn in the book is muscle loss. These are things I really like to be principle based, so I say like how often should you train. I give all the why first, and then I give you the how. If you don't give a crap about the why, you can do the how. There's detailed training plans. I created a private Facebook page for it, so when you buy the book we invite you to the private page, and there you can ask your questions. One of the big features, people say, "Wow, I read the book and now the Strength Sensei himself is answering my questions." With the book, we give you all to eat. We tell you how to repair your brain, what are the workouts and so on. I basically have a consumer's guide to supplements, because there's millions of supplements out there and there's a lot of fraud.

Dave: Oh, yeah. It's a huge problem.

Charles : I tell you this. Then I think that the ... I mean, every single reader said the biggest advantage for this \$47 invested is how much return they've had on it. That's great positive feedback. I listen to Schwarzenegger at a private VIP seminar in Malibu, and he said you have to break the mirror and look behind the mirror if you want to make a change in society. It's the first time I've written a detailed book on how to build muscle mass. I've written a lot of books on strength training, but this one will be more for your listening audience because they're trying to fight aging, but the information is still applicable, or highly applicable, in fact. I believe your listeners would benefit quite a bit from it.

Dave: Beautiful. We'll hook all of you up with that. Charles and I are definitely in the same vein. There are definitely some differences. I encourage you as budding biohackers to take a look at what works for you, which is most important. I forgot. I was going to mention earlier in the show, Charles, with MCTs versus Brain Octane, at the American Academy of Antiaging Medicine a couple of weeks ago I presented a new study looking at ketone formation from coconut oil, which raises ketones the same as fasting for eight

hours, like very modest rise. MCT oil, just the generic source with the mixed types of oil, raised ketones about twice coconut oil, but the Brain Octane oil was between four and five times higher.

Charles : Wow.

Dave: You can get to that 0.5, and that's why I do the Brain Octane versus MCT, even though it's in a category of MCTs. It's a subcategory, but you're getting a lot more ketones before you hit the bowel tolerance disaster level. I'm just bringing that up because I know a lot of people listening are like, "Well, if I go read Charles' stuff and it tells me to drink lemon juice in the morning," which, by the way, I like in the morning, but I don't always talk about it, and whatever other tweaks. It's all good. You're allowed to go out and do what works for you. I've got to say Charles has an incredible reputation and an incredible body of experience, especially working with athletes. He's focused at least as much as I am on aging, because he's got 10 more years on me and has looked at some of these things, and I'm really getting into that.

Next time, Charles, we're going to talk about stem cells, because I've done a lot of work with my own cells, including I had them injected four days ago into my brain for the second time. We're going to talk about sleep quality for sure, and we're going to talk about stretchmarks.

Charles : Yeah?

Dave: I know you know a few hacks there. I just came out with a book about stretchmarks that's on Amazon. So those are the three topics. I don't know how soon you'll be back on. It'll probably be another few weeks or something, but I'm really looking forward to our next conversation. Thank you.

Charles : All right. You're welcome. I'm very pleased, first of all, and I thank you for being on today. I'll try how the Brain Octane feels, you're stimulating my brain on that one. I'm always looking for the latest bioactive.

Dave: I'll send you some.

Charles : I appreciate being on the show, and looking forward to the next one. Thank you.

Dave: Check out Charles' new book and ask him questions personally. This is a rare opportunity to work with one of the superheros of biohacking and strength and condition. Thanks for being on the show. It was my pleasure.

How did we do?