

Paleo Solution - 253

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Robb: Howdy folks, Robb Wolf here. Another edition of the PaleoSolution podcast. I am very excited to have my friend and probably your friend too, New York Times bestselling author and general got to about town, Chris Kresser, the dude who knows everything about something. How are you doing?

Chris: But not very much about everything...

Robb: I don't know. We probably run with that a variety of directions.

Chris: I'm happy to be back. What is this episode? 300, 452,599?

Robb: We don't do ours daily like Jimmy Moore does. So I think we're only in mid 200's.

Chris: Right. Well. Honor to be here.

Robb: Great to have you. So what's new and exciting?

Chris: Oh you know, just getting ready for this clinician training program that I've been working on for a long time. I'm still working on it but hopefully we're going to launch the first module of this year and then subsequent modules in the coming years. I just, it's become so clear that that has to be the next step. There's such a strong demand for functional medicine practitioners that have an ancestral perspective. And every day I get emails because my practice is often been closed to new patients with people asking me to refer them. I just don't have that many people to refer.

Robb: It's an appalling lack currently. And you know that was honestly a little bit of why I quit doing my speaking gig. It's always great to go see people, it was a lot of fun but maybe about five percent, ten percent of every audience that I would go speak to, there were folks with some really significant health problems. And the best that I could do for them was say hey, we need to track down

some sort of a functional medicine doc and there weren't that many to track down.

And that's actually why we started the Paleo physicians network. Originally just trying to aggregate whoever it is that is out there. Like okay here is a spot that we can at least have a fighting chance of finding someone but there was no QA, QC on that. And there just, there aren't enough Chris Kresser's in the world unfortunately.

Chris: Well, I mean the thing is there's no where- So there are places you can study functional medicine. There's institute for functional medicine which has some really good programs. And there are some trainings now where you can get some background in the ancestral approach. But there's nowhere where you can study functional medicine from an ancestral perspective.

And combining those two where the real you know it's where the real effectiveness and power comes in my experience. It's like one or the other isn't enough but when you put them together it's badass.

Robb: Yeah, it's nothing short of amazing. Yeah, I completely agree.

Chris: It starts to become miraculous. So I am super excited about it. It's taking a while just because there's a lot to do, there's a lot of information to pull together and I'm spending a lot of time. You know how I am, Robb. I spent like three months diving deep into learning theory and trying to figure out what's the best way to offer curriculum. Like how do you teach people? What's the best way to actually teach people?

We have so many misconceptions about how we learn and how to teach. It was totally eye opening to go and look at the most recent literature about that. And so the way that the training is going to be offered can be completely based on all the latest science in terms of learning theory and how we learn best.

And this whole format of where you show up for a weekend seminar and spend eight hours in a chair for two days. We know that just doesn't even work. People will take a fire hose, you

retain about one percent of that. And people have a really hard time applying that when they go back to their daily life.

So we're going to do it differently and we're going to do it in a way that people are going to not only comprehend the material when they hear it but we're going to make sure that they are able to retain it and then take it back to their practice and start helping people with that.

Robb: That's fantastic. Yeah, the weekend course is kind of nice and for the person providing it it's a good pay day, for the people doing it you get to maybe go to Florida and get a tan while on your down time. But then when you come home, you're kind of like so what did I get out of that? And you're usually end up with more questions than answers out of that process.

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Chris: And then I was at this place so we'd probably do some in person intensive stuff as well and because there's nothing that really replaces that live, in person type of model where you can ask questions and all that. But it's not going to be the focus and there are better ways to deliver and receive information. So looking forward to that and of course we'll keep you posted on how it goes.

Robb: Fantastic. And if you want to do it in a sunny location, you want somebody that covers a little bit of a strength and conditioning angle, I'll put my CD in for that.

Chris: Nicaragua is good.

Robb: Nicaragua is good by me man.

Chris: Costa Rica, Nicaragua, yeah. It sounds good. Sign me up.

Robb: Cool. So I kind of roped you into this. I told Chris I'm like so let's talk about the new red meat stuff. We have as always a couple of different interesting things going on with the red meat story. We have one article that seems to indicate that finally eureka we know why red meat causes cancer which is hilarious like the news.

It's still a really contentious topic and then the news pieces were basically like now we know why red meat causes cancer.

It's like hold a second there and then we have another piece which I think people are much less familiar with which is indicating that there is a strong suggestion in this paper that red meat is a really potentially critical, definitely a strategic high powered food that a lot of folks should be eating.

And then there's another piece floating around where the government is now getting ready to redo their kind of food recommendations and they're going to hammer on meat products, animal products in general because of a sustainability angle. Which again if folks have followed anything from Polyface farms and the Savory Institute, I think that it's completely going on the wrong direction. But let's talk about the pesky sugar in red meat that seems to be causing cancer.

Chris:

Sure. Well you know Robb, this is like an annual thing for us at this point. This come out and defend the attack against red meat. We should just make it like a holiday and expect that we're going to have a new one each year because that's really pretty much how it's been.

I mean it started with cholesterol, right. It's like the assumption is red meat is bad and then it's about finding out why it's bad. And so its cholesterol and then the research pretty clearly showed that dietary cholesterol is a non-issue. Most people don't experience any change in their blood cholesterol from eating it and even if they do, it's a benign change.

Then we moved on to saturated fat and more recently there's been a lot of studies showing that saturated fat intake is not associated with heart disease in any way. And for a lot of people doesn't even affect their blood cholesterol but if it did, who cares because it's not causing heart disease. And then there was the whole TMAO thing, remember that?

Robb:

Yeah.

Chris:

And that was okay, so it's not cholesterol or saturated fat. It's TMAO, it's TMAO. That's what's killing us. But that didn't really make sense because fish contains orders of magnitude more TMAO than red meat and fish is extremely protective against cardiovascular disease.

So the newest kid on the block as you pointed out is this simple sugar, monosaccharide Neu5Gc. That's Neu5Gc. And this is a little sugar that access a signaling molecule in the mammalian cells, in mammals. And one of it's functions is to help the immune system distinguish between self and foreign cells. And humans lost the ability to produce this sugar, Neu5Gc, millions of years ago through a random mutation. But we do still produce a related compound called Neu5Ac.

And humans are unusual on this respect because most other mammals if not all, I'm not sure about that, but most other mammals at least produce Neu5Gc which is why you find it in meat products. If you eat beef and lamb and things like that there's the Neu5Gc in the meat because they still produce it.

So here's the theory in terms of why this is bad. So we consume meat and we incorporate some of these sugar into our tissues especially tissues that grow at a really fast pace like epithelial tissue, endothelial tissue and of course tumors. And the concern is that most of us now have anti Neu5Gc antibodies in our blood.

So when we eat Neu5Gc, these antibodies react with it in our tissue and they cause chronic inflammation. So it's almost kind of the same idea if you're gluten intolerant. You eat gluten, you have anti-gluten antibodies and it causes a whole systemic inflammatory response. That's kind of the basic theory.

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But there are, I think a few different problems with this. The first is that if Neu5Gc in red meat is inflammatory, then we expect to see red meat consumption convincingly link to all different kinds of inflammatory diseases, right? That's just the basic assumption. And it's true that early studies did find a connection between red meat and heart disease and inflammatory disease but these are

often poorly controlled and they didn't consider processed and unprocessed meat separately.

And more recent large population studies in both North America and Europe have not found an association between unprocessed red meat consumption and cardiovascular disease which is the number one inflammatory disease, the number one killer in the U.S. each year. And then cancer, which is another very common cause of death and another inflammatory disease.

An example is the epic study in Europe which followed half a million people for 12 years and they found no association between unprocessed red meat and heart disease, cancer or any other cause of death all of which would be inflammatory. And a particular strength to the study was that they track unprocessed red meat, unprocessed white meat and processed meat separately.

But they did find a moderate positive association between processed red meat and these conditions but there was no associations with unprocessed white or red meat and any of these causes of death. But even the link between processed red meat and disease and death is questionable because the researchers know that people who ate the most processed meats also ate fewer fruits and vegetables and were more likely to smoke.

And then the other thing they found and this kind of gets back to what you were saying Robb, about the important nutrient profile of red meat which will cover a little more later. The researchers in this study found that the highest all cause risk of death seen was in people who had very lower or no red meat consumption.

Robb: Interesting.

Chris: At all. What I just mentioned there, I feel like we need to – I know most of your listeners are probably aware of the healthy user bias but for those who aren't, this is a big problem in nutritional research. So when you see a study, an observational study, there's no – observational studies cannot tell us anything about causality. They just show two different factors or several different factors occurring together.

So for example if you look at a bunch of people and you followed them over a period of time, you see that people who ate more red meat had a high risk of death, it can be tempting to conclude that it was eating more red meat that led to a high risk of death. But you can't conclude that from an observational study because what if the people who are eating more red meat were also exercising less, smoking more, eating more hamburger buns, processed and refined flour, eating fewer fruits and vegetables which would negatively impact their gut flora which we now know is a major risk factor for heart disease.

And researchers do try to control for some of these other factors but they cannot control for all of them and there are certain ones that they haven't even been thinking of controlling for like the gut flora for example and the differences in gut flora between people who eat a standard American diet and people who don't.

And so I think what happens when a lot of people see these studies not on a Paleo approach, they think oh no. People who ate more red meat, they had a higher risk of death. Of course we're not even seeing that in these studies anymore in the first place. But even if when we did, people who eat a Paleo type of diet might assume that that applies to them.

But when you look at these studies and you see what the average person who is eating more red meat is also eating it's shocking. I mean I don't know about you Robb. I kind of live in a bubble. Most of my friends eat pretty healthy. I hang out with people, I speak at Paleo events, and it's easy to start thinking that everybody eats that way.

But the reality is that most people like their experience with eating vegetables comes down to like the lettuce and tomato on a burger that they get at a fast food joint or maybe, maybe a carrot like in a salad. They're not eating vegetables at three meals. They're not eating dark leafy greens, they're not eating starchy tubers like sweet potatoes and plantains and things like that along with their meat.

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They're just eating all these other stuff and they're also way more likely to engage in other unhealthy lifestyle. The diet and lifestyle behaviors they are probably not exercising as much, they might be drinking more, smoking more and all of those things cumulatively have or probably what's responsible for any increase in association with disease or death that is seen in any of these studies when it is seen which is really now, not very often.

Now that they started separating unprocessed and processed meat consumption in these studies, the majority of a large studies find that it's not an issue. So for example there was really large meta analysis which is a review of all the available evidence in 2012. And this looked at studies all around the world including over 1.2 million individuals. So huge, huge sample size. And that showed no association between unprocessed red meat and heart disease.

And then the NHANES study in 2013 found that meat consumption was not associated with death, early death and more specifically red meat intake was not associated with either all causes of death or any specific cause of death like cardiovascular disease or cancer. And they also found that adults who ate more red meat often have lower body mass and smaller waist circumference and were less likely to have hypertension.

And this is consistent with other research that has found that higher protein intakes promotes satiety. So we eat more protein, we feel more full or less likely to over eat and thus lower body weight. And then another big review found, what they did was they categorize the evidence for dietary factors and their association with heart disease as either strong, modest or weak. And they looked at quarter of a million of people.

And they found that the evidence connecting red meat consumption with heart disease was weak and the only strong factor that identify in their study were trans fats and guess what, refined carbohydrates. And then finally in terms of the research review we have randomized clinical trials that suggest that Paleo which of course includes red meat, not only doesn't contribute to inflammatory disease, it actually prevents it.

So Paleo has been found to reduce both metabolic and cardiovascular risk factors like hemoglobin A1c which is an average blood sugar, a marker for average blood sugar. Triglycerides, blood pressure, C-reactive protein which is a marker of systemic inflammation.

Robb: Fibrinogen.

Chris: Yeah. Fibrinogen, waist circumference and liver fat which is another thing that we see in people who are inflamed. So again, we've got all of these research, lots and lots of research. This is not something that people haven't been looking into. And it all shows that red meat consumption when the studies are performed well and when we distinguished between unprocessed and processed red meat, it's not linked with inflammatory disease.

So my question for people who are beating this drum about Neu5Gc causing cancer is if it does, why don't we see it causing cancer or cardiovascular disease or any other inflammatory disease in these studies? And this highlights a big problem in medical and scientific and particularly nutrition research which is that the study and like the previous studies on cholesterol and saturated fat, they focus on isolated nutrient. The effects of an isolated nutrient or compound, not the entire food itself.

And I don't know about you Robb, but I cannot really remember the last time I chow down on some Neu5Gc.

Robb: I may have snorted the line of it off of that a mere one point but that's the closest I came.

Chris: Yeah. Exactly. Stirred some in your...

Robb: Exactly yes. It's even sweeter than agave nectar, it's amazing.

Chris: So yeah. I mean we've been down this road before and T. Colin Campbell and the China Study is a really good example of the perils of this kind of approach. So for those of you who don't know T. Colin Campbell, vegan advocate, strong advocate of vegan diet and author of the China Study.

And he said that in one of the experiments that was in the book, he said lab rats really high doses of casein which is an isolated dairy proteins. It's one of the many proteins in dairy. And these rats developed cancer. So then he used that research to claim that eating too much animal protein and not even just dairy protein, all animal protein. He extrapolated that result to mean...

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Robb: Wasn't it a layer more than that? Weren't they given the you know one group of mice, two groups of mice, large doses of aflatoxin which is very potent mutagen and carcinogen and one group had casein, one group didn't. And then the group that had the casein developed cancer. It was interesting. They actually developed cancer later but then when the cancer developed, it grew...

Chris: Yeah. I keep it simple.

Robb: Okay. Our folks are pretty savvy. So they are giving these mice a known carcinogen, now they're giving them also one of them supplemented with a clearly non-ancestral diet from a mouse perspective.

Chris: And something you could never get by eating normal food.

Robb: Right, right.

Chris: There's nothing that is 100% casein and there's nothing that will give you that high of a dose of casein in a normal diet.

Robb: Right. And we understand a little bit with like the Warburg effect and what not. But what was interesting and what is not mentioned frequently in that literature is that the group getting a higher protein intake from casein developed cancers later. So it was hard for them to develop cancer probably due to some detoxification pathways in the liver or maybe some other mechanisms.

Once they've developed it then we do know that a very well fed individual with cancer faces some challenges because of both protein availability and glucose availability for the cancers to be

able to grow and that just doesn't that shouldn't be surprising at all.

Chris:

Not at all. And what does powdered isolated casein fed the lab rats tells us about what traditionally you consume forms of dairy products will do to humans and tells us nothing at all that we can generalize to all animal nutrients. It's just preposterous and ridiculous and I can't believe that that was taken seriously at all.

There'd been a lot of I don't want to label it at this point because there have been many really excellent critics of the China Study. Denise Minger is probably the most thorough. But she also pointed out Robb if you recall, according to Campbell's own data consumption of animal foods had no relationship to liver cancer whatsoever.

So even if what he said made sense which it doesn't, when you go and you look at his data and you correlate consumption of animal protein and all the various provinces in China to rates of liver cancer, there's absolutely no relationship whatsoever.

So all this to say I think researchers have been trying to pull a T. Colin with red meat for decades. And we've talked about this initially at first it was cholesterol then saturated fat then both of those go because the evidence doesn't support that. And then it was TMAO but then fish had more TMAO than red meat and now it's Neu5Gc and then I'm sure next year there's going to be another one. I'll come back because you and I are probably going to wake up one day with 50 emails in our inbox because of the latest study that shows that some isolated compound in red meat is going to kill us.

And here's the thing that people really need to understand about food. There's a concept called food synergy, a nutrient synergy rather. And this has been published in the literature. It's just basic common sense too but there are papers about it. And it means that when nutrients occur in a whole food, they have certain relationships that cause effects in our body that you wouldn't get from just eating that isolated nutrient on its own. Which is why we eat food instead of just Soylent.

Robb: Isolated nutrients.

Chris: Me, personally I know there are people who eat soy and they're happy with that. But I don't want to just take vitamins to meet my micronutrient needs. I want to eat whole foods because I know that the sum of the nutrients in a whole food is much more than it's parts.

And I think this goes way back to a kind of like I don't want to get too nerdy here but like this dualistic view of how things are and this is where I think medicals like traditional medical systems like Chinese medicine have been pretty far ahead of conventional medicine for a long time because they've always understood that the body is more than the sum of its parts.

And that everything is connected and that when you look at things like nutrition and food, you have to look at the relationships between all the nutrients and the effects that the food had on the entire body instead of just breaking 10 things down into a single component and studying those single components.

And I would say our medical system, our research has been hyper focused on this sort of atomic level. Like breaking things down to the smallest components and that's given us a lot of amazing new insight. But I think when it comes to nutrition, it's actually very limited way of looking at things.

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Robb: Yeah, and it really hasn't given us a prescription to follow based of that. If anything it creates more and more confusion because you have more of these variables and no way to lock it down and that's why I'm pretty sure you agree with this. That's where using some sort of ancestral type model whether it's Paleo or Weston Price or what have you, you've got kind of a good starting point.

And then you can start fiddling from there, you can say well maybe I'll try pulling some dairy out and see how I do. Maybe I'll reintroduce grains and see how I do. Okay, I'll reintroduce supplemented grains and see how I do.

But you know you've got to – compared to reductionist nutritional science, you have a very limited rubric of options where you can probably find some pretty solid performance health, longevity, good blood work based of that.

Chris: That's right. And it's also the ancestral perspective is so helpful in this situations where there's some apparent conflict in this clinical research. And we can say we can just take a big step back and say okay. So the hypothesis is eating red meat causes inflammation and inflammatory disease and early death.

Let's look at some cultures that had a pretty high intake of red meat and see if that's actually true. Outside of the context of a modern diet and a modern lifestyle where all of these potentially confounding factors can get in a way. And when we look at that, we look at cultures like the Maasai, they're a pastoralist culture that raises cow and they basically just drink blood, eat meat and drink milk from their cow. I mean they get most of their calories from their animals that they raise. And if this was true, you'd expect those people to be...

Robb: They should be devastated...

Chris: In wheelchairs and dying. But if you want to know what their real health is just Google the Maasai and pull up some images and you'll see that they definitely do not look like they are suffering in any way from inflammatory disease.

Again I think we just need to step back and I think in terms of how we approach science, this is something I've seen a lot and I know you have too Robb where researchers they start with a hypothesis in this case the hypothesis would be red meat is bad for you. And then they'll justifiably try to find out why it might be bad for you I mean that's how science is supposed to be done. You have the hypothesis then you run experiments to test that hypothesis.

But here's the thing, how many experiments do you need to run to disprove the hypothesis before you start to reconsider your hypothesis?

Robb: Oh, depends on how much funding you can still have.

Chris:

Exactly. So you know, red meat is bad. Okay, cholesterol no, that doesn't work. Saturated fat, no, that doesn't work, TMAO, no, that doesn't work. A bunch of studies that show that red meat consumption is not linked to cardiovascular disease or cancer or early risk of death, no that doesn't work.

Okay, time to reevaluate the hypothesis you know. There was a study recently published actually. It was a kind of an editorial review published in the journal of Meat Science which I definitely feel like I need to subscribe to that one, it's an interesting journal. But it's called Red meats: time for a paradigm shift in dietary advice.

And they basically went through and reviewed part of the stuff that we talked about and a lot more. And their point was not only is red meat just not bad, it's not just neutral, it's a very healthy food. And there are lot of reasons to eat it and in fact it may have been a really important part of our evolution which I think you're hinting out in the beginning Robb because it's a rich source of B12 and we know now that B12 is one of the most crucial nutrients for humans. And there really is no other way to get it than eating meat and particularly red meat and shellfish are very high in B12 as well.

So it's likely to assume that red meat was an important part of our evolutionary heritage for this reason even just B12 alone. But the truth is it's a source of highly bioavailable and complete protein. And the more recent scales that have been developed for determining the quality of protein there's one called DIAAS that looks at not just the bioavailability but also the completeness of the protein and how it's metabolized, it's really much more sophisticated than the previous scales.

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And they find not surprisingly that the things like red meat and fish are much higher across the board in terms of protein quality than plant proteins. We have satiety which we talked about before. Animal protein is associated with greater satiety than plant protein which leads to better control of weight and

metabolic factors. Red meats loaded with essential nutrients like B12 and other B vitamins, has this fairly significant amounts of vitamin D which is not often known. It's good source of Iron of course most people do know that. And that's where one of the potential issues with red meat.

Robb: I was going to ask you if there was one thing that we can maybe, maybe an issue on that might be Iron overload with some oxidative...

Chris: Let me finish this will come back to that. So bioavailable zinc really much more bioavailable than any other form of zinc in the diet and then if you're eating pasture-raised meat which you should be, it's a decent source of omega-3, large in omega-3 fats like EPA and DHA.

And I actually before I researched this, I was kind of surprised when I found out how much of a contribution eating pasture-raised red meat can make towards your total EPA and DHA needs. And then from a sustainability perspective and also just the health perspective, I found that it's much easier to obtain high quality pasture-raised red meat than it is to obtain pasture-raised high quality white meat.

And for example, I can buy a quarter of a cow from any number of farmers around here. There's only one nearby that does completely pasture-raised pigs. And chickens are really hard to come by. If you go to a grocery store, you might say organic chicken but those chicken are not really pasture-raised. They're just fed organic feed. A lot of times chickens are given maybe access like access to the outdoors which means really there's like a little patio in the barn.

Robb: Well these chickens have a quick smoke and hang out.

Chris: Yeah, pretty much. Like if you go visit some of these places, you see like this little door, they could go out in the patio and they never do. It's really hard to find high quality chicken. When you do, the thing is like a scrawny little bird that can barely feed a family of three or four. And so this is why chicken used to be the special meat.

Back 60, 70 years ago in our grandparents time, chicken is what you have for Sunday dinner and now we know why because before we start factory farming chickens and fattening them up and just cranking them out, it took a lot of they were pretty labor intensive to raise and they don't provide a lot of meat. So it was a special meat that you have once a week whereas red meat and pork were the more common meats to eat.

And now that kind of flip flop where chicken is the commodity meat. Specially back in the low fat craze in the 80's and 90's, everyone having boneless, skinless chicken everything. But red meat is I think much better choice from a sustainability perspective and a health perspective than most either meats really.

So getting back to your question if there's one thing about red meat. There are actually two things. So one thing is iron content and there is a condition called hemochromatosis which is caused by a genetic mutation that affects the body's regulatory system for storing iron.

So normally the way Iron metabolism works is if you eat food that contains iron in it, there is a signaling substance that kind of tracks to see how much iron you've got stored up and if you've got enough iron stored then you'll just excrete any iron that you don't need. And that's the way it's normally supposed to work. But for some people with this genetic mutations that system is broken.

So when they eat foods that are rich in iron, they just continue to absorb more iron. And once we have iron in our body, there's no way to get rid of it. Menstruating females do get rid a little bit of iron each month in their menstrual cycle but for men and post menopausal women and even menstruating females if they're eating enough of it, it will just accumulate over time.

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And iron is a pro-oxidant so it's a catalyst for oxidative damage and it can cause oxidative stress and inflammation and contribute to diabetes, heart disease, all the other inflammatory diseases. So there's a subset of people out there for whom eating too many

iron containing foods can be problematic. But the way to deal with - I mean it doesn't mean that everyone should avoid eating red meat. It just means that people who have that condition need to be careful and the way I figured that out is to get a blood test and iron panel plus ferritin.

And if your numbers are normal you're in good shape, if your numbers are high then you're going to want to see a practitioner about that and talk about strategies. I found in my work with people interestingly enough that red muscle meat doesn't really make that big of a contribution to, it doesn't tend to really raise iron levels so much even in people who these iron storage disorders. But organ meats and shellfish that are very high in iron definitely do.

And it depends on the extent of the iron overload, and it depends on how aggressively each person stores iron. So we have all these different genetic mutations, some of which can be really extreme and you see people with ferritin levels like above 1000, and iron saturation of like 85% or 90%, and those people are storing iron very aggressively.

And then you have much milder forms where people, they are absorbing a little bit more iron than someone without the mutation but it's pretty minor and it can be dealt with by just donating blood maybe four times a year without making any dietary changes at all. So what I would say is most people, this is a non-issue, but even for the people that it's an issue they don't necessarily have to cut red meat out of their diet.

Robb:

You know it's interesting that the phlebotomy schedule can be as sparse as what you mentioned and still get the benefit out of this. Like I was for a long time under the impression that you had to be on like in every six weeks schedule or maybe you would be a little more aggressive in the beginning if you had significant overload or if somebody is like homozygous hemochromatosis that he might need to be more aggressive.

But then it can actually go down to a pretty spread out kind of regimen although donating blood seems to be a good Samaritan type of thing to do if you get in to do that.

Chris: That's a win-win.

Robb: Yeah.

Chris: I mean it's a to do now, yeah so it's what you say is true. If someone is homozygous, has two copies of the mutation and it can be pretty aggressive they might initially like once every two weeks but that always goes down to less than that eventually. And that's pretty rare. The people that I see in my practice tend to be compound heterozygous or heterozygous or whatever and they rarely need more than the four times a year, the maximum frequency that you can do on your own without getting a prescription for therapeutic phlebotomy as once every 56 days.

So the Red Cross does that because they don't want you to make yourself anemic. So yeah, that's one thing to consider. There is another thing that I think is worth considering and that's how red meat and all forms of meat really are cooked. And I think eating a lot of charred meat is probably not a great idea.

I say the researchers are not 100% clear on that right now but I've seen enough studies that convince me that you shouldn't be having every piece of meat that you put on your mouth come off 550-degree barbecued.

Robb: So people get really weirded out on this. Will you use the grill on the summer a little bit, it gets kind of dodgy in the winter, I use an indoor just like non-stick grill but I'll cook some hamburgers or some steaks but I tend to do it at about 200-250 degrees. I might get a little bit of a sear on them initially and then drop the temperature down. People just kind of, they go crazy on this Chris, if you know this stuff. So we need to give them some really hard fast rules or we're going to have people leaping out of building. Help me Obi Wan, you're my only hope. So what do they do?

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Chris:

There are a couple of things. Maybe we can put this in the show notes but Mark says in a while back, did an article about, I have to dig it up. But how you can mitigate some of the potentially harmful effects of cooking at higher temperatures, and basically there are certain ways that you can prepare the meats before you cook them such as marinating them. They protect them from the formation of some of these compounds that could potentially cause problems.

And as I said before, I'm not 100% convinced on this, I think there's still some ambiguity in the research. It's kind of the precautionary principle here. So for example, marinating your meat we know will reduce the formation of advanced glycation end-products even if you grill it or pan-fry it.

And if you use anti-oxidant rich fat like olive oil and an acidic medium like citrus juice or vinegar and then some other anti-oxidant rich flavorings like herbs or peppers or garlic or ginger or spices like turmeric or cayenne, you can produce some marinate that's probably capable of mostly inhibiting toxin formation, not completely but we can tolerate small amounts of these toxins, our body is just set up to do that. The thing is we just want to limit it to the extent that that's reasonable.

So what I would say is when you do grill, try to marinate in advance and maybe grill a few times a week and other times you can use the lower and slower preparation techniques like brazing or cooking in the slow cooker, or low-temperature roasting like roasting at 250 or 300 degrees. And the good news is that those are delicious cooking methods.

In fact, the collagen in the meats, they break down the tougher fibers in the meats and they make them really, when you go to a restaurant and you order short ribs for example they didn't cook that thing on a high-temperature barbecue. They slow-cooked that and that's what makes it really just kind of melt in your mouth. Don't go crazy and jump out of any windows, marinate your meat, grill a few times a week, and get to know your slow-cooker and brazing methods and low-temperature roasting.

Robb: Which is all great stuff but from a time efficiency standpoint and you can usually take something that's maybe a cheaper cut of meat, particularly when we're talking about grass-fed sources, and like you said make it incredibly delicious and not spend a lot of time. That's actually one of my issues with grilling is that I need to actually like pay attention to and monitor that stuff.

So I tend to opt with these bulk cooking methods that are slower, lower, takes a long time to do it but it's mainly a little bit a setup and set a timer which my wife still hasn't figured out that if you set the timer thinks to not to burn in the kitchen, so hilarious.

Chris: Yeah, I mean that's a cool thing. It's where all the stuff comes together. It's convenience, like you said if you're going to work you just throw something in the slow-cooker before you go, you come home you got a beautiful one-pot meal, it's economy and like you mentioned the cheaper cuts like brisket and ox tail and chuck roast and things like that, they really need to be slow cooked in order to be eaten but when you do that they're some of the most delicious cuts of meat that you can get.

So you're getting flavor, you're getting convenience, you're getting economy and you're getting health too. Because often times when you slow cook you're also using bone broth which adds glycine. And we know if there's any research that has any shred that convinces me to some extent that excess animal protein could contribute to cancer, it's the idea that if we eat too much lean muscle meat without enough supportive nutrients like glycine and B12 and B6 and choline and all of those things like Chris Masterjohn has talked about and Dennis Minger has also talked about, then that's potentially something to be aware of.

But you also nix that issue if you do slow cooking with broth because that's going to contain the glycine and many of these other nutrients. So it's a win-win all the way around.

Robb: Very cool. I wanted to ask you a question about the carbohydrate topic a little bit. I just read an interesting paper. Folks will talk sometimes a little bit about dense protein sources and MTOR gene signaling and that maybe being an issue with aging rate but

then to your point about glycine, glycine seems to have this very interesting effect of creating a low methionine fluxer or offsetting the methionine flux.

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Animal models still but it's very interesting that it looks like glycine either supplementation via the diet or grabbing possibly a supplement may have some anti-aging effects in that regard.

Chris: Yeah, absolutely. This again of course comes back to just the concept of eating a balanced real food diet, not eating too much of anything, any particular nutrient. If you go crazy with lean protein, that's generally not a good idea. It's not consistent with the ancestral model. This is again a benefit of looking at that model. Our ancestors ate the whole animal. They didn't just eat the muscle meat and threw everything away which is pretty much what happens now.

In fact if anything, it was the opposite, right? They go right for the organs and the brain and these fattier tissues and the muscle meat might be the last thing that they would eat. And this was actually even true for our grandparents' generation. Most of us don't eat liver and these fattier cuts of meat now but they definitely did, even the price-cuts of the animal up until quite recently in our own history here in the US. We just need to get back to some of those habits.

Robb: Well slowly it seems to be changing even in Natural Grocers two days ago, usually they have chicken stock and beef stock and what-not and they actually had both chicken and beef bone broth which I thought was damn cool.

Chris: Yeah. Was that Pacific?

Robb: Yeah.

Chris: Yeah, and they're carrying that, that's pretty cool. I've seen some reviews that suggest it's not quite the same obviously as making it at home but it's definitely a big difference from their basic stock. So it's good. The progress is happening.

Robb:

Yeah. So Chris, carbohydrates, they're going to fill us, right? It's still an interesting topic for me and it's very frustrating because I feel like we're at this point where we actually have a lot of dialogue about if people have neurodegenerative diseases, if they have some different issues going on, we have both knowledge and practitioners they can recommend like a ketogenic diet and do it with some efficacy and know what they're doing, and that just seems like such a huge win.

But then we seem to really lose the forest through the trees when we throw in these black and white, all this, none of that kind of deal. I feel like we're at this really amazing spot where we can probably practice medicine in a better way than what was ever imagined before. We can draw from everything the technology has given us. We can take a gander at our evolutionary past and then kind of stitch this stuff together.

And so, I do feel like a little touch on this would be good. I feel like the folks that follow you, the folks that follow me are in a pretty grounded spot that they understand that there's different ways to approach all these stuff.

But you know even for myself, I've been fiddling with my carbohydrate intake, trying to figure out how to both feel good, have good cognition and have good performance when I'm doing recently Jujitsu and what I've kind of settled out, that is like my morning meal is mainly some protein and then some really low glycemic release foods like some cashews and maybe a little bit of coconut.

Then when I do a workout if it's pretty vigorous then I do a lot of yams and sweet potatoes, maybe some white rice, and then for my evening meals it's lower glycemic load stuff like some squash, and I've found a pretty good operating parameter with that. I still think I'd probably eat a bit more fat than say like Kitavan approach or something but it seems to work well and I feel good.

My blood lipids are really looking quite good. My LDL-P has dropped precipitously and part of that is that I had some thyroid

issues that I ended up addressing but I mean, what the heck is going on with this, Chris?

[0:50:00]

Chris:

Yeah. I mean I was only joshing because it is a subject that of course has gotten a lot of attention over the past couple of years. I've given it a lot of attention myself and I think my sort of reluctance is I think there's a group of people out there that are so deeply entrenched in the low carb for everybody dogma that no matter what facts are presented that contradict the idea that that's the best approach for everyone, that they'll never ever change their minds.

I've often said you can't fight faith with facts and I think that's partly what's going on here. I think it's really, really difficult to disagree with the statement there is no one size fits all approach if you look at the evidence, and if you work with people. Anyone who has a clinical practice and works with patients or is a coach and works with clients or whatever, and is being honest, I think would agree with that statement.

As you said Robb, the thing here about carbohydrates or any other macronutrient, protein or fat for that matter, is you have to adapt your intake of these macronutrients to your particular genes, epigenetics, lifestyle, goals and health status. And this is why I wrote a book about this. I've been beating this drum for so long. My book was called Your Personal Paleo Code when it was in hard cover and now it's called The Paleo Cure, just published in paperback.

But that was the whole idea of the book, was a three-step approach to helping people figure out what their own optimal diet is rather than just listening to me or you or any other person out there who is advocating a particular approach. Because you take somebody like me who I'm lean, I'm active, I have a fast metabolism, I do very poorly on long-term low-carb diets. And believe me I've tried it. I've tried everything.

If you know anything about my story, I was sick for many years and I tried just about everything under the sun to get well and on

several occasions tried very long-term, very low-carbohydrate diets like GAPS intro, where I was just eating like meat and broth for a long time. And that diet wrecks me.

On the other hand, there are certain situations where I'll do something similar to you, I tend to eat lower carb in the morning, if I feel like I have a stretch of time where I need just like very strong mental clarity and focus I might find that I might eat fewer carbohydrates if I need to be like really sharp and alert in a certain way. It's very subtle actually because in other situations eating a little bit more carbohydrate can kind of ground me and make it easier to sustain that focus over longer periods.

So it's really about getting to know your body and what works for you and like doing what Robb has done, like a lot of experimentation and trying to figure out what works for you. And that experimentation can be guided by suggestions from people like Robb or myself or others. But ultimately it has to come down what works for each individual.

A sedentary office worker who is 60 pounds overweight wants to lose weight. The first thing I'm probably going to do is put that person on a pretty low-carb Paleo type of diet because that's what works best in my experience for that initial weight loss. But someone who comes to me who is a female who is training, doing cross fit four times a week, who is a mom of two young kids and who is dealing with hormone problems, I'm not going to put her on a very low-carb Paleo diet.

And if I do, I'm probably going to wreck her. And in fact, I would say about 25% of my practice is women that fit into that category that damage themselves on a very low carbohydrate diet.

Robb: Particularly with the high glycolytic flux activity like cross fit, that combo is a death.

Chris: That exact combo, I'm not joking you know, it's probably 20% to 25% of my practice. So I think again, it's just about being smart about who you are, what you're doing, what your goals are, and then trying to figure out the balance of macronutrients that makes the most sense for you. And actually I have an entire

chapter in my book that's dedicated to this and that provides starting points for each various cases.

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Like okay so you're an athlete, where should you start. So you have thyroid condition, where should you start. So you're trying to lose weight, you have high blood pressure and metabolic issues, where should you start. Because we can only do that, we can provide starting places and then your body and the feedback you get from your body is going to really answer that question for you.

Robb: Right. That is just too reasonable approach Mr. Kresser. I don't like it.

Chris: And unfortunately, that kind of nuance, it's not that media friendly. It's much easier to have a black and white approach in the sense that it makes better headlines, people can understand that, and to be fair I think a lot of people have trouble listening to their bodies and their own experience and just don't have much experience doing that. And in some ways it's easier to just follow a prescribed program than it is to figure it out yourself and recognize that.

And that's another reason that I wrote the book is I really was wanting to give people a process and kind of hold their hand through that so that they can figure it out themselves. It's kind of like teach men to fish, you give a man a fish he eats for a day, teach him how to fish he eats for life. You can give him how to diet it will work for a little while, but if you teach them how to figure out their own diet then they'll be able to continually adapt to their diet to whatever their changing circumstances are.

Robb: But Chris if we give people dogma and then break them metabolically and have them keep coming back then we've got a client for life.

Chris: That's right. Just keep telling them that they're doing it wrong.

Robb: It sounds incredibly like what happens in vegan lands, so yeah.

Chris: If it's not working for you, it's not because it's not working for you, it's because you're doing it wrong. That's my favorite.

Robb: In addition to the book which is outstanding in the practitioner training course which I'm very excited for that to rule out, you have another program that's going to help people really crack the nut of getting where they want to go. Can you tell folks about your new offering in that regard?

Chris: Yeah. So this is actually kind of on the opposite end of the spectrum from the personalization that we were just talking about. Because I realized when I wrote my book that it maybe should have been the second book that I wrote. It's really teaching people to move from that basic Paleo approach to an approach that is more customized and personalized for their own needs. But I realized that some people that's too much as a starting place and what they really need more than anything else is how applying just the basic stuff.

And there are a lot of programs out there to help you do that with Paleo diet. But I didn't see anything that helped people to dial in their sleep, their stress management, and their physical activity along with the diet. And you and I both know Robb that you can a perfect diet but if you're not taking care of those other three factors you're not going to do well.

And I continually saw that in my practice where people come to me and they were like experts on Paleo diet. I mean they could write a book about Paleo and they were like tweaking the last 99% like should I soak my almonds for 12 hours or should I soak them for 18 hours? Or should I dehydrate them at 105 degrees? Like that level of...

Robb: Neurosis?

Chris: Yeah, and hoping that that last change in the diet is going to make the difference for them. Of course it never does and meanwhile when I ask them how are you sleeping? Oh you know maybe six hours a night. I don't get to bed on time. I'm using an iPad in bed before I go to sleep. What about your physical activity? I'm

working out but I sit most of the day, the rest of the time. Are you doing anything to manage stress? Drinking?

So I put together this program called 14-4, and it's 14 days to make 4 big changes. So it's Paleo-based diet, dialing in your physical activity, your stress management and your sleep and everything is laid out. Like literally all you have to do is follow the instructions, watch the videos and listen to the audios. So there's downloads of me doing the physical activity, it's all body weight, training stuff that you can do at home or while you're traveling, in a hotel room. I mean I think just buying it to watch me do pushups is worth it.

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Robb: Absolutely, that's why I bought I into it.

Chris: I've got video and audio downloads of stress management. I've got guided meditations, guided mindfulness-based stress reduction techniques. I've got a great chi gong routine that's really good for both stress management and athletic performance. And then we've got daily sleep tips and it's all totally mobile optimized content delivered to your mobile device.

And there's a private Facebook group where you can interact with other folks that are doing it and get some support from my trained registered dietitians. We've had fantastic feedback. People are having kind of life-changing transformations. It's amazing what you can accomplish in just 14 days when you focus on all 4 of these things at once. So I designed it to be something that you don't just use once.

It's 50 bucks basically and you can use it for as long as my website is up and the Internet is available. So for me, I've been doing them kind of on a quarterly basis almost like a spring seasonal thing where I just want to hit the reset button. This stuff is on the front of my mind always but still it's easy to slip in to old patterns and to fall off tracks. It's a really good way to just kind of hit the reset button and get back to it.

Robb: Fantastic. I've talked with Chris about this 14-4 program for probably about a year and a half, maybe almost two years that you've been noodling on and putting infrastructure on this thing. So really excited to see this, very excited to see the results that folks will be getting out of this.

We'll have links to that on the show note section and then the landing page for that on robbwolf.com. Very cool man. What else? Did we forget anything? Like we turned over most the stones at least for this round.

Chris: I think we did. I'm looking forward to coming back and talking about the next red meat scare next year.

Robb: Well we'll have you on before that. But yeah we can pretty much set our clocks for that. It's going to be a guaranteed deal. I never had much of a religious background but I would see these stories where like all these amazing stuff happened with Moses in the Exodus and all those jive and that Moses is like hey guys I'm going to go up in the hills for a little bit, don't do anything score or like you know and then he comes back and they've got like guilty calves and all this stuff and I'm like that's just so ridiculous.

That's so unbelievable that this people would see miracles and then immediately just abandon all that stuff. And then as I've kind of progressed through this Paleo gig, I'm like no actually that's exactly how people function.

Chris: Well to be fair we're just like so deeply brainwashed on this stuff. It's like, it's crazy. We read the research, we do all that and some people understandably they get scared. This come out, they're like holy crap, I'm eating red meat everyday. Am I killing myself? I've got young kids.

As frustrating as it can be for guys like you and me, I do understand this stuff is like literally since before we could even talk this has been drilled into our heads. Robb, I think we've both kind of accepted this as part of our job description at this point

Robb: Yeah and I've looked at it finally as incredible job security. No matter how hard we try to make ourselves obsolete, it's just not going to happen.

Chris: We keep talking about farming coconuts in Nicaragua but I don't think we're going to be allowed to do that.

Robb: Probably not for extended period of time. But if we have an internet connection then we can farm coconuts and talk people off the ledge.

Christ: That's right. It's always fun to come on this show. Thanks for having me.

Robb: Thank you for coming on and I'm looking forward to all the projects you have going on. Looking forward to seeing you with PaleoFX, are you going?

Chris: Oh yeah. I'm going there. See you there.

Robb: Awesome. All right Christ, well thank you again and we'll talk to you soon.

Chris: Thanks Robb.

Robb: Okay, bye bye.

[1:04:53] End of Audio