



**Transcript of “Dr. Joel Kahn: Heart Health,
Mitochondria & the Gut - #193”**

Bulletproof Radio podcast #193



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Dave Asprey: Hey everyone it's Dave Asprey with Bulletproof Radio. Today's cool fact of the day is that if you provided with an adequate amount of oxygen, your heart can actually continuously beat outside of your body because it basically has its own system for electrical activation which is kind of cool and kind of creepy.

Today's guest on the show is Doctor Joel Khan. Joel is a clinical professor at Wayne State University School of Medicine and the Director of Cardiac Wellness at Michigan Healthcare Professionals. Now he's also the author of this book, The Whole Heart Solution. And Joel- it's interesting because you got to be ready for this, Joel is a vegan. Joel are you an advocate of a low-fat diet?

Dr. Joe Kahn: People can't throw things through the camera at me? Am okay?

Dave Asprey: Bulletproof people wouldn't do that because-

Dr. Joe Kahn: To answer your question. I know that and I love your community and I love your Podcast and I think you are a fair man. I teach patients about low-fat vegetable based diets for advanced cardiac disease. So it's a small slice of the entire world.

Dave Asprey: So, specifically when people are dealing with cardiac disease, especially like bread post operatively, there's a couple of different schools there and certainly you have a very evidence-based approach. When my dad had his heart attack, going back quite a few years, he definitely went on an extreme low-fat diet because of the convincing evidence that at least for some period of time that it causes a reduction in plaque and he was fully calcified and had a good amount of plaque.

So that's one of things that you advocate. One of the reasons you advocate this style of eating and you and I and we have mutual respect, we're friends and we met at Joe Polish's event and we're

here at JJ Virgin's event for health influencers. I don't think we're probably going to come the final consensus on the ultimate diet for every person on earth.

In fact, I don't know if that is, neither do you.

Dr. Joe Kahn: We can agree on that.

Dave Asprey: There's a huge amount of really interesting stuff that we will talk about today and I want to make sure that if you have stuff or you say, I don't agree with saturated fat for that, just feel free to throw it out there. I am not the source of all knowledge. I'm pretty good at that research. I'm pretty good at talking with experts which is why you're here.

Dr. Joe Kahn: Okay. Excellent. I love it.

Dave Asprey: So now that we got on the table, yes, there are vegans on Bulletproof Radio. I have lots of vegan friends and I was a vegan and all that-

Dr. Joe Kahn: I know, I know.

Dave Asprey: So there's no weirdness there. I wanted to talk with you about mitochondrial function.

Dr. Joe Kahn: Excellent.

Dave Asprey: So first off for people who are listening, if they're long-time listeners, you guys already know who you are. You know what mitochondria are. For the rest of people who are just tuning in, can you tell us from a doctor perspective, but one that everyone can understand, what is a mitochondria and why should we care about it?

Dr. Joe Kahn: Sure. So mitochondria actually- cool fact for today. Some people think that mitochondria came from bacteria and entered our cells and stuck, which is why there is RNA and DNA in mitochondria and there is RNA and DNA in your nucleus. If you remember from

biology from the high school. Most listeners are probably pretty familiar with mitochondria. But they're the site within the cell. Outside the nucleus where energy is produced. You just talked about it and I've seen it, you take a heart out of a living animal lab and the heart will beat for a period of time. It will stop beating because it will deplete the primary source of energy called ATP adenosine triphosphate there's about only ten seconds of stores of ATP in an average cell in a heart because it's such a metabolically active organ.

All that happens in the mitochondria. It's the powerhouses of the cell. It's where ATP is produced and it's a very complex, convoluted little organelle. Very prone to toxicity, which I think we're going to talk a little bit about toxicity in mitochondria. A healthy life requires healthy mitochondria, which is not a concept most people even think about for a moment.

Dave Asprey: What happens if your mitochondria aren't healthy?

Dr. Joe Kahn: You will reduce the amount of ATP adenosine triphosphate, the master energy molecule of the mitochondria in the body. So you can just generalized have fatigue and part of chronic fatigue syndrome. Part of fibromyalgia rheumatic some of there's pain and fatigue syndromes are believed to be mitochondrial dysfunction. And certainly in my world, the cardiac world you will get short of breath, you will have a inability near activities, we call that congestive heart failure. Congestive heart failure is either a loss of mitochondria from heart attack or dysfunction of the mitochondria that are in the existing heart.

Dave Asprey: I'm in the middle of filming a documentary called Moldy and I've flown around the country and I've interviewed experts on bio-toxins and also a whole bunch of people who like me were diagnosed with chronic fatigue syndrome, fibromyalgia, Lyme disease, toxic mold exposure, all these things and one of the things that all them have in common is low mitochondrial function. I know one of the contributors can be neurotoxins, but there's some lifestyle things that also contribute to low mitochondria

function. I know that can make very poor life choices. What are the things in your experience that people are doing that make their mitochondria weak?

Dr. Joe Kahn: There is important environmental toxins. You mentioned one which is potentially mycotoxins we learned recently that air pollution is a mitochondria toxin. The day that air pollution triggers heart attack and even heart deaths is increased in the last 5 to 10 years is fascinating. Turn off the factories in Beijing for the Olympics, heart attacks stop. Turn on the factories on when the Olympics are over, heart attack resume.

Fascinating published data, I'm glad to teach you some of it.

Dave Asprey: I did not see that.

Dr. Joe Kahn: You absolutely need data and multiple of sources that-

Dave Asprey: Okay. Stop you for a second there. For your patient's, is there an air filter that you recommend because of that study?

Dr. Joe Kahn: I do suggest they get a Hepa air filter in the house. I don't have a particular brand to recommend to you. And just general sensitivity, jogging next to a truck is probably not benefit you even though you're jogging. So it's sensitivity to where you are and getting into nature and- same thing bringing dry-cleaning in the house in the bag that's full of PERC, one of the environmental toxins is probably an off-site to having a nice starched shirt. Leave it in your garage for a couple days letting off gas is another way to make your mitochondria better.

Heavy metals, mercury in your mouth, which I'll keep my mouth closed because I still have mine, but sensitivity to the length of exposure. These are all mitochondrial toxins that everybody listening has to deal with all though they are silent and very difficult to identify.

And then you get into food and you need CoQ10, you're very much in the same mindset as I am. About age forty we're making less

and less of CoQ10. I am a big advocate of bringing your levels up after about age forty or earlier that would be a great nutritional way to approach it for sure and the neat ones like PQQ and some of the other mitochondrial boosters.

Dave Asprey: So I take about 300 milligrams of CoQ10. I take that every day and of course I use it in an [unfair advantage](#) with PQQ but there it's more as a catalyst to increase absorption, it's a trivial amount. Why specifically CoQ10?

Dr. Joe Kahn: CoQ10 is a very powerful antioxidant and because oxygen is being used in the mitochondria in the process of producing ATP energy molecule, the mitochondria is very sensitive to oxidant stress and CoQ10 is an anti-oxidant and about age forty we just start producing dramatically less and less CoQ10 every decade of our lives. It's a very smart thing to add CoQ10 in to just maintain mitochondrial functions, skeletal muscle function, heart function.

So that's one aspect of it. And than CoQ10 and if anybody remembers the electron transfer chain, you need CoQ10 to make the ATP so not just protects the mitochondria, it's an important ingredient in the recipe to make ATP. So no question about it and then we can talk about drugs like statins that deplete CoQ10 with so many millions of Americans taking statins. I would not let anyone take a statin without taking supplemental CoQ10 if they need to take the drug.

Dave Asprey: Awesome. It's interesting that you mentioned statins. And one of the things that I've been recommending as a result of the work I've done with the anti-aging research running in a group like that having multiple people come in, they've been warning about mitochondrial, I don't know if toxicities is the right word but suppression because of the CoQ10 depletion that comes from statin drugs. So if you're taking a statin- so you do use statins in your practice?

Dr. Joe Kahn: I do. I'm very selective and very careful to make sure somebody actually has corner artery disease and might justify the

consideration. I pull the gun use. It's Bulletproof so I can pull the gun to use statin but with much less frequently much lower dosing-

Dave Asprey: And then you-

Dr. Joe Kahn: Coupled with CoQ10 always. And it works quite well but you can do tremendous things with lifestyles, tremendous things with detoxification. Heart meth. I mean manage stress, lower cortisol, cholesterol goes down and you haven't used a drug.

Dave Asprey: It's interesting you talk about cholesterol going down. What are the limits of cholesterol that you target?

Dr. Joe Kahn: Quite low compared to probably what the current trend is. It's clearly we all know the backbone of vitamin D, the backbone of sex steroids. It's important to membranes of all cells and brain cells. There are some natural experiments of people who have a defect in cholesterol production. Alpha-beta lipoproteinemia is one and they run cholesterol's in 90 to 100 total cholesterol's their whole life. They actually have a bit of a life extension. Maybe there's other reasons we don't understand and the cholesterol is just something we can measure and there's some other cellular function that gives them a slight survival advantage that is unrelated specifically to cholesterol but they seem to have perfectly fine sexual hormone function, vitamin D function.

To answer your question, I don't want them under 150, total cholesterol under 140. I'll back off and if they're that low with medication I'll get rid of the medication and let them thrive nine on lifestyle related matters. But I don't like them sitting in high 200's, 300's-

Dave Asprey: Yeah. The high 200's, 300's that's getting up there. But if someone's mid 200's do you treat that with drugs?

Dr. Joe Kahn: Well my approach is I find out if they're not known to be a heart patient, haven't had the bypass, the heart attack, I'll strive hard to examine they're arteries. I'll do ultrasounds of the carotid's-

Dave Asprey: CIMT-

Dr. Joe Kahn: I'll do a calcium score, which is a very low radiation exposure, and with a antioxidant vitamin pack, selenium glutathione support get even less DNA breakage. I don't know if you know that. Some nice published data that you can have a CAT scan with less radiation potential damage.

Dave Asprey: Interesting.

Dr. Joe Kahn: After 911 scientist in Denver developed a way to deal with a dirty bomb. A vitamin pack for a dirty bomb. Never happened they were left with is formula that the government had given them funding. Animal and human research has demonstrated that you can decrease by fifty percent DNA damage exposure to radiation and they had nothing to with it so they created a supplement company in Nashville, Tennessee and they sell them.

Dave Asprey: What's it called?

Dr. Joe Kahn: It's called Premiere Micronutrient. I don't know if they have any financial interest-

Dave Asprey: Yeah. I've never looked at it.

Dr. Joe Kahn: Bio Shield Air 1. You take it forty-five minutes before a nuclear or a CAT scan study and you feel that or before you get on an airplane.

Dave Asprey: I had a conversation, I support space X or our exploration of space which is a amazing. I get to spend some time with people who are solving like how are we going to get to Mars, how are we going to mine asteroids and they're doing it like really fast, but the one thing I would ask, I would ask Peter Diamandis this. I'm like, "Peter, what about this whole you will get cooked by radiation on your way to Mars?" He goes, "that's not solved yet" and I believe that hacking the human body is only to get to Mars and I didn't know about that supplement, but you can make yourself more radiation resilient.

In fact before you fly, ionizing radiation from just flying in the atmosphere- should people consider the ins and outs of the CoQ10 there?

- Dr. Joe Kahn: There's data that pilots have an increased risk of melanoma and it's believed that's the cause. There is data that pilots that eat more fruits and vegetables have less cancer development, unless melanoma specifically. There's this bio shield vitamins supplement data and then there's anecdotal data. A lot of people I know will take a handful of chlorella. It's a really powerful-
- Dave Asprey: I do.
- Dr. Joe Kahn: And I do before flights both from getting contaminated air in airplane and radiation. So there's a few strategies there. You can't fight it, it's out there, but you can protect your body more.
- Dave Asprey: So tell me what you take before you get on a plane. We'll compare notes.
- Dr. Joe Kahn: Well, I will take a this glutathione support and probably your product will be excellent one to consider doing and probably chlorella. Those are the two-
- Dave Asprey: So glutathione and chlorella?
- Dr. Joe Kahn: And I'm talking a pretty darn good handful of chlorella's, several grams of chlorella's.
- Dave Asprey: Yeah. I'll do like 30 grams of little chlorella tab- capsules.
- Dr. Joe Kahn: Yeah. Same thing.
- Dave Asprey: I'll do a shot of [glutathione force](#) which is highly bio available and I'm guessing you use something that's bio available, as well-
- Dr. Joe Kahn: Yeah.

- Dave Asprey: Unless- I don't know. And then I also do a 300 milligrams of CoQ10 and sometimes I do a delta gamma high tocopherol, tocotrienol vitamin E. I'll take a trans-Resveratrol of pterostilbene and I'll do two [unfair advantages](#) which is the PPQ.
- Dr. Joe Kahn: Little 200 micro grams of the selenium would be probably the last component-
- Dave Asprey: Good idea.
- Dr. Joe Kahn: A co factor in glutathione production, although you're taking the pure glutathione so it may not be necessary.
- Dave Asprey: Okay. You're taking yours with NAC? Is that how you-
- Dr. Joe Kahn: I'm taking it with NAC exactly, yeah.
- Dave Asprey: And by the way we totally geek-ed out and I apologize if it was, "what did they just say, that was gobbledygook". NAC is an acetyl cysteine as an amino acid, you can buy at the store and when you take vitamin C and alpha lipoic acid it increases production of glutathione, which is the primary antioxidant that protects your liver and your cells in your brain.
- Dr. Joe Kahn: A master anti-oxidant. I just learned 600 milligrams twice a day of NAC during the winter drops flu rates by about fifty percent. I did not know that. It's a published randomized study so I do that already but that would explain why I typically go a winter without flu in cold, cold Michigan.
- Dave Asprey: I believe it, absolutely that anything that raises glutathione is going to be a good move-
- Dr. Joe Kahn: And make a healthier person. Totally untouched in cardiology and the idea of glutathione support in cardiovascular disease is basically, infantile, so plenty of room to work there.
- Dave Asprey: I have a confession to make. When my dad had his heart attack and this is going back I think a decade, I was well steeped in the

anti-aging techniques and I was shocked. It was in New Mexico and his cardiologist was like I have some Jell-O from the hospital. This isn't going to cut it so I made him a smoothie and maybe added a few ingredients that he didn't really know about and it was a whey protein smoothie because I wanted the glutathione from whey and that's one of things that whey does. But I also added NAC and I added acetyl L carnitine and vitamin B12 and a whole bunch- essentially everything I knew in D ribose.

Anything that would increase mitochondrial function and maybe my dad was opposed to that because he just had his chest sort of ripped open, and so it was a little bit traumatic as you well know, because you've done this, but he look at me 10 minutes later and goes, "Oh my God, I feel like myself again, this is amazing and transformative!" I'm guessing at the time, helping mitochondria after surgery, any kind of surgery just has to be a good idea. But do you see when you fix mitochondria people that they feel that much better?

Dr. Joe Kahn: Well I have great experience in the office. They will take your vitamins away in the hospital. It's amazing. There's a group in Australia that has been studying CoQ10 before-and-after open-heart surgery, they showed tremendous benefit. You have to start it more than twelve hours before and similar support but we know that in heart disease, heart failure, CoQ10 levels and mitochondria cause we- they biopsy them in open heart surgery, they're depleted by the time you're at that point.

So build them up beforehand people who get mitochondria support before open heart surgery get discharged quicker, spend less money, less complications so hospitals should grab onto this.

This is all peer-reviewed data, but there is such a suspicion in the organized hospital world about vitamins in the United States it's a detriment. You can't give vitamin D hardly in the hospital in the United States. It's absolutely prehistoric.

In the outpatient setting, the experience has been that give credit to Steve Sinatra, an integrated cardiologist who would identify three things that support ATP production, mitochondria production and apply them to his congestive heart failure, cardiac patients. CoQ10, magnesium, and ribose- actually an L-Carnitine originally or L-car...

Dave Asprey: Okay.

Dr. Joe Kahn: And then Jim Roberts, a cardiologists in Toledo added in ribose, count them four supplements and you can add taurine if you want. My routine with sick heart patients is those four or five supplements, dramatic improvement. We're talking a number called your injection fractures basically your V-8 engine or your V- I see people walking with a V4 engine heart and three months later measurements are V-8 engine hearts.

Almost routinely. Which is transformative but still barely a kind of supported by medical research. It just hasn't been- some university needs to grab on to a hundred people and prove the point because it will be proof.

Dave Asprey: So ejection fraction is an interesting variable and and you may have heard me talking about this on Bulletproof radio, but it would a long time ago. One of the reasons I recommend high-intensity interval training whether its sprints or lifting heavy things is that it makes you have a larger ejection fraction versus doing long distance cardio which trains you to have a faster heartbeat with a smaller ejection fraction.

And the way I explain this, the way I envision this and I might be off a little bit, you're an expert on hearts I'm not. I look at it like an engine, like there's a piston. The piston can push so much fluid in a cylinder, it will just push it through and when it does that it would either move a large cylinder, a large stack of blood so you're walking along and a tiger jumps out and you say, "Ahh!" and you don't want to have your heart beat faster in just little bits

of blood through, you want a lot of blood to go and to do that you have a very strong heart.

And so one of the side benefits of doing heavy squats and so you can't do another one or using like an arx-fit machine which is one repetition to blow your muscles out, would be the ejection fraction benefits. Is my picture in my head right or am I simplifying too much?

Dr. Joe Kahn: I think on a cellular level you're probably getting better mitochondrial bio-genesis. Probably actually it's a better stimulus to create more mitochondria and therefore you can lift more blood without a high heart rate and it seems to be the research for-

Dave Asprey: So the lifting blood is the ejection fraction like I'm explaining that an inadequate way?

Dr. Joe Kahn: Yes you are.

Dave Asprey: Okay.

Dr. Joe Kahn: We were talking just before we maybe go off the cardiac support, mitochondria support issue so my practices as they say, nutraceutical support of congestive heart has been tremendously helpful for people. But just brand-new in the last two weeks the issue of gut in the heart which comes up now.

We've gotten our nice randomized study in very sick congestive heart failure patients with low ejection fractions is the V-4 engine are probiotic use it was actually *saccharomyces boulardii* and it wasn't that much, about three million.

Dave Asprey: The yeast that eats other yeast.

Dr. Joe Kahn: The yeast that eats other yeast. About eight weeks later they documented ejection fractions going up, walking distance improving, symptoms ameliorating. It will take ten years to see that show up on a hospital formulary, but the idea that

strengthening the defenses of the gut is a heart related therapy is just mind blowing.

Dave Asprey: So saccharomyces boulardii is a classical treatment to treat candida because when you have candida, this yeast overgrowth, then this stuff will eat that. I use to have really bad candida back when I had Lyme disease and all these other things it was a terrible problem and I know that when people have candida it sets off autoimmunity and candida get itself can make some toxins that may have a mitochondrial impact certainly it does make you feel crappy.

So now I'm wondering though is there a study that you're familiar with that were they just give Fluconazole or an antifungal to people with cardiac problems because it seems like if saccharomyces boulardii does that, it's an antifungal approach.

Dr. Joe Kahn: It's interesting. There've been antibiotic trials of coronary artery disease- this is off-topic but if you look at the plaque in the carotid removed at surgery, plaque in the heart when your father had bypass that they took off tissue. You can often identify bacteria. You can identify H. pylori, so there have been some trials using the same antibiotic protocol for G.I. ulcers, H. pylori for heart disease, and you can see some improvement-

Dave Asprey: Wow.

Dr. Joe Kahn: But those are all antibiotics, a tetracycline, minocycline. I haven't seen anything with antifungal therapy.

Dave Asprey: I am so intrigued. You have to deal with the glutathione because fluconazole, which is a wonder drug, it was made for and you know this but we're mostly talking for people listening, it was made for AIDS patients because they kept getting really bad fungal infections, but now it's like the one pill you can take for yeast infection and it just decimates yeast in the body.

So there's a group of very alternative people who say it may have other cancer protective effects but I am so intrigued, I never know

how you would do a study on this, not my area of expertise but I suspect that lowering the fungal load, the fungal gut biome in cardiac patients could be the whole area of exploration.

Dr. Joe Kahn: Maybe that's how saccharomyces worked. Maybe eight weeks is enough to change the microbiome and the balance.

Dave Asprey: Could be.

Dr. Joe Kahn: The theory in the article was there's no doubt that eating creates what's called the metabolic endotoxin. If you have a sick gut from gluten sensitivity, dairy sensitivity, alcoholism, excess sugar perhaps and all the rest. Standard American diet every meal releases endotoxin or a bacterial toxin in the bloodstream that's clearly been shown to affect cardiac function and it probably happens in everyone of us after every meal to a trivial amount.

Dave Asprey: Well probably not every meal because high-fat meals increase endotoxin absorption.

Dr. Joe Kahn: High fat meals released into the bloodstream?

Dave Asprey: If you eat fat with a it increases the absorption of your gut's endotoxins and that's a bad thing. You don't want- and you him, you know it's a bad thing right? So one of the reasons that a low-fat diet can work if it's endotoxin is one of the problems an argument to support a low-fat vegan post cardiac event thing would be that if you got endotoxin formation in the gut, then don't let it in, don't eat fat.

Dr. Joe Kahn: Interesting.

Dave Asprey: And when I was a vegan. I got my cholesterol down to 136 and my cholesterol's closer to 236. It runs around 220ish, it depending on the test and whatever I had the day before. I feel better with my numbers where they are now. My testosterone levels are back without supplementation even though I used to supplement testosterone, but I also specifically have addressed endotoxins because I've had really bad gut problems and was on antibiotics

for fifteen years for chronic sinus infections like it didn't start out biologically strong.

So for endotoxins you can take [charcoal](#) to bind them in fact even [brain octane oil](#) that's in [Bulletproof coffee](#) and some studies of endotoxins and liver protection. There is a beneficial effect there, but I'm really concerned about them so resistant starch, taking probiotics, eating properly fermented foods, which a lot of fermented foods aren't. All those things could potentially be mediating heart attack risks.

Dr. Joe Kahn: Heart attack and again the people who already had an event that have a tendency to congestive heart failure, which is what this saccharomyces study was yeah they can be very therapeutic.

Dave Asprey: I'm so intrigued by that. I didn't know about the saccharomyces-

Dr. Joe Kahn: I'll send it to you.

Dave Asprey: I'll actually put that up on the blog because it's so important to take some kind of probiotic and one of the difficulties that I've had is some probiotics make me gain weight like a pound a day. And there's a whole thing that happens with histamine formation and nitrosamine formation in the gut and I see all here at JJ's thing, there's all these health professionals who are here, and a lot of us are saying eat fermented foods but I have some concerns. This fermented food isn't this fermented food. Is there any kind of fermented food that's bad for the heart that you know about other than beer?

Dr. Joe Kahn: Beer in general I wouldn't say is bad for the heart. One strategy to avoid heart attack is a regular small amount alcohol, according multiple epidemiologic studies-

Dave Asprey: Alcohol or beer?

Dr. Joe Kahn: Well it's all- it's across the board, but it's usually 1 ounce hard liquor, 5 ounces of wine, 8 ounces of beer is about the same alcohol content and studies don't differentiate. I would always

advise limiting and emphasizing Pinot Noir and other red wines, if you are going to intake. But I got to get back to the original question. As far as fermented foods- no I'm not aware of anyone that would be better than others. I agree there is a lot of products in the store that people are buying thinking that's a fermented food. If it's not in the refrigerated section it's not living culture. The pickles that are in the jar that are in the regular store shelf. I have been pasteurized and the sauerkraut in that section have been pasteurized. They're not alive. They're not adding any culture. So that's the easiest differentiator I know.

Dave Asprey: It's such a multivariate thing, when you look at heart studies, it seems like even the ones that talk about so red meat, I look at those and I know that on your diet you don't do red meat and there's the TAMO thing but they never look at- at least in the studies that I've seen, there might be a few exceptions, but the difference between grass-fed versus not grass-fed or deep-fried or aged for a long time versus not aged , and it seems like each of those variables I can't find studies that says, "well if you do meat this way it has this like some of the things nitrates they have cardiac effects right?"

So with all these things as a practitioner when a patient comes in and says, "I am presenting with early congestive heart failure", how do you as someone who has put together all the data and your focus on this problem, how do you sort out all that stuff in order to come up with protocol?

Dr. Joe Kahn: And you are right. The message that process red meat is probably the lowest on the pecking order of healthy foods. They all come from large databases that can barely get a one time dietary history of meat consumption and differentiating grass-fed not grass-fed, it's just not going to existence. It's going to be a real small boutique study that does a short-term follow-up that might make the point.

Dave Asprey: It won't be meaningful.

Dr. Joe Kahn: It's not going to be meaningful, it's not going to be convincing. Honestly, I am a pretty simple guy. I view nutrition on a spectrum and I'm just like you. Most my patients are still going to McDonald's and Burger King and it's either economic and needed their family and raising kids. Number one goal is to stop hemorrhaging their health in that kind of a situation. So I'm looking for low hanging fruit, easy wins and get them to appreciate that- they don't understand the immediate harm that that can have on their health.

There's a famous study, I don't know if you've seen it, I use it in every public lecture by Robert Volvo University of Maryland cardiologist awhile back, fifteen years, an Egg McMuffin consumed by a healthy person and you want to measure endothelial function artery function, within one hour you had a dramatic drop in healthy arteries when you eat one fast food hamburger. I want to invest in Egg McMuffins specifically add in hash browns you get the effect longer and longer.

Twenty percent of Americans are eating their breakfast at McDonald's and I'm not dropping on McDonald's but they do get the prize for probably the worst food in the world. We heard that on stage today at JJ's course. So just showing people that's the constant evil, I'm just trying to drive them somewhere in the middle is the practical step and then we can take them to the high-end of those who really want to pursue it and you learn all the specifics and nutrition that you teach so well and others can share.

Dave Asprey: You're definitely achieving that goal of moving people just to eat more vegetables and even more fruit. That's a lot better choice than more french fries and Egg McMuffins were-

Dr. Joe Kahn: You don't have to look hard. This week a study came out, fiber increase mortality drops. It's not brand-news. The medical world there was a million member participant randomized study so you need to get your fiber and you're going to get it from the plank. I just try- there is a very good vegetarian educator that says, eat an

apple a day and just get off dairy. If you do those two things you going to have made such a move forward in your health that take away toxin and add in some fiber and enjoy a little better health. Simple steps.

Dave Asprey: That's actually something that I would support and that's funny because people are saying but David you are like the king of butter. When I look at what dairy protein does like casein. That was one of the things from the China study book, which is if you haven't heard of the China study it's a book that had a ton of data supporting an animal, and just an animal- it is an animal protein free diet and it's one that there is debate about. I think it's fair to say it's a debate. But the studies that he referenced about casein and cancer are pretty interesting and there's specific to casein, that protein. So would I suggest a high casein or a high dairy diet? I actually wouldn't.

Dr. Joe Kahn: If you study- Colin Campbell's work and I only met the man once and I'm certainly not here to defend him, thirty five years of uninterrupted NIH research project. He was able to qualify over and over and over and it really came out- he went I believe to the Philippines and the richest children, the Philippines had the highest liver cancer rate and he could not figure out why that was the case and he was there to study epidemiology of pediatric liver cancer. And he found out the whole society was exposed aflatoxin.

Dave Asprey: Yes.

Dr. Joe Kahn: But only the richest families were eating meat with any regularity. So these kids- actually dairy, it was actually animal protein but he actually linked the most to casein and that epidemia observation, living in a wealthy home where you are drinking milk rather than water or tea and such. Plus the aflatoxin was a trigger for liver cancer there based on studies so that drove the whole next thirty five years of research of how could animal protein trigger health issues which certainly saying most people accept as a reasonable concept.

Dave Asprey:

It's interesting that about sixty percent of the mycotoxin that a cow eats ends up in casein and so when you eliminate casein and from dairy, you eliminate aflatoxin from it. And one of the things that has come out from my work is that we're doing more harm to ourselves than we recognize by consuming aflatoxin, ochratoxin and some of the other common mycotoxins in our food supply at levels that are some sometimes considered safe and that by lowering those like making better choices like not eating something as simple as raisins.

Not only are raisins super high in sugar, they're also one of the higher aflatoxin's in dry fruits. So you just make these little switches and you eat something else and when you do that, there is no benefit to consuming aflatoxin. Doesn't- a little doesn't make you stronger it causes DNA damage like it increases risk of liver cancer pretty linearly right?

And so when I look at studies of vegetables or meat. How is it prepared and did you control for this variable because this is so annoying, that's why I did a film on household environmental mold, this year's it's in your meat because it was in the crop because there was a drought and this next year it's not.

And these are the things that just frustrate the heck out of me because I'm sensitive specifically to mycotoxins because I grew up in a moldy basement so to me, I don't feel good when I eat something that has mycotoxins.

There's a built-in detector that I kind of wish wasn't there, but I found when I go to other people, you control for that. They can feel different, and I don't know how in medical research-

Dr. Joe Kahn:

That you can control for so many variables and seasonal variables. That's why association is not causation. The majority of medical research are association studies you just can't control. What where people- what was the air like in the Philippines where they were breathing.

Dave Asprey: Good question.

Dr. Joe Kahn: So many issues come up.

Dave Asprey: I'm intrigued and I appreciate the work that you're doing on what's the data that we have, how do we reasonably reduce heart attack risk in somebody that's already had a heart attack or someone's who is about to have a heart attack, congestive heart failure just to make sure.

Dr. Joe Kahn: In terms of mitochondria support it's before and after. Before- in any stage really of cardiac disease. All that we talked about. When we talk about nutrition you mentioned after heart attack, I'd like to grab people and I have people come to me and say now a bypass has been recommended and I don't feel that bad, can we approach this nutritionally, and I haven't lost my brain, but there are people who need stents and bypass and I participate. I put in stents in patients, but you can save some people these difficult and potential life-threatening procedures by altering their lifestyle and number one on the list is always diet.

Let me go back to Dean Ornish and Caldwell Esselstyn and a few other pioneers that now have thirty years of follow-up and some pretty profound data so that's kind of the clinic that I run in Detroit and seen amazing results. The only group I tell restrict oils- they're not fat free diets, they're oil free diets are these patients that are suffering advanced heart disease trying to avoid procedures, trying to reverse disease through nutrition and it can be accomplished.

Dave Asprey: Let's talk about tracking data because that's a big thing in bio-hacking. And you mentioned CIMT as a very good indicator of heart attack, cardiac risk and there is also a calcium scan. Which one is more useful, do you use both, should people pay attention to both?

Dr. Joe Kahn: Well I use both, but I follow CIMT because the Cat scan is radiation and it maybe every seven to ten years but I don't want to repeat it

more than that. Even though it's a low amount of radiation. CIMT and ultrasound technique, which is not covered by insurance so it's a bit of a limiting factor. A couple states in America do cover it but that's it.

You could do it every six to twelve months and you can get an accurate measurement and see plaque progressing or plaque regressing. It's actually not even plaque. It's the thickness of the wall of the artery, which is what's abnormal before there's even plaque so its very sensitive.

You and I should have a carotid that's about 0.6 millimeters thick, be measured in 0.9 or 1.0 you have some advanced silent arterial damage and we should institute an investigation why and I plan to reverse it through all of the technologies that are out there.

Dave Asprey: What's a normal and what's an unhealthy calcium score?

Dr. Joe Kahn: You want zero. That's the winner and how about if you take a broad section, this is an important statistic for people here, about forty percent of people that go for a calcium score are zeros. That means sixty percent of people are walking around with silent heart disease they have no clue about. These are all asymptomatic people who just showed up and paid a couple of hundred dollars or a hundred dollars to get scan. Not all sixty percent are high numbers, but about twenty five percent are seriously high numbers.

Dave Asprey: What's a high number?

Dr. Joe Kahn: Anything above four hundred is the- it's calcification but yet the artery can be wide open. Once you get much above four hundred the odds of this action is already a narrowing, a stenosis. It actually gets pretty high. So-

Dave Asprey: So someone has a score of 10 you don't-

Dr. Joe Kahn: I don't ignore the 10 and I tell them that you are not a zero, there's some factor and you need to watch it but we're not doing stress

test, we're not doing catheterizations. About ten percent of people have a calcium score, this is a test that takes thirty seconds, you hold your breath.

It's a simplest thing in the world to do. If you do not know you have heart disease and want a clue a screening test, ten percent of the populations over a thousand and you this- these arteries that are like cast stone already yet they're playing tennis, they're jogging, they're participating in marathons, which may accelerate coronary calcification's there are several studies showing that that ultra exercise, repeated ultra exercise may be on the U-shaped curve a little bit climbing the ladder of detriment. But anyway so those people really need intense disease control and modification.

Dave Asprey: I was concerned about what's my risk. I'm not worried about the amount of butter that I do because I looked at my inflammatory markers and all of that over the course of years and that works for me but about two years ago, just by beverage where was living, I started drinking lots more San Pellegrino, it's mineral water, but it's relatively high in calcium and I am scared as an anti-aging kind of guy of having free calcium in my body because free calcium funny enough tends to calcify tissues and you don't want to calcify tissues. So my approach to making sure I wasn't going to harm myself with free calcium was to make sure that I had adequate vitamin D and vitamin K2.

Dr. Joe Kahn: I figured you were going to get there.

Dave Asprey: Cool. So did it work? So I decided to get calcium score after a couple years of like I probably drink like half my water is probably San Pellegrino just because the tap water didn't taste that good and the filtration system was hard to get to the cabin where I was working, so I like I just bring a case of this water and I'll keep drinking it because I like bubbles, it's a good deal plus it has sulfate in it. People ask why do you keep drinking it, well I want one sulfate. I think sulfate is an important signaling molecule so I'm seriously geek-ed sorry guys.

So exciting to make a long story short, my score was 1.8 which is pretty close to zero and after-

Dr. Joe Kahn: It was probably within the error of the study. That's like one pixel that lit up and- if you follow people over ten years then you should be on the planet for 100 so you should care. You need a calcium score over 10 to even see a slight bend in the curve from zero to zero to ten you're fine.

Dave Asprey: I'm unworried about that, but I'll do it again in five years if it climbs to seven or something, I'm going to be like all right either I upped the K2 or I downed the calcium. But after two years of high calcium with magnesium to balance it out too I found that okay that's all right and plus when I first started doing the [Bulletproof Coffee](#) going back quite a few years now. I did have some concerns, this butter can kill you, right. There's some evidence that says butter can kill you especially butter from animals that eat the wrong stuff because it has different fatty acids in it-

Dr. Joe Kahn: I actually didn't have to say that, you said it.

Dave Asprey: But I was like man, I am concerned and I'm eating more of this and then anyone I know ever has so I got into the lab tests, but I was always into it and I tracked myself carefully because I was very willing to stop doing it, and I was- I felt so amazing and I still do. I don't eat nearly as much butter now as I did then because for two years I just craved it, I think it might have been a cell membrane thing. The reason why I'm talking about all this stuff isn't to say butter's good or bad, but just that to track the warning signs of cardiac disease, and I considered terribly important. What about the others? What are the other ones you track?

Dr. Joe Kahn: You can find somebody in your community that may offer the carotid intima-media thickness ultrasound. Every city has a hospital that will offer coronary artery calcium scanning. A quick CT. You pay for it but you don't pay as much as you use to. They've come down on the price dramatically.

- Dave Asprey: It was \$300 when I had mine done in Seattle.
- Dr. Joe Kahn: And we've got a great hospital that does it for \$75.
- Dave Asprey: Oh that's a good deal.
- Dr. Joe Kahn: Some do it for \$49 but there is no reimbursement generally for it. So than it gets- those are the two. There is actually a nice little unit- you should get one for your playground. Made by a company in Israel called Itamar but it's called the Endopath.
- Dave Asprey: I want one.
- Dr. Joe Kahn: You want an Endopath for about \$25,000 you put a blood pressure cuff-
- Dave Asprey: Oh that's a little pricey.
- Dr. Joe Kahn: Oh they will give you one. And you put a specialized module on your finger and one of the other finger. So this is the controlled finger and this is the testing finger. Five minutes of total ischemia. The blood pressure cuff goes up above your blood pressure, hand will get nice and cold and tingly. The minute you release it is when get all those products going downstream and if you have a healthy endothelium, the inner lining of the arteries, you will see increase flow, a hyperemia of three, four, five times baseline flow in your control arm and if you don't get sick endothelium, and now we can go to the Mayo Clinic and another few universities and have followed coronary patients long-term.
- Sick endothelium, Thomas Sydenham an English physician 400 years ago said a man is as old as his arteries. The Endopath allows us to easily measure that. I did it in my clinic. If your reactive hypovolemic index it's called is under 1.7 you got very sick endothelium. We got to work on it. You can do acute studies, you can do it on chronic. I got a boost all the things you gave your father in that shake is what I'd be giving people to improve glutathione support, mitochondrial support and then we retest

them in 6 months. It's very motivating when they see the bad number.

Dave Asprey: Because you can tract this.

Dr. Joe Kahn: Yeah. It's noninvasive.

Dave Asprey: And this is totally unrelated to get a pulse wave analysis to get blood pressure and things like that.

Dr. Joe Kahn: That is a separate way to measure arterial health and compliance but this is specifically a endothelial function. It's a FDA approved machine.

Dave Asprey: Wow, and mere-mortals can buy it who aren't medical license people?

Dr. Joe Kahn: You know it's intermittently been covered by insurance. Right now it's a cash pay but you got to have motivated patient group but it's 700, 800 peer-reviewed studies.

Dave Asprey: I wonder if I could just have been the [Bulletproof Coffee](#) Shop in Santa Monica. Just come in and get your coffee- that's such a cool idea. Thank you for telling me this. I did not know about this. I'm so excited.

Dr. Joe Kahn: Of course just to spice this up a poor man's endothelial function test is do you get an erection because to get an erection you have to have healthy endothelium. So that is actually a question every doctor should ask every male patient and if the answer is no, get them to a cardiologist.

Dave Asprey: So do you wake up with a kickstand-

Dr. Joe Kahn: Anyway you want to say it. Is there wood in the pencil is what I usually say. Anyway you want to approach the subject because- erectile dysfunction is a early clue to heart disease because vascular supply is vascular supply.

Dave Asprey: Awesome. We're running out of-

Dr. Joe Kahn: That was PSA for heart disease check up.

Dave Asprey: It was. This is so cool. There's a question that I have asked every guest on the show and at the end of the show and fun. I'm really curious to have say and its given your life's work and all the things you do not work just does what you've learned. What three recommendations would you make for someone who wants to perform well and I don't mean perform well on any one thing, whatever they do that is important to them, what's going to make you kick ass?

Dr. Joe Kahn: Well I'm really basic with my patients because I find it hard to make life style change. We all do. This may not stimulate the crowd, but I have the three F's that I tell the patient to concentrate on forks, fingers, feet. Fork eat intelligently. We can go on for hours about that or we can divide indefinitely, but they know that food is information that food powers them that food can power their mitochondrial. That food can reverse plaque, food reverse diabetes, food can power the brain. You're into that. Feet, you got to move the body. We can talk were sitting we should be standing during the interview, get up every ten minutes out of every hour, count your steps and don't just have a sitosis which is what we now call a new disease that's dominating western world and fingers don't smoke.

So feet, fingers, forking and the other three that are the bonus for the listeners are sleep, stress and love. If you can master three aspects of your life everything beyond that is diminishing small. It's a pretty simple formula. To be heart attack free, cancer free, diabetes free in this country. But you got to be very disciplined and those three or six steps you can grab how many ever that you want.

Dave Asprey: Thank you sharing that.

Dr. Joe Kahn: Thank you.

- Dave Asprey: So Khan you are the author of Whole Heart Solution and where can people find more about you, your book and all the other things that you do?
- Dr. Joe Kahn: Well it's nice you asked. The books on Amazon, Sam's Club, Barnes& Noble's the usual places. I at DoctorJoeKahn.com. Doctor's DR J-O-E K-A.com I invite everybody to join me over there. Thanks.
- Dave Asprey: You got it. We're going to have that in the show notes for you. So come over to Bulletproof exec.com. I'll give you a full transcript of this and some links to the book and some of the other things we talked about the show. I'd be grateful if you'd head over to iTunes and leave a positive ranking and leave some comments here. This is kind of cool and I'm actually really pleased to Joe that that you came onto the podcast and they we're having a civil discussion, even though we have differing opinions, and I am so tired in the health industry of you know that this people put you're a quack just because you disagree with me. I'm not pointing at you, I'm not saying you're a quack I don't believe that but I see these accusations thrown around towards anyone who you disagree with online-
- Dr. Joe Kahn: Well we know there's a problem. The problem is not small. The problem is going to destroy this country when we have a hundred million diabetics and obesity at fifty percent. So we need all kinds of approaches to try to solve this.
- Dave Asprey: We do and thanks for coming out and having a civil conversation with me. We need more discussions like this between people who are obviously working to help others so we can figure out things that work and things that don't work, and I'm sure that-
- Dave Asprey: So thanks man I really appreciate it.
- Dr. Joe Kahn: I appreciate it too.



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