

The Primal Blueprint Podcast – Episode #22: Questions and Answers with Mark Sisson

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Brad Kearns: Welcome back to the Malibu Studios. This is host Brad Kearns here with Mark Sisson. The questions are piling up again and we will mix in some other fun stuff. We are trying to respect the people in chronological order, but then all these new questions come up. So if you don't hear your question answered on the air, we do want to say we really appreciate it. We talk through some of these off line and we try` to hit those topics and try to grasp maybe six questions together.

[00:00:45] Here is a question that has been a hot topic lately about resistant starch. Stu in Victorville writes in:

"Dear Mark, Thank you for talking about all the benefits of resistant starch and I know you mentioned a green banana which seems like an easy way to integrate some resistant starch into my diet. First, is it okay to slather it with some peanut butter or almond butter, and second, if you consider that a ripe yellow banana has 20 grams of carbs, and probably minimal resistant starch, would a green banana, consequently have very few carbohydrate grams and thus fewer calories?"

Mark Sisson: Great question. So the first part of that question is can you slather it with peanut butter or some other thing. Absolutely. It's a good idea. Let's see, green bananas and peanut butter, I am not sure I have had that yet, but I am open to almost anything. If the green banana has more resistant starch and those starches haven't yet converted into sugars which is basically what happens in the ripening process, then that green banana won't have as many calories as the ripe yellow banana.

The other part of that question that we talked about off line was does that apply to other fruit, and interestingly, yesterday my housekeeper cut up a watermelon and about half way through the afternoon, I thought I would have a couple of pieces of watermelon. I was having a hankering (it has been 100 degrees in Malibu the last few days) so watermelon is a summertime fruit. I started to eat this watermelon and I realized it didn't taste so much like a watermelon, but more like a carrot. And reason was that the watermelon hadn't yet converted to the sugars and I really gave that some thought. So here I am probably eating more resistant starch, prebiotic fibers, in this watermelon than I normally would in a ripe watermelon. Does that apply to nectarines, and peaches, and apples? And it may well, in fact apply. If you are a person who is more inclined to eat sour apples.....remember in the old days, you would hear stories about kids who ate sour apples and they would get a stomach ache and it was probably from the formidable fibers and resistant starch and all the things that had not converted yet into sugar which are much more easily digested. So it may be, if that strikes your fancy that unripe fruit might be a decent source of these formidable fibers and resistant starch.

Brad Kearns: I looked it up here and it is 6 grams of carbs in a green banana versus 25 in a yellow. So I guess if it is greenish yellowish you are splitting the difference. You are getting some resistant starch and you are also bringing it down with a little better taste.

Mark Sisson: The other thing about green bananas is they taste awfully bitter and chalky to me. Maybe that is where the peanut butter slathered on it comes in.

Brad Kearns: Great idea. Thank you, Stu. Let's have some people try that, and write in to say what it tastes like.

[00:03:50] Here is a question from Samuel: Hi Mark and Brad. This is Sam from South Florida. What is the role of adequate stomach acid and having a healthy intestinal flora? And how can a person improve their stomach acidity without taking drugs from the gastroenterologist?

Mark Sisson: Great question. I think the acidity in the stomach is the first line of defense that the body has in the immune system. There are H-pylori bacteria that live in the stomach and have gotten a bad reputation for being the problem with ulcers. They are also important in the health of the gut, in particular in a healthy person. The H-pylori live in the very very low PH in the stomach. So the high acid environment in the stomach is extremely important from an immune system point of view because it will kill the pathogenic material that try to get through there and we look at how some of these bacteria and germs get into our system through the nose and through the mouth. All that stuff, even the nose drains into the stomach. If you ever had a running nose you know you are swallowing that stuff into the stomach, if you are not spitting it out. The stomach is where that first line of defense is where stomach acids can kill some of that bacteria before it gets further on down the GI tract.

What can you do to improve your stomach acidity? Over time, age tends to raise the PH, that is decrease the acidity of the stomach and that is where some digestive problems come in. It is this low stomach PH that is important appropriate digestion of foods, and particular proteins which tend to get broken down by the acid environment in the stomach. What can you do? One of the ironies of modern medicine is prescribing the proton pump inhibitors (PPI pills), the purple pills, that reduce stomach acid and I think it is a travesty that in so many cases people who probably ought to be improving their stomach acid so they can digest food better and improve their immune system, are actually taking these drugs to reduce the acidity, to increase the PH. These proton pumps will spew out the ions that release the PH and increase the acidity so you are turning that mechanism off, that all important mechanism, which, then, ironically, causes the digestive process to slow down so the food has to spend more time in the stomach before it can pass into the upper part of the small intestine, and with more time in the stomach, it backs up into the esophagus and we get this **Gastroesophageal reflux** disease this GERD, or heartburn as people have referred to it over the years. I know I had a lot of GERD when I was in my carbohydrate days and my whole-wheat days because I was that sensitive to the effects of gluten.

Brad Kearns: Any foods in particular?

Mark Sisson: Foods that you can consume to improve the pH in the stomach? I don't think there are any, of the top of my head that would do that. I can think best you could do is just to reduce the intake of grains and to eat natural foods, not processed foods. I would try to stay away from those proton pump inhibitors, if at all possible. Some people have said that using a tablespoon of apple cider vinegar everyday, which is a form of acid as a supplement, can assist in the digestion. So that is always something to try and then take a good probiotic if you want to maintain the integrity of the gut flora, I would take a probiotic that has some spore form bacteria. So look for B coagulans, or B subtilis. Those are the two major ones I would look for, but recognizing fully it is important to take care of your gut, not just from a digestive point of view but from an immune point of view.

Brad Kearns: [00:08:22] I think on one of your travel tips, you mentioned taking hydrochloric acid for getting ready for foreign agents when you are in a foreign country.

Mark Sisson: Yes there are also some supplements and digestive aids you can take that contain HCL or [??????] or some of the enzymes you can add. You take it with food so that you can assist yourself with digesting that meal. Just in terms of improving stomach acid, I don't think there are any foods.

Brad Kearns: No magical tricks. Sorry. Just eat healthy and eat primally.

[00:08:59] Let's hear from: Armin: Hi, this is Armin. I have been living the primal lifestyle for 8 to 10 months and I notice a great difference in how I feel, my weight, my overall fitness and energy level, health and well-being. How do you know intuitively, and also from a measurement perspective, how good of a fat-burner or ketone burner you have become? Thanks for a quick tip on that. I love your stuff. Thanks so much.

Mark Sisson: Great question, Armin. The first sign that I look for in people who have undergone this transition from being a sugar burner to a fat-burner and becoming good at ketosis, is the ability to skip a meal and not have it ruin their day. So if you can go from breakfast to dinner without any mood swings, without any drops in blood sugar, without feeling like you need to rip someone's head off if you don't get a bagel in your gut soon. That is one of the indicators that you are good at burning fat, that you are not so dependent on a fresh supply of glucose or carbohydrate every three hours, as was the mantra for so long in the fitness and health world.

As recently as 10 or 15 years ago, people would say you have to have 5 or 6 small meals spread evenly throughout the day and carry a Tupperware thing around with you and have a little bit of protein and some carbohydrates at every meal. Otherwise your blood sugar will drop and you will go into starvation mode and you will cannibalize your muscle tissue. Well, if you are a sugar-burner, that is probably what is going to happen because you have not become good at burning fat and so you run out of glucose. Then you deplete your glycogen and the body looks to its muscle tissue as a source raw materials to make new glucose to feed the brain.

When you become good at burning fat and when you become keto-adapted, that doesn't happen any more. So the first sign is that you can go a meal or two not eating and not have it ruin my day and I am very confident that my energy levels are up where I want them to be. I can even go to the gym and do a workout and, again, not feel like I am going to pass out. That is the real sign that you have become good at this process of burning fat. Some people ask about Keto-sticks. You pee on a Keto-stick and see if I can generate a purple color and show the amount pH in my system. That is not going to necessarily be indicative of how good you are because if you become really good at burning ketones, you don't have an excess of ketones being excreted in the urine. It will be in the blood but you won't be excreting them in the urine, because your body will be using them. You will have built that ketone-burning machinery to the extent that when you do generate excessive ketones, they get burned up. They don't get excreted. It's a good thing.

Brad Kearns: That is an important distinction, because when.....you used the term "ketone-burning" in the "21-Day Transformation," but when you say "ketosis" doesn't that mean that you are accumulating it in your blood stream faster than you are burning it?

Mark Sisson: Yes. You are accumulating in the urine, faster then you are burning it. One of the notions of ketosis is the accumulation of the ketone bodies and unless you are a Type I Diabetic having a crisis, you will not generate them to the point that it will be dangerous because at some high level of production, ketones cause the release of insulin. If you are a Type I Diabetic, you can't produce insulin so the ketones keep building, building, building. So the point at which you start producing enough ketones that your pancreas secretes insulin, it shuts off the ketosis and stabilizes at a level that is very safe for a lot of people. I prefer to refer to all that we are doing as keto-adapted or ketone genesis.

Ketosis is sort of inappropriately used here, because the notion that you are producing an excess of ketones and pissing them out would be more appropriate for a person who is a carbohydrate-burner and who hadn't built the metabolic machinery to burn fats and ketones and so this carbohydrate burner decides he's going to go down to the Ashram and he is going to fast for three days and not eat anything. Meanwhile, his/her brain hasn't learned to burn ketones and muscles haven't really build the metabolic machinery to burn ketones. They haven't gone through the metabolic changes of mitochondrial biogenesis in the muscles that

improves the throughput of fats and ketones. As a result they build up an excess of ketones in the bloodstream, which is excreted in the breath. It smells sweet and sometimes like over-ripe apples or they excrete in in the piss and that shows up purple on a Keto-stick. That is not necessarily good thing because they haven't build this metabolic machinery to use this incredible wonderful fuel that they are now producing as a result of their choosing not to eat for 2 or 3 days in a row and not having become fat-adapted or keto-adapted that would make that a pleasant task.

Brad Kearns: So you can put your sticks away and just simply determine if you are hungry after a workout or in the hours after and no cheating, here, folks. Remember in *Bridesmaids*, when Kristen Wiig was with them at the dress shop and they were all suffering from food poisoning. She said she was fine [she didn't wanna get blamed for choosing the bad restaurant] and in fact actually "starving right now". They made her eat a cookie. Just really be honest with yourself and notice how long it takes until you get those sensations of hunger.

[14:59] On a side note, a lot of people are asking, "How do I start out with intermittent fasting?" Wait until you get hungry in the morning and eat at that point.

Mark Sisson: That is exactly right. If you have been indoctrinated into the Primal Blueprint style of eating and you have reduced the sugars and reduced the refined carbohydrates, in many cases, all of the grains, you will find that you have reduced your total carb intake now down to a level of 150 grams a day. If you have, in fact, truly gotten rid of all of those foods and you are still depending on green vegetables and salads and a little bit of fruit, you are going to be hard-pressed to accumulate up to 150 grams of carbs a day. You will be, almost of necessity, creating this metabolic machinery that is better at burning fat and is pretty good at accessing ketones. Now when you drop it down below 100 grams a day, you get into that sweet spot between 50 and 100 grams a day, where you are not even necessarily in ketosis but you are still prompting the building of those metabolic pathways to be really good and efficient at burning fat, your own stored body fat and the ketones that are thrown off or generated as a result.

Brad Kearns: [00:16:04] So just a follow-up on the other podcast that had a question about eating berries and falling out of ketosis. Is it okay to dip in and out of whatever metabolic state as you are following the primal lifestyle?

Mark Sisson: Oh, yeah, yeah. Ketosis is just one metabolic state. It's typically a huge survival benefit for humans over millions of years where we have developed this skill to go 3 or 4 days without eating because there was no food around. And to not have it affect our demeanor, our muscle mass, our energy output. That is the real beauty of ketosis. I don't think it was ever intended that humans spend a lifetime in ketosis and, in fact, I don't recommend that at all. But I think it is kind of instructive to get into ketosis for periods of time, days or weeks, maybe months, if you have some specific metabolic issues you are trying to address. But then you come out of ketosis, you don't have to go completely off the track and take in 1000 grams of carbs a day. In fact, that would be very counterproductive. If you come out of ketosis with 150 to 300 grams a carbs a day for a period of time that's fine.

You have still built that metabolic machinery so, unlike the sugar-burner, who never gets a chance to up-regulate the mitochondria in the muscles, and there is so much sugar available all the time that the mitochondria in the muscles don't really need to burn that much fat. They don't need to up-regulate the enzyme systems so there if very little of this mitochondria biogenesis going on. For people who are fat-adapted and keto-adapted, they have built this metabolic machinery because of the lack of carbohydrates. The lack of carbohydrates has forced the body increase the amount of mitochondria biogenesis going on, those powerhouses of the cell. As a result, they up-regulate this machinery.

The body doesn't like to make changes, it doesn't have to make so the sugar-burner never makes that change to build metabolic machinery, because once that metabolic machinery has been built, it doesn't go away the next day if you go out of ketosis. It stays there. So you can stay out of ketosis for days at a time and you will still retain some of the beneficial effects of the time you did spend in ketosis. That metabolic

machinery kind of sticks around for a while. Now if for the rest of the next six months or whatever, all you eat are carbohydrates and go back to the old way of eating, eventually you will lose that metabolic machinery because the body doesn't keep anything around that it doesn't absolutely need. That machinery atrophies. So that is the bad news of getting lean ripped fit on the Primal Blueprint and then going off the wagon. If you resort to your old ways, then your body resorts to the old ways. The answer to the question is that there is no real problem with going in and out of ketosis once you have built that metabolic machinery.

Brad Kearns: Sounds similar to building your fitness. If you sit around and get out of shape for a month, that is the way it goes but you can always get it back by regaining your momentum.

Mark Sisson: We talk about muscle memory. It is really interesting that a lot easier to get back in to shape if you have been in shape and it may be that once you have gone into ketosis and you have built that metabolic machinery, when go out and go off the wagon for a while, it is probably easier to get back in to ketosis.

Brad Kearns: [00:19:32] How about one more question, Mark? This is from Emily Christopher in Mequon, Wisconsin. She writes: Dear Mark, I notice the recent news from Chris Kresser and Stephen Guyenet that legumes are now being validated as part of the ancestral diet. That cooking them neutralizes any concerns about lectins and thus it seems they have gained paleo approval. In your books, you categorize legumes as less offensive than grains, but still unnecessary due to their high carbohydrate content. Is this still your position and can you elaborate?

Mark Sisson: Yes, I think that there is a shift in some of the paleo world away from legumes, although I say my understanding from Loren Cordain and Robb Wolf is that they are still pretty down on legumes. As you know, I try to be as inclusive as possible with the foods in the Primal Blueprint so if there is a reason to be eating these foods, and there's not a lot of good research to suggest that we should absolutely NOT be eating this food, then I include it in the Primal Blueprint.

I still am suspect of legumes. I am including more of them in my own diet but not on a huge scale. I just don't avoid them like the plague any more. If I am having a bowl of bison chili, and it has a couple of bean in it, I don't set those beans aside. I eat them with gusto. I do think the Weston A. Price version of soaking and preparing legumes in a fashion that denatures their poisons, is an interesting historical perspective, but the reality still is that legumes, almost to a point, when they are not prepared, contain some toxins. One of the most toxic substances on the face of the planet, ricin, is derived from the castor bean. So they do have their defense.

I suggest that maybe the lectins aren't so horrendous on a sporadic basis and that maybe the big issues with these beans is the fructooligosaccharides that are indigestible...the cellulose, the fermentable fibers that cause the gas in people. Then if you have your digestive tract in good health and have you gut bio working and if you enjoy the taste of these sorts of foods, the legumes, there may be some of these legumes that are appropriate for you the way some forms of dairy are appropriate for people who are lactose tolerant.

Brad Kearns: Try it out. See what you think. If you see some hummus go for it with some nice fresh vegetables, but maybe don't make a special effort. Just like the 21-Day Transformation. I think the point was extracted there out of context but the main thing is, if you are trying to lose that excess body fat, your first and foremost priority is to look at the carbohydrate curve.

Mark Sisson: Yes, That is really the starting point.

Brad Kearns: Mark, thanks for tackling those questions hard, today. We are getting through it. We so much appreciate the interactive nature of the podcast with you guys really putting up some thoughtful questions and requests for topics to cover. So again, host Brad Kearns, signing off for the Primal Blueprint podcast with Mark Sisson.

Brad Kearns: Hey, podcasts are great but how about a life-changing weekend at Primalcon? Coming up is our historical occasion with our 5th annual event in Oxnard. It is on the beach in Southern California at the amazing Embassy Suites Mandalay Beach Resort. It is about an hour north of Los Angeles. One of the best kept secrets in Southern California, right on the sand of the beautiful beach town of Oxnard. We have an amazing park there, an expanse of grass and all kind of fun stuff to play on. So we will be spending a weekend outdoors with an awesome slate of presenters talking and presenting on all manner of physical activities, diet, health, nutrition, posture and movement mechanics.

You will get a great education from the world's leading experts, but we will also have a ton of fun and excitement. Of course, we will play the annual survivor team challenge just like you see on TV except this one is more fun, more challenging, and includes brain teasers and good team strategy challenges. We will of course have the world famous Primalcon ocean plunge/Jacuzzi sprint. So you will run into the pretty cold ocean guaranteed and then the approximately 2 minute sprint to the Embassy Suites and take over the entire Jacuzzi. People stare at us like we are crazy but it is so much fun! And then we will dine on the all time fabulous Primalcon food which you can see pictures of on the website. So visit PrimalBlueprint.com, look for the Primalcon link and see all the photos chronicling all the fun times over the past four years. We certainly hope you can join us in for the 5th annual Primalcon Oxnard September 25th through 28th, 2014.