



Transcript of “Bulletproof Radio Q&A - #207”

Bulletproof Radio podcast #207



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Dave: Hey, everyone. It's Dave Asprey of Bulletproof Radio. Today's cool fact of the day is that the organ thing in kombucha and kombucha is fermented green tea. It makes something that looks like a giant kidney or bladder or something, a giant jellyfish made out of leather. It's gross when you poke one. It's called a SCOBY, which stands for Symbiotic Colony of Bacteria Yeast.

Now, we don't exactly know all of the things that it makes and it probably depends on what wild things are interacting with that, because bacteria and fungi can change their genes. They basically pass them back and forth like trading cards. You might get something really beneficial. You might get some antibiotics that are naturally occurring in it, and you might not. So you want to be careful that you know what you're drinking when you drink your kombucha, but it all comes from a SCOBY.

You might have noticed, if you're watching on iTunes Video or on our YouTube channel for Bulletproof, that things look a little different. This is the first-ever show that we're shooting in the Bulletproof Biohacking Labs here on Vancouver Island. The floors are barely done, the kitchen's not in yet, but this is the first time we can film. We have a live studio audience, which is really, really cool. These are some of the Bulletproof team here just to sort of celebrate the opening and to have a good time. We figured, what the heck, I'm going to shoot this, and we'll all just party on. You might have also noticed that sitting next to me is my buddy Zak. Zak, here, have some of this.

Zak: Oh, thank you.

Dave: You might have also noticed that ... You might have also noticed that when I handed him the Unfair Advantage, that I pressed on the wristband that I convinced him to wear, which is my buddy Monisha's Pavlock band, which reinforces habits using a mild electrical shock. It sounds a little bit masochistic, but it's not. It's a really amazing hack for telling your nervous system when you want it to pay attention. It talks to you on a level that you don't normally talk to yourself and it's not a huge, painful thing, but it's enough to go "huh?" When it makes your nervous system and your body pay attention, it's really a cool thing. It's called Pavlok, like a play on Pavlov.

I'm an investor in the company, full disclosure there, a very tiny investor, but I just thought it was tool to not back him up on his Kickstarter campaign.

Zak: Now am I being reinforced not to have Unfair Advantage? Because you handed me the Unfair Advantage and then shocked me.

Dave: I didn't think about that. I know it ... He's having amazing results with smoking cessation. People who, every time they touch a cigarette, they shock themselves. After a while, a while being a few days, they just don't care about the cigarette anymore. Like, their body's like, "Ew, that's going to cause me to be shocked." Monisha's doing some other crazy stuff with that. That's just kind of a cool thing, but this is one of the early prototypes. Since you were up here, I had you wear it instead of shocking myself, because well, you know, it was funny.

Zak: Well, thank you, Dave. I appreciate it.

Dave: Today's episode is going to be about Q&A. Zak, just introduce why you're on the show. Sorry.

Zak: Cool. All of the questions from today's episode come from the podcast submission, question submission form on the blog on bulletproofexec.com. So if you ever have any questions that you want to ask Dave, go to the blog and on any of the podcast episodes, you can go to the very bottom and there's a little form there. Submit your questions, and they may be on the next show.

Our first question comes from Valerie. She says, "I have started following the Bulletproof Diet for two weeks. The one thing I have so much trouble with is quitting Diet Cokes. I swear there is cocaine in them. Could you tell me what happens in the gut when I drink Diet Coke? How does the acidity affect the gut biome? Any more information I have may be the one thing that gets me to stop drinking the Diet Coke."

Dave: The sweetener in Diet Coke aspartame, is probably the worst part of this. This stuff is addictive, but one of the things it does is it forms formaldehyde

in temperatures above, from memory, something around 87 degrees, maybe 90 degrees? Don't quote me exactly on what that temperature is from memory but enough that ambient temperatures or particularly in coffee or something, it converts to formaldehyde. Formaldehyde is a potent toxin in the body. You don't want that stuff inside of you. It also is shown to be addictive. It causes cravings. It also causes sugar cravings. Because what happens when you eat that stuff is that it triggers excessive transmission of impulses in the brain. They call it an excitatory neurotransmitter, and MSG is similar.

What happens is that the brain has too much of this aspartate, which is triggering your neurons to fire, and then it can't pull all the extra aspartate out of the synaptic gap. What ends up happening is that the cells keep firing and firing until you run out of energy in the brain. When you run out of energy in the brain, you run out of willpower. Then the body says, "Oh my God, we're dying here. Give me some more energy. Give me sugar." Then you get a sugar craving and because you've been programmed by Diet Coke to not respond to sugar cravings with sugar but with NutraSweet, you do it again. You're on this nice little pipe of "oh, I'm so tired, I just need a little bit of the stuff." It's not a good thing.

There are studies that show almost every artificial sweetener you can think of have bad effects on the gut biome, and there are studies showing aspartame isn't good for the gut biome. I don't remember off the top of my head exactly what the shift in the biome is but there is a shift that happens as a result of it. The acidity probably isn't a very big deal. Your stomach is full of hydrochloric acid. There's a little bit of extra phosphoric acid in there but in the overall scheme of things, your bones are made out of phosphorous. If you're worried about acidity, take a little bit of baking soda. You can cancel that out pretty quickly. That's not the issue. It's the NutraSweet and potentially the caramel coloring, depending on what country you're drinking it in.

Zak: All right, Valerie. If that doesn't help, you can always go to pavlok.com and see if that works.

Dave: That's a good idea, isn't it?



- Zak: The next question comes from Nancy, and it's about Bulletproof Coffee. "I just started drinking the coffee, and love your recipe. Question: Can I use coconut butter instead of coconut oil."
- Dave: Coconut butter is interesting. It depends on exactly what Nancy's talking about in this question. Some companies market coconut butter, but what it is, is it's extremely finely ground coconut pulp, basically. Like shredded coconut with coconut oil in it. You can use that but it creates a very different mouth-feel, and you're not getting the 6X benefits that you get from XCT Oil or the 18X that come from Brain Octane Oil.
- What happens with the other kind of coconut butter which sometimes is just coconut oil that's marketed as coconut butter? In that case, yeah, you can use that. In the book, I recommend you use it, but it's not really Bulletproof Coffee because if you ate 18 tablespoons of coconut oil, you'd ralph or you'd get the worst disaster pants ever. If you eat on tablespoon of Brain Octane Oil then you're not going to have those effects and you're going to be able to get the part of the coconut oil that is most effective for your brain and for turning on your energy and for shifting into ATP most quickly. That's why I recommend using that instead of coconut oil. Is coconut oil better than soy milk? Yeah.
- Zak: Fair enough. Okay, the next question comes from Sarah, and she says, "My husband and I have been following the diet for a month now. All is going well, and we love it, but I have one issue that he doesn't. I don't seem to be able to eat any of the desserts. I get a mean stomachache when I do, even to get some ice cream. Have you heard of this before?"
- Dave: Only from the desserts. I'm guessing that that means these are desserts made with xylitol.
- Zak: That's what I was thinking, too.
- Dave: Okay. This means that you need to look at the label on your bag of xylitol and see where it's from. If it doesn't say, it's from China. If you want rapid gut cramps, races to the bathroom and disaster pants, I highly recommend xylitol made from genetically modified corn in China. If you would like to

feel good and you want to eat Xylitol, then you would want to have Xylitol that was made from North American hardwood. It's basically birch syrup. What they do is, they take, basically sawdust, xylose is what they do, and they remove all the things that aren't xylose which is wood fiber. Then they hydrogenate it, which isn't a bad process. It's only bad when you do that to oils. Adding hydrogen to xylose makes xylitol and that's what the birch tree does naturally. We can just accelerate that process to make this kind of sweetener.

Xylitol is shown to increase bone density. Actually, in a study of women who eat reasonably normal amounts, I believe, like 20 grams a day. Someone who uses it as a sweetener in their food. Xylitol is a really good taste, about 40% sweeter than sugar. There are some people, though who have what you could call SIBO, Small Intestine Bacteria Overgrowth. For those people, xylitol may represent a problem for them. It's very personal-dependent. Make a recipe. Use stevia instead of xylitol and see if that's the problem. If all of them bother you, it's almost certainly the problem. Either that or it's an egg allergy or a chocolate allergy or something like that.

Zak: I had a similar effect when I first started using xylitol, whereas I got that stomachache a little bit and maybe some disaster pants and it just ... ramping up slowly over time helped that. I also blended it with stevia, like you mentioned, and that can help. Dave: Oh, really good point. There's an enzyme that the pancreas makes, and it's called jeez, what is it? Xylanase?

Zak: Yeah.

Dave: Xylanase is something we can make, because xylitol is normally present in your body anyway. When you eat it regularly, your body's like, "I guess I should turn on my digestion for xylitol," and then you just keep making it. I use xylitol a few times a week, and my body handles it just fine, because it knows how to digest it. Your other thing to do: ramp way down and just take like half a teaspoon regularly. Make sure it's the good stuff, not that Chinese stuff.

Zak: There's also erythritol. Is that different than xylitol in the way it acts in your stomach?

Dave: There are some differences in the gut biome in the mix of erythritol and xylitol. Erythritol is exclusively made from corn. It's usually made from the corn cobs, actually and it's free of mycotoxins from the processing as far as I can tell based on resource. Corn is a major source of Fusarium-based mycotoxins.

What you want to do there is try out the difference between the two. One may taste better. One may work better than the other for you but you can sort of train your body to use both of them. Xylitol also has a very big effect on bacteria on your teeth. They lose their ability to adhere and it can actually treat ear infections and sinus infections. If you read my posts about how to deal with airplane travel or jet lag that comes associated with travel, I talk about using xylitol even in your nose, to keep from getting the chronic sinus infections that just plagued me for so many years. I was on antibiotics for 15 years, just about every month, because of sinus infections like that. Xylitol can really help. It's got a wide array of uses that erythritol doesn't but you can use both.

Zak: All right. The next question comes from Dawn, and she says, "You've changed my life. In fact, I'm five months pregnant right now with a big, healthy baby boy."

Dave: I didn't do that, just so ...

Zak: "I'm five months pregnant right now with my husband's baby, a big, healthy baby boy, and thanks to the Better Baby Book and your podcast, especially the MTHFR advice." Her question is, "Could you please tackle the childhood vaccination issue. I'm unsure and wanted to know your opinion."

Dave: I don't think there's enough science out there right now to form a great opinion classically, of saying, like, "This is the most perfect, most bulletproof regimen." Do vaccines work? Well, let's see: How's polio doing? Yeah, we know vaccines absolutely can work. Do all vaccines work? The flu vaccine pretty much missed it this year. They whiffed it. Oops. So, no,

vaccines don't always work. We do know that the European recommended schedule for vaccination is radically different than the American one. Europeans have a lot of good scientists, and Americans have a lot of good scientists. Why don't they agree? I think they don't agree because we don't have enough data. What I would recommend doing is choosing something that's based on a precautionary principle. Vaccines that are well understood, well studied. You can look at those, and you can go for a gentle dosing regimen, where if you decide that you're going to vaccinate your children, then you vaccinate your children not according to the most aggressive schedule and not according to the least aggressive schedule. You can look for older dosing regimens, and if you want to dig into the data, you can figure out exactly how frequently did they do it here, and what was the associated impact of it.

There's a lot we don't understand about the way the immune system works. We're uncovering huge amounts of this stuff. As we speak there's probably been ten studies about immune function saying things we didn't know. I think it's a bit foolhardy to inject 50 different vaccines into a three-month-old, because these do have combinatorial effect, maybe. We're not sure. Yeah, there's a great case for vaccinating your kids. There's probably a great case for not over-vaccinating your kids and I would call on all of the people who are working on vaccine research to look at, okay, some is good. Doesn't always mean more is better. If you don't believe me, just drink a whole bottle of Brain Octane Oil. Okay?

This is not rocket science. I am concerned about over-vaccination, and there has been a large rise in autoimmunity. There's many contributing factors to that. Some of them are environmental. It's not reasonable to say that vaccines are the cause of autism. It's also reasonable to say that vaccines can increase autoimmune conditions, because there are studies that show that. I don't know what the right answer there is. I do think that either extreme is probably wrong. Where to be in the middle? If you find out and you can prove it, let me know because I'm really interested in this subject.

Zak: All right. The next question comes from Elk. "Is there a cheap and/or good way to check for food quality and potential health risks like heavy metals or other bad stuff."

Dave: A cheap and/or good way to know if your food's good? The easiest thing to do is to know the guy who grew it. That means go to your farmers market. When you go to your farmers market, you are going to be able to see if your food is high quality. One of the biggest variables in your food quality is, how recently was it picked? If it was picked two weeks ago in Chile, it's probably not very fresh. In fact, the vitamin levels are going to be much lower because you're eating old food. If you go to your farmers market on Saturday or Sunday morning, or Thursday afternoon, whenever they happen and you go there and you get something that was picked the day before, it's going to taste better. It's going to be way more full of vitamins, and it's going to be cheap.

Here's the cool thing. When you support a family farmer like that, if they go to a mass grocery store to sell their carefully-produced organic produce, they're going to get if they're lucky, 25 cents or 50 cents a pound. When you pay them \$2 a pound or \$3 a pound, it's a huge increase in the quality of their life and the quality of the food they'll produce the next year. You get better food. They get better margins. Everybody wins.

That is one way. The other thing is, get a garden. It's relatively easy to grow things. Even in a city, you can have a little windowsill garden. You're not going to feed yourself with that. If you have a backyard, you can grow your own stuff. Certainly I'm working hard on growing more of our own food; this year, we should have almost all of our vegetables grown in our backyard.

Those are the cheap and easy ways. If you want to go to a restaurant and know that the food is cheap and high quality, good luck with that. Restaurants are in business to make money, because otherwise they close their doors, they can't pay their employees, they can't pay their insurance, they can't pay their rent. Most restaurants fail, actually because of those variables. They are going to serve you the best food they know how to serve you, based on what they believe is healthy, which may be a low-fat

thing. It may be "more soy is good." The design principles behind the menu are usually flavor-based in the normal restaurant, which is good. You want your food to taste good. They might also be quasi health-based, where it's supposed to be healthy, but it just causes food cravings which had been my experience for a long time.

As I look at the business plan for the Bulletproof Coffee Shop in Santa Monica that's opening pretty soon here. I'm running up against this all the time and I'm opting for food quality as the most important thing. But that doesn't mean it's going to be the cheapest restaurant. I guarantee you that Taco Bell and McDonald's will always be cheaper. There will be quality differences. To say you want cheap and high quality, we all want that. However, usually it costs more to make high quality, and I don't know how to solve that problem but I'm working on it.

The way we solve that really is to do things like the Bulletproof Diet book and to go out there and change demand. Last year we had two shortages of grass-fed butter that were tied to the knowledge that we share on Bulletproof Radio and the things that you tell your friends that you learned from this and from all the other people talking about what's important in health online. That means that people are now changing the feeding practices of animals so they can sell grass-fed butter, because now people demand it. When you demand high-quality food and say, "Actually, I'm just not eating the low-quality food. Like, I brought some butter. I'll snack on that," or whatever it is you do, that will change demand. It doesn't take that much time. When demand changes, supply changes. This is a group effort, and it means don't eat the cheap stuff.

Zak: There's also the free Bulletproof Diet roadmap that stack-ranks all the food, from what's toxic to what's less toxic. If you don't have that already, it's free on the blog. You can just put in your email address and get it. The next question comes from Michele, and she says, "First of all, thank you for everything you do. What would you recommend doing first if someone suspects mold in their home. I'm feeling pretty overwhelmed with all the testing and expenses that go along with specific testing, not to mention possible remediation expenses."



Dave: If you think you might have mold in your home, the most important test is called an ERMI test, Environmental Relative Mold Index. What they do with this test is, they bring in a crew, and it should run between \$200 and \$500 depending on the size of your house and what region you live in. They collect air from inside your house and air from outside your house, and then they compare the spore count and type between the two areas. If you have 100 times more toxic mold inside your house than outside your house, that's pretty darn conclusive that that's something that's going on.

According to the experts that I interviewed in "Moldy," the documentary that's coming out soon this year, you can go to bulletproofexec.com/moldy if you want to sign up for that, just a notification of that. Just the notification of that. This is a really important film. We just screened it right before recording this episode of Bulletproof Radio, and it gets better every time we edit through it, so I'm super-stoked on that. What the experts in that said was between 50% and 70% of buildings, they believe have water damage that leads to toxic mold. It's even worse when you're talking about things like public schools where maintenance is a major issue or in a building made in the 70s that hasn't been well maintained. These are very commonly moldy and people who have been previously exposed tend to get sick quickly in them.

People who have not been exposed tend to just not thrive in them. The sneaky thing about mold is, it makes you weak. It makes you tired. It gives you food cravings. It makes you cranky and angry and gives you bad dreams, long before it does the other things that it's proven to do in, like, 1200+ studies, where it can cause cancer and heart disease and all sorts of chronic autoimmune conditions. Wow, this is bad stuff. Even environmental mold can trigger gluten and casein, milk protein, sensitivities. You weren't allergic to them, you moved into a moldy apartment building and now you have food allergies that may last for years or even for life. This is big stuff, and you can't see it, so most people think it doesn't exist. But it's there, and the ERMI test is how you can find out if it's in your home.

Zak: Okay. The next question is from Dorian, who is 78 years old. "I read many years ago that charcoal reduces one's absorption of nutrients when taken along with food. Is this still true of your particular version of charcoal?"

Dave: The Bulletproof activated coconut charcoal product is different than normal activated charcoal that's out there. We use an acid-washing process, which removes heavy metals that tend to accumulate when you build up charcoal. The thing we do that's most unique and most annoying, frankly, is that we use the very finest, a very small fraction of the activated charcoal that comes out of the activated charcoal creation process, which means it's far more likely to be airborne but it has a much greater surface area than the average activated charcoal. That means it works better for sticking to toxins, because there are studies that show tiny particle size is important. The smaller the particle, the better the efficiency.

That said, will it stick to micro-nutrients in food? These activated charcoal preparations, whether it's our or some other generic brand of it even the charcoal in your water filter is based on the same principle. It's just difference in particle size and purity. All of those tend to attract proteins, and some of them attract minerals as well. When there's a positive charge on something, it's more likely to stick. There are some people who say that coconut-based charcoal doesn't stick to micro-nutrients, but I can find no science to support that one way or the other. There is potential for it to stick to micro-nutrients, and I wouldn't take charcoal with every meal, every single day. It's not a good idea.

However, if you're eating food of questionable quality, there's something to be said for taking it with the food. Because there's an order of operations to think about what you put into your body, and this is at the core of the Bulletproof Diet. Number one: Eat the right macro-nutrients. How much fat, and is it the right kind of fat? Get that down first. That's the first rule. The right protein, the right fat, the right carbohydrate, whatever it is. Second: Avoid the bad stuff. Then third: Get the micro-nutrients. Most diets focus, "Oh, look. There's lots of micro-nutrients." But it doesn't matter, there's two gallons of cyanide in there. We don't see it: it's invisible. Okay, well, in the way of thinking about food we have here is, you've got to

eliminate the stuff that makes you weak before you focus on the stuff that makes you strong. It's actually easier to eliminate the stuff that makes you weak.

From that perspective, adding this to your food when you're eating food of questionable quality may reduce the micro-nutrients you got but it also reduced the things you didn't want that were going to have a more immediate effect. How do we know this? Well, people who are growing cattle non-organic, non-grass-fed cattle intentionally feed moldy grain to their cattle. Those molds do bioaccumulate, and they know that the cattle won't gain weight or more likely that the cattle will have major fertility issues and they'll be unable to reproduce when they feed them this much more affordable grain. What do they mix into the grain? Activated charcoal. They do that because they can feed more toxins to the cows, and they don't die.

Kind of interesting. This is one of the reasons that, if I'm eating questionable food, I take activated coconut charcoal, the stuff that I make. I feel better when I take it. I feel a difference. It's also possible when you're stressed that your gut bacteria can make toxins themselves, called lipopolysaccharides. I like to take activated charcoal at times when I'm likely to experience gut and just GI distress times when I'm experiencing overall stress to help reduce my overall toxin burden.

Zak: All right. Next question comes from Kristen. She says, "Hi, Dave. So enjoying your work and the Bulletproof lifestyle. Could you address healthy snacks as an inhibitor to performance? I am a recovering healthy-snack junkie who used to never be without dried chickpeas, soy nuts, soy drinks, fruit, and bars of every ilk. I've cut out every last one, but every so often I really would like to bite into a 'healthy' snack bar."

Dave: I think we've established that snacking pretty much makes you weak if you do it all the time. It's a bad idea. Even my kids rarely snack. It's not that they're deprived, it's just that if you need to snack, look backwards in time. What did you do to cause the need to snack? You didn't eat enough, you ate the wrong stuff, you ate something that made you weak. There's a reason for it. You may want a snack also because you feel lonely. That's

another issue, and you can address that, too. Try some heart-rate variability training.

You can usually feel the difference between that feeling in your stomach that says, "I really have to have a snack right now. Like, my energy's crashing," versus, like, "I want some comfort food." One of the best snacks like that is 85% to 90% dark, high-quality chocolate. That can make a huge difference. I would recommend the Bulletproof Chocolate. We have zero sugar in that stuff, because we're using a mixture of xylitol and erythritol called Upgraded Sweet. That whole idea of getting some fat in and having that creaminess and just the brittleness when you first bite into a piece of chocolate, that's the snack that I would go to. I don't snack terribly often, but if I do, it's super-dark chocolate. That just seems to work really, really well. Other people will snack sometimes on, you know, a handful of nuts. Over-consuming nuts tends to cause food cravings. Like, I used to eat bags and bags of them, thinking that that was, you know, a super-healthy snack. The healthiest snack is no snack.

Zak: I know that sometimes when you're traveling, or you're in a difficult situation, you know, you don't have a full meal. That's, I think, when it's appropriate to snack, especially with a chocolate bar. We are working on some stuff right now for something that you can take with you on the go that'd be easy when you're traveling, or when you need a quick fix.

Dave: You're talking about the butter injection kit?

Zak: Exactly. I wasn't going to let it out, Dave. Gosh.

Dave: Yeah. Well, I'm really working on hacking that. You guys probably don't know this, but I think I fly about 100 times a year. I've certainly peaked over above 100. I haven't tracked it this year, but that's a lot of flights. Airplane food, I never eat it, no matter what. It simply isn't something that I do, because I've never felt good after eating airplane food. It's always substandard, even in first class. It's not very good. I wait until I get to the airport. There's times when I'll go 20 hours without eating, but I don't feel that deprived, because I did start out with Bulletproof Coffee and I will actually make Bulletproof Coffee on a transatlantic flight. I have no problem



asking for hot water and brewing it myself right in the seat. It's kind of annoying, but I'll do it.

Zak: We actually ... there's a YouTube video of you making it when we were at that Whole Foods, just showing you how you can actually make Bulletproof Coffee, without even having a filter, anywhere. Just you need hot water.

Dave: Yeah. Hot water and one cup is all it takes. Ideally two cups if you're really going to be luxurious. That's true. That's on YouTube?

Zak: Yeah.

Dave: All right. Cool.

Zak: Also, there's ... If you subscribe to the quarterly box for Dave, there was a butter dish travel kit that you can keep butter with you wherever you go. That's another great, like, "Hey, I'm hungry. I haven't eaten." Just have a little bite of butter with some Mary's Gone Crackers or something like that. Or make Bulletproof Coffee on the go.

Dave: Some people don't know what a quarterly box is. Quarterly is this cool partnership we have where all the time, I come across cool stuff. Stuff that I want to try, stuff that I have tried and that I think works. I put together a package about once every three months which has a whole bunch of the stuff you get at a big discount. It's just hand-selected by me for things that biohackers, or just people who want to perform well all the time would be interested in. It's become pretty popular. I don't know that you were all for it, Zak. Do you?

Zak: You can go to quarterly.co and just search for "Dave." Or you can search for "Dave Asprey quarterly" and you'll find it pretty easily on Google.

Dave: Cool.

Zak: The next question comes from Ella, and funnily enough it's about butter. She says, "Are pasture-raised cows the same as grass-fed cows. I'm thinking specifically about Organic Valley butter. It does not look yellow. Where can

I find the real thing? I'm in Santa Monica, California. Will you be selling butter at your new, upcoming café?"

Dave: Well, "pasture-raised" is legally safer to say than "grass-fed," so there's all sorts of upset dairy industry lobbyists talking about grass-fed these days. You will find that there is a lot of butter in the store that says "grass-fed," and there's a bunch that says "pastured." My experience is that most of the pastured stuff is actually grass-fed but that the attorneys for those companies have said it's less risky to say "pastured." I believe Organic Valley's the one who has their Pasture Butter, which during summer months is 100% grass-fed. I think that that's okay, but you might want to call them and double-check.

I'm a huge fan of 100% grass-fed butter. That said, if you get 90% grass-fed butter, you're probably doing better than most. In fact, the butter I recommend the most, Kerrygold from Ireland during winter months, it may be fed up to 10% grain or supplement and the reason for that is there isn't enough grass. A lot of dairy farmers get actually upset, saying, "Well, okay, where I live, where cows thrive, there's a couple months where it's not reasonable to feed grass." There's other farmers who get around it by buying, basically, the low-quality grass that's been dried and feeding it like hay. So you can sort of hack that thing.

The bottom line is that if it's pastured, it's almost certainly better than something that isn't pastured or is just plain organic, because organic corn and organic soy can make organic butter but it's not right. Pastured is good, 100% grass-fed, even better.

Zak: Yeah. This question comes up quite often on our site and on social media. There are some places, like, even here in Canada, it's hard to find a good quality, like, 100% grass-fed butter. That's why on the Bulletproof Diet, there's the green, and there's the yellow, orange, and red. If you're in the green or the yellow, you're probably going to be okay. Obviously, check: How do you feel? If you feel okay, then you're probably doing all right.

Dave: Yeah. That "How am I doing now?" "N=1" thing is really important. There's another part of this, though. Number one: I'm working on making a

national brand of grass-fed butter available in Canada. Not a Bulletproof brand. I'm just working on helping some people who are working to make that happen. Because I live in Canada and have for about five years now, I really, really care about availability of grass-fed butter here. It's an unfortunate political situation tied to international quotas, but in Canada we don't get much foreign butter at all. It's quite hard to do, so they're working on making a domestic source. Awesome.

Second part of the question, though, was: In the Bulletproof Coffee shop, will we be selling butter? I'm not entirely sure yet. There's a pretty good chance of that. Until the doors open, there's always some last-minute juggling there. There'll be an awful lot of butter in there, but whether we actually sell it as a retail product? I haven't figured that out yet.

Zak: Okay. The next question comes from Rita. "I wonder why your site indicates a consult with a doctor is needed before using Brain Octane if you have a history of kidney stones. Can you elaborate?"

Dave: That's what the attorneys told me to put there, so I put it there.

Zak: Okay. Pretty simple. The next one's from Dan. "Your interviews are a level above. I think you're a freak, which I admire, and you have been a great help to me. Just wondering what you think about nicotinamide riboside, if anything, as to how it stacks up in your opinion, for increasing NAD+."

Dave: One of the core tenants (sic) of just about every biohack not all, but just about all of the biohacks that I really love is raising mitochondrial efficiency. The mitochondria are the power plants in your cells, the things that make ATP. The more efficiently they make it, the more energy they have to make it, the faster they recycle ADP back into ATP, the more you kick ass. The first place you feel it is in you prefrontal cortex, which is the "human" part of your brain, the Labrador brain that I talk about in the Bulletproof Diet book. You should read it, because, like, you don't read that stuff anywhere else. It's actually really heavily influenced by ATP function. You get tired, and you get cravings, and you have worse emotional regulation, when ... well, you have problems with mitochondrial function.

If you want to grow new mitochondria, or you want to make them work better, there's a whole bunch of things you can take. Nicotinamide riboside is one of those supplements that has great promise, not just for increasing the ratio of NAD to NADH. You want to make that conversion more efficient. The difficulty there, and I've used this stuff pretty extensively, is that it is quite expensive. You need to take a lot of it, like a couple grams in order to really feel an effect. The good thing is, once you're tuned in like I am after this much neurofeedback ... I can feel when I have great mitochondrial function. Like, everything is easier. Thinking is easier, remembering is easier, moving is easier. And that's a state I work to live in. I can tell when I've boosted my mitochondria.

Now, I can take a couple grams of that stuff, which, if you take that on a daily basis, you're looking at hundreds and hundreds of dollars a month. I've actually did that experiment for a while and I just didn't find it to be worth the money. I will take one or two grams of nicotinamide riboside when I fly, because I do everything humanly known to man when I'm going to be flying in a low-oxygen environment. For the most part, I haven't really noticed a difference.

The other supplements that really are mitochondrial hacking supplements and the ones that I recommend are Unfair Advantage here. This stuff is something that does increase mitochondrial efficiency and this is a unique delivery system, and it's a different molecule than the typical one that you normally find in something like a generic PQQ supplement. This is a new form of it. The other thing that you might consider here is, oh, maybe Brain Octane because if you have ketones present in the body, whether or not you have glucose present, you have a different form of energy for your mitochondria to use.

There's another supplement called Upgraded Aging, or Bulletproof Aging Formula, and this stuff has a direct effect on the ratio of NAD to ... NAD⁺ to NADH. You can explore hacking the mitochondria in multiple ways. You can also use lasers. You can use high-intensity interval training. You can use cold baths. Almost all of those things change your mitochondria, but the Holy Grail is to grow a new mitochondria. That's why I use Unfair Advantage

and that is one of the effects that nicotinamide riboside has. It's just not cost-effective given the doses required, in my experience.

Zak: Well, you mentioned neurofeedback in there, so there's a question that's relevant. Mateo asks: "I have been doing neurofeedback for over a year, about 50 sessions of Brain Paint NFB. Since I saw your video about neurofeedback, I started using Neutropics before the sessions, and my scores improved 500%."

Dave: Yeah?

Zak: "I just don't know if that could inhibit my progress and/or preventing long-lasting effects. What say you?"

Dave: I wonder if this is Mateo from Ancient Organics, our buddy over there. I don't know. If so, I want to talk to him. Neutropics work during neurofeedback. I've used neutropics during neurofeedback. In fact, I regularly use them at 40 Years of Zen. It's even built into the protocol with clients to use specific things that give you the endurance. It's kind of like, have you ever had a cup of coffee before going for a workout? You get a better workout and you get more effects from that. When you're going to go to the time and trouble and expense of hooking electrodes up to your head and focusing with every drop of your willpower, do you want to go in there tired? Do you want to go in there without enough energy, or with sort of sub-optimal performance, or do you want to train at your peak state? My belief there is that you want to train at your peak state.

The problem is that certain drugs or certain supplements can have an effect on your alpha brain waves. Depending on the type of training you want to do, that can be really a bad thing. For instance, caffeine suppresses alpha during advanced alpha training. I use caffeine most days. When I'm during neurofeedback in the alpha spectrum, I actually don't use caffeine on those days. I use decaf instead, because I really want the Brain Octane and the grass-fed butter effects so I can have that happen. I take the rasotams, and I believe they're worth taking during neurofeedback training. I really do think that if you had a 500% improvement, that says you probably should be on those neutropics on a regular basis. To train without the right shoes

and without the right fuel doesn't seem to make a lot of sense to me. Training without neutropics that assuming these are healthy ones like Unfair Advantage, things that aren't coming with a double-edged sword there. I think there's a good case for that, and I use it with my clients.

Zak: All right. Our last question for today's show comes from José. He says, "Hello. I heard the show about oxygen therapy, and I really liked it. My question is, can you drink hydrogen peroxide. If so, what would be the recommendation in terms of dosage, frequency, et cetera?"

Dave: Can you drink hydrogen peroxide? You can, and it can kill you. However, there are treatment protocols, mostly pretty out-there and I've actually used them, because I tend to find weird stuff and decide if it's likely to kill me and then see if it'll benefit me. The typical protocol is to take 35% hydrogen peroxide, which is horribly strong. They use 100% as, actually, rocket fuel. But 35% is enough to, like, burn all the way through your skin. You take one drop of that in a big glass of water. Then it's sterilizing the water, and it's meant to sterilize your gut, and to actually allow the healthy bacteria that are oxygen-loving to survive. Your body can handle hydrogen peroxide. It actually manufactures hydrogen peroxide in your immune cells.

There's another set of protocols where you take extremely dilute hydrogen peroxide, you inject it into a vein under a doctor's care. It's one of the oxidative medicine things. I've done that was well. Intravenous hydrogen peroxide feels very weird. When you have a sinus infection, you kind of feel weird things bubbling where it shouldn't. You also can use it rectally. If you take the 3% stuff from the drugstore and do any of this stuff with it, you're really doing it wrong. Don't do that. In fact, all of these things, you want to do, like, under the care of a nutritionist or an integrative medicine practitioner or a doctor, because you can kill yourself with hydrogen peroxide. You can blind yourself with it. You can cause burns, especially the stronger formulas. You want medical grade if you're going to do something medical with it.

These are medical procedures, more so than health procedures. The typical protocol that I've read about, when I tried many years ago. When I was working on trying to figure out why my gut never worked right was one



drop in a glass of water on an empty stomach the first day. Two drops in a glass of water so on up to, I believe it was about ten drops. I would not recommend using this protocol right now, just off the top of your head, from what you're hearing here. If you want to look at using oxidative medicine, there's a great amount of research. We've had Dr. Rowen on the show and it's part of ozone therapy and there's good info online about how to use hydrogen peroxide in very controlled, very precise, very pure doses, to improve your performance. There's merit to that discussion. There's just risk to it as well.

Zak: Awesome. Well, great answers as always. Great information. Thank you, Dave. It's probably why these are the most popular Bulletproof Radio episodes. Just want to remind everybody that you can submit questions for the Q&As on the blog. At the bottom of the podcast posts, there's just a form there. Put in your question, and maybe Dave will answer it next time.

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