

Nora Gedgaudas: Safe Starches: To Eat or Not to Eat?

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Sean: Welcome back to The Underground Wellness Paleo Summit! I'm very, very enthused about our next presenter, Nora Gedgaudas, who is one of my favorite Paleo authors out there. Her topic is *Safe Starches: To Eat or Not to Eat?*. Safe starches is a topic of discussion that's come up a lot in the Paleo blogosphere. And Nora's got some really strong ideas about safe starches that she wants to share with us.

So let me give you her bio. Nora Gedgaudas is board certified in Holistic Nutrition through the National Association of Nutritional Professionals and is recognized by the Nutritional Therapy Association as a Certified Nutritional Therapist (CNT). She is also a board certified neurofeedback specialist. She has appeared internationally as a featured guest on national radio and television, including *Coast to Coast* with George Noory, and Sydney, Australia's top televised morning program, *The Today Show*.

She was host of her own top rated radio program on Voice America Radio's Health and Wellness channel, and her *Primal Body—Primal Mind* radio podcasts are now available on iTunes. Nora's groundbreaking book, which I love, *Primal Body, Primal Mind* currently ranks near the top of all health-related books on Amazon. She was recently a featured presenter at the first annual Ancestral Health Symposium at UCLA - billed as the "Woodstock of evolutionary medicine." She maintains a successful private neurofeedback and nutritional consultation practice in Portland, Oregon.

Nora, welcome to The Paleo Summit!

Nora: Hey, Sean! Thank you so much for having me. And what a sweetheart you are for your introduction. Thank you!

Sean: Thank you very much for being here. So, there's all this debate going on over what type of carbohydrates we should be consuming.

Nora: If any, right? [Laughs]

Sean: [Laughs] People are always wondering, "I can't eat grains. I can't have legumes or dairy. Where are my carbohydrates supposed to come from?" This is a very common question. And before we really get into it, would you mind defining exactly what safe starches are?

Nora: Well, I think that Paul Jaminet has defined them as non-grain or non-legume sources of starch that he identifies particularly as, for instance, potatoes and white rice. And he includes a couple of other things like tapioca and a couple of other things, as well. But, potatoes and white rice are certainly the safe starches that seem to be the ones that he is mainly focused on.

So, the term “safe,” I think, is meant to [distinguish grains and legumes from other starches]. Grains contain gluten, and legumes contain all these lectins and things like that that seem to cause people a lot of problems. So he basically presents safe starches as things that are exempt from that. In other words, we can enjoy those in a guilt-free sort of fashion.

And, to be fair, he talks about consuming those things in a fairly limited way. He’s not a proponent of a high carbohydrate diet, which I’m grateful to hear. He still considers himself on the low carb side of things. He just thinks that we should all be incorporating some starch. And to some degree, he bases that assumption about our elevated need for glucose on the composition of human breast milk, which he sees as the perfect food. And I think that even he concedes that this may not necessarily reflect what we need as adults.

He also makes the assumption that the lactose content of breast milk, only half of which is actually glucose, is so high due to the needs of the larger human brain. And that’s kind of an assumption that he’s making about that. But there may be other reasons why there is sugar content in breast milk. And it could also be interpreted as being higher due to the need for more body fat that we might have as a source of stored energy and sort of a famine insurance, as it were. And let’s face it, human babies are pretty pudgy. We don’t have fur covering us so we certainly might need a thicker layer of subcutaneous body fat.

And according to the textbook of *Basic Neurochemistry*, babies are basically born into ketosis. And they nourish their brains on ketones from the much higher fat content of mother’s milk. One quote out of the textbook that I pulled says, “Significant utilization of ketone bodies by the brain is normal in the neonatal period, that the newborn infant tends to be hypoglycemic, but becomes ketotic when it begins to nurse because of the high fat content of the mother’s milk.” So, if the baby’s brain was making use of all this glucose, then why are babies in a state of ketosis?

We, of course, have to have some glucose. The brain has to have access to some glucose because the brain can’t do it 100% on ketones, but it can do it a good 85% on ketones. And glucose is the kind of thing that we’re really able to manufacture as much of it as we need from processes like glycolysis and gluconeogenesis.

And so, the other thing that he commented on was that other mammals have lower lactose in the mother’s milk because their brains are smaller. And again, that’s sort of an assumption. Let’s face it, most other mammals are fending for themselves at an earlier age, and they may not need quite as much body fat as we do. And also, they have fur. A lot of them are not as helpless for as long. They have fur to keep themselves warm, and they don’t need as much subcutaneous body fat. They may not even need the extra insulation insurance, if you will, that that provides us.

And he also says that the optimal human diet can’t be too far from the composition of the human body itself because during a famine, we need to cannibalize ourselves. Well,

structurally, we're only about two percent carbohydrate. And most of that is in the form of connective tissue. So, I don't know quite what he was thinking there. But if only two percent of the physical human structure is carbohydrate, that's not an argument for incorporating starch into the diet to compensate for that.

The whole safe starch theory proponents generally seem to also believe that there's this whole food reward system of the brain, and that taste preferences are supposed to lend us clues as to what we need. But, that's a pretty easily misleading thing as an assumption because many people crave things because they're addicted to them in some way. We are a long way from what we once upon a time had, which is a really intimate connection in nature. And our instincts have really been perverted due to any number of metabolic imbalances and the twisted manipulations of the modern food supply and all kinds of other environmental and sociological factors.

I think it's a lot more complicated for us. And most of us are really not in tune with our own instincts. If we have a taste for sugar, this isn't necessarily because we have a requirement for it dietarily. And I think eating it is a really rapid way to store body fat, which is our precious energy reserve for survival in what has, for most of our history, been a pretty uncertain world. And you have to remember that everything boils down to survival. And fat, to our Ice Age physiology, means survival.

And it also boils down to reproduction, too, which insulin elevations also help facilitate, certainly to the detriment of our own individual longevity. And I talk about that quite a bit in my book. But, Paul advocates the consumption of potatoes and white rice. And he calls those safe starches. And I really have two problems with that.

First, as a supposed advocate for the Paleo diet, he's really promoting two very post-agricultural foods. Both of which are really pretty devoid of any nutrient value unless, of course, one wants to refer to starch as somehow nutritious. But secondly, he says that these are safe, of course, due to being free of allergens or potentially immune reactive compounds. But that just isn't true. Researchers at Cyrex Labs, many of whom are world class immunologists who have published hundreds of times in the literature, have concluded that both potatoes and rice are a growing problem when it comes to immune reactivity, even in Asian cultures.

And I have references that I could quote, but that would be kind of boring for your listeners. But rice consumption is actually a cross-reactive compound with gluten. And if you have an inherent gluten sensitivity, in other words, there are a number of people who have cross-reactivity. Not everybody has cross-reactivity to rice. But there are people who do. And I definitely run into them because I do this sort of testing. I see people, and I do nutritional consultations and nutritional therapy with people. And we do these panels and we look at them. And it's really stunning to see all of the cross-reactive compounds that people have in tandem with their gluten sensitivity that they might never have guessed. They say, "Well, I thought rice was safe." And I reply, "Well, in fact, for you it's not."

And this is happening increasingly in Asian cultures as well. Now, he also assumes that Asian diets are healthier, at least in part because they eat rice. And Asians have a culture that places a very high value on minimalism and modesty in all things, including meal portion size. These are people who just simply do not tend to overeat. And so in my mind, it's much more likely because of this that they are healthier and really in spite of the rice.

He also commented that rice-eating Japanese had four I.Q. points over wheat-eating Japanese on average due to some study. Well, in my mind, maybe they'd all have an extra four-point advantage on themselves if they didn't eat either.

Potatoes, too, are in the nightshade family. And there are an awful lot of people who experience very uncomfortable arthritic symptoms and other reactions to nightshades. And by the way, I happen to be one of them. I actually had a chronic appendicitis problem until the day I figured out that my appendicitis attacks were occurring in tandem with meals that contained potatoes. And when I eliminated potatoes completely and totally from my diet, I never had another appendicitis attack ever. And so nightshades can have a real variety of affects on people. And cooking does not fix it. It just doesn't.

And you can take the outer coating of the rice off and polish the hull of the rice off, but it's still going to leave trace amounts of those proteins in with the rice. I know you interviewed Tom O'Bryan the other day, and I'm sure you got an earful of this. And anybody who understands gluten sensitivity understands that even trace amounts are too much for a person who has these sensitivities. And they're life-threatening sensitivities. They're not just inconveniences. These are things that trigger autoimmune disorders. And autoimmune disorders right now are the number three cause of morbidity and mortality in the entire industrialized world. So this is the kind of thing that I know needs to be taken extremely seriously. And I think, Paul has an appreciation for that, but maybe not a full appreciation for that.

And most people today have compromised digestion and particularly lower or insufficient hydrochloric acid levels. [And I find this to be true] relative to what I see with my own clients every day, and also according to Dr. Jonathan Wright who had some influence in this regard with me. It's a big problem. Literally, in the ninety- some-odd percent range of people today seem to have compromised hydrochloric acid levels. And there is any number of reasons for this. It's certainly not a starch deficiency. Stress-based lifestyles certainly impairs digestive process because digestion is a parasympathetic process. Your body really only secretes hydrochloric acid in the presence of calm parasympathetic functioning.

Also, thyroid problems can impair hydrochloric acid production because when you eat protein, it stimulates the hormone gastrin, which then stimulates the parietal cells to produce hydrochloric acid and intrinsic factor. Well, gastrin is a thyroid-dependent hormone. So, that can be a source of digestive impairment. Deficiencies of things like zinc, B1, and some other compounds can also impair a person's capacity to produce

hydrochloric acid. There are a whole lot of reasons, like drinking excess fluid with meals or overeating at meal time. Lots and lots of reasons.

But the fact is that anybody who works with people one-on-one in trying to help them restore their digestive health, you find really fast that combining starch and protein in a meal really can add basically to the digestive burden and compromise that whole thing further. Most people I've worked with seem to do better when they don't combine starches and protein in a meal.

He also was saying that low blood sugar is damaging because it can lead to hypoglycemia. Well, really that's only an issue if a person is metabolically - and unnaturally, I might add - adapted to a dependence on sugar as their primary source of fuel. Or if they have excessively depressed cortisol, which I'll actually get to in a minute. This can excessively depress either glycolysis or gluconeogenesis.

For metabolically adapted fat-burners, blood sugar's impact on mood and energy and cognitive function are generally pretty irrelevant. And again, this is something that I talk about a lot in my book. That's one of the best things about becoming primarily a fat-burner is that it really does seem to eliminate blood sugar from the mood and cognitive equation. I can go all day without eating if I need to. And I might get a little bit hungry, which is normal, but I don't get dizzy, and I don't get into a funky mood, and I don't get jittery or cranky, and I don't get snakes growing out of my hair. [Laughs] I don't get fatigued. I might get hungry. And then, when I eat, I'm not hungry anymore. And that's exactly the way it's supposed to be.

But let's get back to what I was saying about cortisol. One realization that came to me in really thinking about this is that there are some people out there who seem to eat perfectly well, who really should have plenty enough blood sugar to get by, you would think, based on their diet. And yet they still suffer seemingly inexplicable "low blood sugar symptoms." And really what's typically going on with these people is abnormally depressed cortisol. You do an Adrenal Stress Index (ASI) on these guys, and you find these chronically depressed cortisol levels. And it's not because they've been so stressed out that they now can't make cortisol anymore. That's kind of the old Hans Selye 1953-1970 model of how the adrenals work.

What happens is this. Cortisol levels are typically mitigated by something called the hypothalamic pituitary adrenal axis. In other words, it's not controlled by the gland itself, but by the brain. And whether we produce enough cortisol or not is really dependent on what you could call the integrative state of something called the paraventricular nuclear cells of the hypothalamus. It's a cluster of cells in our hypothalamus. And whether or not there's sufficient excitatory input or dampening affect based on neurochemical imbalances, but especially the presence of cytokines. And cytokines are basically inflammatory compounds that our body produces in response to various stressors.

So if, for instance, you have a person who has, say, a chronic infection of some kind, they're going to produce, maybe, say, interferon as a means of elevating their natural

killer cells. Well, it just so happens that interferon and other cytokines, by the way, which, again, are what create inflammation in the body, have an extremely dampening affect on these paraventricular nuclear cells and also on hypothalamic output.

Now, the hypothalamus determines how much cortisol we produce, both neurochemicals and cortisol - we're talking about neurotransmitters that we need in order to feel good - but also the cortisol levels that we need in order to feel alive and active. And we need a certain amount of cortisol in order to have healthy guts. And if we have either not enough or too much cortisol, that basically can have a really adverse affect on the immune activity in our guts. But we need a certain amount to do what we do every day. And we certainly need it, to some degree, to manage our glucose needs.

And if a person has chronically depressed cortisol like that, they're going to have a really hard time. They're going to be chronically fatigued. They're going to be constantly tired and inflamed. And they're not going to be able to elevate their own glucose levels if they need it, in this particular case, due to the inflammatory dampening of the hypothalamus. And the problem really isn't a glucose deficiency, per se, but it's an infection or an inflammation that really needs to be addressed.

And I remember that Paul Jaminet alluded to having been on a year-long course of antibiotics for something that was obviously chronic. He didn't say what it was. But Paul says that people on low carb diets have suppressed immune systems. And I've got some news for him: People in general have suppressed immune systems these days. I do functional blood chemistry analysis. I do these really detailed reports for some people. And I'm constantly looking at this wide range of markers to see where the imbalances are and what kinds of things a person might want to prioritize in taking the natural steps necessary to restore their health.

And one thing I'm seeing - and I'm telling you, this is epidemic; I'm seeing it in people of all dietary backgrounds - are really depressed white blood cell counts and really depressed immune systems. It's really kind of disturbing actually. And I'm seeing a lot of it. A lot of it. And it's not a lack of starch that is responsible for this. I'm telling you. It's a very, very real problem. And I think we're likelier to get into trouble with this by eating a low fat diet than eating a low carb diet.

Blood sugar surges, in fact, actually depress the leukocytic index of our immune system. It suppresses it by more than 90% for up to two hours, and this is according to a really large study done quite a while ago. I think it's fairly well-known. It was conducted by three researches: Ringsdorf, Cheraskin, and Ramsay. And it was called "Sucrose Neutrophilic Phagocytosis and Resistance to Disease." And guess what? Rice and potatoes are even more glycemic than sucrose, given that starch is effectively just a pure string of glucose. So, anything that is that glycemic is probably going to have a dampening affect on immune response.

And I know from my own experience that I do everything possible to dampen any kind of insulin response at all if I am feeling a little borderline under the weather. I tend to go on

kind of a modified fast during times when I feel a little immune compromised. And that seems to have a really profoundly helpful effect.

But, autoimmunity is a whole other situation in which a person might experience this whole hypothalamic dampening due to chronic inflammatory states. Autoimmunity is absolutely pandemic now. People have absolutely no idea. If you start looking into the research that's happening now with neuroendocrine immunity, and you start looking at what the people at Cyrex are finding out, I think it's really going to blow a lot of people's minds when some of this research becomes a little bit more publicly known. Probably more people than not are walking around with some form of antibody against some tissue or another that they have. This is just the nature of the ways in which modern living have compromised our health. And it's a potentially lethal compromise.

And weird hypoglycemic problems and symptoms are really the norm for people with conditions like Hashimoto's, which is a really common one. In fact, it's the second most common autoimmune disorder next to Celiac disease and all kinds of other autoimmune diseases, as well. And I find that the cultivation of a more fat-burning metabolism is literally a life saver for these people. And of course, it takes keeping those carbohydrate levels below about one hundred grams to remain in a consistent state of ketosis. And so, the allopathic mentality tends to be very literal. And of course, the allopathic mentality tends to kind of dominate in our culture. It's sort of woven into our psyches because we've been pummeled by it for so long.

Say, for instance, you hear cholesterol looks "high." Well, that must mean we're eating too much cholesterol or that we have to lower it somehow. Or if somebody's testosterone is too low, it has to mean that the body is just too stupid to make enough. And therefore you need to add more without giving a thought as to what underlying process or what interrelationship might actually be involved in this.

In fact, the single most common cause of depressed testosterone levels in men is not the body being too stupid to make enough of it's own, but it's sort of an adjunct to metabolic disorder. It's testosterone combining with aromatase enzyme in the body's fat cells in the presence of insulin and getting converted from testosterone to estrogen. And so, as the person is aromatizing, so to speak, and generating this conversion of testosterone to estrogen, it sort of becomes a self-perpetuating problem. The more estrogen a man produces, the harder it is for him to lose weight. And it's probably the single most common cause of resistant weight loss in men. The harder it is for him to lose weight, then the more aromatizing that goes on.

And by adding testosterone, at that point, through some kind of prescription for testosterone, you're not going to be able to talk to the guy for probably about a month, because he's going to feel like Superman again. He's going to think, "This is really great." But the body ultimately has its way. And the body does what it does for a reason. And ultimately, all you're doing is intrenching the problem. And now you've added more testosterone that your body is going to convert to more estrogen. And not only that, but you've screwed up your feedback loops, and you've made it actually harder for your

body to regulate itself in a natural way. And it can take time to undo that whole sticky wicket. But, while guys are on the testosterone, they feel great for a little while. And then eventually, they end up starting to need bigger and bigger doses to feel better.

That was a little bit of an aside.

But there's one case, too, where adding extra insulin is not a good thing. If a person has so-called blood sugar deficiency symptoms on what I would look on as a fully-adapted ketogenic diet. In other words, not a 3-day version, as sometimes gets mentioned. But a 3- to 6-week version minimum, and maybe even a 3- to 6-month version. Then one might endeavor, I would propose, to look at other possible underlying conditions to account for that rather than just sort of assuming that they have a starch deficiency. And in my experience, for instance, food sensitivity issues and chronic infections and life stress and a whole bunch of other factors can drive these kinds of symptoms.

And for some people, excess protein consumption can be problematic. Sometimes people go Paleo, and they start noshing on tons of protein. And the problem is, of course, they've eliminated the carbs, but they still have a fundamental dependence on sugar as their primary source of fuel. So now they've pulled that fuel. When you're adapted like that, you become really efficient at converting other things like protein into sugar.

But if you were used to a lot more, now you're giving yourself significantly less. You're having to rely on gluconeogenesis to provide yourself with the sugar that used to be abundant. And people start to feel hypoglycemic and uncomfortable. And I'm convinced that this is why some people failed on the Atkins diet. They never did quite become fully ketogenic in their functioning. They never fully became fat-burners. They were trying to rely on getting the glucose that they were still primarily dependent upon from eating too much protein. And that sort of led to blood sugar symptoms that eventually caused the diet to fail.

But in truth, it's really not possible to eat a totally sugar-free diet, even on a strict low carb regimen. Normally a naturally occurring sugar is in veggies, nuts, and there's even glycogen in meat. So, you're going to get some, no matter what. In my view, the less, the better.

That said, as mammals, we're really not designed to rely on carbohydrates for fuel. We're really designed to rely on fat. And even a cow gets its actual calories from mainly saturated fat. The bacteria in the cow - and of course, bacteria love sugar - digests the carbs and produce short-chain butyric acid, which of course is a saturated fat, which the cow then assimilates. And even the true natural-seeming carnivores in the mammal kingdom are ultimately fat-burners. But of course, we don't have a bacterial-based digestion. We have a hydrochloric acid-based digestion. But I digress.

There was a professor at the University of Bradford named Michael Richards. And he did this extensive study in stable isotope analysis from the bone collagen of ancient

human remains. And Michael Eades, who is wonderful, presented on this at the Ancestral Health Society Symposium. And it was really a great presentation. Everybody should watch it. But, what Richards found was that we've consistently proven to be even higher level carnivores eating tremendous amounts of meat and fat more than even foxes and wolves or other known carnivores.

And to quote Michael Eades in this, he said, "Since we do know that wolves and foxes are predators that consume mainly food of animal origin, and we know that early humans have an even more carnivorous stable isotope footprint, it seems unlikely that these humans would have consumed many calories from non-animal sources." In other words, we probably weren't eating baked potatoes with those woolly mammoth steaks. And it's pretty unlikely that we would have survived famines throughout the ages with this fundamental need for dietary sugar or starch through a very good part of our earlier evolutionary history.

There are some people in more of the carb camp of the Paleo community who believe that some dietary sugar and starch is somehow essential for their health because of the discomfort that they or people they knew experienced in eliminating them and some form of relief that they experienced following their reintroduction. And to me, this is just way too overly simplistic an association to justify some sort of dietary sugar/starch necessity.

Just as an example: to a long-term heroine addict in recovery, the physiological affinity for that fix can really linger. And the person can even experience some relief if they get another dose or if they go on methadone. And sugar is definitely an addiction for a lot more people than many people realize. Here's a thought: are the safe starches just another form of methadone for the previously carb-addicted? I don't know. [Laughs]

But a low carb diet can also really upset certain, shall we call them, critters such as parasites and other little microbial beasties that thrive on sugar and starch. And they'll make you pretty unhappy for reducing or eliminating them, sometimes for a really long while. And sometimes the cravings for sugar or starch are not even our own. And so eating carbs in this particular type of circumstance might provide a person with a transient sense of relief. But does this really make sugar and starch our friend? I'm not so sure.

And the thing about this is that I'm really concerned about the ways in which many people might seek to rationalize the term "safe starches" before considering what their bodies might be really needing. And I think very, very few people in this modern day society have the genetic and epigenetic robustness that can give them real resistance to metabolic or immunologic dysregulation. I think offering some form of absolution for carb addicts with the term "safe starches" is going to put a lot of people on a pretty slippery slope. I think there are a lot of people out there who are just going to rationalize this.

And I'm not talking about the folks who might have a sweet potato every once in a while or those who might toss a piece of jicama on their salads. I'm really talking about those with a tendency toward carb addiction. And I think it's fair to say that this amounts to more people than not in our culture right now. To me, it literally makes no sense from an evolutionary perspective that there would be any fundamental human dietary requirement for sugar and starch.

Most of our evolutionary history has been spent in what is known as the quaternary ice age. I talk about this a lot in my book, too, as part of looking at our climatic history. And we're still in it, by the way. And this is basically consisted of periods of glacial advance and lower temperatures and often much lower temperatures on average. And then periods of glacial retreat. And they've been about 11,500 years apart, and there are mini cycles within those cycles. And then there are big macrocycles. But there have been more than 90 of these cycles.

And overwhelmingly, the cold glacial periods have always been much longer than the warm interglacial periods. And truly tempered periods like the one we're in now have really been kind of a rare oases in human climatic history. And although we've clustered ourselves around the equator for a good while, we've also migrated away from there. Up to 150,000 years ago, we occupied every ecological niche on this planet. And ultimately, we're Ice Age beings.

And fat, to us, means survival. Not sugar, but fat. And there have been extended periods of time under a whole lot of different climatic conditions which can include everything from extreme heat and drought and permafrost and floods and wildfires and widespread volcanic activity that characterized some of these Ice Age cycles. And [there were] a whole lot of other challenges where sugar and starch really would not have been available to us. In fact, if they were truly essential to our dietary needs, in my mind, we would simply have gone the way of the dodo bird a way long time ago.

Back in 1975 there was an article in "Scientific American Magazine." And the authors of this article were Bryant and Williams Dean. The reference is in my book. And the article title was "The Coprolites of Man." And what these researchers did was they got a variety of human coprolites from a variety of locations. And of course, as many people know, coprolites are fossilized human feces, which is always fun. And anyway, what they were doing is analyzing these things to figure out what people were eating.

And what was really fascinating was they found this whole range of coprolites from 50,000 to 300,000 years old where there was no evidence of plant fiber in them whatsoever. So, we're obviously well-equipped for making use of meat and fat in a fairly exclusive way. And I'm not saying everybody needs to go out and do just meat and fat. I actually eat personally more vegetables than most vegetarians do. But what I'm saying is that there's no way that starch would have to be an essential nutrient.

And where Jaminet had said that at some point, there was little evidence of the long-term affects of a very low carbohydrate diet in the literature, I don't know. Maybe he

hadn't heard of Vilhjalmur Stefansson or the Inuit. The Inuit, of course, were almost a purely carnivorous culture. Meat and fat was pretty much it. And having spent time in the high Arctic, I can tell you that there is precious little else there. There are no starch foods in the high Arctic. And there are regions in the high Arctic that are the closest thing we have to an Ice Age landscape today. If you look across the Arctic tundra, what I see in my mind is what a good part of North America might have looked like during the throes of the last Ice Age.

And so, when Weston Price traveled to the Arctic regions and studied the Inuit, he was actually particularly impressed with the physical and mental robustness of the Inuit. And I have an excerpt here from *Nutrition and Physical Degeneration* that he wrote. He said, "In his primitive state, he has provided an example of physical excellence and dental perfection that has seldom been excelled by any race in the past or present. We are also deeply concerned to know the formula of this nutrition in order that we may learn from it the secrets that will not only aid the unfortunate modern or so-called civilized races, but will also, if possible, provide means for assisting in their preservation." Which, sadly, didn't exactly occur.

So obviously I can ramble about this forever. I hope I've been able to make some fairly decent points with this. I don't pretend to have the final word on this subject. I realize that this is an ongoing discourse. And I felt that, in many ways, maybe Paul Jaminet was relegating way too much emphasis on glucose itself and not paying enough attention to some of the mechanisms that regulate the way it's used in the body. And I think the body should be able to manufacture plenty enough to meet its own needs, assuming everything's working properly.

And for a lot of people, things aren't working properly. But, the question is, "Does that mean, then, that we need to inject more glucose into the picture?" which is the source of a lot of people's metabolic derangement. I just see that as perpetuating a problem in some ways, and maybe putting on a bandaid the way medication would or the way methadone does. It's putting a bandaid on the problem and not really getting to the root of it.

I really feel Paul's work is mostly excellent. And there are other researchers who are advocating more carbohydrates in the diet who have made some very interesting and compelling cases for their ideas. And I respect everybody, and I don't have anything against anyone. Again, I just sort of worry, given our societal addiction to sugar and starch, that people are going to start to rationalize as a result of what I think is a bit of a misleading term, "safe starches."

In my mind, more people than not are really doing superbly well who are on extremely low carbohydrate diets. More people than not seem to be doing extremely well. I've been working with people for fifteen years now. And by and large, I've seen overwhelmingly positive results with clients who have had, what he describes, as people having these problems and having their health suddenly go south on them after eating this way for a while and then needing to reintroduce carbohydrates.

I can count on one hand the number of people who thought that they might feel better if they ate some more carbohydrates again. But again, that's not answering the question of why. And I think it's too simplistic to assume that it's because they needed the carbohydrates to begin with. I think we need to dig deeper, and we're more complex than that. That's just too literal an interpretation.

So, by and large, it's important to me to not come across here as at all antagonistic. I don't want to pick any fights with anybody. And hopefully I haven't. But I think that this is a really important discussion. And I think that there are a number of points that I can certainly find to agree with a lot of what Paul Jaminet says. In fact, I'd be inclined to say that I think that 90% of what he says is great. One of the things that strikes me when I read his stuff and I listen to him talk is that I feel fairly simpatico with him in that we're both really out of the box thinkers. We think in very cross-disciplinary terms and are interested in taking a broader and more foundational and kind of bigger perspective approach to a lot of these questions.

I think we both agree on the limitations of mainstream approaches to health or the damaging affects of pharmaceutical agents. You won't get any argument from me about that. I think we both agree about grains and legumes, by and large, being problematic. I think we both fundamentally agree about lower carb being good. In my mind, lower is better. And then we both agree that higher fat is important. In fact, I think we very much agree on the importance of animal fats.

And obviously we were both persuaded by the logic of the whole concept of Paleolithic eating. And we both agree, too, that toxins are a very significant health issue. We agree about the importance of minerals and the need to supplement. Although, I personally don't care for most multi-mineral supplements, and I certainly don't agree that everybody should be supplementing with iodine or copper. But we certainly agree about the value of fermented foods and fibrous vegetables. And I think he also recognizes the potentially deleterious role of anti-nutrients in many plant-based foods, particularly post-agricultural plant-based foods. And I think we agree about the critical role of gut health and healthy gut flora. And we both agree not to overeat protein, interestingly, for different reasons.

So there are a lot of areas in which we do agree. In fact, I would say mostly so. I sincerely respect Paul Jaminet's scientific mind and his thoughtful and considered approach to this whole topic.

There was one other thing that I realize had a little scribble here in the corner that I wanted to mention something about because I think it's another important point. It's something that I talk about quite a bit in my book about the whole idea of glycation. And he states, and truthfully enough, that a certain amount of protein in the human body needs to be bonded to sugar in order to function, like endoplasmic reticulum and Golgi bodies. They kind of need to be bonded to glucose in order to not be tagged for

destruction. It's sort of their camouflage, if you will. And he also states that glycated proteins are, to a certain degree, essential to us.

But the thing really can be said about free radical activity. And a certain amount of free radical activity is essential to aspects of metabolic functioning. Does this mean, necessarily, that we should look to add free radicals to our diet in order to be healthier? No, of course. The body is going to make what it needs on its own, and we don't have to supply that.

And I believe that, in most healthy human beings, that we will produce sugar as we need it in the same way, and that excesses, to my mind, are always going to be a detriment rather than a benefit. And it's not true that the hormones are always going to regulate its use in the body. There is a lot that sugar does in the body that hormones really can't touch. And some of that is what sugar does to the endothelium of our arteries.

And some of that is also what sugar does in an uncontrolled fashion. We're not talking about enzymatically controlled glycation. We're talking about non-enzymatically and uncontrolled glycation in the brain and in the nervous system. And without a healthy brain and nervous system, we don't really have a whole lot else to make life worthwhile. So, to me, that may be the best argument of all of keeping the sugar and starch to a minimum.

Sean: Are there any circumstances in which you believe adding sugar or starches to the diet can be beneficial?

Nora: I think that there are a couple of cases in which it makes some sense. And particularly in the case of what I guess you would call elite athletes, people who are doing triathlons, people who are preparing for Olympic events. When you have somebody who is a professional athlete or a very high level elite athlete, you've got somebody who is driving themselves very, very hard. In other words, on a daily basis they're burning through those glycogen stores. Many of them burn through so much glycogen.

The average person has maybe 500 grams of glycogen in their muscles at any given time. And elite athletes sometimes develop a capacity to hold as much as a kilo. But, they've gotta keep replenishing that. And realistically, they're going to have to keep replenishing that. Now, are they doing something that our ancestors would have considered normal and natural? Of course not. I think what they're doing is something that's a little bit unnatural. So, they're going to need to do something a little bit unnatural in order to sustain that activity. And it makes sense to me that they might.

Although I would still urge people in that position to not reach for white potatoes and white rice to do this with. You can use things like sweet potatoes and fruits that are a little richer in glucose like bananas and berries and things like that in order to bring up those glycogen stores without producing excessive amounts of insulin that you might

end up having to pay for later. There are ways of trying to do that and minimize some of the detriment.

You can use creatine to make sure that more of it ends up in your muscles instead of in other places. And [consider] maybe just doing those meals immediately following a workout or right before a workout. Right before would be the ideal, to where you could burn off that sugar in the exercise. But that would be one circumstance in which I think it makes sense to maybe add some more fibrous starch-based foods to your plan.

And possibly pregnancy, as well, it maybe makes a little bit of sense. The role of insulin isn't to regulate blood sugar. The role of insulin is basically the coordination of our energy stores with reproduction and lifespan. And when we're producing insulin, it stimulates cellular proliferation, which is a reproductive process. And while we're doing that, of course, we're halting our own restoration, maintenance, and repair. We're suspending that. It's sort of an out-with-the-old, in-with-the-new kind of thing, for the sake of creating something new. But if you're pregnant, that's the point.

And so, in that particular instance, it might be fine to add a few more of those foods. Although I don't think that they're essential for that. I really don't think that they're essential, simply from the standpoint that there would have been plenty of times when our ancestors didn't have that. And certainly the most important thing for the developing brains and nervous systems of babies are fat-rich foods.

Those are a couple of things that I can think of, at least off the top of my head. But for normal, everyday people, no.

Sean: This has been such a fascinating call. I'm mesmerized right now by your knowledge. It's crazy!

Nora: You're not just falling asleep, right? [Laughs]

Sean: No! I'm just thinking, "Wow! She's really smart!" [Laughs]

Nora: I'm just passionate about this subject. And I don't pretend to have all the answers. Obviously, I'm passionate about it, and so I make it sound like I do. But, really, I'm always open to new ideas and new things.

And when I first heard somebody mention the whole safe starch theory, they asked me, "What do you think about safe starches? Somebody's talking about the fact that we all need to have some safe starches." And I was just hearing about it in a really superficial way. And I'm rolling my eyes around, thinking, "Oh, my God! You're kidding!" You know.

And then I took a closer look. And I listened and I read some stuff, and I thought, "Well, this guy is actually pretty smart. And he makes a really interesting case. And it's something worth thinking about. What else could this be due to?" So I found myself asking questions and offering up some other ideas and suggestions and different ways

of maybe looking at what he presented were the problems that led him into that particular theory.

So hopefully I've added something valuable to the discourse. And hopefully it'll be accepted in the spirit intended. I really appreciate you giving me an opportunity to talk about it. I've been getting nagged by people left and right for months to comment on this. And I know there was a big write up on Jimmy Moore's blog and lots of other buzz about this whole thing on the internet. And everybody was saying, "Well, why don't you chime in?" And the reason I haven't chimed in up until now is that, honestly, the demands of my professional life had been smothering me and had been making it nearly impossible for me to really give the time that addressing this deserves.

So, I'm really, really grateful to you for giving me the opportunity to just say some of what's been on my mind about it.

Sean: It has certainly been my pleasure, for sure! Tell our audience about *Primal Body, –Primal Mind*. It's a phenomenal book. Everybody should know about it.

Nora: It's in its second edition now. So it's sort of new and improved. [Laughs] And it's been doing extremely well. In fact, I've been quite unprepared for just how this book has taken off. Honestly, when I wrote it, I had no clue. I swear I had no clue! I just wanted to put it together and have ten years of my life in one little place that I could hand out to people and something that I could look back on and say, "Yes, okay, here's something I can leave behind as something that I've put together. And maybe it'll be a little source of passive income for me. Oh, for Christ's sake!" I don't know what I was thinking.

It just took off. And it's been really an amazing whirlwind that's just led me to places I just never even began to imagine. But it's been a really gratifying trip. And the interest in it just seems to be growing. And I'm really gratified by that. And I'd like to think that it's helped a lot of people lead healthier lives.

I am in the process of creating a downloadable workbook that's sort of a quick-start guide to Primal health to give people a step-by-step idea of how to apply some Primal principles and some of these things into their daily lives in a little bit more practical, hand-holding kind of way that my book doesn't necessarily provide. I took a stab at it, but it's like fifteen books in one. And I've had a lot of requests from people that say, "Okay, now what?" So, I'll be coming out with that in the very near future.

And I'm also going to be launching a member site on my website that's going to be an exclusive member site where I'll be adding some podcasting again and giving people a little bit more direct access to me to be able to ask questions and get at some things maybe that they're interested in. And I may be doing some interviews and things like that, as well.

So, stay tuned and definitely sign up for my newsletter at www.primalbody-primalmind.com. And I'll keep in touch and let you know when some of these things become available.

Sean: You're going to be at the Ancestral Health Symposium this year, right?

Nora: That's my plan! Yes. I've been invited, and that's definitely my plan. I'm really excited about it. It was amazing last year. I have a feeling that it's just bound to explode this year. And I'm going to be down at PaleoFX down in Austin, too.

Sean: I'll be there!

Nora: Hey! Very cool! I'll get to meet you!

Sean: Absolutely! We're going to have a good ole time! It's going to be a big Paleo party!

Nora: I'm telling you what! It's going to be some serious fun! I'm just really excited at the lineup!

Sean: Yeah, it's pretty amazing! Nora, this has been extremely enlightening. And this is what The Paleo Summit is all about - everybody getting their ideas out there. And if people disagree, it's okay to disagree.

Nora: Yeah, totally!

Sean: Yeah, I'm very glad that we did this. Nora, thanks for being part of The Paleo Summit!