

# Paleo Solution - 289

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Hi folks. Robb Wolf here, another edition of the PaleoSolution podcast, very excited for today's guest. Dr. Richard Maurer is the author of the Blood Code. He is an integrative medical practitioner in Maine. Is that correct, in Portland, Maine?

Dr. Richard Maurer: That is, on a beautiful sunny warm day. We get a few of them.

Robb Wolf: Like three of them a year.

Dr. Richard Maurer: It's great to be on your show Robb.

Robb Wolf: Huge honor to have you here. We've met at PaleoFX a couple of times, very interested to get your take on kind of cracking the blood testing maze. That's a lot of the work that we are doing with this risk assessment program and one could spend tens of thousands of dollars taking various types of blood work and I don't know that they would be improved by any of the process if they will know what they're looking and really have a good strategy for implementation and I think the Blood Code gives both of those things, both great pinpointed accuracy in the things which we're looking at, but also provide some fantastic, you know, here's what you do if situation A, B, or C happens to be occurring, but we'll get to that stuff in a minute. Doc, I wanted you to talk a little bit about your background and how you've arrived at kind of your current worldview of health and using analytical testing to help the folks that you work with.

Dr. Richard Maurer: Great thanks. I can go back as far as you want me to go if...

Robb Wolf: We could go Precambrian era and work our way forward if you wanted. You know, the explosion of life, that carboniferous forest and however far you want to go, yeah.

Dr. Richard Maurer: Alright. My great, great grandmother on archipelago in Northern Sicily.

Robb Wolf: There you go. There you go, which is where my wife's family is from oddly enough.

Dr. Richard Maurer: Is it really?

Robb Wolf: Yeah.

Dr. Richard Maurer: I enjoyed talking with the fellow at PaleoFX who is involved with the epic bars and he heard my great grandmother was from Pollara and he said no way and it's amazing how many people great grandparents somehow are from this one tiny volcanic island that doesn't half more than few hundred people on it.

Robb Wolf: My wife's family isn't from Pollara, but they're from Sicily, so close. There are some cousins in there somewhere for sure, yeah.

Dr. Richard Maurer: Well, somewhere about a hundred years after my great grandmother, I found myself in Philadelphia. I was completing my undergraduate in Music Performance playing jazz at the Tropic Club in Atlantic City and digging with the Trenton Symphony Orchestra, but my interest was in nutrition and the study at the time was some of the folks at the mental and at the Brain-Bio Center in Princeton, New Jersey. This is where

Abram Hoffer and some of the Linus Pauling colleagues were doing clinical nutrition at the time seemed incredibly fascinating and from then on, I wanted to understand how to apply nutrition as strong a science and evidence-based perspective as possible, but how to apply nutrition to individuals for a host of medical conditions.

**(00:05:16)**

Robb Wolf: Uh-huh.

Dr. Richard Maurer: From there, instead of pursuing the rigorous music track I was on, I ended up finding myself within a couple of years at the Naturopathic Medical School out in Portland, Oregon, finished my premeds, realized that most – well every other medical school at that time had Nutrition as an elective. It was not a course of study. So the Naturopathic Medical School fit my interests and I've been studying and trying to answer the question, what is a healthy diet for the past 30 some years. I think I'm a little closer to the answer, but part of why I've not in the show with you and...

Robb Wolf: Ten years ago, I thought I had that buttoned up and completely answered and now, I'm washed in confusion, so what has gone into your formative process about human nutrition? I mean, we bumped into each other at PaleoFX so I'm assuming you've got a little bit of an ancestral health orientation, but I mean, what developed your epistemology towards nutrition in medicine?

Dr. Richard Maurer: I think part of it was studying myself and it was, like anyone physician healed by self, well, if you're not a physician, what you're doing is you're just trying things on yourself. So like many people in these health realms, I've been macrobiotic, I've been vegetarian. I am far more geared toward the ancestral Paleo community now, but that's not because I think it's the right nutritional program for humans on planet earth. It's because this works exceptionally well for me and I've spent more time in the past decade trying to study not so much what is a healthy diet, but what is a healthy person and for each individual who comes in, I'm trying to decode for them what is that magic set of ingredients, diet, fitness, lifestyle that bring them to the health, metabolism, weight and vitality that they really expect for themselves or hope for.

Robb Wolf: Right, right. Doc, when I look at this stuff, I've often I guessed used this simple framework or from describing the folks you know through playing with nutrition or lifestyle evaluate it by how do you look, how do you feel, how do you perform, maybe track some biomarkers of health and disease and see how those are going, which I think that biomarker piece is where the -- your work will feature prominently as we talked about this

today. But is that kind of a similar framework that you used for folks when they're coming to you and I mean it can be nebulous as to what if we get beyond just weight lost or fat loss, really what does it all mean. I mean, so long as I'm skinny, then I'm okay even though I have like GI problems or what have you like how are you evaluating folks in that regard?

Dr. Richard Maurer: Great question. Of course in medical practice, we're trained to be quick to judge and we're trained to profile. We don't call it that because what we want to say is that we're good diagnosticians. So when people come in, if they're thin, we automatically make a certain set of assumptions. I've spent the past 20 years, 20 some years of practice trying to break down those assumptions. So when I see someone and they look a certain way or they come in and say I have plenty of energy, but my BS meter usually goes up. I immediately say, maybe that's true to you, but I don't know about that.

Robb Wolf: Right.

Dr. Richard Maurer: So a lot of the subjective measures that we use, hey, do you have enough energy and are you the weight you want to be, they turned out to be terrible markers of rather someone's on the path towards health and longevity. And that's been my experience over now 22 years of private practice and working with people. As soon as someone says, I have a healthy diet; those words mean so little to me now.

Robb Wolf: Right.

Dr. Richard Maurer: That what they're saying is a healthy diet. Well, first off is you know, that usually means, they eat low fat, lots of whole green and they avoid red meat.

Robb Wolf: Right, right.

Dr. Richard Maurer: That's just a blanket statement and for someone like myself, that would be an absolutely terrible diet.

**(00:10:07)**

Robb Wolf: Right.

Dr. Richard Maurer: So I'm always redefining and what we're leaning towards is what I do, I use very few questionnaires. I used to have an intake form that was 9 pages long in my practice 20 years ago. I have an intake form that's half a page now because most people don't tell the truth on a piece of paper.

Robb Wolf: That's true.

Dr. Richard Maurer: They just don't do it.

Robb Wolf: Right.

Dr. Richard Maurer: They're really not willing to say the truth until they've built some trust with the person who they're saying it to.

Robb Wolf: And I think a lot of folks like truth is they're completely unaware of many things that are going on. So if you inquire about say like digestive function, they're like, oh I'm fine, and when you really dig into that, they haven't have a formed stool with a food coming out, appreciably changed from it going in in 20 years, but they assumed that digestive issues are either constipation or gas, which you've had neither one because you're not digesting a damn thing and since we know it's not even that they're trying to be nefarious on the topic. They're just like, oh, that's not normal. I should be pooping like a teenager. So yeah, yeah.

Dr. Richard Maurer: Mark Twain was – I love one of his quotes saying the most important things in my life never happens to me and for me, take that to my diagnostic skills where when someone walks in and tells me something, what's the most important thing is not what they've said, but the visual that I'm getting when they say it. So I get a lot of that in office, what it also leads towards this why I wrote the Blood Code which is – so my reliance more and more on certain blood test markers. So if someone's exercising 5 days a week and they look relatively normal weight for their body frame, we could say, great, you're in good cardiovascular fitness, but there are so many better ways of doing this, to run their insulin glucose insulin resistance numbers and triglyceride HDLs and I can do their heart rate variability assessments in office. I can get those things and these are not answers to questions, but then I can ask there are very simple inexpensive...

Robb Wolf: Very objective.

Dr. Richard Maurer: Very objective and very simple cheap ways of getting answers beyond those huge assumptions we have to make when we look at someone's size or shape.

Robb Wolf: Doc, a good friend of mine, Peter Attia, a super brilliant guy. He's really going deep on this kind of longevity side of things. I've always had this picture in my head of interplay between performance health longevity

and if you're really pushing that performance axis, there might be some tradeoffs, but he has been talking about and tinkering with some of these interfaces with that. Why are you looking so much at insulin and insulin resistance? Like we've talked a ton about this stuff on the show, but I think it can almost go into a dull hum for people like yeah you know, insulin resistance, I get it, but why is that important to you? Why have you found that to be clinically relevant and then how are you testing that with lab work?

Dr. Richard Maurer: Insulin resistance is really this hallmark and I think what's driving even some of my clients, they'll say, my wife wasn't on board with this lower carb higher fat diet, you know, that LCHF diet until she read some blog I posted about Alzheimer's and dementia onset with insulin resistance and then all of a sudden, that woke them up. So I think, historically, insulin resistance has been this sort of pre-diabetic term. It's something that happens before something happens.

Robb Wolf: Right. So why get excited about that. Nothing has happened yet, yeah.

Dr. Richard Maurer: Nothing's happened yet. It ain't broke, so to get that excitement going, I just – I don't have hard time with it because several times a week, I see a headline in the research that I review pointing towards the importance of being on the insulin sensitive end of the spectrum whether we're talking about heart attacks and stroke or dementia or just having the energy we want to have.

Robb Wolf: Right.

Dr. Richard Maurer: It's all linked to it and as you mentioned insulin resistance, the way I test for it, I use glucose insulin, the two combined, so a fasting glucose, fasting insulin and that gives us that HOMA IR, the HOMA IR and the IR stands for – that's the important part of the code there that stands for insulin resistance. It's just a quantitative mark to see whether the sponges of your body, the muscles and the tissues are quick to take in the glucose between meals or whether they're resistant to the message of insulin.

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Robb Wolf: Doc, what are you -- this is something that's interesting for me. I've historically been pretty lean. If I carried any fat, it was right around the mid section. It wasn't until I went very low carb in my late 20s and for the first time, I was like literally like washboard abs, skeleton lean, had just cognition that never really flagged. I didn't have any ups and down in my energy levels, have historically found it little bit challenging to fuel really intense glycolytic work with that type of activity and so I've always played around with that.

Where are you these days with some of the emerging information that's looking at gut microbiota, the mucosal layer in the gut that seems to need a certain level of fermentable carbohydrates to keep it happy? These thing has been a monkey wrench in my plan. I felt like I was feeling pretty good, doing pretty good until I had this sense that I needed to eat more fermentable fibers in my diet to keep by gut microbiota and mucosal layer happy. What are your thoughts on all that?

Dr. Richard Maurer: You're touching on this emerging science that will certainly be a key component as we look forward in the insulin resistance and insulin sensitivity. I don't think it is important as the media attention it's getting right now. So when we look at the little things, the artificial sweeteners that raised a microbe in the gut that thereby seems to turn on one of our insulin resistance genes. So it's a neat mechanism that we can now finally understand why chemicals like NutraSweet and ASPARTAME trigger insulin resistance. We used to be totally baffled by this thinking the people must eat extra fries because they have the Diet Coke and it turns out that wasn't true when you really analyze diets and then we thought it's because of anticipatory response of insulin that gets burst, and that didn't actually occur in good studies. So looking at the microbiota, we're seeing aha, this is it, but it turns out the amount of insulin resistance that that artificial sweetener triggers is pretty minor.

Robb Wolf: Right.

Dr. Richard Maurer: We're talking 5%, 7%, very interesting to researchers because we have this unanswered question for 20 years, 25 years of Aspartame and we're starting to answer that question, but I'm not changing my life thinking I need to feed these microbes because I think for much of it, that's only batting about 10%.

Robb Wolf: Okay, okay.

Dr. Richard Maurer: The insulin resistance we're still falling onto the glucose in and the way that we're exercising to make our body more insulin sensitive so it comes back to core diet and exercise basis.

Robb Wolf: There are some folks that make a very compelling argument that like sepsis. Sepsis induces a state of profound insulin dysregulation, elevated triglycerides, elevated blood glucose levels. It really looks indistinguishable from very poorly managed type 2 diabetes and so you can make a really solid case that maybe just general dysregulation of the gut, maybe like a big, big driver, like maybe even more important than

eating starches and carbohydrates, but the thing that has bugged me is if you weren't born of a vaginal birth, if you weren't breast fed or if you get one of some combination of these things, you were on tetracycline from the age of 13 to 21 for acne. Are you ever going to be able to have a "healthy gut" and that's kind of my situation , vaginal birth, not breast fed, soy formula, lots of antibiotics and so I'm feeling with that stuff like crazy because I see some -- for me some pretty compelling data, that's like well, if you can just get that gut biota healthy and the gut layer healthy, then you'll all be good and you can eat, starches and tubers and things should be pretty good, but I just don't know if I'm ever going to get my gut to that level. Do you think both – it's maybe a little mealy-mouth to say, but I feel like both sides of the story might be right in this case. If the gut is real healthy, it might handle carbs really, really well and if you can't get your gut healthy, you may never be able to handle carbs that well.

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Dr. Richard Maurer: Right. I think we're definitely touching on a piece that is not A then B.

Robb Wolf: Right.

Dr. Richard Maurer: We have multiple factors coming in. I know you have the, and you can touch on this soon, but you have that fitness component addressed. You have the lower carb component addressed. The gut is another – I think it's a lesser if I'm going to throw percentages on here. I'd say diet and fitness are will add up to 80% of the game.

Robb Wolf: Interesting.

Dr. Richard Maurer: And that if we want to talk about individualized nutrients and the gut micro biome, I think we're working on the 20%.

Robb Wolf: Okay.

Dr. Richard Maurer: And maybe that's just because the science isn't deep enough yet, but I don't think we're talking about the majority of the game because the gut is – remember the gut is not actually in us. So this gut micro biome is an environmental setting. It's the entire tube of our intestinal track is more akin to the air against our skin. It's not inside of our bodies, which means, our bodies are incredibly capable of acclimating to new environments, even in one generation, so very quick. Every time we look at research of how well our body can compensate and acclimate, we're blown away at how quick. We used to think genes exchange expression over many, many generations if not millennia and it turns out it's actually happening in real time.



Robb Wolf: Right.

Dr. Richard Maurer: So I think the gut has the capacity to recover despite yes myself having been on a long term antibiotic regimen for Lyme disease and having taken antibiotics and yes, not having breast milk as an infant during that era of the early '60s. These things are all to me not fixed in stone.

Robb Wolf: Okay, okay. I've been trying to figure out what layer I would ascribe all the various weightings and again, it's probably situational stories so and without a doubt, I've talked to many people on the Paleo diet research list, these folks who have fiddled and tinkered and played with trying to what they perceived to be fixed their gut microbiota through various topics and what they've kind of boiled down to is they need to work out like crazy and they still need to really dose their carbohydrate load in an intelligent way. If they do that and they feel good and their blood work looks good and if they don't do that, things go sideways and that's just kind of where they are at this point and everybody still keeps tweaking and fiddling, but without a doubt, if you resistance train frequently, if you do some intervals, if you do a little bit of low-level cardio, you've got some great glucose disposal, you've got increased muscle mass for again improved glucose disposal and insulin sensitivity and regardless of what else is going on, you're stacking the deck very favorably and it's something that you absolutely can succeed with. I've still got a say, as much fiddling and I've been doing with my gut microbiota is better, my digestion is better. I feel like my carb tolerance is probably a little bit better, but if I quit writing and podcasting and I just worked on a farm and lift the weights most of my day, I think I would be pretty bullet proof from that itself. It's my sedentism that's my problem right now. Any other factor interestingly.

Dr. Richard Maurer: Right, right. I'm sitting down on my end of things.

Robb Wolf: I do have a treadmill desk, which I don't have the treadmill going right now, but I'm standing up so...

Dr. Richard Maurer: Good.

Robb Wolf: I'm at least weightbearing through my core. Doc...

Dr. Richard Maurer: Let me point one thing out here. I think my message here would be if somebody is looking at their gut microbiota and trying to figure out a way of addressing the gut to improve their over insulin sensitivity with their insulin resistance piece, the first thing I'd be assuring is that regular blood

tests are being done. So that insulin glucose and lipid panel are all being done regularly enough and the hemoglobin A1c, so these tests are going to be really important to see...

Robb Wolf: If what you're doing is working?

Dr. Richard Maurer: The background story.

Robb Wolf: Got you.

Dr. Richard Maurer: And I can touch on this. I'm going to jump ahead even because I think many of your listeners are already familiar with some of these blood tests that I'll mention here, but let me jump right in were – I'll start it with a story of where I am. Myself personally, I was pre-diabetic in my early 40s. My mother was type 2 diabetic at 60 and my father's side of the family has type 2 in it. So I've got type 2 diabetes coming from both sides of my genetics. That strong vulnerability means that my tissues tend to more insulin sensitivity. I am a lean guy. You could probably attest to that. I look like a long distance runner as most of my family has been. My glucose actually required me to gain about 10 pounds through more strength training. I had to gain weight to really get more insulin sensitivity into my body.

So having laid off on some of the long distance running I was doing and bringing more weight training in, I improved my insulin resistance, but I can stay very low carb and my glucose stays 94 in the morning. I can go for an hour or two hours of exercise and my glucose is still in the 90s. I don't go hypoglycemic. My A1C stays at around 5.7. My triglyceride HDL, my triglyceride just doesn't go below 50. I won't go into that ultra lean state and the big part of that is I'm approaching 50 now. So my insulin resistance is such a strong expression of who I am, that I can stay very low carb and I think my gut thrives on that as does my brain and my metabolism.

Robb Wolf: Doc, are you testing for ketone bodies or you just generally like what type of carbohydrate load are you taking in on a day to day basis?

Dr. Richard Maurer: Myself personally, I'm generally below 50 grams of...

Robb Wolf: Okay, so pretty low.

Dr. Richard Maurer: Carbohydrate in the course of the day.

Robb Wolf: Pretty low.

Dr. Richard Maurer: If I stay below 44 for even a few days, my ketone test isn't through a little device. Usually, one of my kids will tell me that my breath smells.

Robb Wolf: Great. [Laughs]

Dr. Richard Maurer: I have at this point in my life I actually have three teenagers and they don't hold words back.

Robb Wolf: They're like, dad, you have ass mouth again.

Dr. Richard Maurer: That's right. My breath as soon as that acetone, I'm sure that's what you meant by that.

Robb Wolf: Exactly, yeah.

Dr. Richard Maurer: As soon as I have that acetone present, it's quite evident. I'm reaching for a little sugar free alkalyter or Xylitol mints a little quicker. I can get out of that pretty quickly. It doesn't take more than 60 or 70 grams in a day and I'm totally out of that. I can tell.

Robb Wolf: Okay.

Dr. Richard Maurer: So probably 5 days a week, I'm in ketosis, another two, I'm out of it, but never by much and I know where that is at this point. If I'm cycling, I know that my limit, I can wake up in the morning, have a cup of coffee and go for a pretty hard bike ride for about two hours, but right at about two hours, I hit a wall and that's were I just don't have the glycogen stores releasing as effectively as if I were doing the higher carb the days prior.

Robb Wolf: Right. Or really do seeing that fat adaptation side to you know like taking in massive amounts of fats so that you're really ketotic and all that stuff.

Dr. Dr. Richard Maurer: Right. I'm doing the extra MCTs or the medium chain triglycerides. I'm not doing those extra fats and pushing that.

Robb Wolf: Okay.

Dr. Dr. Richard Maurer: I find that two hours is actually pretty good.

Robb Wolf: Right.

Dr. Dr. Richard Maurer: If I need to do three and I have to get off my bike and take a two-minute rests, I can do that.

Robb Wolf: Right.

Dr. Dr. Richard Maurer: Even on spring triathlons which I kind of oddly enjoy. They're over in just over an hour.

Robb Wolf: Okay. So right in that wheelhouse. Perfect.

Dr. Dr. Richard Maurer: I don't have to worry about that. My performance can stay at 100% on no food for those short duration exertions.

Robb Wolf: Perfect. Perfect.

Dr. Dr. Richard Maurer: And that's understanding me. I see enough people that do a low carb diet, they're still in their early 30s and their insulin goes to below detectable limits and their triglyceride level drops below 40. Well now their blood tests look like someone that's drastically overtraining. They might not be overtraining, they're just under recovering. Their body doesn't have the tendency to insulin resistance enough to get away with that.

Robb Wolf: Interesting. Okay.

**[0:30:29]**

Dr. Dr. Richard Maurer: So this is the way I tease a part that insulin glucose what we're looking for is not you know and this is what happens in medicine all too often. The whole cholesterol hype which is now becoming the lower the better to sell this new class of medications that lower cholesterol dramatically. Well that's crazy town. We want a range. Too much say is too much, very high blood pressure or a cholesterol over 320. We may start to argue that that could be too much. But so too is too low a blood pressure or too low say a cholesterol level of below 140. Well I take that to insulin resistance as well. If someone is on the insulin sensitivity end of things, too much of a good thing is too much. And I will use two ratio numbers. One is a simple as people just looking at their lipid panel that triglyceride HDL ratio. I find that most athletes are bodies do not want to go at a ratio of less than 0.5. That is the triglyceride divided by the HDL so if my triglyceride is say 50 and my HDL was 100. That's a ratio of 0.5. If someone's HDL cholesterol is up at 120 and their triglyceride is 40, they're now at a ratio of 0.4 and that's too much. That's too insulin

sensitive. It means their metabolism is burning excessively and they're not going to be able to keep up with that glycogen requirement.

Robb Wolf: And then also potentially like the T4 T3 conversion, TSH. Do you think that that's kind of--have you looked much at that triglyceride HDL ratio and where things go with thyroid status?

Dr. Dr. Richard Maurer: Absolutely. I look at it. I really rely on the research more than anything there. It's quite clear that once someone's at that point like I said it's sort of overtraining. I think about it more like I'm working with performance athletes that T3 conversion will. So that reverse T3 will go up. The T3 will go down. T4 might stay the same. But the conversion--

Robb Wolf: I've never looked at it like that. Correct me if I'm wrong but you're making the point that the person becomes so insulin sensitive from a dietary intervention that would look similar as if they had just massive glucose disposal and glycogen depletion from activity.

Dr. Dr. Richard Maurer: Exactly.

Robb Wolf: Interesting.

Dr. Dr. Richard Maurer: It basically--let's go ancestral and bright the metaphor back. This is so your body doesn't lose capital, you know?

Robb Wolf: Right.

Dr. Dr. Richard Maurer: It's just trying to preserve your principle. If times are so tough that the metabolic rate just turned up like in spinal tap, it's turned up to 11.

Robb Wolf: Right.

Dr. Dr. Richard Maurer: You know that's too much so any chance the body can lower that basal metabolic rate so when you're sleeping, the burner is set 1 degree cooler, you're not going to lose as much of the capital and your body is going to have the capacity to rebuild those proteins that were breaking down so quickly during that high metabolic state.

Robb Wolf: Oh, that's fascinating way of looking at that.

Dr. Dr. Richard Maurer: So T3 is very quick, very quick to respond. The more someone is working out in hot environments, the faster the T3 conversion slows down. It makes sense, right?

Robb Wolf: Because they need less internal heat to adapt to the environment, sure.

Dr. Dr. Richard Maurer: You got it. Exactly. So they've done those studies with athletes in three temperature pools. They had a 60 degree pool, 70 degree pool and an 80 degree pool and these people went at their absolute maximum heart rate for 30 minutes. Boy, that 80 degree pool, you workout that hard in it, you're hypothyroid for the next 24 hours.

**[0:35:00]**

Robb Wolf: Interesting. Wow.

Dr. Dr. Richard Maurer: It makes perfect sense. You're body just got overheated so it's going to turn down the boiler temperature.

Robb Wolf: Interesting. Although from enjoyment standpoint, I would definitely be in that 80 degree pool, the other sounds pretty chilly to me.

Dr. Dr. Richard Maurer: Right. Yeah.

Robb Wolf: So doc, once you've--let's say you found somebody who is insulin resistant like we see this so much with police and firefighter, first responders, new parents. The sleep deprivation piece being just a massive driver of insulin resistance, where do you go from there when you're trying to help these folks?

Dr. Dr. Richard Maurer: Yes, there's so much that takes place. HDL cholesterol drops when you're under slept. You're body will have an exaggerated dawn phenomenon because when you're under slept you'll have a higher epinephrine norepinephrine cortisol release upon rising to get you through the day. Well that triggers that insulin resistance. You know glucagon gets affected and you'll have higher morning blood sugars. A neat set of numbers that take place and again it's a simple adaptation. If you're under slept your body needs a little bit more stimulation adrenalin and that puts you into that slightly insulin resistant state. Seven hours and 15 minutes to me is kind of a line drawn in the sand so when I'm in my clinical setting and people say I can't get any more sleep. I'm somehow sit down with them and come up with a strategy and say let's make it seven and a quarter hours. Make sure that that is now your new low baseline. If you get eight, great. But let's not make it less than seven and a quarter. A lot of research is showing that below that, it's very unlikely anybody is at an endocrinologically healthy state.

Robb Wolf: Right. Absolutely. And almost nobody is getting that level of sleep.

Dr. Dr. Richard Maurer: Right. Right. At least not in the summertime for us but you know talk to me in February, I'll be there.

Robb Wolf: You'll get that dealt with. So doc, where do you go then dietarily for these folks?

Dr. Dr. Richard Maurer: For the most part, I'm going to run this simple blood test panel. I'm going to try to figure out where on the insulin resistance, insulin sensitivities background does someone lie given what they're currently doing. So if I can get this number and I see that someone is on that insulin resistant end of things--It's sort of tricky to and this is ultimately how everyone individualize themselves. It's a little harder to verbalize that I have this laid out in simple grafts on one or two pages in the blood code. If two or more of these are positive, you're mildly insulin resistant or three or more of these are positive, you're moderately insulin resistant. And that really should dictate just how much carb restriction one person should do over another.

Robb Wolf: Uh-hum.

Dr. Dr. Richard Maurer: So 45% of us depending on what study you're looking at between 40 and 50% of people in America have that insulin resistance gene. It expresses more and more as we age. So you want to first find out which side of the coin you fall on. Certainly if you got a family member with type 2 diabetes or some insulin resistance pre-diabetic pattern, you know that you're probably going to be that 50%. Once I see that, I'm using--You know it's going to sound cliché on your show, the low carb high fat diet. It's bringing in that reduced carbohydrate to the point where your body is forced to generate energy from fats to trigger that fat adaptation and that requires the other side of the therapy coin which is the exercise piece. As you know walking burns more calories than sitting but it does nothing to change insulin resistance.

Robb Wolf: Right.

Dr. Dr. Richard Maurer: It doesn't budge the insulin problem. You have to do a more strenuous workout to make that happen. The good news is you don't have to do 30 minutes of strenuous. It can be as short as five or six. And they have some incredible studies using 4 minutes and then only two days a week where it's 20 and having tremendous results in insulin resistance turn around. So shorter workouts as you know we all are seeing--You know I have a Men's Fitness magazine sitting by my desk here and it's the science of supersets or we're talking about packing these

workout into smaller and smaller spaces and seemingly getting pretty good results.

**[0:40:39]**

Robb Wolf: Yeah and you know I've bounced around but one of the big challenges for folks with regards to any type of activity is carving out time in the day to do it and where and when possible I've found that I do pretty well if I can just do a little micro workouts throughout the day like if I can do some handstand pushups and some kettlebell squats or something and just--From by Barbara Oakley getting things done type stuff, I'll set a timer 25 minutes, work really hard, timer goes, I do some handstand pushups, do some squats or lunging, do a little bit of mobility work that takes me five minutes then I'm back into my work, not always amenable if you like drive a bus or your office environment. People are going to askance at that but I've found that to be pretty seemingly helpful on just maintaining my blood glucose levels throughout the day and then I'm also not carving out a dedicated time where I'm going to the gym or even just going out to my garage. It's just kind of baked in the cake and so then I'll throw one of the kids in a backpack and that's where I do my low level longer intensity type stuff and then the kids are--We'll go to the park and play and do all that type of stuff. So have you played around much with the fractured training throughout the day versus dedicated blocks?

Dr. Dr. Richard Maurer: Absolutely. And it seems to me, it seems to work as well. Absolutely. I have a patient that he lost about 100 pounds. He reversed his type 2 diabetes. He never worked out for more than 10 minutes at a time. It stems off of a study that was about six years ago. I forget the lead author. But he basically compared 30 minutes of aerobic exercise to three times a day of 10 minutes of aerobic exercise. And he had these people for those 10 minutes rather than sort of these light jogging, they have them kind of running uphill so get their heart rate up because it takes maybe 5 minutes to get your heart rate up doing an aerobic workout unless you make it real hard right from the start.

Robb Wolf: Right.

Dr. Dr. Richard Maurer: So he had these people hitting the pavement a little bit harder but by the time they reach nine minutes, they were cooling down and they were done. And he found that for the measurements he was using which was he used a glucose A1c measurement. He used blood pressure. He used BMI. He didn't do body fat as I think would work better. But every marker work better for the people doing 10 minutes three times a day. The most important part of this study was his little comment afterwards



when he was asked about it and he said yeah, we're now working on a study which is two minutes 15 times a day. And so far it looks promising. I've been waiting for that study to be published and it hasn't been yet.

Robb Wolf: Interesting.

Dr. Dr. Richard Maurer: So he's touching on the very myth that we had to live under which was 30 minutes, five days a week adding up to 150 minutes of aerobic exercise at 70% of your maximum. I'm saying it monotone because I've heard this ad nauseam over 25 years of studying and working in medicine. It's just kind of fresh to realize that's totally inadequate.

Robb Wolf: Right. Interesting.

Dr. Dr. Richard Maurer: It's simple.

Robb Wolf: Very interesting. Yeah, yeah. You know it's one of the banes of my existence, the contemplating walking on a treadmill or something like that like if I got to do it. I do some Brazilian jujitsu and I found that if I build that aerobic engine more fastidiously then I do much better when I get into roll but man, it sucks. There's nothing good, nothing fun about it. I find that I'm much more successful doing kind of aerobic based circuits. I'll do two minutes in Airdyne, two minutes on the roller, two minutes on the VersaClimber, some jump ropes, hit the heavy bag for two minutes and just do 20 or 30 minutes. That's not too bad especially if I got a decent soundtrack on the background. But just slogging away for 30 minutes on the treadmill on an elliptical or something like I just don't--I don't have it in me. I think most people don't.

**[0:45:22]**

Dr. Dr. Richard Maurer: I think the problem is like I've heard over and over about the aerobic exercise mantra. So true with so many of my clients, they almost can't get their minds around how little time is required--

Robb Wolf: Right. To get that intensity.

Dr. Dr. Richard Maurer: To get their metabolism turned around. They'll really feel better. So if I have someone who's showing that blood test of insulin resistance. And I'll touch on hypothyroid which I do in the book as well. Anyone that is taking thyroid medication, they are waking up typically at a cooler temperature so they have to actively turn their metabolism on. And I have to remind them that their hypothyroidism slows their basal metabolic rate but not their active metabolic rate. You have someone

hypothyroid and normal thyroid doing a pretty aggressive superset and you catch them four minutes into that superset, they're both going to have the same core temperatures. They're both going to have the same metabolic rates. Exercise is kind of a great equalizer if it's aggressive enough.

Robb Wolf: Right, right.

Dr. Dr. Richard Maurer: You only go into that what we touched on with that deactivation of T3. That only happens in very hot environments and the study seemed to find it's right around 20 to 25 minutes. But prior to that, there's no evidence that that's a significant effect. So taking everyone in the morning, they wake up, they pop their thyroid in their mouth if they're taking thyroid medication and I have them at that time do five to seven minutes of an ambitious strenuous little circuit. They can take two exercises and go back and forth between them twice that'll take about five-six minutes. It can be a lunge, dumbbell curl with an overhead press, one side at a time and then switch sides. Therefore it can be really done by any fitness level. Someone in a higher state of fitness doing that lunge down lower, take the dumbbell up a notch. And someone who's just getting into this, a beginner, a very subtle lunge and good form and it can be a 2 to 5 pound dumbbell and it works. Very simply, as soon as they feel like they need to take a layer off if they started with a sweatshirt and they need to take that sweatshirt off by five minutes that's basically when they're done.

Robb Wolf: They're done. Nice.

Dr. Dr. Richard Maurer: I don't need to have them keep going at that point. They're warmed up. You've done it. You've actively metabolized the body.

Robb Wolf: And basically set yourself up for potentially some good hormonal status, good insulin sensitivity for the rest of the day.

Dr. Dr. Richard Maurer: And that's it. It's the people who--the many people who accomplished this--I can't tell you how many times I've heard sort of in awe at their follow up how easy it is. I can't believe I feel so much better. I don't have a slump at 3 in the afternoon. My energy is straight through the day. I eat lunch because it's lunchtime not because I'm crashing. Everything about their metabolism is better. And it's very empowering message because a lot of these people are cruising the internet looking for why their thyroid isn't better even though they're taking thyroid and they're looking for new pills to take. They're adding mega doses of iodine and mixtures of different thyroids. You know for some people, some

component of prescription change is often in the cards but I think just a simple lifestyle shift remembering that ancestrally, everyone in our lineage had to do a bunch of stuff before they ate their first calories.

Robb Wolf: Right, right.

Dr. Dr. Richard Maurer: Absolutely. There's no one that could just flip a switch in a climate controlled environment and have calories to eat.

Robb Wolf: Right.

Dr. Dr. Richard Maurer: That's incredibly new.

Robb Wolf: You know it's funny, people that poo-poo that ancestral model but some basic takeaways like that get very well supported by the literature. You know a little bit of intermittent fasting, a little bit of pre-meal exercise really improving glucose disposal and triglycerides and lipids and what not. You know if there's anything that we take out of that ancestral model, I think those are some of the more powerful actionable takeaways for sure.

**[0:50:08]**

Dr. Dr. Richard Maurer: Right. And I think we're touching on this with carb cycling. I can stay on a pretty low carb diet for extended periods of time but I don't beat myself up if a couple times a month I just go into the fruit pile. Because I know that historically that's what we did but wild blueberries, wild strawberries, wild cherry trees. That fruit lasted about two-three days on the tree.

Robb Wolf: Right.

Dr. Dr. Richard Maurer: It was quick. So we maybe--I think our bodies are acclimated to kind of hitting those carbohydrate foods occasionally and that may actually improve, it'll raise my insulin for two days and it'll dispose of glucose a little better and I'll likely respond to that more ketogenic oriented diet that low carb high fat diet when I resume it.

Robb Wolf: Right, right. Because you goose the thyroid and all the rest of that stuff. I like it. I've been a huge fan of some sort of macronutrient cycling since probably '98-'99 that it was the first time that really got on my radar and it seems very powerful.

Doc, where can folks find you on the interwebs and learn more about The Blood Code.

Dr. Dr. Richard Maurer: Very good. I have a Twitter. It's @ @DrRichardMaurer. TheBloodCode.com is a website that contains information and the blog you can sign up for right on the homepage there. The blog is not some business that sells people into a program. The blog is me. I link to other people that are speaking sort of meaningful and useful stuff that helps people turn their metabolism towards the one they're shooting for.

Robb Wolf: But doc, you wrote a book so clearly everything you post on there is nefarious and has ulterior motives behind it. Clearly, you couldn't be successful by helping people. there's no way that that would work.

Dr. Dr. Richard Maurer: Right, right. And clearly we all write books because it makes a million dollars, right?

Robb Wolf: Yeah. And it's very benign on your own health. Yeah, yeah, exactly.

Dr. Dr. Richard Maurer: I don't want to know how many hours I spent in front of my laptop writing this book but I'm still--what's amazing is I still have yet to find a typo and I'm still proud of everything it says. So obviously having waited 20 years to write the book it was the right amount of time and I think it provides very simple algorithms for people to understand what's going to work for them and help them get away from the diet fads or the exercise gurus that are saying one size fits all.

Robb Wolf: Right, right. That's one of the biggest challenges that I face is trying to find heuristics that we can throw out to the masses and get people a general idea without just bombarding them with information but then at the same time leave enough room for the ability to customize but yet not have people turn the heuristic into a religion that now we need to defend at knifepoint because we're tweaking things for folks. And that's a constant challenge and it used to really frustrate me but now I'm just looking at that as job security. I don't think if I ever going to crack that particular code.

Dr. Dr. Richard Maurer: No, there won't be. You know I whittled it down to The Progress and on The Blood Code is only five tests and I have one of my colleagues that wrote and said why didn't you include C-reactive protein. I have another that wrote and said what about lipoprotein A that's a genetic test for heart disease risk. Sure, I could've added a whole lot more but the entire Progress Panel was less than \$100.

Robb Wolf: Which is huge getting that buy in.

Dr. Dr. Richard Maurer: Right. So people can go to direct labs. I link on my website to SaveOnLabs. So at the bottom of The Blood Code every footer page includes a link to one of the direct labs that has these panels put together and I think it's \$94.50 to get The Progress Panel.

Robb Wolf: Fantastic.

Dr. Dr. Richard Maurer: Just an incredible savings. You know even my wholesale price and office is over \$50 more than that so just incredibly valuable. Virtually every state in the country can access those. And that gets people a step in that direction so everyone knows their own insulin and they can be better adept even in the paleo community. Paleo doesn't mean low carb, inherently as you know.

Robb Wolf: Right, right.

**[0:55:25]**

Dr. Dr. Richard Maurer: You can usually find them with how many sweet potatoes someone's buying when they're in the paleo crew. But you know some people do require all those sweet potatoes and spaghetti squashes and keeping the rice in there and other people will tank if they bring that carb in. They feel so much better when they do the much more low carb high fat profile of the paleo or primal diet.

Robb Wolf: Right. I couldn't agree more.

Well doc, it's been a long time coming. We talked about doing this interview I think almost a year ago and then we had you scheduled and then I went out to Polyface Farms to do the Food Freedom Fest and we had to reschedule so you've been a great sport accommodating my wacky schedule between kids and travel. I really appreciate that.

Dr. Dr. Richard Maurer: You bet and hopefully this reaches who it needs to reach and I love to piece it together. And if there's a way I can put something up on the blog with a few ideas if some listeners put their blood codes, blood test panel up. It's incredible how people are willing to put their blood tests out into the ether to help others understand themselves too and if there're ever comments or responses needed, I'd be happy to report back.

Robb Wolf: Awesome.

Dr. Dr. Richard Maurer: So I think managing these blood tests and helping people navigate what's important for them, if there's some way between you and I, we can put that together for people, I'd love to be a part of it.

Robb Wolf: That sounds great. That sounds fantastic.

Dr. Richard Maurer, it's been great having you on. Remind folks again TheBloodCode.com and then your Twitter handle?

Dr. Dr. Richard Maurer: @DrRichardMaurer.

Robb Wolf: Okay, okay.

Well doc, thank you. It's been great having you on the show and I really--I took something brand new away from this conversation looking at carbohydrate restriction is a proxyer in analogy for training and some of the deleterious effects of too low carb for certain folks could be directly analogous to an overtraining syndrome and it definitely makes sense in my mind. So that's a great insight you've shared with me today. Thank you.

Dr. Dr. Richard Maurer: You're welcome and it's truly a pleasure being on the show, Robb.

Robb Wolf: Awesome, doc.

Dr. Dr. Richard Maurer: I'm looking forward to seeing you in upcoming conferences and on the road.

Robb Wolf: Okay. It sounds good. We'll talk to you soon.

Dr. Dr. Richard Maurer: Be well.

Robb Wolf: Okay. Buh-bye.

Dr. Dr. Richard Maurer: Bye.

**[0:58:01] End of Audio**