



## Transcript of “297 with April Q&A”

Bulletproof Radio podcast #297



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computer: Bulletproof Radio, a station of high performance.

Dave: Hey, it's Dave Asprey of Bulletproof Radio. Today's cool fact of the day is that gravity isn't the same everywhere on earth. It sounds crazy unless you're into gravity stuff but it's because gravity is proportional to mass and there's less land mass in certain parts of the earth the Hudson Bay Area of Canada or those places that best have less gravity. Does that mean you're stronger in Hudson Bay because you don't have to resist as much gravity to lift things? It even means you're stronger or it means you're weaker because you have less resistance but technically there is a difference.

Aside from that cool fact of the day there are things the global coherence initiative where they're measuring the magnetic field of the earth that also varies dramatically. We'd like to think we live on this perfect sphere but it's actually a misshapen thing with little deeps, pits, and valleys. We are magnetic and electrical and photonic and chemical beings and you can't do just one of those.

The pharmaceutical industry historically taught us going back 150 years that we're all really just chemical and that is not correct. You can't be just one of those things you're all of those things at the same time. You can do things use lasers in order to completely change what's going on. That's light-based but something happens in your mitochondria you make more energy. Speaking of electrical stuff if you're watching on YouTube, if you got a [bulletproof.com/youtube](http://bulletproof.com/youtube), we'll hook you up with the channel, you'll see something cool. I look, and the technical term is freaking awesome.

I'm sitting here with Dr. Mark. If you are a first time listener I'll tell you who Dr Mark is in a minute. Mark describe how I look.

Dr. Mark: You look as though you have a big spider sitting on your head and his legs are kind of hooked around you. That's one way of looking at it. The other way of looking is actually you have an EEG on your head which picks up brain wave passes and then feeds into a machine and helps you train your brain.

Dave: Could be one of those things I like to call it bio-hacker chic and this is the new fashion that I'm looking to do. I'm going to try and walk through the TSA security wearing this hat. I'm kidding. I probably won't do that even though it would be perfectly legal and safe. What this is if you can watch this it's cool. It's actually a 3D printed 24 channel Neurofeedback device. Instead of squirting electrode goop in your hair which really is crappy because you have to wash your hair. It has a little tiny spider like thingys inside that each have their own amplifier. I can get clinical grade signals off my head in about one minute instead of about fifteen minutes and washing my hair later. This lets me pretty much every night if I want to spend about forty five minutes doing Neurofeedback working on my brain in a way that meditation simply never will.

This is one of those things ... This is the future. I'm working really hard with all the bio-hacking

things I do. I'm actually working on a new book about this as well. In order to take these things that are expensive. That are hard to find, that are esoteric. Show why they work, so how they work. The research is already done. You just hadn't heard about it. Bring the world experts in talk about it and then make it accessible so that your kids when they're in school there's no excuse for any child getting out of school without having had their brain scanned on an EEG. The kids can actually have more control their own brain. It's not about us controlling someone else's brain is about you controlling your own brain. Life is the struggle to have that control. Well, I'll be damned if I'm not going to cheat.

OK let's get going. Today is one of our Q and A. These are my favorite episodes. We record these live whenever possible with Dr Mark Atkinson who is the head of the Bulletproof coaching program and our Bulletproof medical director. Mark has years of experience as a British physician and a leader in the personal transformation movement. The Bulletproof coaching program which is still available what we do coach training is about four times a year. You have to be there in person and then there's a nine month follow up. We do this regularly because it's one of the best ways to take someone who's interested in Bulletproof topics not just diet and nutrition there's lots of certifications and I suggest you get one of those.

What I'm talking about here is the Bulletproof executive coaching thing that teaches you how to help other people perform really well. That largely focuses on you performing well, you getting grounded, you being present. Then taking a structured framework that lets you remove things that make your clients weak and then add things that make them strong. All of a sudden they're just performing at levels that they never even thought were possible. This is what I did for myself, this is what I've done with my own clients but I don't scale very well. There's only one of me and I'm doing this show and writing books and running Bulletproof and opening coffee shops. Really doing the research that's driving the next innovation of things that I will share with you so that you can figure out how to get yourself and others can help the bring it to you.

Mark I'm always happy when you can come into Bulletproof labs. It's convenient that you're on Vancouver Island with me.

Dr. Mark: Sure is.

Dave: Let's take some questions from listeners.

Dr. Mark: OK yeah. First we got a video question from Susan from Bulletproof.

Susan: Hi Dave this is Susan. Hope you're doing great. I was wondering if I could only get hair testing or blood testing. Which one you would do first and why.

Dave: Wait a minute. This is rigged. That was my cousin Susan. I know her voice. Actually was my cousin I swear. Was it? Susan I caught you, you could have just asked me. All right. Well. Susan. Thanks for asking. She was at the conference and so are her parents my uncle and aunt. What do you think? I mean I have thoughts but why don't you go through with this you are the functional medicine guy.

- Dr. Mark: Some basic principles is be really clear about what is you want to test and why. What's the ultimate goal. There's apps for your role for blood testing, urine testing, hair testing, saliva testing and depends on where you want to look at. For me hair testing can be quite useful for looking at mineral levels in the body and also looking for methyl mercury excretion as well.
- Dave: Just for all of you in America it's methyl is the same as methyl ... Just giving you crap sorry. We took the lorry to the loo.
- Dr. Mark: It has this role to play but you get into trouble if you just look at hair. For example around Mercury you need to look at hair, you need to look at urine and you need to look at blood to look at all three different angles. You can say well there's no merk in my hair therefore I don't have mercury. No you're just not excreting methyl mercury which actually means that's more concerning you're not excreting it out so hair has its place. I'm a real big fan of blood testing because this core blood parameter really most of us need to know on a regular basis.
- Dave: Core Bulletproof ones run inflammation will you just list those real quick?
- Dr. Mark: Yeah exactly of course. I want to know vitamin D level as a bare minimal, HSC appears a sense of mockery of inflammation should be under three, preferably one. You need to have a CBC count with your liver and kidney function. You need to know what your kidney function is. It's a good idea to know what your cholesterol triglycerides are doing. Homo cysteine toxic amino acid if you have Methylation problems. Methylation is a biochemical process that converts chemicals from one form to another. A lot of people have problems with that.
- Dave: I do.
- Dr. Mark: That shows a detoxification problem. It means you very sensitive to perfumes, to smokes. It's a mole of fumes that kind of thing. So you want that as a pretty core kind of set of blood test to do.
- Dave: There's one more on the Bulletproof list that I think wasn't in there, LPPLA-2. This is a marker of damage to the protein that lines your blood vessels. A lot of people are, "Oh my goodness my LDL went up", but it does not always. Some people LDL goes down as the cholesterol that's allegedly bad cholesterol which apparently it isn't unless it's oxidized. If your cholesterol levels whatever they are and they vary by person to person there is no magic safe number what will happen then is you'll see results of bad cholesterol which is oxidized damage question. So if that happens then you're going to see LPPLA-2 go up. So if you're, "Oh my cholesterol is 220, my doctor said I have to go on drugs it's the end of the world.
- Dr. Mark: I bet you get this all the time. Someone start introducing healthy fats into the diet and say wow my cholesterol is going up, you know my LDL cholesterol going up. That's not what counts. What counts is oxidized LDL excel an expensive test so you know it doesn't come by that easy. Also particle size as well because what happens is as you introduce healthy fats the number of large fluffy LDL particle numbers go up. So that increase your LDL number but that's OK cause they're not associated with cardiovascular problem. Actually the dense LDL particles that are associated they go down when you increase the fat, so typically.

- Dave: There's probably people who have exact opposite reaction, they're just unusual.
- Dr. Mark: Right yeah. About ten, fifteen percent of the population have the paradoxical response which is actually where it goes the other way. Which is why particularly if you're committed to your performance and into bio-hacking you've got to monitor this because how can you know what impact the specific interventions having on your physiology without doing that. Other important things is saliva testing as well particularly for cortisol levels, DHEA. Urine testing for thyroid function. Metabolites which give a good indication of levels of metabolism the body. Also hormone levels in urine in as well.
- Dave: The question hair versus blood, I don't think there's a fair answer without knowing what it is. I do know for hair testing it's been kind of pooh poohed by the toxic metal crowd. However in an intelligent interpretation of a hair test you might not see Mercury coming out if you have high mercury. I know I did have high Mercury, I had to get chelated years ago as part of the variety of things that were going on with me. The definitive test I say is you take an agent that makes you excrete Mercury if it's in your tissues and then pee into a jar for eight or twenty four hours, might be a big jar. Then you take a sample of that and then you know OK there was Mercury in my tissues and my body let it go. Now it's out.
- That's really a good strong standard but what you can tell from hair test is your ratio of copper and zinc is going to be seriously jacked even if there's no Mercury present. Mercury can send a signal that perturbs other metals. You have to really know how to interpret these things. It's cheap though. Which is why I did it.
- Dr. Mark: It's kind of cheap but then interpret yourself.
- Dave: You got to work with the doctor on this stuff.
- Dr. Mark: The function of and integrate the medical doctor in this. Also when you think of testing is it trickles back to you know particularly work with the clinician of history examination, doing you know questionnaires on neurotransmitter imbalances, hormone imbalances. It's got to be well considered because what I see this all the time. Some ordered the wrong kind of blood test, they freak out about it and it's not in context. What really is ninety percent of the time is best done in conjunction with a clinician who can just see the big picture. Make sense of it. Reassure you because I see a lot of people particularly those with a lot of anxiety on the health. They're constantly doing blood tests, they're freaking out. Sometimes the good reason sometimes not for good reason. Do work with someone with function of integrated meds and background.
- Dave: The other thing I think is very reasonable is to say I once had a budget. It's entirely possible and I did this. There was a time when it actually created marital stress. After I lost my eight million dollars going back one time ago. When the most important thing in life is actually life so I want to perform well I want to feel good and I actually felt like crap a lot of the time. I've done so much but I feel like I don't have my energy back. I've lost some weight. I've gotten somewhat better but it's still not right in and I just knew it so. I'm happy to spend a thousand dollars a month. I ended up spending three hundred thousand dollars. I guess that was a couple car

payments, I'll just drive my old car whatever. I still drive a pickup truck.

That kind of thing you can say look I want to spend five hundred dollars on lab tests. You go to your functional medicine person and you say all right I have five hundred bucks help me allocate this most effectively right. That is not a conversation that a lot of people have. There's two kinds of doctors and one them says, "I have no idea how much any of this cost because I work in insurance companies." There's no kind of doctor who says, "You know what a lot of my patients just pay direct because they get an eighty percent discount when they don't use insurance companies. I like this lab I like that lab. I don't that lab this one is cost effective and here I have a coupon for that one." That second kind of doctor, that's the functional medicine doctor's probably the one you want to work with because they're more holistic in their approach and because they're going to help you stretch your dollar further.

The bottom line is your basic information panel you've got to get that from blood. Hair tests if you are worried about metals is the most cost effective but the least accurate one I would say but it is cost effective. It's also there's no needles there's no blood draw you don't have to inject things into pee. It can be complex and annoying but if you have all the symptoms of metal and you've eliminate some other things it's totally worth your-

Dr. Mark: The provocation test for America is you know the heavy metals is hugely important because you take this an oral substance called DM assay as long as you are not sulfur sensitive. Basically it helps to pull Mercury out and you can measure it in your urine. One thing I want to say around test is there is as a general rule of thumb my advice for most people is change your diet first. Do the core supplements first. Improve your sleep first. Exercise effectively and efficiently first. Then see how you feel and then maybe invest in there because sometimes sometimes people use testing to prolong the inevitable they're going to change the diet. If budget is an issue for you my recommendation is get on the course supplements, your multi vitamin, your crude oil, your vitamin B12-

Dave: There's a Bulletproof list-

Dr. Mark: There's a big Bulletproof list, get on that, get on the fundamentals of the Bulletproof diet. Start dealing with your stress, cut it coherence training whatever it is you choose to do. Then see how you feel and then maybe get your baseline.

Dave: The baseline's important the other blood test that you're not going to get from hair is the food sensitivity panel. There's a list of suspect foods over Bulletproof diet and most people have no idea that they have something that's making them weak in their diet. You cover everything that's just for two weeks. This is described in the Bulletproof diet book in good detail. It's not that hard to do. Instead of selectively eliminating just this then this no just get rid of everything for two weeks. You're going to eat fat meat and veggies, life is tough right? You do that and then you feel amazing. Then you eat a bunch of crap and you feel like crap and you go okay there was something. It's a process of elimination or you just get the blood test. It turns out I am sensitive to that now that I know I can just take that out and see how it does. I think that's around three/ four hundred bucks. It saves you some time and you're going to not feel crap if you're feeling crappy.

- Dr. Mark: That's the IGg blood test. There's a lot of controversy around it but what it comes down to is that I find that if people are willing to do that test yet it may be controversial turns a sacristy but often it's accurate. Something very unexpected comes up and they take that the diet could be eggs it could be dairy whatever it is and they feel so much better.
- Dave: It's oh my goodness clinical outcomes versus controversy. Shocking some of the most effective things are controversial professional because they're too affective. I love too effective that's cool. Awesome. Let's move on to the next one.
- Dr. Mark: Okay this is from Arnold Jest age 62. I'm struggling with nummular eczema. Dermatology doctor keeps hitting me with creams and it seems to laugh at them. Sunlight does seem to help. I've been Bulletproof since September have lost 23 pounds. Been trying to hack from the inside. Do you have recommendations?
- Dave: I'm familiar with most forms of eczema. I don't know the specifics of a nummular eczema.
- Dr. Mark: So let me take that.
- Dave: I could talk about some general autoimmune things but you go through the medical-
- Dr. Mark: Yeah. I love talking about eczema and skin information it is such a hackable condition.
- Dave: I've got some right back here.
- Dr. Mark: Nummular eczema or discord eczema classical you get this kind of coin shaped lesions on your arms your legs. They can be itchy they can use you can ooze. You get them on your body and really anytime you have skin inflammation your head got to go to inflammation, generalized inflammation. Gut health, leaky gut syndrome and dysplorasis which is basically bad bacteria growing in the gut.
- When you look at that kind of principle you know. The first thing is you get to clean up your diet. You got to come off sugar, dairy gluten come of that the kind of usual kind of suspects. You got to treat any dysplorasis. If you have bloating, loose stools, diarrhea, constipation you may have to treat yeast, yeast over growth. There maybe parasites there, you get some gut testing done. Taking anti-inflammatories are really important. Probiotics to improve gut health really important. Skin health supplements, vitamin B3, vitamin C, A, cruel oil, zinc really hugely important. Testing for food sensitivity.
- Dave: Collagen?
- Dr. Mark: Well this is a big thing so collagen is hugely important. I put collagen in coffee and smoothies. Why it is involved because collagen is the number one protein in the body and it provides the structure for the skin and for the bones.
- Dave: I've seen those studies that say collagen does anything to eczema. It doesn't mean there aren't

any I just I have no knowledge of that. The idea of giving your body the building blocks to grow healthy skin is fundamental to what have you and hydration in the skin is influenced by collagen.

Dr. Mark: If you look at eczema it's basically dehydrated skin. From a functional perspective you want to be increasing hydration through the collagen you want to be making sure you have enough clean fluids as well not you chlorinated tap water. It's going to be filtered the reverse osmosis with you know electrolytes put back into it. That's hugely important. What I tend to find a lot of people with eczema is that they clean up their diet they come off the sugar they treat the gut flora imbalance and they stay away from alcohol particularly anything the stresses the liver. Use virgin coconut oil directly on the eczema. All those are really the foundations for improving skin health.

Dave: Now. The other thing that didn't come up in that list is what about food allergies. So many people with eczema are reacting to eggs. Eggs are even a bigger trigger than you think. It could be grains, it could be prunes that it could be an outlier but really eggs, corn. Corn is the most vitamin C is made from corn. If you're super sensitive to corn and you don't know it you could be getting eczema because the vitamin C capsules. It's highly unlikely. Corn is omnipresent even if you're on the Bulletproof diet there's probably a little bit of corn in something and it's probably not a bad thing. If there's a small amount of non-GMO corn starch, you're not getting much corn protein from that. For the vast majority people no big deal. It's even structured cornstarch that has benefits for you as long as you're not allergic to corn.

Those things though if you are one of the corn people. Then you've got that thing on your leg or whatever and that blood allergy panel could be really beneficial.

Dr. Mark: It can really. In the case of eczema it's almost. If you can afford it and prioritize it do the panel. Gluten based on the ones I see, gluten, dairy and definitely eggs. Egg shows up kind of all the time. Here's the thing is that just because you says it to something doesn't mean you can be sensitive the rest of your life because as you improve you diet as you Restore health of the guts and integrity of the gut system that actually can reintroduce foods again.

As a general rule of thumb I say stay away from gluten period but eggs you can reintroduce kind of gradually. Doing that food sensitive test is a really smart move because it's pretty miserable living with eczema can definitely impact your self-esteem your mood your quality of life. Even your sleep.

Dave: That's a big thing. In order to be able to just go out there and say I'm going to get a blood test and I'm going to see if my immune system is responding to something. If you have general inflammation you don't know what the source is. The other thing to look out for eczema is water damaged buildings. Check out moldymovie.com. The number of people who get serious skin conditions when they live in a moldy environment it's incredible.

When I was a kid I lived in a basement that had water damage. In fact it contributed to my obesity that was not responding to caloric restriction and excessive exercise. Funny a lot of obesity doesn't respond to those things. I use to have these rashes all over my legs and arms. They were just persistent they were caused by environmental factors that were outside my body

and it wasn't about food. For something that you got to pay attention to other sources of inflammation.

Dr. Mark: You look around in your environment is am I allergic to dust there's a lot of dust in my environment. Am I in a overheated environment all the time. Most of us don't need our room temp it's be much above eighteen degrees centigrade something is sixty five degrees Fahrenheit or something. We need to be hydrating from within the mold thing is big. That's what I say to anyone with any significant health issue.

Take the role of the detective. It's your job predominately but ideally working with a health professional as well the talking about. To work out what is contributing to this enormous a combination of stuff. Which it means it's it could be mold it could be dust allergies it could be food sensitivities. Then combined with leaky gut syndrome, combined with impaired detoxification in the liver, combined with some of the healthy bacteria in the guts. That with a hot environment and have long showers in that the dehydrates the skin just tips the balance over. Sometimes you just need to identify a couple of these areas pay attention and clean them up and you know what the body heals itself. The body has this innate drive towards health and healing and recovery.

Dave: It is kind of funny. I really have an internal debate when I was developing the Bulletproof diet info graphic. If you haven't downloaded this thing and you've been listening to Bulletproof radio for a while shame on you. It's free it's one page you print it out. We'll send it to you from the Bulletproof store as well. You put it on your fridge and it tells you these foods are Bulletproof and these foods are suspect and these foods are kryptonite. It tells you when to eat what. It's one page and thousands of data points all scrunched down. I asked a few other people and I didn't know what to do because eggs are super food.

Egg yolks will completely change the quality of your cell memories. They'll make you more fertile. They'll raise your HDL. They make you smarter. They help you insulate your nerves. They're full of vitamins that are hard to get. They are as if anything on earth is a super food it's an egg yolk is a good but it's also one of the top five allergens. I'm like do I put it in the Bulletproof because it's high on the micro nutrient and on the especially the fatty acid side or do I put it in the suspect foods. Then I have a lot of people who should be eating eggs who would I don't want to eat suspect foods right now. I end up putting them in the bottom of the Bulletproof category because it's a spectrum. I don't know if there ever was a right answer there but if you're having issues.

You could try eliminating eggs for a week or two and then add them back in a giant omelet. If you feel like an absolute zombie and get inflamed the next day then maybe you should do a blood test or maybe you should just stay off eggs for a couple months see what happens.

Dr. Mark: In the spirit of bio-hacking yourself experiment the Bulletproof diet provides a templates and guidelines and principles. Then it's your responsibility we encourage you to do this to personalize it play with it. You go to work out what works for you.

Dave: Yeah you do. Good question. Let's do the next one.

Dr. Mark: This is Mike from Spire who recorded a message.

Mike: Hey Dave, Mike Ellerby here with Spire. Give us some of your thoughts on how important the breath is and breathing naturally.

Dave: Spire is this cool little thing that you clip on in your belt that measures your respiration and how much you breathe and. When I was CTO of Basis the wristband company that gets a heart rate from your wrist. I really want to get heart rate variability from the wrist which they ended up never engineering . into the device which I always thought was a huge bummer. That idea was that when you can use heart rate variability to tell respiration. Heart rate variability is a major sign of whether you're in fight or flight stressed mode versus parasympathetic rest in recovery mode which means you can change your breath. Or you can change your heart rate variability and change your breath but they're linked.

Becoming more conscious of your breath can really make a difference in the quality of your thinking. It can increase the amount of alpha waves in your brain. It's a huge thing. Most people aren't very conscious of it it.

I actually wore this Spire sensor for about three months. This is really cool. Mike since you're from Spire I am going to tell you I really wish you had better data logging to last longer because for some reason it would always find the data to my phone. I want twenty four hour or at least all day long I don't want to think about it. I keep only getting five hours of data. I have been breathing for twelve hours and I want I want all my data. I found out I was working my breathing I wore my Spire quite a lot but I wanted an unconscious monitor that I could just leave on all the time. It wasn't there yet but I haven't tried the new version. I'm happy to try it.

I think there's a huge hope there is maybe much easier to get the heart rate. As a bio-hacking device I love this and as a way to get into the body I love it. You should hear the last interview with Mark and me where we talked about breathing for twenty minutes. We'll put a link on the youtube video to the show notes for that one as well. Mark what do you think? We don't want to go too long into this because we have other questions.

Dr. Mark: In the last book I guess we talk a lot just to summarize it I'm coming to believe that conscious breath control is essential and integral to performance and energy. I'm not saying no to this thing and the state of the I'm just realizing is it's at the heart of ... If you want to regulate your emotional state and psychological state and you capacity to be alert and attentive you just energize your breath. If you want to be able to relax yourself because you think stressed and overwhelmed. You can just work with your breath and the less-

Dave: We talked about that. In fact I'll talk about one more breath we'll just throw some kind of fun ones. Breathing too slowly is actually an issue if you do this a lot at there's a comfortable tendering breathing too much in breathing too little. If you do is all the time you'll be breathing too slowly but it's a really good stress reducer and it also teaches your body to calm down. It's called The One Minute breath. What you do is you breathe in really really slowly for about twenty five seconds. Then you breathe out really really slowly for about twenty five seconds and

then you hold your breath. Empty for ten seconds. That's one variation.

The other one that's simpler is in for a twenty hold for twenty. Out for twenty. That's the classical one most people can't hold their breath empty you feel like they're going to die. Once you've gotten over that I'm going to die my lungs are empty it's actually just fine to have empty lungs for five or ten seconds at it but there's a huge panic response that most people get from that and you need to train that away from yourself. Your body should not be allowed to go to panic mode when your lungs are empty. For God's sake are not going to die. This is about training that inner animal going I'm going to die, I'm going to die. Shut up, you're not going to die. If you do you won't know it. It's okay.

Dr. Mark: The whole idea of training to keep your breath training a breath it's an exciting area. I think it's we'll cover more. Take a look at the other podcast.

Dave: Okay cool.

Dr. Mark: Next question from Steph. Hi Dave love your products and podcast. What do you think about cold brewing coffee versus traditional brewing versus espresso maker. Benefits or drawbacks. I recently started cold brewing and the batch last me a couple of weeks also have an automatic espresso maker thanks.

Dave: This is actually a pretty complex question. Let's talk about the three big brewing techniques but there's kind of sub points for each one of them. First of all cold brewing. It makes flavorful coffee without the bitter compounds which is why coffee companies like cold brew coffee. It's easier to do. The only problem is that some of the bitter compounds are good for you. We've been experimenting with cold brews and ways to hack the cold brew to get more good stuff in there. At the Bulletproof Coffee shop because coffee oils if you do a search what's in coffee oils and what effects those have on inflammation and gut vitamin I think there's actually a reason to use heat extract of Chinese herbs. Heat extract it's not just water extract it's heat extract.

You're getting less of the stuff out of the coffee. You can make a batch of cold brew and does it last for a couple weeks? Typically they say last for a couple weeks. I would like to see a little more data on that. It's not like things go unspoiled. Very little of nature is that binary. What's going on is I'm not spoiled. The yeast molds and microbiology account goes up and up and up and up and then it goes way up. Well do you want to drink thirteen day old? No you probably don't. Maybe you do. I mean I haven't seen the data yet but not for today because fourteen days the day when some agency somewhere said fourteen days is the number. How cold was it stored and stuff like that. If you want to store it for a long time I do I toss a little bit of colloidal silver in there it's going to change the taste whatsoever but it's going to make it harder for things to grow in there.

It's not well known but when you've got that that milk from the fresh raw milk man way back in the day with the milk delivery truck. What a lot of people do is they would take a silver coin and they drop it out of the milk to keep the milk from spoiling as quickly. Didn't stop it it just slowed it down. I don't do some like that in my cold brew just at home. I'm not even sure if it's legal to do that in a commercial establishment because colloidal silver may not be considered

commercially grass or something. That's what I would do at home. You didn't get the coffee oils but it lasts a long time it was convenient. OK that's cool and second thing with traditional brewing. Traditional brewing is all over the map.

Now. If it's hot water. That's super cool. If it's a paper filter that's not cool because the paper filter catches the coffee oils and doesn't allow them into the brew. You actually want the coffee oils. Traditional brewing with a metal filter just a little gold cone filter one of the able laser punched ones is something like that it is cool. Then you're into the problem of water temperature. Good coffee is made around two hundred degrees Fahrenheit. Bad coffee is made of one seventy five degrees Fahrenheit. Guess where your coffee maker does? Your coffee maker does bad coffee because once the water is hot enough to basically push the water up instead of using an actual pump that happens at one seventy five. You get coffee that doesn't taste right and isn't very good. The vast majority of coffee in offices and homes is made of the wrong temperature.

You can buy a SCAA approved coffee maker I just posted a review on the Bulletproof youtube channel of the Cuisinart one. Which actually I love finally after fifteen years of doing either pour over or French press I switched to a commercial coffee maker because it uses metal filter. I put the coffee in press a button and then I put the butter in the blender and talk to my kids in the coffee comes out. It's just phenomenal but it's good coffee every time. That's what I'd recommend.

Espresso I also have a really really nice semi-commercial grade espresso machine that I use and I love the thing it's nice. With Bulletproof beans you get this huge amount of crema. It's flavorful and rich and complex. You can absolutely drink that and you get coffee oils out of the espresso as well. You get a bit less caffeine that way than you do from the other type of brewing. I think there's definitely a place for a espresso. If you're going to be blending a espresso with milk then you're getting a latte and getting all the sort of sticking of the coffee polyphenols and access to the milk molecules it's just a bad idea.

If you're going to be blending the espresso with butter you're going to find us a hot enough to melt the butter. It doesn't work that well you have to use an Americano. Then you run into issues with the vast majority of beans where the bitterness will come out more from espresso. I do it just fine with a Bulletproof beans but it's still a fine art.

We engineered the Bulletproof beans, the roast profile is actually we worked on it with Paul Tsongas or who's one of the guys who trains the judges for the Cup of Excellence. The world's top coffee tasters on earth. We developed a flavor profile to work specifically with butter and brain octane. That's how we test it. That means that when you pull a shot with our beans it's meant to be with butter it tastes good that way but a lot of beans in our testing anyway I had very weird off flavors when you increase the amount of fat that's in there. There's a taste reason that you use the Bulletproof beans but there's also in this press a machine. Just a question of bitter oils coming out if you don't pull the shot just right.

Espresso is more complex. The automatic espresso makers it depends. If you spend a couple thousand dollars it might work. If it's a five hundred dollar espresso maker most of those don't

have enough atmospheric pressure. I think you want to around six atmospheres of pressure put on right. Gets really geeky from here at that was the layman's version. I hope I didn't bore you on that but man I love coffee. Mark anything to add?

Dr. Mark: Listen I just learned a lot from listening to that. It was very geeky by really loved it. It was just it was great. Good question. OK this is from Bruce. He is age 48. Hi Dave the last few years I have been increasingly praying to angry outburst. The slightest things sets me off. It's having a negative impact on my relationship. Any ideas?

Dave: Joe you should tell your partner to quit pissing you off.

Dr. Mark: That's why I'm here to offset that a little bit as well.

Dave: This is one of those amazing things where you have enough self-awareness to notice the change which is phenomenal and that means that you can change it. You're really hosed when your partner tells you there's a change and you tell your partner to go screw off because then you're locked. I know a lot of people who are self sabotage like that and they're just they're going to keep doing it until someone leaves them or until they just hit rock bottom or until they say something is just harmful that they just realize wait a minute that wasn't like me what's happening.

What's going on here. It wasn't a sudden I moved from one building to another. I've got a new house I'm trying to an asshole. That's usually an environmental thing like mold. Yours is a progressive thing. Which makes me think that it's one of two things. It's most likely neuro chemical or biological and that's worth getting worked worked on with a medicine approach. Perhaps a brain doctor certainly a psychologist. Daniel Amen has great books in fact Change Your Brain Change your life just got released and if you read that and you see your profile in that book that is going to completely change things for you. It's one of the best books I've ever seen that lays out different behavior profiles with different brain states. Daniel Amen, he's been on the show a couple times he's in Moldy the movie as well. His type of technology called the Spec Scan.

The other thing is your age 48, you're at that time of life where if there's some kind of stress in life that you never dealt with like some sort of varied trauma it's going to come out man. I wouldn't believe this when I was twenty or thirty because it is just not there yet but if there's unresolved childhood stuff all of that goes in before you have an adult brain to tell you that it shouldn't really make any difference. It did make a difference when you were six or five or whatever it was. If that's still in there and that programming is running subconsciously without your knowledge or permission without any logical inputs whatsoever. That can come out and that can make you crankier and crankier.

I recommend when I work with a client who has stuff like that is there some personal growth stuff there. There is some of the stuff that Bulletproof coaches can actually help guide you towards. The fastest two technologies that I know if they work on that are number one EMDR. That's a neat form of transpersonal psychology where you move your eyes back and forth. In a special way that sort of puts you into reprogramming mode for lack of a better word. I've never

seen faster progress than I have without in friends family and clients. The other thing is neurofeedback. You can use neurofeedback to really get on top of that.

Forty years a Zen is a program that you use with very high end clients. On the Bulletproof website you'll see the neur-optimal system that also it can really help with emotional regularity. That's worth checking out as well. The reason it's on the website is that is the most affordable. I think it runs to about thirteen bucks a session. Type of neurofeedback that's easily accessible from home without going anywhere. Hopefully that's a quick answer and now we're going to go over to the physician side of things.

Dr. Mark: I just want to reinforce what you shared there. One way of looking is when it comes to challenges like anger and depression anxiety you look at it from a is it a biological cause? Is it a psychological cause? Is it a combination of? Sometimes it's a combination. I think the first thing I just really appreciate is the fact that you've written in and say I have an issue. That's a big thing because you see the human ego is rooted in denial and blame. What that means is that when you have an angry ego itself. Everyone else is the problem. They're the problem, I'm not the problem. Just leave me alone. There's not much room there for change.

What I'm seeing here is a willingness to change and that's great because the way we are matters. How I show it moment by moment with you with others with clients with my kids with my wife matters. We get used to being a certain way. When anger creeps up on that we progress get more more angry with the people around us, with the people we love. Ultimately it's not okay because it's a form of emotional and intellectual abuse. Trauma is not okay.

I love the fact one is you willing to do something about this. I think the first thing is what sense to happen as we get this buildup of psychic tension inside of us. The way to know if you have that is just simply by to chewing into your body, how tense do you feel. If you feel your muscles at the back and they feel really kind of tense and hard you're trapping a lot of psychic tension engine there so it's a bit-

Dave: Or even exposed to bio-toxins.

Dr. Mark: Yeah that's it.

Dave: That's the rough one you don't know but if it's there you get angry.

Dr. Mark: If it's there it because it's trapped energy. What happens is when we don't deal with that energy it shoots up to the head. That shows up as compulsive thinking or your mind just will not shut up. You get this periodic discharge of energy. When you angry have these discharges that this is a form of self soothing. You discharging the discomfort and the energy. You return to feeling better. Normally drop into guilt as you've just done something you're not proud of but it's not a healthy way of doing it. One is you go take it seriously.

Second thing is we have to deactivate that sympathetic over arousal. There's a whole bunch of ways you can do that meditation, mindfulness, bio-neuro feedback.

Dave: Heart rate variability.

Dr. Mark: Heart rate variability. The amino acid L-theanine is really good for just relaxation. If you've been angry for a long period of time you're going to have some degree of adrenal fatigue. The adrenals they sit on top of your kidneys around the back. They basic give you energy and resilience to deal with life's challenges. If you're finding it harder to deal with life, the littlest things are triggering you then that means that's a big sign of adrenal fatigue.

Dave: In fact I would say it's worth a try I have a half a teaspoon of sea salt in the morning with water. It gives your adrenals a little bit more energy all day long. It's one of the things I recommend. Almost all my clients do that because it's such a big thing. I learned about it. It's actually a treatment for adrenal dysfunction. I like preventative adrenal work not restorative adrenal work.

Dr. Mark: Absolutely. What people find is that often the salt deficient we've gone from one extreme to the other. Whereas we're saying you've got to cut back on the salt no. Human beings need salt and they need the ideal amount if you have adrenal fatigue you often need more salt. You take in the morning. You may need something like an adaptagen like Rhodiola to support your energy. Here's the other thing. You need to be discharging that energy in healthy ways. How do you do that? Well first of all as you get involved with things you're passionate about, you use that energy that's in your body and you deliver into work and personal hobbies you're passion about.

Second thing is you to discharge through high intensity exercise. That's a great way of just letting go. Third thing which is a great hack I've recently learned from the retreat went on is a conscious rant. Here's what you do, you get a pillow and you basically scream and you say we have need to do you just let it rip. Whenever you want to say about your boss or about your partner or whatever is the person who kind of triggered you-

Dave: I want to know what you said about me. I'm getting this look.

Dr. Mark: I will record it one day. It will be muffled through the pillow. This conscious rant is because often we don't give ourselves permission to be that angry teenager because that's where the anger comes from. What you do is you rant it into a pillow. You do it by itself so this doesn't get projected onto anyone else. It discharges it and it just calms your physiology. It's a very kind of cool way of doing it. If all those things that help them please work with the skilled professional you can dig a bit deeper.

You mentioned about trauma. Addictions as well. If addictions are running wild there then that leads to to anger issues as well. Hats off to you for saying there's an issue here. Look out for help and you said it's affecting your relationships and really that's when it affects the people you love most and potentially can destroy relationships enough's enough's. We have to take great courage and do what we need to do.

Dave: Keep in mind we talk about this a lot in the last one. If this conversation is interesting to you when you're listening to this. Check out the last time that Mark and I talked a few episodes ago and our last Q and A. We talked a lot about the different different personalities that are in the

body that actually look at them as virtual machines because I'm a geek. There's actually a consciousness inside you that is not you. It's your body wanted to do stupid things that a gorilla or a dog would want to do. If you read the Bulletproof diet we talk about the Labrador brain. A lot of that anger comes from those survival parts. If you can work with someone to figure out what triggered that what programming made that dog into a mean dog versus a nice dog. You can reset it and it's easier now than it's ever going all of history I would say to reset it.

Acknowledging, "Oh I don't have to feel really guilty about that, I'm responsible for it but it wasn't me. It was this automatic crap and I'm just going to just kind of clean it up". That can lower some of the guilt because guilt actually ties into shame. Which prevents you from doing all the work. How do I know this crap because I've lived it. It's like I was always Bulletproof.

Dr. Mark: That's the thing right is that no one shows up Bulletproof. You have to work at it. You have to work through the stuff I've worked on my anger stuff, work through my depression.

Dave: You're still working on anger Mark, you are one angry man. Just kidding.

Dr. Mark: I'm about as calm as they get. Actually you know what just one thing came to mind if you're listening to this and you notice that you consistently emotionally overreact to stuff, that's a big sign that you have stored anger and energy inside of you. Anytime we emotional over react that's pointing towards the past. Living on this side of our body and that's about the past and working with a skilled therapist.

I've been working with a therapist for ten years now and I tell you what there's been one of the greatest blessings to me. We are creatures of self denial. It's very hard for us to see a lot of things that the people can see so clearly in the us. If you're with an emphatic therapist but someone who's willing to point out that stuff and teaching you skills and affirm you and make sense of why you feel the way you do. That can be transforming because we transform through relationship. Surrounding yourself with someone who really gets you and support you through this I wish that for you and I wish that for your family.

Dave: Well said. Next question.

Dr. Mark: Okay we have a video question from Jo Beth from Sweet Water Health.

Jo Beth: Hi Dave how are you. This is Joe Beth Doth from Sweet Water health. I'm wondering how you've applied the information you've learned from your HRV to your program.

Dave: Hey Jo Beth good to hear from you. Bulletproof partnered with Sweet Water several years ago. When you look at our stress detective and our food detective the free app that helps you figure out when you are responding with an allergic response or a sensitivity response to something that you eat is based on Sweet Water software which is really cool. I have used HRV so extensively that I can tell when I'm in a state of low coherence. You can feel it. Imagine you can as well.

Dr. Mark: Yeah because you just feel the sense of inner ease, your presence.

Dave: Yeah. Something just messed with me. When you do the training or if you wear a stress detective with the Heart Rate Monitor. If you wear that regularly. What you find is you're looking at your iPad or your phone and you are like, "Oh my body is going into that stress mode right now". There is a felt sense of stress it's just not labeled. There's all this stuff going on your body right now and you probably don't know what any of it is because there's no way to really know. Well that one's stress because a computer told you that OK. Now I feel one that goes off.

The biggest thing I've done with heart rate variability is I've learned what it feels like to be in a state of low coherence. I've learned how to put myself in a state of high coherence. Every time I go into low coherence I go why? This is my internal event correlation engine. I'm correlating events. Let's see I walked into this place I don't feel good or this weird or this person walked into my presence and I'm just feeling a sense of unease that wasn't there before. Right. It could be that they look like someone who had beat me up in the first grade I have no idea. Probably not I've dealt with all that drama. I don't have that program anymore. At least I don't think I do. There could be some nuances.

It could also be something entirely different. Maybe they're wearing a scent that reminds me of something. Maybe I'm allergic to something that's going on there. I don't really know but I know that something triggered it. It's that something's not right her variability made me much more aware much more quickly when something isn't right because your hear rate variability changes before an earthquake. This is are innate sense of warning. Heart rate variability once you learn it you can apply it every day with and without the technology.

Dr. Mark: Yeah it's kind of it's been a change for me as well. It kind of just increases this bodily self-awareness. The body is a barometer is constantly feeding back to us information is feeding back information about your internal state and our external environment and how that environments impacting on us. What happens is that you start to really notice wow I feel really out of sorts here and then the process you described there is you then reflect on I wonder what's causing that. As opposed to just unconsciously be stressed and tense and do nothing about it. As you train to be in a coherent place and to be coherent means to be present. Relaxed on the inside. Attentive and engage on the outside. It's a high performance state. High performance by definition is a coherent state. What it does it provides you with choice.

Now I have this awareness and information I can make decisions. I can make a choice about being with this person. I can make a choice about removing myself from this environment. Or I can learn about wow it's I had that meal which looked amazingly great but you know what I can't think properly. I've got this kind of mental static going on. This brain fog going on, I wonder what it was that was in that. You start this process of inquiry. Then you learn from that. Then you evolve. Then you just start to manage your biology much more skillfully which also means what bio-hacking is about. Good question.

Dave: All right let's move on to Meghan.

Dr. Mark: Meghan age twenty one. Hi Dave. I've had chronic Lyme disease and mold toxicity for over two years now. I went to a clinic in Florida to be treated for these conditions was given nineteen

intravenous bags of levaquin which is an antibiotic. I was a NCAA Division one soccer player prior to this. I was not told to stop my workout routine whilst on levaquin the antibiotic. This resulted in severe tendon damage which is one of the side effects ended my soccer career. I listen to a podcast about fluoroquinolones which is the type of antibiotic referring to. I'm intrigued by your mention of administering ozoning yourself over the course of eighteen months. What ozone generator do you have? How did you administer it yourself? How do I go about it? Thanks so much. I'm a big fan.

Dave:

Bulletproof radio is less about chronic disease and stuff like that where there's lots of specialized things about Lyme disease and toxic mold. I find that probably a substantial portion of people, I don't have a good percentage to throw out there, who are really into performing well. Magically don't always perform all the time. There are some consistent reasons for this. One of the things I talk about a lot of is if it Helen Irwin on the show a couple times. Visual stress affects high performers. Affects pro athletes, affects CEO's, affects almost forty eight percent of people have that one. The one that's amplified by mold and Lyme. If you have those are going to have visual stress in fact it's predictive that you've been exposed to bad toxin.

At least one in four people have genes that make them susceptible more susceptible to toxic mold. Everyone is a susceptible to toxic mold. At least one in two houses how toxic mold. Lyme disease is sweeping the country. These affect everyone from all different walks of life. Quite often I get these these coaching calls where it's like Dave I'm semi pro athlete, Dave I'm a CEO and then I just hit the wall and everything sucks and I get brain fog. I never had it before. It's okay maybe you're just getting old. Yeah right. That's not how you get old.

What's going on here is something messed with you. You ran into kryptonite that wasn't labeled and that's not cool. You're native state is Superman. Some things can make you even more super and we have such an obsessive focus on those as a culture that we forget to look for the things that make you weak. That's why Bulletproof diet, eat the right macros lots of fat the right kinds of fat. Stop doing stuff that makes you weak because that's easier then just doing things that make you strong. Then of course of avoid the stuff that really really bad like the kryptonite things.

What you have Meghan is really unfortunate because you had toxic mold exposure from a water damaged building most likely. If you have chronic Lyme disease that's okay. It means you had mold exposure. I don't believe people ever get chronic Lyme disease without first having toxic mold exposure. I lived in toxic moldy buildings, I had chronic Lyme disease for at least ten years that was diagnosed with all the appropriate Western Blot things. My wife and I ran a lab testing company where we double confirmed that I had Lyme disease. In fact it was active and it was the North America not the European strain. You can get over that stuff. What sucks for you is that you have given a really toxic antibiotic that contains a lot of fluorine. This is a highly reactive chemical that's also in fluoride by the way. There was an episode recently of Bulletproof radio where we talked about how these kind of antibiotics which are a new kind are seriously messing with people.

One of the big side affects is tendon damage. Ouch. What's going on now is you want to go now is you want to do ozone. This is why your question made it onto the list because ozone therapy

is something that doesn't apply to people who have been as foobar as you. I was probably just about a screwed up although I only have knee problems not tendon problems. If I can get to the state where I am now. Just about anyone can because if you use half the techniques I did you're going to kick way more ass than I do. Also you're young, you're only twenty one. You're going to heal way faster. Here's the deal with ozone, everyone can benefit from ozone therapy. What you do with ozone is the gold standard is you it you introduce it intravenously. They pull some of your blood out they mix it with ozone they put it back in and it superchargers your immune system. It turns off inflammation.

The main mechanism of action whether you do it intravenously or the other ways I'm a tell you about in a minute. Is it changes the ratio of NAD+ to NADH in your mitochondria. This is called your Krebs cycle. It's how you make the energy that makes you who you are. You run out of ATP you die. You have six seconds of ATP in your body right now. You stop making it you die. If you can make it slightly more efficiently slightly better you age less you have less risk of cancer and you heal faster. You feel better have more energy you think better and you're more of who you are. These electrons that you make from ATP are the foundational thing that allows you to personal growth work. Allows you to pick up your groceries. Allows you to take your next bite. It's fundamental to being a human or being a biological life form that's not a plants because they use chlorophyll different animals. You move around pretty much you have ATP and you've got to have electrons.

What ozone is doing is it's changing that ratio of energy of NAD to NADH. What other substances change the ratio of NAD to NADH? Well upgraded aging on the Bulletproof website and unfair advantage. The ingredients in those. There are multiple studies looking at mitochondria function in that specific ratio. One of the reasons I use those things every day is because I do everything I can to keep my mitochondria running very very efficiently. Those are part of my strategy for overall mitochondrial health.

In your case what you do with ozone is you're going to also take advantage of some of the anti-microbial things it does and you're going to take advantage of the fact that ozone stresses the antioxidants enzymes in your cells and makes you grow your own anti-oxidants. Your going to grow more of your own glutathione. You're going to grow more of your own SOD.

How do you do it? You go to a therapist an ozone doctor a functional medicine specialist. They're going introduced ozone into your body via probably one of these four ways. Intervenous which is the gold standard but expensive and painful. You can do it through rectal which Meghan your woman you have an advantage of a vagina it works better in the vagina than it does in the rectum, for guys we get in the rectum. Or you can also get it into your ears. You have a stethoscope where they blow it in your tympanic membrane allow it into the brain. This works really well for the brain fog. There's actually another thing in ozone sana that's much less use than not that big a fan of that you can absorb with your skin.

These are the primary ways you do it. It's expensive. Relatively speaking. If you wanted a home. First you go to a therapist and you learned how to do it right because you can kill yourself with ozone. Don't mess around the ozone at home. Rectal ozone is pretty darn safe but you can cause a lot of harm. You could basically inflate yourself too much and you could also cause too

much oxidative stress. You've got another right levels. There's various websites and blogs about this. Your person doing the training ought to answer all of your questions for you. Then longevity resources makes the gold standard thing. Here the interview with Dr Robert Rowan where I talk with him about that specifically. I think is even a code in that for a discount on it.

On top of that you could also if you really really want to go cheap there's something called Enalay, E-N-A-L-A-Y which it is a Chinese brand about one hundred seventy nine bucks for one of their generators. The problem is it's not calibrated. You don't know exactly how much ozone you're getting but if any money and you're desperate I'd think about that but you need to know what you're doing because you can hurt yourself. You can also heal yourself. I did it rectal ozone every night that I was home for eighteen months and it turned my body back on. If you're high performer who's not sick and you do ozone every couple weeks it's probably help your performance. That mitochondria ratio matters for everyone. What I missed?

Dr. Mark: I think you hit the nail on the head.

Dave: I love ozone.

Dr. Mark: Yeah I can see you know a lot more about it than I do. I think we got it.

Dave: All right. I think. We're good. I think that's it for our show today. We're only a little bit over on time. I appreciate you taking the time to listen here and to ask questions. Go to social media, go to the Facebook page, ask us on Twitter, Instagram whatever you like. We actually have the ability to use voice mail and there's instructions on the website where you can actually just ask a question which is kind of cool so we can play it live.

We recorded some of these questions at the Bulletproof conference. If you like what Dr Mark and I were talking about maybe you should think about going to the Bulletproof Coach training. This is offered several times a year around the globe. There's one in the UK we do it on different coasts in the US. This is part of my mission to make these ideas. Do more things that make you strong do less things that make you weak. Just make it so there's a lot less struggle. Make things a lot easier and to help scale the message around Bulletproof much more quickly. It helps to have people who are committed to working with high performers.

We're training now hundreds of people to be Bulletproof coaches. where you actually fully certified. It's a rigorous program where you actually have real knowledge. It's not a Bulletproof diet coaching class. You can read the Bulletproof diet and you can learn how to do that. We talked about food and performance it's a small part of it. It stacks well with functional medicine. It stacks well with nutrition. Nutritionists kind of backgrounds or any kind of healing modalities but it's not those. It's it what it is it's high performance training for human beings. It's not just how you can be high performers and grounded it's how you can help someone else be that because those are different skills.

Mark is the leader of the coaching program. I help to teach all the classes but he's our primary teacher. He's there because he has a functional medicine background and years of teaching and developing personal transformation work as well. As a team I think we've made a program like



no other. It's awesome. You go to Bulletproof coach or Bulletproofcoaching.com. Which one is it?

Dr. Mark: Actually Bulletprooftraininginstitute.com. There you go.

Dave: Bulletprooftraininginstitute.com. It's one of things that can be transformative. Now you've seen Mark in action, you've seen me in action. We get into more of this kind of where personal growth meets biochemistry and how you can work with that in the coach training.

If this appeals check it out. I would love to spend a couple days with you helping to transfer this knowledge in a structured way so that you can really have a tool set that allows you all right how do I apply this to myself. Then I walk in the room how do I have the presence to then project myself to people see who and what I am. Then you can see what's going on with them and you can sit them and be like all right, step one step two step three. This is how you help other people the most and that's what I've committed to do is helping other people the most I can. This program is really near and dear to my heart. Please check it out.

Bulletprooftraininginstitute.com and If that's not of interest. Go to iTunes and say, "Dude I love this show" or something similar to that.

Have an awesome day.

Dr. Mark: Be well.