

The Primal Blueprint Podcast – Episode #16: Listener Questions and Answers with Mark Sisson

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Brad Kearns: Back in the Malibu studios, host, Brad Kearns here again, with Mark Sisson. The questions just keep piling up. Let's get right to it, Mark.

Mark Sisson: Okay

Brad Kearns: The first one is written in from Mark in New York City. It says:

[00:00:30] "Dear Mark in an earlier podcast you mentioned how you often mentioned how you do sprints on a stationary bike instead of running. I wonder if your sprints are longer in duration on the bike because of the lessening of the difficulty in comparison to running sprints on the sand or on the ground. Also how much recovery time would you take from a bike sprint session vs. a running sprint session?"

Mark Sisson: Great question. One of the reasons I elected to start doing some sprints mid week on the bike is because my number one workout every week is my ultimate frisbee game. That is really two hours of intense running and changing direction and accelerating and decelerating because once you take the frisbee you have to come to a complete stop. That is really my main workout during the week, even though it is entirely fun. In the middle of the week, I will do a sprint session on the bike. One of the reasons I have chosen to do that now is to save my Achilles. So I have 60-year-old Achilles tendons that are starting to....

Brad Kearns: How many miles do those Achilles tendons have on them about?

Mark Sisson: I don't know.....a hundred thousand or more. Anyway I want to be careful not to stress them too much, so rather than hit the beach with sprints barefoot in the middle of the week, and then do it again on Sunday with the ultimate game, I do my sprints on a bike. One of the answers then is yes, I do that so it is easier on the joints and easier on the feet. The main reason to do sprints is to get the heart rate as high as you can and sustain it for as long as you can. In this case, typically, with my interval sessions on the bike is anywhere from 40 seconds to 2 minutes. For me, what I like to do is warm up with maybe 10 or 15 minutes of riding which starts out very easy and then just gradually increasing the intensity until I am at a point to close to what I would be riding at when I start my intervals. So I warm up for 10 or 15 minutes and then I drop it down to a very easy level and proceed to punch it out to where I can hold. The other day I did 40 seconds on and a minutes 20 off. Those were my intervals. I did 8 of those. So I am doing 16 minutes of work. I am getting 8 forty-second intervals. I am getting one minute 20 of rest. I ramp it up increasing the resistance. On the bike I was on the other day I was at 16 I think. Try to keep my RPMs above 90 and if you can get to 100, that's a good number for me. I know that my heart rate is going to get up to close to max if not max during that period of time. As soon as I hit the prescribed intervals, in this

care it was 40 seconds, hit that button, drop it down to an easier level, like down to 12, let's say. Then I can ride it out and recover at that. I do a minute 20 second recovery, then I ramp it back up and do 40 seconds. So with that 10 or 15 minute warm-up and the 16 minutes of intervals and with the 5 on the cool down, I am out of there in 37 minutes. And it's one of the best workouts I do all week. I have been coaching my wife and her friend, Betsy. They have been doing it on the same day, so as soon as I finish mine, I go over and coach them. They have been doing a treadmill workouts. They have been doing treadmill sprints. What they do is put the treadmill at a level of 6 or 7 incline and then ramp it up and do 30 seconds hard with a 2 minute rest. There are all kinds of ways to configure these. So my bike intervals I do 40 and one minute 20 as standard. Some days I might do two minutes but I want to try to pace that entire two-minute interval to where I can maintain a high level of output but not go into complete oxygen debts, say 40 seconds in or a minute 20 in. But I can hold that for the entire 120 seconds...the entire two minutes and then I might take a three minute rest. In the old days of interval training, it used to be the less rest you could take, the better off you were. I am starting to think now, particularly with these all-out intervals, get as much rest you think you require to give it an all-out effort every time, and then when you hit that final interval session and you know that you are truly knackered, cut it off and have that be the end of it. If you can't finish the fourth interval, or can't finish the fifth interval at a reasonably sane level of output, then you are not ready to do that one and you shouldn't be striving and struggling to get through that last interval. You don't want to leave that workout in a shamble. You want to leave that workout tired but ready recover and do it even better the next time.

Brad Kearns: Right, and this is sort of a sneak preview of some of the contents in The Primal Blueprint Expert Certification which is about to be launched. In there you go through a lot of detail about having a quality sprint session. Quality meaning that each interval is similar in terms of, not only output, but also how the perceived exertion. So you are not driving yourself into a deep hole and getting exhausted by the last one. In fact the last one is pretty close to as fast as the first one, if you could measure it, and also you are not overly taxed.

Mark Sisson: That is exactly right. We try to develop this intuitive sense of where the line is, where the edge is. As I mentioned in the previous podcast, that workout I do with 16 half mile repeat intervals.....

Brad Kearns: I missed that day.

Mark Sisson: You should have been there. That was too much for that day and I should have intuitively known at the end of 12 of them that that was it. Because I written down that I needed to do 16 and I wanted to prove to myself that I could do that. I made it through the workout and then I got sick and I was down for the next couple of weeks. So again, developing that intuitive sense. But really it is about managing the effort, so that whenever you do that interval set, whether it is 10 seconds or 30 seconds, or two minutes, that you spread the effort out equally over that time period and that you give yourself a sufficient amount of rest in between.

[00:07:06] One other set of intervals that we like to talk about is the Tabadas. Tabadas are great. You do 20 seconds of sprints or hard and then 10 seconds of rest. Then you get to do that for 4 minutes. It is a real ball-buster. It will really take it out of you. It is designed to be just that one 4-minute session. But a lot of people, myself included, will do maybe 3 of those 4-minute sessions. Again, it is one of those crazy interval sessions that when you are finished with it, you realize that you have actually prompted your body to respond by getting stronger and better and more efficient at what it does.

Brad Kearns: So, with those tech-y exercise listeners, you are making a distinction here between that lengthy rest period and the true all-around maximum effort delivered in the 40-seconds on and resting a minute 20, which is plenty of time to rest and you are well recovered, as opposed to a true interval workout where you might be compressing that rest. You used to have us triathletes do 6 times 3 minutes with a 30-second rest between the 3 minutes. So in that 20 something minutes, we are working hard most of the time as opposed to your sprint, where you are just trying to put maximum output there for 40 seconds with plenty of rest in between each one.

Mark Sisson: [00:08:25] Exactly. This is about getting the heart rate up as high as you can and not taxing the joints. So if you are somebody who has bad joints, running is not your gig for this. You can do it on the bike. You can do it on the elliptical. You can even do it in the pool. There are all manifestations of interval training so I don't want to pigeon-hole all of this into that one category that says work hard, hard, hard, and get sufficient rest. Because in the days of swimming intervals. You are always going on the 115 or on the 120 and sometimes, you are coming in at 110 and you got to go 5 seconds later. That is a different concept. Really it is just about making sure that you, in this case, get your heart up there.....if we talk in term of mets. You know one met or one metabolic level is basically just walking around and just existing. That is your metabolism and the rate at which you burn calories and then as we increase the amount of work output that we are doing, a lot of the equipment will register it 2 mets or 5 mets and some of these interval training sessions can get in to the 25 or 30 mets, meaning your output is 25 to 30 times your resting metabolic rate. But it only for 10 seconds, or 20 seconds, or 40 seconds of time. That is sufficient to generate the kind of changes in the body that will last for hours and days. So when you compare the efficiency of an interval session to what is going on in a long slow distance workout. When you are doing a 10-mile run easy or an easy bike ride, or doing even a chronic cardio for that matter, and you are looking at burning calories, what you are seeing is really calories burned in that workout. Whereas when you are doing an interval session, a hard interval session, you really don't care about the calories you are burning in that workout because the amount of time you are spending actually burning calories and doing a lot of work. Isn't that great. It is the metabolic changes that occur at the cell level as a result of the signals you are sending the DNA, the genes, over the next period of hours or days. It really manifests itself in an increased metabolism, in a metabolic efficiency, and metabolic flexibility to where you can burn fat more efficiently. You are increasing the amount of mitochondria. You are increasing your aerobic efficiency. Your top-end power output threshold..all of these elements respond dramatically to the sprint workout and the final thing I'll say about this is that so many people have come to me and said, "Look, Mark, I love what you do with the Primal Blueprint. I am eating right and exercising but I have hit a plateau. I am not getting to the next level. What should I do?" The first question I'll ask is, "Are you sprinting?" If the answer is no. Then they have to start sprinting to see what that does to jump up the metabolism.

Brad Kearns: [00:11:23] There have been some recent studies you referenced extensively in the certification, that sprinting is really the only type of workout that directly promotes fat loss, because it doesn't have that increased calorie intake aspect to it like chronic exercise does, or exercise of any sustained period, that is made up for by an increase in appetite that the key concept in the Primal Blueprint 21-Day Total Transformation talks about.

Mark Sisson: Right. The idea that when you do chronic cardio or any kind of long slow aerobic activity that is primarily tapped into your glycogen stores...it actually doesn't have to be slow, it can be fast heart rate of 75 to 80 percent of max, which is a lot of athletes train at. The main thing that happens is you burn a lot of sugar....a little bit of fat, but a lot of sugar. Your brain says, "We got to replenish a lot of this glycogen tonight." There is this tendency to overeat. This just doesn't happen with the appropriate sprint workout.

Brad Kearns: [00:12:22] So can you speculate why, for a moment, that the science shows that sprinting is the only type of exercise that directly contributes to fat loss.

Mark Sisson: Everything that happens when we train, has a metabolic effect and typically the results of the activity that we chose create different streams of metabolites that cause different genes to turn on and off. In the case of sprinting, the metabolic effects, the metabolites of having sprinted a lot will generate the kind of signals to build muscle, to improve the efficiency of those muscles, and to get rid of the extra weight that we are carrying.

Brad Kearns: Even though it is only a 15-minute session once a week, it is having this much impact on the genes?

Mark Sisson: Absolutely. The body doesn't want to make these changes unless you give it a real good reason to do so which is why going out and running a 10K every day ultimately doesn't manifest itself in any kind of noticeable changes for most people. They run the same time and the same distance every day. They don't lose weight. They don't get any stronger. They don't get any faster. It's by upping the ante. It's by increasing the requirement of the body to keep up with the demands that you put on it through this workout. The body is forced into making changes. It is forced into building muscles. It is forced into becoming more efficient at extracting energy from stored body fat. It's forced to increase the power of your lungs and the ability of your red blood cells to carry oxygen. So all of these are changes that happen at the level of DNA that are caused by our conscious choice to do a particular activity in a particular fashion. Ultimately when we spend a lot of time running miles and miles and miles and we don't get what we are looking for, it is because the body says, "I know how to do this. I don't need to make a change. This is easy for me. I have fallen in to this pattern where I don't have to spend that many calories to do what you are asking me to do." Conversely, when you do a hard, hard sprint workout, it doesn't take much time before the body says, "Holy S***!! If you are going to try this again in the next couple of days, we have to make some changes. We have to adapt to this requirement that you are putting on us." Finally, the main reason that it is the most efficient way to lose weight is that you are only doing it once or twice a week so you are not getting into a chronic pattern where you are depleting, depleting, depleting, and having to go home and replenish huge amounts of glycogen that you have dumped out of your system.

Brad Kearns: Okay, so with those vigorous, sustained glycolytic workouts like 45 minute killer cross-fit session or the endurance athlete doing their intervals and tempo runs, you get that corresponding appetite increase, but the sprinting, (A.) because it is such an extreme shock to the metabolism, the 30 met volume, and (B.) because they are short in duration, that's where you get that direct body fat reduction stimulation.

Mark Sisson: Yeah.[00:15:35] You might even lose your appetite as a result of a sprint workout. It may be that as opposed to the chronic stuff where you go home and.....I remember in the old days of running, I would think about what I was going to eat and what I was going to drink the entire last half hour of every workout I even did, because that was the chronic nature of it. In the sprint workout a lot of times, I feel if I can hang on one more time and not throw up, this is a good thing, but the appetite doesn't enter into the equation. You don't spend the last part of a 30-second interval thinking about what you are going to eat when you get home. The appetite seems to dissipate in the short term and doesn't seem to want to make up for it in the long term.

Brad Kearns: [00:16:15] There has been plenty of research showing that when you elevate your body temperature, it dulls your appetite so when you are sprinting and your body temperature is elevated for a couple of hours afterwards, probably. In contrast, we have read where swimming has been shown not to stimulate a reduction of body fat even though they are burning thousands and thousands of calories. One big reason is their body temperature doesn't elevate at all.

Mark Sisson: Right. And another reason that swimmers tend not to be as cut and lean in general as most other athletes of the same sort of physical output is that you are training in water that is 81 or 82 degrees, which is warm enough, I suppose, but it is still 17 or 18 degrees cooler than normal body temperature. If you spend 4, 5, or 6 hours a day in that environment where the water, which has a 200 times greater tendency to extract heat than air does from you. The body gets the messages. There is literally a signal sent to sensors in the skin that says, "Look, if we are going to spend this amount of time in the water, we are going to have energy heat loss through the skin into the water, let's build a layer of insulation." Typically, you see in swimmers they have a little bit more body fat than athletes in other sports. They are having the same amount of caloric output on a given workout.

Brad Kearns: And also, they are not fighting gravity such as sprinters are, which is another stimulus to reduce the unnecessary body fat. I guess that why there are no fat sprinters in the world. Right, Mark?

Mark Sisson: [00:17:47] That would be one reason. And so while we are on the topic, it is also a reason why sprinting is better for bone density. Swimming is not so good for bone density. So a lot of people who

have joint issues and go in to the pool and start swimming. By the way, I am a big fan of swimming as a recreation and as a form of exercise but I am just suggesting that there are certain benefits that accrue to sprinting that don't accrue to spending time sprinting in the pool for instance. So sprinting on the track, bone density would be a major complement to that. You are actually putting stress on the joints which send signals to the genes to make those bones more dense and stronger to withstand the impact of the G forces that you are putting on them. That doesn't exist in the water.

Brad Kearns; As we have seen at Primalcon, there is always a starting point that is open to virtually everyone, unless you have serious joint issues, so if you are hesitant to sprint because you don't envision yourself as an antelope running down the field, you can go on grass or soft surface and get into some wind-sprints and begin the process of building into some sprint competency and get some of those wonderful metabolic benefits, too.

Mark Sisson: Absolutely. It is really a question of figuring out where you start from today. What is your base line. If you are in your 60s or 70s, if you have bad joints, maybe it's on a bicycle. Maybe it's on an elliptical trainer. Maybe it is in a pool but in waist deep water where you are working against the resistance of the water itself but you are supported in some regards and your joints aren't being impacted. There is always a starting point and from there you can layer on the levels of increased resistance, or increased metabolic output.

Brad Kearns: [00:19:37] Okay, Jason as been waiting a long time on line 2. He is going to ask this question:

"Hey, Mark. My name is Jason. I am a University of Florida student. I am somewhat confused about resistant starches. Are they rather a component of foods or a group of foods? And furthermore, apart from supplementation, how can I incorporate the benefits of resistance starches if I don't want to get out of my comfortable range of carbohydrate intake? Thank you."

Mark Sisson: Great question. So resistant starches are a form of oligosaccharides, a family of sugars that are resistant to digestion in our gut, through our main digestive process which involves the stomach, the acids in the stomach, and the enzymes, the Proteolytic enzymes in our stomach, and so forth. It bypasses all of that. It bypasses the digestion in the upper part of the small intestine, but becomes available as a food source to the bacteria in the lower part of the digestive tract. It is the resistant starches that serve as that main source of food for the hundred trillion or so bacteria that reside in the gut. Now resistant starches are a part of food, for sure. They are what we would call the soluble fiber part of fruits and vegetables which mainly where we in the Primal Blueprint and Paleosphere would derive most of our resistance starches: plantains, green bananas, cold white potatoes...which brings me to an interesting concept. You know a cooked potato doesn't have that much resistant starch but, in fact, most of what happens with a cooked potato is that it becomes glucose and becomes available as an energy source for the human part of who you are, but a cold potato, where a lot of the starches have been crystalized, now are not available for digestion of the human part of you but for the 100 trillion or so bacteria that reside within you, it is now available for them to digest. Bananas are another example. A ripe banana...30 grams..of available carbohydrate. A green banana not so much. Most of it is resistant starch. So when we talk about resistant starch, we are talking about a component of food. So it is not a separate group of food. It is a component of food. It is present in some foods. It is completely missing from a lot of other foods. So we look for foods that have some resistant starch in them. Again, it gets us to the plant-base of the Primal Blueprint Eating Pyramid. In terms of my personal goals for taking in carbohydrate....how do I figure out which of the carbohydrates I am taking in, I am eating, and which of those are being converted into short term fatty acids by the bacteria in my gut? It becomes incumbent upon the person to be able to look at a food or know enough about a group of foods to say, "Yes. If I having green bananas, I am feeding my bacteria. That's not accruing to my own carbohydrate intake. It is not affecting my insulin levels. In fact it is probably mitigating my insulin levels. On the other hand, if I have a ripe banana, it is entirely different situation. (I was going to say it was an entirely different bag of worms, but that doesn't sound very good.) We do take some resistant starch supplements as a means of supplementing a diet that deficient in resistant starches. So if we see somebody who doesn't have a very healthy gut biome at present. They are probiotics

within them are trending toward the bad guys instead of the good guys and you want to fix that. One of the ways you attempt to fix that is by increasing the amount of resistant starch in your diet and if you can't do it through the food you eat, you can certainly do it through some supplemental forms of resistant starch. It could be plantain flour. It could be raw potato starch. And any number of other possibilities, but the idea is to feed the healthy bacteria what they are craving which is the resistant starch that they use to then build up their habitat and their colonies to sort of overwhelm or crowd out the bad bacteria.

Brad Kearns: [00:23:59] So the junk food diet, of course, that person is going to be deficient in healthy bacteria. What about a primal/paleo strict aligned eater? Can they possibly become deficient in resistant starch because they are avoiding the carbs so carefully?

Mark Sisson: Could well be. If you cut out the legumes, which is one of the recommendations of the strict paleo diet. Legumes are a good source of resistance starch for a lot of people. They are also problematic for a lot of people. They are also problematic for a lot of people because people do not develop the ability to digest them appropriately. That is where the flatulence comes from. Maybe in their quest to reduce carbs dramatically, they have cut out a lot of fruits and vegetables. Those are major sources of resistant starch for a lot of people. So if you have cut out grains and cut out all of the potentially resistant starches that would come from grains. We might find instances where there are people who have a dysbiosis in the gut where the good bacteria are outnumbered by the bad bacteria, or overwhelmed by the bad bacteria. In that case, it would behoove them to take some resistant starch supplements or to start to add in more of the foods that contain resistant starches. It is possible to do that without negatively impacting the.....if you are trying to be very low carb, you don't necessarily have to go off plan to get these resistant starches. Again, by supplementing with potato starch, for instance, which is effectively not impacting your glucose levels at all, but is providing a source of resistant starch to the gut, you are accomplishing what you set out to do. But ultimately, when you look at what we are trying to do here. We are trying to create a healthy gut biome. We are trying to create an environment in the gut where the bacteria are living in harmony and taking care of us when they should, because a lot of the healthy bacteria help us, not only digest food, but create neurotransmitters to make our mood what it is and to improve that. There is a lot of communication back and forth. You hear about the gut brain/brain connection. That is a result of the connection between the healthy bacteria and the brain. So we are seeking to develop this relationship where we have taken care of our healthy bacteria and have done all we can to get rid of the bad guys that can cause, not just upset stomach, but diseases of all manner.

Brad Kearns: On March 26 you wrote that wonderful post, "The Definitive Guide to Resistant Starch." There is great more details on this subject, if you want to go on to "Mark's Daily Apple.com" and read that post as well as follow questions and so forth. Thanks for that nice question, Jason. Go Gators....Oh, Sorry!! The Gators lost already. Next question:

[00:27:00] "Hi, Mark. My name is Steven Grey. I followed the Primal Blueprint a couple of years ago. I lost 70 pounds and I feel better than I ever have in my life. So thank you for that. My question for you is about primal for vegetarians. I know you have written about this before. My fiancée is a vegetarian and I am trying to help her be a little more primal/paleo with her food choices, but I have been having trouble lately finding any good sources of protein aside from eggs that are non-soy for a vegetarian. I was wondering if you have any tips for helping me nudge a vegetarian into eating a little more primal without seeming controlling or extreme about it? Anyway, thanks again. Thanks for all that you do and I really hope to hear an answer to this question. Have a good one."

Mark Sisson: First of all...congrats on that weight loss of your own. That is phenomenal and I love hearing those kinds of stories. Working with a significant other who has a different eating strategy is sometimes a bit of a challenge. In the case of vegetarians....there is a range of vegetarians from the militant vegetarians/vegans to those who are only doing it because they heard somewhere that it is supposed to be healthy so they don't know quite why they are doing it but they certainly aren't doing it because of animal rights issues or whatever. So you kind have to figure out where that person is on the spectrum. If you say she eggs, then what I am hearing is that animal products, per se, aren't necessarily off her list and maybe she's okay with dairy. If she okay with dairy, is she possibly okay with whey protein? Or some cheese. On

the other hand if she is okay with eggs, but not okay with dairy, maybe some of the other sources of proteins, the hemp proteins, the pea proteins are out there. These are powdered protein supplements that people can add to their eating program or their dietary strategy. They are not as good as the whey proteins or the actual animal proteins you might get from eating real food, but they are a good second choice. They do contribute to the amino acid pool that you are looking to bolster if you are a vegetarian. Another piece of advice, and this is what I see with a lot of vegetarians who claim to be primal or paleo, is the first things they do is give up the sugars and give up the grains and most of their benefits and results came from those two major changes. It still means you have to figure out how to fill out your meal plan with some forms of proteins because you can't do it all with fruits and vegetables. I suppose you can try, but it is very difficult. So if she is okay with eggs and she's okay with butter, for instance, or ghee, or some form of healthy fats, this is really as much about getting healthy sources of fats as it is about protein. We really don't need that much protein. If she is not a competitive athlete, she can probably get by with 40 or 50 grams of protein a day coming from various sources. So, in some regard, I wouldn't even worry that much about her protein intake. I would start more with appropriate fats: coconut fats, avocado, olive oil, all of those things are certainly on the list of first fixes for anybody who is looking to become primal from any other eating strategy, whether it was complete carnivore or whether a standard American diet, whether it was a vegetarian, or vegan. You almost start with eliminating the sugars and the grains and then the next thing you do is introduce the healthy fats.

Brad Kearns: [00:30:46] Let's take a question from Sam in Florida:

"Hi, Mark. This is Sam from south Florida. If a person cannot afford grass-fed organic meat and organic chicken for whatever reason, maybe they are unemployed, or they just can't afford it, is it healthy to eat supermarket conventional meat and chicken, day in and day out or is it unhealthy? Thank you."

Mark Sisson: Very interesting question. In the context of strict paleo vs. Primal Blueprint vs. whatever style of eating is out there, the notion that maybe we should all be eating only grass-fed or line-caught or pastured foods is an interesting one in terms of, not just ethics and sticking to the program but sustainability and a number of other questions that arise, philosophically. The bottom line is that all foods in my world exist on a spectrum from great choices to not so great choices. And meat, fish, fowl, eggs, they all exist on the same spectrum. So in the world of beef, for instance, grass-fed, grass-finished, raised without hormones or antibiotics, is probably your number one choice. But it is expensive. It is not always available and there are other options. It is as simple as that. The next level down from there would be grain-fed but still raised without antibiotics or hormones. So here you have a pretty healthy animal that was raised with some amount of grass, but was finished and fattened with grain. Is that a bad thing? Not necessarily. What we are looking for when we buy grass-fed beef is we are looking for fatty acid profile. We are looking for really the fats we are interested that are in that animal. The protein breakdown between a grain-fed animal and a grass-fed animal is organic. The protein is always going to be the same. It is really just the fat profile that you are buying when you pay extra for the grass-fed beef. Now if you have an opportunity to buy some grain-fed beef that hasn't been exposed to antibiotics or hormones, that is a great choice. I will do that. There are some forms of farmed fish that are appropriate to consume. Not all farmed salmon is horrendous. There are some operations that raise chickens and turkeys that aren't necessarily entirely pastured, but are raised without hormones and antibiotics that would be appropriate to consume if you don't have access to the best possible alternative. In any case, all of these choices, in my mind, are better than a bowl of pasta or loaf of white bread, or whatever other carbohydrate based glucose-generating meal that you have in mind for yourself. Ultimately, I see that markets are responding to requests for organic and hormone and anti-biotic free. so you can go to a big box store like a Costco and you find meat that is on sale or on special that can fit a budget.

Brad Kearns: That is right, Mark, especially if you get creative. You wrote about this in the 21-Day Transformation. Go volunteer for 5 hours a week at the co-op and maybe you'll have access to some of the finest quality meat anywhere around your town. The pasture-raised eggs. I go to the local feed store and \$3.25 a dozen, cheaper than the regular stuff at the supermarket just because they are not in that pipeline and they don't have three different markets. Everybody can do their best to try to find the best food available in the circumstances.

Mark Sisson: It may happen that if you are a person on a budget, you just have to spend more of your time researching what is available near you. In Europe, a significant part of everyone's income is directed towards food because food is such an important part of most European cultures. Here we have gotten into that whole fast-food thing and we've gotten away from reliance on food being a centerpiece of a family and of life, in general. So if you are on a budget, spend some time doing some research, seeing what is available in your area and understand that all these foods exist on a spectrum and these are just choices so you don't always have to choose the highest priority, most expensive version of whatever it is you are doing. There are lots of compromises you can make without compromising your health.

Brad Kearns: Good question. Thank you for that. We are kind of running out of time. We will get to questions again at the next podcast. Right now, I want to thank everyone for listening. I want to also mention all the exciting things we have coming up. First, next on the horizon, a big deal is Primalcon New York. For the first time we are going to the east coast June 5th through 8th at Mohonk Mountain House. We have all kinds of outdoor activities planned as well as the full slate of presentations and expert presenters both activity wise and lecture wise. If that appeals to you, check out the PrimalBlueprint.com website and all the details and incredible pictures of this beautiful resort in the Hudson valley, the Mohonk Mountain House. And, of course our flagship Fifth Annual, hard to believe that we have been doing Primalcon for five years now, over at Oxnard, California, at the Embassy Suites Mandalay Beach Resort, September 25th through 28th. It is also on PrimalBlueprint.com, with all kinds of details including the presenter line up and even an agenda so you know what is in store when you go check out Primalcon. On the publishing side, heads up for an exciting book that is coming out next month in May, called "Paleo Girl" and it is the first book of its kind that is actually targeting the teenage girl audience. It is written by our good friend, Leslie Klenke, here in Los Angeles, who has been hanging around the office for a long time, and working on this dream for a long time. She has been living the primal/paleo lifestyle herself and she has amazing words to say to teenagers. So if you have teenagers and you are in the primal lifestyle and are not sure how to broach the subject or maybe you have received some pushback from your dietary comments. I am looking forward to giving this book to my daughter and letting her just soak it all in from another resource. So "Paleo Girl" coming out soon. And on the topic of youngsters we have another book coming out later in the fall called "Little Grok Meets the Korgs." It is by once again our very own master designer and cinematographer. She has been working on this incredible book. She showed us the galleries last year and been refining it and telling the story for the age group of 4 to 8. That is kind of loose range. You can read it to younger kids and older kids kind of dig it, too. It is very, very clever, beautifully illustrated by Janeè and her sister, Kali. We look forward to getting those books out. There is something a little bit shaken on the pipeline so hopefully you can join us at Primalcon or at least read the books and listen to the podcasts. Until then, this is your host, Brad Kearns, from Malibu. Thanks for listening to the Primal Blueprint podcast with Mark Sisson.