

Announcer : Bulletproof Radio; a state of high performance.

Dave Asprey: Today's episode is full of interesting info about keto, particularly if you're new to keto. If you're like, "Oh, I've been in the ketosis diet. I've been eating fat forever. I drink Bulletproof Coffee. I do it intravenously," wherever you are, we go into some really cool stuff about protein and what it does to you. It's with a real famous guy. This is just a great episode. I hope you listen to the whole thing and enjoy it.

You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact of the day, you probably already know that your gut microbiome, all those bacteria in your gut, are full of information about our health, and they influence our health, but a group of researchers just announced that they genetically engineered bacteria to produce molecules that could treat certain disorders by altering your metabolism. They could reduce your blood glucose levels. Metabolic diseases like type II diabetes are huge target for pharmaceutical companies and drug therapies. Now I'm a bit concerned because even though the bacteria are engineered, they could be helpful but one thing that happens when you engineer a bacteria, and you let it go, it talks to other bacteria via something called plasmid level group sharing. God knows, do we really want bacteria in our gut that reduce our ability to use glucose or do we just want to fix our bodies so that we know how to use glucose and not put too much of that stuff into the system? I'm not really sure, but I can tell you what I would bet on.

Anyway, it's cool that we're now engineering those bacteria in the gut. I do not have a problem with engineered bacteria in my gut that are shown to be safe that would make me live to a 1,000 years old. I'm actually willing to take that risk, but if it's just to reduce a disease that we could fix by eating the right foods, maybe that's not worth it. Hey, that's just me.

Before we get into today's show, I've got to tell you about one of my favorite travel hacks. If you're watching on You Tube I'm showing this to you, bulletproof.com/youtube will bring you there. The Bulletproof Brain Octane 3 ounce travel size, a bottle you can refill, you get it one time you can fill it from your 32 ounce bottle anytime you want. TSA-approved size, you can carry several with you. It doesn't leak. I've tested it in my wife's high-end handbag at 22,000 feet elevation. Why? Because I have equipment in my labs that takes me to 22,000 feet elevation, at least in terms of air pressure. Cool stuff, and you know what Brain Octane does for your brain. It's awesome. It adds ketones to your diet directly as an exogenous form of ketones.

Alright, today's show is going to be a lot of fun because it's with a friend; a guy who has been on the show before, and one of the leaders in this revolution around what we should eat, how we can exercise and things like that. It is none other than Mark Sisson, who is a very well-known endurance athlete, a very successful website, Mark's Daily Apple, and a guy who has a new book out that's pretty cool. You might've heard the last interview with him where we talked about new ways to do endurance exercise that don't beat you up as well. You've

probably read Primal Blueprint by now. If not, it's a book that I like. We're going to talk today about The Keto Reset Diet: Reboot Your Metabolism in 21 Days and Burn Fat Forever. Mark, where did you come up with such a catchy title?

Mark Sisson:

Oh gosh. I'm a marketer, right? I have to come up with something that's catchy. Ketogenic has been taken. Keto is the new catch-all phrase for ketogenics, ketosis, ketones. Then this is a mainstream book. I'm not tired of speaking to the fringe all the time, but I want to bring more people into my group that I play with. You kind of have to put the word diet in there to attract the attention of those people who might be looking for some additional information on how to achieve the body composition that they want. The Keto Reset Diet basically takes a keto lifestyle, and we're going to get really deeply into the weeds on that today, and uses the concept of keto as a tool, as a strategy in your armament of all things that have to do with your lifestyle. It's not like I'm taking you into ketosis for the rest of your life. It's using keto as a strategy, for a couple of weeks at a time, to reset your metabolism, with the idea that you want to improve your metabolic flexibility and your metabolic efficiency. In doing so, everything good in your life improves.

You decrease inflammation. You increase your amount of muscle mass. You increase the amount of energy you have. You certainly increase access to cognition and to productivity. I found I sleep better. There are a lot of things that happen as a result of this metabolic flexibility and this metabolic efficiency that can be achieved through a regular keto reset.

Dave Asprey:

It's awesome that you said something really important. You said you go into it, you reset it and you grow metabolic flexibility. I, in the early, early days, would do hardcore keto for long periods of time. At first, I felt good but over time I developed problems from that, including I had a leaky gut, some food allergies and my sleep quality went down, but if I'm never in ketosis my life absolutely sucks. By doing something similar to what you're talking about here, I just had my ... Let's see, what was it? It was my insulin sensitivity tested. They tested on a scale of 1 to 160 on the test that I was using. I scored 1. I had perfect insulin sensitivity. At the same time, my glucose tolerance was around 70th percentile. They looked at me and they're like, "It's not possible to be highly insulin sensitive and highly glucose tolerant." I'm like, "Yes it is, because you're looking at it," but what that comes from is metabolic flexibility. Ketosis is part of that. Thank you for just laying that out up front, Mark, because I'm concerned you get some of these ...

You get the raw vegan crowd. I've been a raw vegan, a devout raw vegan for a while, so I'm speaking from experience here. They'll be like, "Never cook anything. It has to be only plants." It's very pedantic. I'm seeing the same kind of mindset emerge from the very fringe of the keto movement, where it's like, "If you ever eat a carb again you're a bad person." What's your take on that?

Mark Sisson:

Well, my take on that is, look, the tagline for my company is Live Awesome. The idea is I want people to feel good. I want them to extract the greatest amount of

enjoyment, pleasure, fulfillment, satisfaction, out of every moment possible. In many cases that includes enjoying every single bite of food you eat.

Metabolic flexibility simply means that you create this adaptation in your body that is hard-wired after two and a half million years of human evolution, and hundreds of years of mammalian evolution before that, to be able to adapt to an environment where sometimes there's a lot of food, and sometimes there's no food. To be able to cruise through at a steady state, accessing stored body fat, burning that body fat with ease and grace, not needing to take in extra carbohydrate, certainly creating ketones, which the brain can then use as a fuel instead of glucose. But, when you come in contact or you encounter some glucose, to be able to burn that as well. This metabolic flexibility means we're really good at burning fat, ketones, carbohydrates/glucose, and if need be, protein, versus the person that I have talked about, sort of the proto typical human standard American diet guy or gal, who has been so dependent on carbohydrates their whole life, they're really good at burning sugar. They're really good at storing glycogen and then drawing down that glycogen. They're not really good at accessing their stored body fat. They've never really had the necessity of making ketones over an extended period of time, to give the brain the opportunity to enjoy this super fuel that we can use.

Back to the question which is, "How do I feel about people who say never eat another carb?" I couldn't do that. I live in what I call the keto zone now. The keto zone, for me, is basically primal. It's basically, if you take a midpoint of say 100/110 of carbs a day, some days I'm 50 grams below that. Some days I'm 40 or 50 grams about that but because I did the work, because I build the metabolic machinery to burn fats sufficiently, to use ketones efficiently, where I fall on that spectrum on a day-to-day basis, there's no bearing on my demeanor, on my energy level, on my muscle mass. It's like I don't know, I don't care if I'm in keto or out of keto. It's just, what I call, the keto zone. Now Dave, if I were to take in three or four hundred grams of carbs, largely in the form of sugar, every day for a couple of weeks, I would exit the keto zone for quite a while. I'd have to do the work to get back in, but once ...

This is the beauty of the reset. Once you've done the work, and in this case, the work is, I want you take three weeks to slowly stair step your way into a low carb, but not dramatically low carb, eating pattern to where you get used to burning fats or you get used to not having so much carbohydrates and so much glucose. Then when you're ready to go keto ... and by the way, you have to earn the right to go keto in our book. You have to pass a midterm exam, and then if you get 75 or more on the exam ... I'll talk about what that is a little bit later. Then you earn the right to go keto, and I suggest people go six weeks keto. That's six weeks has an amazing effect on increasing the mitochondria in the number of mitochondria, increasing the efficiency of your existing mitochondria and the new mitochondria, up-regulating all the enzyme systems involved in accessing stored fat. Again, that metabolic machinery that you're building will continue to operate, as long as you don't go off the rails.

Dave Asprey: You said something in there that I just loved hearing. You said, "And if you must to burn protein for fuel." Why did you say, "If you must -- to burn protein for fuel"?

Mark Sisson: Well, if you look at any textbook on metabolism and body and biochemistry, you'll know that the body can burn certain amino acids. Certain amino acids enter various energy cycles in the kreb cycle, but the fear that a lot of people have who are in ketosis is that they're not eating enough protein and that they need to eat more protein. Then the other fear on the other side is if you eat too much protein in ketosis, then somehow it's bad for you. It all turns to sugar.

Dave Asprey: Not easily.

Mark Sisson: No, not easily, so I'm just suggesting that ... I'm recognizing that gluconeogenesis does occur, and if you're somebody who hasn't eaten a meal in three days, if you're on a fast, you'll turn some of your protein into energy. That's not necessarily a bad thing, but I'm just suggesting that that is something that does happen. That is an energy source.

Dave Asprey: It's after fat and carbs though in terms of [crosstalk] priority.

Mark Sisson: [crosstalk] Right and ketones. It's kind of last priority because the body certainly wants to hold onto its proteins stores, and one of the things that happens when you go keto is you start flipping all these genetic switches ... well this epigenome that comes in and says, "Okay, we're gonna start sparing protein. We're going to recycle amino acids rather than deaminate them and pee them out." It's almost like a closed system if you think about it, and there's a little bit of loss, but there's not as much loss as people think. You literally ... not that I'm suggesting people do this, but you can go three or four days without eating, and not lose any muscle mass because you're only, literally getting ... you're going through 10 or 20 grams of protein total per day. The rest is made up with this protein sync that recycles amino acids. The rest is made up with autophagy, and the fact that cells are now consuming damaged proteins for energy. They're consuming damaged cells for fats, so there's a bit of house cleaning that goes on. All of these things contribute to what we would suggest would be the anti-aging benefits of keto.

Dave Asprey: It's interesting. I finally, look...the Bulletproof diet is a low to moderate protein diet but a lot of times, especially when you back into the '80s/early '90s, there's these high protein diets to try to force the body to burn protein for fuel. If you're on a low carb, high protein, low-fat diet, what happens to the body?

Mark Sisson: Oh my god. I mean, yeah. Right, so your body is trying to convert excess ... First of all, it's trying to get rid of what would be considered a toxic amount of amino acids.

Dave Asprey: Yes.

Mark Sisson: Then it's trying to convert some of those into energy. It's a very energy inefficient pathway. It probably has a lot of reactive oxygen species and free radical damage that accompanies it. The irony is that most of the guys who were doing that, or a lot of the guys who were doing that - 300 grams of protein a day - were also doing steroids so the body could actually use all of that nitrogen and incorporate it. If you're an average person trying to take in 300 grams of protein a day, it's not only counterproductive, but then we can talk about the mTOR pathway [crosstalk].

Dave Asprey: Yes, that's where I was going.

Mark Sisson: Yeah, so you can talk about the upregulation of some of these growth pathways that benefit a young child who's growing or benefit a teen adolescent who is trying to put on weight. At some point, growth in the human body segways from muscle mass to precancerous conditions and things like that. I think there's a real whole area of investigation into what is an appropriate amount of protein, and how much is too much. I know guys like Ron Rosedale have been talking about this for a long time. Ron would say more than a 100 grams a day is problematic. I'm not sure I'm there yet, but I can say 200 a day is problematic.

Dave Asprey: Yeah.

Mark Sisson: As we look at ... that kind of brings us back to, "What is a meal? How many meals are you gonna eat in a day?" How could you possibly eat 250 grams of protein a day in good conscience and think that you're doing yourself a favor. Unless you're trying so hard because you're doing skinless chicken breasts ... and by the way, Dave, have you ever tried to eat a lot of skinless chicken breasts day after day after day?

Dave Asprey: Years ago when I weighed 300 pounds, absolutely. It's actually worse that tofu in terms of ...

Mark Sisson: It's horrendous. You get sick of it so quick, so anyway, we're back to what sort of things we eat on the Keto Reset Diet?

Dave Asprey: Right, right, and it's not that. I want listeners who are new to keto just to understand we're not talking about those high protein things. A lot of people who aren't familiar ketosis and these higher, healthy fat diets, they're actually thinking they're going to be in ketosis if they eat a steak and chicken breasts and eggs every day. I know that your books settles that. It sets it straight, and we certainly agree on that point. That's not how you get into ketosis, and that's not how you live a long time. It's not gonna even have you look good. It's 1980s logic, just like the low fat thing.

Mark Sisson: Right, by the way, just getting into ketosis isn't the goal. The goal isn't to win the local ketone contest ...

Dave Asprey: Exactly.

Mark Sisson: ... how high a millimole you can show on a ketone blood strip, or blow in a meter, or pee purple on a urine stick. The goal here is to burn fat, and as a byproduct of being really, really good at burning fat, and unburdening yourself of having to take in more carbohydrates, the byproduct is that the liver produces ketones. It takes some of the stored fat you have and some of the dietary fat, it makes ketones, and it can send those ketones largely to the brain. It blows my mind to think that the liver can make 150 grams of ketones a day. That's a mind-boggling amount. That's like 700 calories worth of energy available to the brain. Back to these big ketone numbers; people who are new to ketosis, who are new to the Keto Diet, and are looking to get the deep purple on the pee stick, or the four or five millimolar or six millimolar are missing the point.

What happens initially is the body goes, "Okay, we're not gonna get much in the way of carbohydrates that we can convert glucose," and if that's the case, then the muscles which have only really used glucose, glycogen over the past few decades of this person's life, they're gonna start craving ketones. Then the muscles are gonna learn that they're gonna have to burn some fat, so now you've got fat and ketone being burned in the muscles and then, you've got the brain, which isn't getting the glucose, now using ketones. Well now, you've got competition between the muscles and the brain for this beautiful, rich, new fuel which we call ketones.

After a couple weeks, typically three or four weeks in ketosis, the muscles go, "You know? We can handle this. We can do a lot of work just burning fat," and so the muscles become less reliant on ketones, and they literally start saving the ketones, sparing the ketones for the brain. When that happens, there looks to be a decrease in the amount of ketones that you put out because the body doesn't want to do really any more work than it has to at any one time, and at some point, the body says, "Okay, the muscles are burning fat really well. We make a little bit of glucose from gluconeogenesis. The muscles don't really need ketones." The brain need ketones, but it doesn't need that many because the brain doesn't have this huge metabolic, up and down, surge of requirements for energy.

The brain's kind of a steady state thing, so the liver goes, "Okay, we can make just enough ketones to fuel the brain day-in, day-out, we don't have to waste ketones in the blood, in the urine, in the breath." You no longer get those four and five and six millimolar tests. In fact, the longer you've been in ketosis ... and I've known guys who's been in ketosis for 10 or 12 years, they might be .3 millimolar if they actually did a ketone test. By [inaudible] definition, they're not in ketosis -- but they're sure as hell living a keto life. They're getting 20, 30, and 80, 40 grams of carbs a day, but the body is so adept at utilizing fat, at making ketones just enough, and not too much. The brain is so comfortable using those ketones that it doesn't have to send any message to the adrenals to freak out

and secrete cortisol. It becomes this, like I say, this beautiful, almost closed, system.

Dave Asprey: If you think about it, if you have a problem with Type 2 diabetes, you're getting blood sugar backing up into the blood because your body can't use it very well. If you have extremely high ketone levels backing up into the blood, it's because you can't use ketones very well, either. When you become well-adapted using glucose or ketones from fat in your metabolism, you shouldn't have spikes of either one of them. My number on a daily basis, the one I'd like to hit every day is .5 millimoles.

Mark Sisson: There you go.

Dave Asprey: While we're talking about these numbers, if you're listening to this, and you're like, "Keto what?" When you're learning how to do ketosis ... and you'll read about that in *The Keto Reset Diet*. Actually, you'll hear about that from lots of guests on *Bulletproof Radio*. One of the things you'll do is you either piano stick, or you poke your finger, and you get a reading on a digital meter that tells you how much of those fat burning molecules are in the blood. Typically, in the keto community, if you're not at .8 or higher, you're not in ketosis but if you're listening to this, and you ate carbs and you're not keto adapted, you probably have 0 or .1 in your blood. What Mark and I are saying is look, if you get up to .3 to .5, you're in the keto lifestyle even though you're not all the way in full blown ketosis. Those two levels, .38 and .5, they can't reset your hunger hormone called ghrelin and your fullness hormone called CCK; that stuff that is also in *Headstrong*, my last book. The idea there is your whole behavior changes, your whole brain changes when you do this and so, that's kind of the 101 version of this. In your book, I'm guessing it has to ... I don't remember that chapter, but it has to have that basic info in there, right Mark? ... so people new to this can read *The Keto Reset Diet*.

Mark Sisson: Yes, the term "ketosis" has this connotation of an excess of ketones in the bloodstream. Just like Type 2 diabetes is in an excess of sugar in the bloodstream and an inability to appropriate and dispose of it. Ketosis, for those who have been living a keto lifestyle for a long time, ketosis is like they don't even want to be there. It's like something they don't want to have. They want to be making just enough ketones, mostly burning fat. Again, this is really about metabolic flexibility. The ability to take your fat out of your own body fat stores and burn it whenever you want, at very high rates of output. In so doing, to access a whole new realm of freedom from hunger. We talked about the ghrelin and the CCK. The fact that the ketogenic diet or keto is basically an appetite suppressing diet. It's an amazing side effect and benefit of this, because how many people literally live their lives from one meal to the next driven by hunger? To be free of that hunger and to kind of wake up morning and go, "I don't feel like eating, so I'm not gonna eat," and then not eat until 2:00 in the afternoon and have that be okay; have that be the norm rather than three square meals a day.

I'm blown away by the fact that society has now created this standardized eating pattern, which is three square meals a day. Or for some it's breakfast, a mid-morning snack, lunch, a mid-afternoon snack, dinner, and an evening snack, but that's not humans evolved over the millennia. We evolved to eat fractally, to eat once in a while, to eat ... We're actually wired to eat a lot of food when it's present because the evolutionary survival mechanism; "What? Well, maybe there's not gonna be any food in a couple days, so I better eat as much as I can, store as much as I can in the form of fat, and then because I'm so good at taking fat out of storage and using it as energy, I can go two or three days and not just survive but thrive. Do all of the things that I would normally do if I were eating and taking in energy, but do it within this closed loop for a couple days."

Dave Asprey: When I was heavy, and I was working to lose weight, I had this hammered into me like, "If you don't eat six times a day, your body will go into starvation mode and hold on to fat." I did that religiously, and the first time I heard about skipping a meal and fasting, it created this visceral sense of dread partly because I felt like I would die if I was skipping meals. I was so stuck on this glucose thing and because my metabolism was broken, so for someone who's listening to this who hasn't experienced any of these states, what you're saying Mark is absolutely true. I could not have imagined being able to say, "You know I skipped breakfast and lunch and I had a full day and I just don't really mind. I don't care either way." It's not a, "Look at me. Oh god, I'm really hungry. I'm just gonna man up. I'm gonna use my willpower." It's that, "I don't care," and it's that not caring, "I'm good either way." That's the liberating thing. That's why ketosis is just taking off. It's actually, I think, eclipsed Paleo in terms of search terms recently, and it's just because we're like, "Wow." Some Paleo diets ... some of the primal- the teachings can put you in ketosis, but they don't always and if you're eating Paleo cookies made out of honey and molasses and god knows what else they put in them.

Mark Sisson: 52 grams of carbs ...

Dave Asprey: Yeah, exactly.

Mark Sisson: ... of approved sweeteners.

Dave Asprey: Exactly. It's not that. It's more nuanced, but it is the most liberating diet you can possibly imagine. It's certainly the basis of my recommendations are, "You gotta be in ketosis sometimes," and your book is doing a really good job of getting people jumpstarted into this and just putting them on a real path to doing it which is a service.

Mark Sisson: Well, thanks. I want to just touch on what you said before about the old paradigm by which you live, which was multiple small meals a day because if you didn't keep up your glucose levels, you go into cannibal mode, you cannibalize muscle tissue. That would lower your metabolism, which would make it even more difficult to burn off excess calories. And by the way, all that stuff is true. If you are living in that sugar/carbohydrate paradigm, and you've

trained your body to access most of its energy from glycogen or from food, primarily carbohydrate, then you literally ... Your ability to burn fat atrophies, and you don't need as many mitochondria because fat burns the mitochondria. But if you're not burning much fat, the cells go, "Well, we don't need to maintain this expensive machinery to burn fat if you're never going to burn fat. If you're always gonna be giving us, every couple of hours, a fresh supply of glucose, then we'll become really good at burning glucose, and we'll suck at burning fat." Now, the danger of that is if you do skip meals, then exactly what you said you would fear happen, does happen.

If a body is so used to just getting its energy from glucose and glycogen and then, you withhold that, the brain, which needs glucose because it hasn't learned how to burn ketone, the brain goes, "Oh my god, there's no glucose. We have to take immediate action, evasive action. We have to secrete cortisol in the adrenals. We have to go tear down some muscle tissue to send some of those amino acids to the liver to become glucose, so we can fuel the brain." That's how most of the world, at least most of the Western world, lived trying to lose weight over the past several decades. All that stuff that's based on a carbohydrate-heavy diet, it's all true.

You do need to eat multiple small meals a day. You do get in trouble if you skip a meal, but if you flip all that stuff on its end, and you go, "Well, if I learn to become good at burning fat and if I become fat-adapted and keto-adapted, then all of a sudden my muscles don't need glucose or glycogen to move around throughout the day." In fact, at very high rates of output, 88, 85, 90 percent of all of the energy that I need can come directly from fat. If I can train my brain to thrive on ketones instead of needing glucose, then whenever I choose not to eat, I'm taking fat out of my own body fat storage. I'm making ketones. I'm losing weight. I'm training towards my ideal body composition. I'm doing house cleaning in my cells. I'm repairing damaged DNA. I'm decreasing inflammation. All these amazing things happen when you become fat and keto-adapted that are just not available to you, when you are a carb and sugar burner.

Dave Asprey: That's motherhood and apple pie to me; well, apple pie made with gluten-free zero carb crust and no apples, right?

Mark Sisson: Yeah. MCT oil in the crust.

Dave Asprey: Yeah, there we go. We'll crank it up somehow. Walk me through the keto reset. What happens when you wake up in the morning? Just kind of walk me through a typical day.

Mark Sisson: Sure, so the book really is about ... First of all, like I do in all my books, I spend a fair amount of time explaining why we're doing this, why what we've been doing in the past hasn't worked. We talk about the fact that there are probably a lot of ways to do keto bad. There's also a lot of ways to do keto well. There's not just one way, so I want to give the reader some opportunity to look at the different ways and to explore that. One thing that I learned early on, and the

reason I went keto in the first place ... as you mentioned earlier, I've been primal for 15 years. So I've had pretty low carb intake; my daily carb routine has been 70 to 150 grams a day; maxed 150 grams a day, very comfortably, for decades. For me to get to the next level, it was just about, "Alright, can I find 40 more carbs to take out of my diet to get me fully into ketosis, so that I spend six weeks in keto and never come out because I want have that training adaptation that stays with me for a long time."

In the book, we talk about, "Well, how do you get from ... " Like the old days of Atkins, my god, you gotta be having four or five grams of carbs a day and then, they go, "Alright, I went through Atkins. I'm gonna go down 20." Well, that was just such a setup for failure.

Dave Asprey: You're gonna feel like crap.

Mark Sisson: Everyone would, and some people could will their way through it for three weeks and finally come out on the other side, but most people bail and rightly so. It was just so, so difficult for the body, particularly the brain to adapt to, so we stair step you down by taking you primal first. Obviously we look at what are the foods that don't serve us well in any context in our diet -- and those would be the pies, the cakes, the cookies, the candies, the sweetened beverages, the sodas, and all that stuff. I think most people know that by now, but then we go, "Okay, well, what are some of the processed foods that aren't serving you?" The refined grains ... the flours that permeate every processed food in the center aisle of the store and then, what are some of the potential irritants that are your diet that may be coming from even whole grains? Do you have a gluten issue? Whether or not you're celiac, I think a lot of people gluten issue. I'm certainly one of them, so we get rid of the grain foods.

We just leave you with a pretty amazing spread of ... a cornucopia if you will of food. It's meat, fish, fowl, eggs, nuts, seeds, vegetables, lots of vegetables, a little bit of fruit, and within that three weeks, your body starts to understand there's not gonna be as much ready access to glucose. The body understands we're gonna have to start burning a little bit more fat. The body adapts to a new set of intake criteria, and the body is phenomenal at this if you give it the right signals. What's his name ... the Zone Diet guy ...

Dave Asprey: Barry Sears. Yeah.

Mark Sisson: Barry Sears. Yeah, Barry said every bit of food is a hormonal experience, and I love that. I always dug that comment because it's true. You have insulin and you have leptin and then you have ghrelin and then you have glucagon and you have epinephrine and norepinephrine and cortisol and all the sex hormones and thyroid hormones; everything is circulating in the body, and these are all just messaging systems that are trying to keep you in homeostasis and try to keep you alive. Every bite of food you have is basically providing information to the body. What we're trying to do with the keto diet, and with this stair stepping down, is to start to reconfigure what these signals are gonna look like. It's gonna

be less and less glucose. It's gonna be less and less metabolites, and they'll be a little bit more healthy fat. We're gonna get rid of the industrial seed oils because we know that those are problematic with insulin sensitivity.

At the end of three weeks, you've kind of cleaned your diet up, and we're not ready to go keto yet because as I said, there's a mid-term exam in the book. You have to get a 75 on the mid-term to earn the right to go keto for six weeks, but that mid-term exam does not look at ... It doesn't look at blood work. It doesn't look at urine strips. It looks at how do you feel, so different metrics: How do you feel when you wake up in the morning? How long can you go before you have to eat something, comfortably? I don't want people to be uncomfortable. I want people to just pay attention to the signals. Can you do a workout in the middle of the morning, and get through the workout fine and not be lightheaded? These sorts of questions. Also, how much sleep are you getting, because sleep's a critical component of this, given stress levels and things like that. But if you pass this mid-term, then we'll take you into a six week keto program. The book has 100 plus recipes that are very easy to prepare. I'm all about simplicity when making food. We literally hold your hand through this keto process.

Dave Asprey: Now, what are the really common keto beverages out there? 100 million cups is sort of common is Bulletproof coffee. What's your take on that in The Keto Reset Diet?

Mark Sisson: For people who are maybe struggling with that in the morning ... not eating a real meal, not eating a real food at that point, Bulletproof coffee could be a great way to get some MCT oil into the brain and start the whole ketone process going. I'm looking for all of the tools and strategies that I can find to make this palatable for most people.

Dave Asprey: What about black coffee during fasting? There's some debate about that too for the true fasting components.

Mark Sisson: Yeah, no, people would say that even black coffee is disrupting the fats and introducing some digestive processes and central nervous system stimulant [crosstalk] releasing pre-fatty acids and things like that.

Dave Asprey: [crosstalk] Do you agree with that? What's your take on it?

Mark Sisson: Well, I know some of the scientists are suggesting that and again, I love my coffee, so I have a cup of coffee every morning. I start my day with a cup of coffee, and I don't call it breaking a fast, because I don't put calories in my coffee. It's an important part of my day, to have my coffee. Part of this whole thing is enjoying life. I love coffee. I love the routine. I like a sip of my coffee and do the crossword puzzle before I start work. We can talk about the science and say, "Well, you're not really fasting if you're doing that," but as long as you're accomplishing the goal, which is to become better at burning fat, then whether or not you use fasting judiciously or exclusively is up to you.

Dave Asprey: I've got bad news for the scientists who are like, "Oh, if you have anything but water when you're fasting ... " You also would need to purify the air you breathe, because you're actually taking other things in that aren't accounted for in their incredibly precise definition of things. Plus, there's a study that shows the equivalent amount of caffeine in two small cups of coffee doubles ketone production in the morning. So if you wanted more ketones present, I don't know, it seems like that might be a useful thing to do. I'm highly skeptical of this idea that you should only have water, and that somehow that's gonna be massively more beneficial than having tea, or having a little lemon juice, or salt in your water or something else. It seems a little bit puritanical to me, and it makes your life suck.

Mark Sisson: No, I agree. That's the bottom line; if it makes your life suck then ... If this is not sustainable, no one's gonna want to do it. So what we tried to do in The Keto Reset Diet is make it as sustainable as possible; make it as easy as possible to go keto, to reap the benefits, to decide when your reset program is over - do you want to hang out there for a while? Do you want to keep going? I know people that have done it for 10 years and love it, or do you want to back off a little bit and reenter that primal world of less than 150 grams of carbs every day. If you're in that realm of what I call the keto zone, then you'll always have the metabolic machinery and the metabolic flexibility to burn fats when that's all you have, to burn ketones when they're present, to burn glucose if you've done a little bit too much; if you over indulged. There's ways in which you can burn glucose off that is cleaner than just consuming sugar and nothing else throughout your life. There's a way to do it, partially using the metabolic machinery that you built, the mitochondria, that has less reactive oxygen species so less oxidated damage; less aging, if you will.

Metabolic flexibility should be the key here; the goal for everybody who wants to live a long life.

Dave Asprey: Very well said, and I'm gonna add something to that. We're both proponents of the flexible metabolism. It's not even just living a long healthy life, it's just not feeling like crap very often. That was something that was such a part of my life when I was fat, where it was like, "Is today gonna be a good day or not gonna be a good day?" When you've built metabolic flexibility in, it might be a bad day because bad things happened at work or whatever, but it's not that kind of a bad day where bad things happened at work, and you felt like crap at the beginning of the day and felt like crap while it happened. It's just that energy to be yourself that for me ... that's what drives me to push the health message that I push. Just because I don't ever want to feel that way again. If someone had just told me that when I was 16, man my life would've been a lot easier. It's that sense of ease that can happen when you do a keto reset; when you just teach your body to burn fat.

You've got a six week program where people are learning how to go into this. They passed the mid-term exam. They go into ketosis. What happens after the reset? What do you recommend to do?

Mark Sisson: Like I said, you can choose to hang out there longer. A lot of people get such great results that they say, "Well, I don't want to end this now, and I could keep going as long as I feel like keeping going." Our buddy, Todd White at Dry Farm Wines...

Dave Asprey: Oh yeah.

Mark Sisson: He tried it a little bit, and it's now six years or whatever it is. Luis [inaudible] has been doing it for 16 years. A lot of these guys who have been in keto for a long time, they just like the - they like how they feel. They like the lifestyle. They don't feel like they're giving anything up at all. In my case-

Dave Asprey: Jimmy Moore is another one of those guys. He'll be in ketosis forever as far as can tell, and it seems to work for him.

Mark Sisson: Yeah, Jimmy's got his issues, and we try to ... I love Jimmy, and we try to work with Jimmy. But he's the spokesperson for the keto community, man.

Dave Asprey: Yeah.

Mark Sisson: The idea about being in ketosis/not being in ketosis, again, it comes back to: How do I enjoy my life? If I enjoy my life because I have a lot of energy, I've got the wherewithal and the strength and the mobility. I can play with my kids, or I can play sports, or I can be productive at work. Whatever that metric is for you, if keto can add a measure of improvement to that, and even if it's just that short term thing. I envisioned this keto reset as like people would do an annual cleanse, so instead of doing an annual cleanse and go down to The Ashram and do whatever you're doing for a couple weeks ...

Dave Asprey: ... and a fast.

Mark Sisson: Yeah, people would do a keto reset, and I can just imagine people doing ... like Melissa's Whole30. You do the Whole30 on occasion. I don't think many people can live in a Whole30. Melissa can't even live the Whole30, and she admits that. She's like, "This is a clean-up. This is a thing to reset your thermostat, your whatever-you-want-to-call it. That's how I envisioned The Keto Reset Diet as like a way to go in and reset your metabolism every year, ratchet it up a little bit, improve the mitochondria efficiency, the number of the mitochondria, do some house-cleaning with the cells that maybe need some autophagy, up-regulate your immune system; all those things that you're gonna focus on. It's almost like a boot camp. It's almost like a training program, like if you train for 10k, you're doing six weeks training for 10k. Now you're doing six weeks of eating training for the rest of the year. That's how I look at it, and I think it's anything you do where you spend time in keto benefits you, whether you're in keto or not.

Dave Asprey: Do you ever think of Ramadan where you go through a month of basically not eating anything during the day, sometimes not even drinking water, is that a

form of a reset as well? You're not necessarily gonna go into ketosis. I've had a bunch of people reach out who do basically Bulletproof during ketosis. They want to be in ketosis, so they don't get hungry during the day during Ramadan. Is that maybe a very old, historical version of a reset for metabolic flexibility do you think? I just thought about it.

Mark Sisson:

I would totally buy into that theory. There was a time not long ago when I would've said, "I cannot fathom the concept of going that long without eating. I can't imagine how you would preserve muscle tissue," and yet I started ... When I started to see what happened with my own body, when I started to see how long I could go without eating or how ... I can thrive on 30 percent fewer calories now than I did five years ago just based on my reconfiguring, resetting my metabolism through this Keto Reset Diet. Now, some people might look at that and go, "Well, wait a minute, Mark. You mean you take in 30 percent fewer calories than you used to? Well, that's not a good thing. Don't you want to take in as many calories as you possibly can, and not gain weight?"

It's bizarre to me that most Americans think in these terms. Like, "Dave, what's the most amount of food I can eat and not gain weight? Dave, what's the biggest piece of dessert you can serve me where I won't feel like crap?" There's this sort of gluttonous attitude here, and it pervades everything. I go to the gym, and people are spending 45 minutes on the treadmill, five days a week sweating and grunting and struggling and suffering. I'm like, "Dude, why do you spend so much time on the treadmill?" and you know what the answer is? "Because I love to eat."

Dave Asprey:

Yeah.

Mark Sisson:

I'm like, "Woah. You would put yourself through that much misery on a regular basis, so you can have a couple of more bites of something you probably shouldn't eat in the first place? Do you realize how crazy that is?" And yet, that's how we live our lives. I flipped that over a couple of years ago, and I thought, "What's the least amount of food I can eat, maintain muscle mass or build muscle mass, have all the energy I need, never get sick, and most importantly, not get hungry?" Because hunger throws this thing all out the window. If you start to think in terms of, "Well, it doesn't take me that much food to maintain muscle mass, have the energy, not get sick, and still not be hungry," and it's eye-opening. Now, we take it back to the Ramadan thing, and now I start to understand why people call themselves breatharians. I'm like, "Yeah, that's crazy," and now I'm starting to think, "Well, maybe there's something to that." Maybe they've accessed this closed loop for long periods of time where they actually can do pretty well without eating. And maybe that's what's going on with Ramadan.

Dave Asprey:

It could be. There's some weird studies I uncovered when I was doing strange mitochondria research for Headstrong. It turns that if you eat a lot of plants, you can steal some of the chlorophyll, and if you get sunlight, you can use the chlorophyll to add electrons to your mitochondria; the Swamp Thing story. It's a

small percentage. You get sunlight with red light. Red light also contributes to electrons in your mitochondria. If you're doing that, then you have a tight closed loop system, where your body is recycling things a lot. You probably could get by on very little, but most the so-called breatharians, at least the modern ones, have been caught at 7-11 with 72 hotdogs.

Mark Sisson: Yeah, yeah, yeah, but...

Dave Asprey: So I'm a little skeptical!

Mark Sisson: No, I'm not fully being aligned with that breatharian thing, but the concept is interesting like, what if most of the good stuff that happens to humans happens when we're not eating? In other words, eating like ... a boa constrictor eats an antelope, and then is in torpor for a little while and then doesn't have to eat for a couple of weeks. A lion could eat 80 pounds or 90 pounds of zebra, take a nap, and then doesn't have to eat for a couple of days. What if that feeding thing, that we're sort of in a little bit of a limbo as we're packing in energy, but then, all of the good stuff happens when we're not eating. All the repair, all of the sparing of muscle, all of the decrease in inflammation. What if all that good stuff is happening when we're not eating? Then, it would behoove anyone, I think, to at least embrace a compressed eating window, and probably to engage in some form of a slightly extended fast once or twice a year. This is where my brain goes with the next level of this stuff.

Dave Asprey: If you want to live a long time, the evidence is in that there's something to be said for that, and it's certainly not going to be harmful. It's the difference between doing a 30 day water fast ... you can go off the deep end on that, but, skipping food for a few days a couple times a year...it sounds like a huge thing, almost like taking a cold shower in the morning. Once you're set up for it metabolically, a cold shower in the morning is no big deal even though the first time you try it, you feel like you're gonna die.

We were talking about that American thing, "How much can I eat?" One of my regrets; when I was doing the research for the original Bulletproof Diet book, I ate 4,000 to 4,500 calories a day, which sucks. I had to force myself to eat that much food, and I was doing it to show that I was eating enough calories to gain 20 pounds in a month, but I only gained three pounds, therefore, this whole calorie efficiency matters of your metabolism. I actually lost weight on that, and I put it in the book. Some people took that, and they're like, "Oh, so on this diet, I have to thousands of ca- " "No. That's not what it's about," but the idea is different foods will make you store fat or store muscle at different rates, and it all depends on your metabolic flexibility.

You're right, and I fully embrace that idea. Eat what it takes to feel amazing and don't eat more than that because you don't want to eat more than that. You don't need to eat more than that, and you get that from The Keto Reset; from ketosis in general. You can sort of get it even from the old Atkins diet, from the year I was born, but if you're doing it on pork rinds and cream cheese, you're

probably gonna get some inflammation from that. It's less nuanced but man, it does set you free. I'm happy that you've written The Keto Reset Diet to help a lot more people access this and to make it less of a radical fringe diet for body builders and Crossfitters and biohackers and more into something that, honestly, my grandmother could be doing. That's a great public service market. I'm happy that you're doing it.

Mark Sisson: Oh, appreciate that.

Dave Asprey: We're coming up on the end of the show, and I've already asked you because you've been on the show that question: The three things that you'd offer to someone who came to you and said, "Hey, look. I want to perform better at everything I do as a human being." I'm just wondering if writing The Keto Reset Diet and your recent transformations, your new experience with endurance exercise and training loads, with growing your company and with writing The Keto Reset Diet, I'm wondering what would your answer be today? If I came to you and I said, "How do I perform better at everything?" What matters most? Give me the three most important things from the Mark we know today.

Mark Sisson: Well, the first one would be to make sure that you understand that your thoughts are just your thoughts. They don't exist in reality. The negative self-talk, the chatter, the worry - does not exist. They're just projections of this thought machine. I like to, occasionally in some of my seminars, tell people that the human body is a life support mechanism for the thought machine but ... basically to understand that we get in our own way so frequently because of self-doubt and worry and angst. It doesn't have to be that way, if you can take a step back and understand that your thoughts are sometimes overwriting your creativity. Does that make sense?

Dave Asprey: Oh yeah.

Mark Sisson: Your negative thoughts are disallowing the input of the consciousness [inaudible]. That's number one. Number two: I still to this day think that sleep is probably the most overlooked, undervalued component of a healthy lifestyle. Some many people I know don't get enough sleep, and brag about it. That's a shame because ultimately, I think it catches up with you.

Then, I think, the final thing in terms of productivity would be finding ways to move around no matter how confined you are to a desk. Find ways to move through space in your day as often possible because humans are about mobility and about motion. If we don't invoke that right that we have to move around a lot, we lose it.

Dave Asprey: It's so true about movement. You're one of the leaders ... one of the first guys to really talk about that, as well as some of these nutritional principles. You're the godfather of Paleo. You invented the primal, and a lot of the Paleo movement came out of your work with The Primal Diet. It's always a pleasure to come on

the show, and to see the evolution of your thinking and your business and your company. I look forward to having you back on next time, Mark. Where can people pick up a copy of your book, now that it's out?

Mark Sisson: Yeah, so of course, fine purveyors of books everywhere; Amazon, Books-A-Million, Barnes & Noble. You can go to ketoreset.com and order from there if you want. We have some other tabs that you can look at and explore a little bit more in detail; ketoreset.com. Then as always, Mark's Daily Apple is the blog. I've written an article there every day for just over 11 years now, so boy are my arms tired.

Dave Asprey: 11 years. Wow. I'm going on six or seven on the Bulletproof website, and your endurance and stamina is pretty amazing. I fully respect, Mark. Thanks again, and if you're listening to the show, Mark's work has been some of the really foundational stuff that's moved what we know about online around health, so he doesn't mess around when he writes books. If you've read the last book that he came on to talk about exercise, it shifted the paradigm of what you would do for endurance training, so you can use a lot less time and get a lot more results and do less damage to your body. Mark certainly learned that doing it the old way and now doing it the new way. He's shifting his nutritional knowledge with his new book on keto here, so it's worth a read. I do encourage you to pick it up.

Mark Sisson: Thanks, Dave.

Dave Asprey: You got it, Mark. Alright everyone, if you like the show, you know what to do. Head on over to iTunes. You can go to bulletproof.com/itunes because it's easier that way and leave a review. Just say, "Hey, I like Bulletproof Radio. It's worth like 10 gazillion stars or just five or four; whatever the top one is." I appreciate those reviews. I actually look at those reviews. Anytime you leave a book review for Mark, for me, on Amazon, authors like us, that's one of the things that motivates us to write our next book. It really helps people know whether the book is worth their time to read. It's the greatest honor for an author to know that someone read the book, and that they got really good value out of it - so take 10, 20 seconds to leave a review for your favorite authors. It matters more than you can possibly know, because it gets us fired up. Have an awesome day.