

Paleo Solution - 200

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Robb Wolf: Howdy folks, it's Robb Wolf here. This is episode 200 of the Paleo Solution podcast and I am incredibly excited because we have today Dr. Dr. David Perlmutter and Doc, I'm sorry I keep mispronouncing your name, Perlmutter I know is the real pronunciation. My father was German and I can't not say it the German way. So apologies.

Dr. David Perlmutter: It's fine with me. Perlmutter works for me.

Robb Wolf: How are you doing today?

Dr. David Perlmutter: Well I'm doing great. I always really look forward to opportunities to do what I know we're going to do today and that is you know, speak from the heart about what both you and I think is really so fundamentally important. So I'm doing great. Thanks.

Robb Wolf: Awesome. Well Doc, you've written several books, your forthcoming book is call Grain Brain, which both you and Dr. Davis I'm so excited for you guys but at the same time I'm so bummed that I didn't come up with a better name for my book, a A genius name, fantastic book. I actually read it over the weekend and folks know that my daughter Zoe is 16 months old and anything that papa's reading she wants to read it too so I got to read out loud whole paragraphs and chapters of the book to her and it kept her entertained so it's got to be pretty good.

Dr. David Perlmutter: Well your listeners need to know that I actually saw a picture of that on Twitter so that was very cool.

Robb Wolf: She was fascinated with the cover of the book and I actually pulled the cover off and most papery items she ends up destroying in short order. You know, it's got to be a pretty robust item for her to not destroy it and she carries that book cover around and lays it down next to her koala bear and really takes good care of it so I don't know. She was very smitten with the book cover.

Dr. David Perlmutter: The only thing wrong with that story is for the listeners the cover of the book is a slice of bread.

Robb Wolf: Right.

Dr. David Perlmutter: So I don't know what portends for the future for your daughter but hopefully she knows what she's getting into.

Robb Wolf: I don't know. I don't know. We'll see. She hasn't even seen a slice of bread around the house yet so we'll see how that goes. But for folks who don't know your background, you are a board certified neurologist. You are also a fellow of the American College of Nutrition. Doc, give some folks a little bit – you know, that is an incredibly brief description of your credentials and your background. You have an outstanding research background as well as clinical practice. Give folks a little bit of breadth and depth on what your background is like.

Dr. David Perlmutter: I'd be delighted to. I do practice neurology. I've been doing that for about 30 years and you know, jumped all the right hoops I think. Got a real good foundation in the neurosciences started in when I was probably around 12 years old holding retractors in the operating room for my dad as he would remove brain tumor.

Robb Wolf: Wow.

Dr. David Perlmutter: So I would say I cut my teeth but I didn't have all my teeth at that point. Got an early start and began my research in the neurosciences at 19 and published my first paper in the Journal of Neurosurgery when I was 20. So I've been at this a long, long time and really when I went into neurology I was excited but at the same time I was a bit not just disappointed but I felt very inadequate because you know all we were doing was treating symptoms. We were treating the smoke and ignoring the fire. So I've really spent the last at least two decades trying to figure out what is the fire. What is the ultimate first order of business in terms of dealing with such devastating conditions as Alzheimer's, Parkinson's, multiple sclerosis, you name it? Because you know, in reality what we focused on and we as in quotes is really just treating symptoms of our most pernicious maladies that people fear the most. And you know, it's really become very, very clear to me that things as simple as carbohydrates are devastating for the brain. And that things like Alzheimer's disease are preventable.

Here, I spend my entire day, people come to see me from around the country you know, this past week around the world with you name it one devastating challenging problem or another. You know, what's tugging at my heartstrings on two levels is for these people number one it didn't have to be number two truthfully you know, each morning before I go to work, before I go to my clinic, I go across the parking lot to an assisted

living facility and there is my father a brilliant neurosurgeon who now is in the throes of Alzheimer's disease. So you know, I get it on multiple levels that we are in a situation where we are told live your life come what may and then when something happens we're going to have a magic pill for you. You know, that pill is hard to swallow when you realize there is no treatment today. With all the wonderful like advancements that we talk about, there is no treatment for this disease Alzheimer's for example affecting 5.4, 5.5 million Americans. That number predicted to double by the year 2030 and how are these individuals treated. They give them a pill that you know, even our best research, our best science will tell us is ineffective and even more importantly that is a disease that is preventable according to our most well respected research.

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The Lancet Neurology has published a recent report from researchers at UCLA showing that more than 52% of the 5.4 million Americans didn't have to walk down that road. It's not just for them, it's for their families that this didn't have to happen because truth of the matter is the Alzheimer's patient isn't suffering as much as the family and the loved ones and I know that firsthand. It's a challenging situation. You know, especially when you keep in mind all of the literature that so clearly points to the role of carbohydrate in the human diet in terms of changing proteins in the brain and dramatically inducing inflammation and the action of chemicals called free radicals and the role that these play in terms of destroying brain tissue. To get your arms around that, it is a very sobering kind of notion.

I just recently published a lead article for Newsweek Magazine, which is now The Daily Beast and it was widely appreciated. It was the number one media citation of the day.

Robb Wolf:

Wow.

Dr. David Perlmutter: It even was I guess more exciting than Mubarak getting led out of jail in Egypt. It was, that was number two. And the point is though people are desperately scared of the situation who don't have it or don't you know, have the family history of it and those who do are even more concerned. But you know, certainly any of those individuals who have personal experience with it in a family member realize how devastating it is.

So that's the mission and people say wow you know, you're really thinking outside the box and my response to that is no, that's not the mission. The mission is not to think outside of the box. The ultimate mission is to make the box bigger so that these ideas which are predicated, founded on mainstream science, published peer reviewed

science, become the norm, become accepted. Because when I wrote Grain Brain, all of the citations are from journals like The New England Journal of Medicine, The Journal of the American Medical Association, the Proceedings of the Mayo Clinic. You know, journals with very high regard and we'll walk through some of those in a little while to just really focus on what is current science telling us in terms of healthcare practitioners about what really matters and I am not talking about the advertisements in those journals. I'm talking about the actual content of the journals themselves.

So we really want to take a look at that stuff and ask ourselves yeah these things are happening, what can we do to keep it from happening. You know, John Kennedy in his inaugural address said the time to fix the roof is when the sun is shining.

Robb Wolf: Right.

Dr. David Perlmutter: And that means, to me it means preventive medicine in the field of neurology. Who knew? It's fundamentally important.

Robb Wolf: Yeah, it's a shocker and gosh, I don't want this to be too much of almost self-aggrandizing setup here but you're talking about thinking outside the box or a bigger box. For me when I read your book and I'm very much in coherence with everything that you're talking about, the gluten, the dysregulation of insulin, dysregulation of leptin, sleep, you know, the whole story. But for me I think that what's fascinating is that you have both the clinical background so like the boots on the ground like waging the war day to day trying to deal with this situation and you know, correct me if I'm putting words in your mouth but it seems like you became very frustrated with the lack of an arsenal to be effective in treating this stuff. Somewhere along the line you started looking around in this kind of evolutionary biology concept kind of made its way into your practice and this is a lot of what you're predicating your research on. You know, lots of people Loren Cordain, Gary Taubes lots of people have been able to be very, very effective in the way that they're looking at these complex degenerative diseases by actually making the story very, very simple.

Instead of going so far down the rabbit hole in molecular biology, let's rewind the tape and try to figure out well what was kind of like the norm for our species and you know what did that look like and was there overt pathology. Like did we see tons of cardiovascular disease, did we see tons of cancer or neurodegenerative diseases, 50, 100, 200, 2000, 20,000 years ago. You know, do we have evidence of this stuff? Like and again I

don't want this to be putting words in your mouth but how does all that kind of intuit for you or how does that inform the way that you practice medicine?

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Dr. David Perlmutter: The bottom line is that, you know, we really have two things to look at in terms of validating our perspectives. We have current hopefully objective science to the best standard that you wish to put forth in terms of judging the validity of science and then we have to look back at history. You know, when you mention names like Dr. Cordain, he is certainly all about what we have eaten as a species for the past 2.5 million years. The truth of the matter is when you mentioned things like cancer in coronary artery disease and dementia and autoimmune problems, you didn't mention but that's got to be on the list.

Robb Wolf: Right.

Dr. David Perlmutter: As a species, we wouldn't be here today had those things been as crippling to us as a species as they are today. That said, our genome has been fine-tuned to respond to extrinsic factors, environmental factors including most importantly I believe food and levels of physical activity. So we have honed our DNA to be as receptive and wonderfully responsive in a very positive way based upon the food choices that we have been making for the past 2.5 million years.

So what did we have to eat for 2.5 million years? Well we didn't have energy drinks. We didn't have bagels. We didn't have grain as a category. We basically didn't have much in the way of carbs at all. You know, one of the notions that I put forth in the book, Grain Brain, is well beyond the gluten issue and that is that we really have to reassess how much fruit we're taking in. A lot of people can maybe get their arms around gluten sensitivity as an inducer of inflammation and all the downstream effects of that. But when you start saying well you know, the 6 servings of fruit that you were told to have a day each day that is inappropriate because basically what I'm saying is we can look at the physiology of insulin and insulin sensitivity effects and raising hemoglobin A1c and having all these effects of challenging your body with glucose and fructose from eating fruit.

But beyond that, I think it's really important to look upon what that is doing to us in the bigger picture in terms of overall health not just through this mechanism but in terms of powering the body. The bottom line is the human physiology has never been powered by carbohydrates to any significant degree number 1 and number 2 throughout 99.9% of

our time on this planet, we had almost no access to carbohydrate. The only time we might get some berries or primitive apples or something like that would have been in the late summer, early fall when we were living a life in harmony with our surroundings.

Now why would we gravitate towards those carbohydrates in the late summer and early fall? Because that's the time when the starch the carbs in the fruit would break down to form sugar and it was sweet. So it was best for us to challenge our bodies with carbs at that time of the year turning on the signaling pathway to make fat so that we could survive the winter during a time of food scarcity. Frankly that's also a time when the fruit offers up to us in a very loving way I like to imagine all of the wonderful phytonutrients that are at their highest level when fruit is ripe and we return the favor because that's when the seeds are ready to germinate and we would have spread those seeds around. So it really worked for everybody. The problem is now that we are challenging our physiology with carbohydrates 365 days a year for a winter that never comes and we're paying the price for that.

So you know, again to get back to the notion of what I do and that is I deal with neurologic problems like ADHD, depression, dementia and at first blush one would wonder well how in the world could something like dietary carbohydrate influence a person's risk for becoming demented? And when you look at the literature, it's been there for years from again our best institutions indicating that it's the carbs baby. It's all about the carbs and if you want to know the specifics of the biochemistry basically it's really quite simple.

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One mechanism by which carbohydrates are damaging the human brain, I don't mean to be too technical here for your listeners but it's a process called glycation. Glycation simply means that sugar in the body binds to protein and when sugar in your body from your diet, from eating a high carb diet binds to protein in your body, that process called glycation is bad news for two reasons. Number one, it dramatically enhances the production of chemicals that mediate inflammation and number two, it may increase the production of free radicals which are oxidants by as much as 50-fold.

So the cornerstone of the deterioration of the human brain is this process of glycating or binding to sugar of our proteins. Now a simple test that people can have their doctor do, diabetics are very familiar with this, is a test called A1c and A1c is a very straightforward marker of this process, glycation of protein. In this case, it's a protein called hemoglobin so the test is called hemoglobin A1c.

Now diabetics use the hemoglobin A1c or their doctors do to keep an eye on exactly what is the average blood sugar a person has maintained over the previous let's say three to four months. But beyond just getting that bit of information the A1c is a very valuable tool to understand how aggressively a person is glyrating their proteins and therefore how aggressive they are creating inflammatory chemicals as well as free radicals. So this is profound.

There is a direct relationship of the level of hemoglobin A1c and the rate at which the brain deteriorates. So I want to say that again, this simple lab study that people have used over the years to measure their average blood sugar who were diabetics A1c directly correlates to the rate at which the brain shrinks and specifically the memory center and I have a graph of this that I hand out to my patients. I handed it out twice today. I actually worked today and it is so compelling because here's the take-home message, the A1c that relates to the rate at which your brain is shrinking is directly related to the carbohydrates that you consume. So if anyone's interested that was published in the Journal of Neurology, that's perhaps the most well respected neurology journal in the planet way back in 2005 volume 64 page 1704 if anyone is interested.

Robb Wolf: I'm sure people will be and you go through great detail in that study and describing that process in the book as well.

Dr. David Perlmutter: And I created a graph in Grain Brain because if you get nothing else out of reading that book, you will understand that you and that is every one of us has now the tools, the empowerment to control the rate at which your brain degenerates and that is to say the perfectly predicated on the amount of carbohydrate that you consume. So you know, when I say that people should have a very low carbohydrate diet, and a very high fat diet, which is in line with people you've mentioned Gary Taubes and Loren Cordain and it's not just because they said it.

When you look at what is published for example by the National Institutes of Health, there was a study that recently was published January of 2012 and it came from the Mayo Clinic and they found about a 42%-48% increased risk of dementia in those individuals who had the highest carbohydrate, lowest fat diet. Going high fat reduced risk of dementia dramatically and when I say dementia by and large we're talking about Alzheimer's disease, again a disease for which there is not treatment and here is information coming to you directly from the Mayo Clinic saying that if you increase your dietary fat and cut your carbs, this

is associated with a dramatic reduction in risk for a disease for which there is no treatment.

Where is the disconnect? The disconnect is because I guess this type of information cannot be monetized so no one talks about it. You know, again at first blush that's challenging to a guy like me very challenging and what is the action? The action is go ahead, write the book, get out there. You know, do the public television special where all I talk about for 90 minutes is basically this idea that number one the science supports it and number two this is what we've done for 99.9% of our time on our planet. We've eaten a high fat diet low in carbohydrates and to be perfectly clear, it's fundamentally important that listeners understand that all fats are not created equally and that you know, when I'm saying high fat diet, I'm certainly not referring to the Twinkie aisle. I'm referring to extra virgin hopefully organic olive oil, coconut oil, nuts and seeds and grass-fed beef and free range --

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Robb Wolf:

Grass-fed dairy and ...

Dr. David Perlmutter: Absolutely free-range eggs if people don't have an egg allergy and loading up with those sources of calories that your body is desperate for. Now you know, the human brain is 60-70% fat and it's not made from anything in the atmosphere. It's made from the fat that you consume and you've got to consume foods that are high in these wonderful natural health supportive, heart supportive, yes high fat diet good for your heart, best for your heart, these foods.

You know, I get a kick out of it because each day in my office when I'm seeing patients my patient, we're really on a very careful diet and I say oh really, do you eat much fat and I do it to punish myself I think. They say oh no, we're very careful, we're on a low fat diet and I know I probably get another gray hair every time I hear that answer.

But that said you know, the mission, the word doctor doesn't mean healer. It means teacher and I think you and I both you know, our mission is to teach what we feel is the truth. Could we be wrong? Yeah, we've got to keep an open mind and maybe we are wrong. But over my decades of studying this, this is now you know, it's not just that this is what I believe but it's at the depth of who I am based upon as I said not only the science but historically what we've eaten, what our genome has been. What we've today in this time that we're living each and every person walking the planet the genome that we carried, the DNA, our genes have been selected based upon this 2 million, 2.5 million-year environmental

exposure. We wouldn't be here if it wasn't for the fact that throughout most of that time, we were conducting ourselves to live in harmony with our DNA.

Now since the advent of agriculture 10,000 years ago, and interestingly enough if you read the National Geographic last month's episode, last month's journal issue was really quite profound and the cover was sugar why we love it. It traced the history of sugar going back to when sugarcane was first discovered in New Guinea and exported to Asia and how it just exploded. The reason sugarcane exploded like it did was number one it was portable but most important is because we love sweet. You know, when somebody says that he or she has a sweet tooth, that's not unique. Every person walking the planet has genetically a sweet tooth. Why? Because we are programmed to seek out sweet because that allowed us to survive for all these years because sweet meant ripe and it meant eat those foods and you will make it through the winter. Sweet induced insulin production storage of fat made it through the winter.

Now it's hard to distance our self from our sweet tooth and it takes discipline. To have an apple a day, I'm not usually upset by that but you know, a glass of orange juice that people think is a good choice because it's not you know, it's fresh squeezed and it's from Florida and it's got a lot of vitamin C, that would be probably amongst the worst things you could have to start your day. Why? Because a glass of orange juice has 36 grams of sugar. That's 9 teaspoons of sugar. That's the same as having a can of cola.

So you know, the mission here is to provide this information. People think they're making a good choice by having whole grain bread, a bowl of cereal that's also whole grain and a nice tall glass of fresh squeezed orange juice. That is a carb load that is so damaging to physiology and specifically for the brain and sets the stage for absolutely inappropriate energy availability throughout the course of the day making people need to have a mid-morning snack which is basically carbohydrate because they need that quick fix of glucose yet again because their sugars are plummeting. You know, obviously turns on the risk for all kinds of horrendous things like diabetes and cancer as well as Alzheimer's disease and also sets the stage for even early on becoming insulin resistant.

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In other words creating a situation where your body cells do not longer accept the signal from the pancreas of insulin and be able to deal with this huge rise in blood sugar. So who's telling us to start our day with a whole grain goodness and a glass of orange juice? Well basically that

information is courtesy of the US Department of Agriculture. It is quite interesting to me that the USDA is so influential in terms of giving us the mandates about what we should or shouldn't eat when the primary mission of the USDA is to take care of farmers who grow the oranges and the wheat.

Robb Wolf: Yeah, the mission statement is essentially to expand the economic market of the United States food producers.

Dr. David Perlmutter: And do it on both ends. You influence supply and demand.

Robb Wolf: Right.

Dr. David Perlmutter: And it's a perfect scenario and it's killing us. It's breaking the bank and it's directly leading to the death of hundreds of thousands of individuals who aren't getting the truth and unfortunately this is so unnecessary. You know, to talk about the economics, the Rand Institution in I think February of this year publishing in the New England Journal of Medicine revealed what are the costs of things like dementia, coronary artery disease and cancer treatment in the United States based upon their survey of the year 2010. What they found was really breathtaking because cancer care in the United States was about \$71B, coronary artery disease much higher around \$100-110B and treating dementia patients was \$200 or \$210B. Meaning we're spending triple what we're spending on cancer in trying to deal with this overwhelming onslaught of patients who are becoming demented.

Again, it's preventable. It's diet related. You know, this is not news. We're talking Hippocrates here that let food be your medicine and medicine be your food. An interesting publication recently came out in the Journal of Public Health where a public health MPH individual looked at the causes of death over a ten-year span in the ten most populous western countries. He found that many diseases actually were declining but that deaths from neurologic cause were increasing dramatically around 64% increase in men and more than 92% increase in women in one country alone which led the pack and that was of course the United States of America. And we're not genetically different from our European brethren, what we're doing here is we're influencing our gene expression, a process called epigenetics negatively to create this scenario and look what's happening and it doesn't have to be.

Robb Wolf: Doc, you know, there will be people who will get wrapped around the axle of what we're describing is the mechanism here. You know, is it just carbs, is it just insulin spiking or is it hyper-palatable foods that cause

people to over consume total calories and then that leads into like some mitochondrial dysfunction? But at the end of the day, I think the thing that people really need to understand and this is where I've tried to keep a foot and I guess in both camps, both looking at things from a calorie based standpoint and also from a hormonal based standpoint, is when we start seeing things head south. When we see that A1c head in an unfavorable direction when fructosamine starts increasing, when we see systemic inflammatory factors, when we start seeing you know, even the very, very early beginnings of cognitive decline then regardless of what the mechanism of causation is, our fix is a low carb diet. Do you think that that's like a pretty – I feel like that's a pretty indefensible, a very defensible spot to be. Like we may be right or wrong on different elements of what the mechanism of causation is but when we start seeing problems whether it's peri-diabetes or early stages of neurological decline, a low carb diet particularly with some ketosis thrown in is going to be incredibly therapeutic for that. Do you think that's a safe place to be?

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Dr. David Perlmutter: Well first I want to say this is a great interview. This is just fantastic information. I mean you're so well informed and enthusiastic about this and just to say as an aside I'm really enjoying this.

Robb Wolf: Thanks.

Dr. David Perlmutter: That said, I think it's important that when you say low carb, you are saying in the same breath high fat and that's a good thing.

Robb Wolf: Right.

Dr. David Perlmutter: So you know, it's not just the fact that we're cutting down on carbs and therefore hopefully positively influencing things like satiety and allowing people to you know, enhance once again their suppressed leptin signaling system which is what they've been doing by eating a lot of carbohydrates. So to step it down, leptin is you know, has a role to play in knowing when it's time to push away from the table. When you are pounding your body with carbohydrates, your brain response becomes what we call leptin resistant and you no longer really sense that leptin level. What happens is in fact your stomach cells rather your fat cells begin to secrete higher levels of leptin and you know, when you see people that are fat, they have higher levels of leptin which isn't working.

So it's far beyond the mechanism of what I mentioned earlier the glycation of proteins. It is you actually mentioned mitochondrial function.

The mana, the most precious fuel for the mitochondria is fat and if you take this to an extreme of going as low as you can on carbohydrates and pump the dietary fat, eat supplemental coconut oil or MCT, medium chain triglyceride oil, you actually create a situation called ketosis which is just bringing your mitochondria, the energy producers in every one of your cells back to life and stimulating a process called mitochondrial biogenesis. The mitochondria yes they produce energy in your brain cells and in all the cells throughout your body for the most part some cells don't have mitochondria. But the brain is a highly energy dependent organ as you might think and fat is a brain super fuel allowing the mitochondria to work create energy and give the brain what it needs but beyond their role in terms of manufacturing molecules called ATP, the currency of energy.

What is so fundamental to understand is that the mitochondria, which are tiny little particles within the cell dictate whether that cell will live or die. There are enzyme pathways turned on by targeting certain genes that indicate whether the cell is going to live or die. We call the process of programmed cell death apoptosis, which is a set of genes that signals this cell to commit suicide basically and again it's the mitochondria that control the process of cellular death. They wield what's called the Sword of Damocles. When mitochondria are dysfunctional, they're not getting what they need to live and be happy, they'll signal that cell to die.

Now you can make your mitochondria happy by giving them fat and depriving them of carbs. There's actually a medical food on the market now that you can get by prescription to treat Alzheimer's disease that gives mitochondria the right fat. You know, for years we've been using something called coconut oil no prescription needed and that's actually a brand new treatment for Alzheimer's disease. It was only described in the Vedic texts over 2000 years ago. So that's the literature. I can't give you the exact citation and volume and page number for that one but you know, it's interesting to revisit what knowledge has come to us from a long, long time ago not just through advertisements in current medical journals.

So we're saying again low carb versus a low fat diet. If you looked at the New England Journal of Medicine published on July 17th 2008, they actually there's an article that it's a two-year trial of an interventional trial where they put some people on a high fat diet and some people on a low fat diet. They had 322 moderately obese individuals and what they found at the end of the two years was that those individuals who ate the most fat, had the most favorable changes across the board in every

cardiovascular and brain-related risk parameter measurement that you can think of.

For example, the HDL or good cholesterol went up dramatically in the folks eating the low carb high fat. Triglycerides went down 23.7 points in people eating the most fat and only went down 2.8 points in people on the low fat diet. So almost ten times drop in dangerous triglycerides as you would expect when you cut down on the carbs. LDL level so called bad cholesterol, there's absolutely nothing bad about LDL. It carries life giving cholesterol throughout the human body was much improved in individuals who went on the high fat, low carb diet.

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Looking at insulin parameters and even looking at weight loss the high fat people lost and kept off the most weight. So that when you see this commercial enterprises for weight loss and everybody is desperate for weight loss, putting on a low fat diet because fat is the enemy, it is so perverse and so out of touch with history and out of touch with science and yet that's what people think they need to do.

When you realize that individuals like Dr. Atkins for example who years and years ago tried to popularize this notion that high fat is consistent with improvement in various parameters and so many people ridiculed him. I gave a lecture at the Integrative Healthcare Symposium in February and I said you know, Dr. Atkins was really on to something early on and we should have paid attention because this is a couple of decades ago and then I went on to talk more about the science. At the end of my lecture, I mean several people came up to ask me questions and one woman came up and put out her hand and she took my hand and she just said I just really want to thank you for what you said about Dr. Atkins. I looked at her name badge and it was his wife.

Robb Wolf: Oh, wow.

Dr. David Perlmutter: And it was just so touching because you know, Dr. Atkins even while he was alive got raked across the coals for what he was saying which was so contrary to the party line of the American Heart Association, American Diabetes Association and you know, to this day people challenge you, Gary Taubes, Loren Cordain, day in and day out based upon what we're saying. You know, there was a great YouTube interview of both Dr. Dean Ornish and Garry Taubes debating this and I think that's the kind of forum that is so fundamentally important to vet the science.

Okay, you know, let's talk about what matters not from your emotional perspective but at least let's take a step back and what does the science

tell us. So interestingly enough at the integrative Healthcare Symposium which is coming up in February of 2014, we're opening that conference with a dietary debate about what is the science telling us, what should we be telling our patients and other healthcare providers in terms of what really – you know, what is the truth here, what makes sense.

Robb Wolf:

That's fantastic stuff. Gosh, I'm trying to remember it was the same week that Atkins was stripped of his medical license for the second time, the same congressional committee deemed that sugar was an anti-nutrient. That it was antagonizing towards health. So it's just ironic the disconnect there. Like somebody who was basically saying, you know, sugar isn't really all that great. There's this different way of looking at this stuff in you know, and almost the same brush stroke, they not only took away his medical license for a period of time but you know, also had the wherewithal to recognize sugar as being a possibly problematic entity. So it's ironic the disconnect there.

Doc you know, your book is impressive because it doesn't just focus on this kind of insulin, leptin dysregulation but you really in my opinion button down the systemic inflammation, autoimmunity story really, really well and you're really putting gluten at the kind of centerpiece of all that. Like how long in your clinical process did it take you to write that? You know, again I feel like I'm singing to the choir maybe putting words in your mouth here. You know, clearly I agree with you on this stuff. Like what was the process of you learning about gluten and where was kind of the a-ha moment for you with that?

Dr. David Perlmutter: Well it really stemmed from my early work in dealing with people who had Celiac disease and recognizing that that in and of itself according to the literature was associated with profound issues like cognitive decline. Dr. Hu from the Mayo Clinic actually published that in the beginning of this, around 2000 showing that we should be suspicious of Celiac disease in individuals with cognitive decline and really no other explanation.

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So I began thinking about that in my treatment of dementia patients and they began telling me that when they went gluten free, other things were happening like headaches were going away, focus was improving. Then I had an interesting case of a young man who came to see me with a movement disorder 22 years old and he had myoclonus. His arms and legs were jerking and interestingly enough he had also some headaches, some poor performance in school earlier on and some gastrointestinal issues and I said what the heck we're going to test him for gluten sensitivity. He was positive. We took him off of gluten and the movement disorder went away.

Now he was offered two things from his neurologist. He was lived in Colorado. And that was number one either we were going to Botox all of your arms and legs or number two take a type of blood pressure medication in hopes that it would help. He went gluten free and actually videotaped him before and after and it's really quite remarkable.

So those are the kinds of experience. You know, Louise Pasteur once said that chance favors the prepared mind. So one I started seeing that stuff and learning about it and digging as deeply as I could, I realized that this is out there in there in the world. That there are researchers who have been looking at neurologic issues related to gluten sensitivity for a long time publishing their results and you know, unfortunately nobody has been taking --

Robb Wolf: It's being ignored.

Dr. David Perlmutter: Absolutely.

Robb Wolf: Yeah.

Dr. David Perlmutter: There's a Dr. Marios, his last name is Hadjivassiliou and he's in England and he has correlated gluten sensitivity with any number of neurologic problems and most importantly has called to our attention the fact that people can have not only neurologic problems but problems throughout the human body and may not necessarily have to have any gastrointestinal problems at all. You know, these days still the party line in mainstream medicine is that unless you've got a GI issue, you can eat all the gluten you want until it comes out of your ears. There can't be a problem because you don't have Celiac disease.

Well Dr. Hadjivassiliou called the top gluten leaders in the world together to meet with him in 2011 and they took this all apart and recognized that there are actually three clinical entities that are distinct. Number one is allergy to wheat which is kind of an acute what we call IgE mediated allergy, it's like when people who are sensitive to shellfish or peanuts where they get hives and maybe trouble breathing that's number one. Number two there is full blown Celiac disease which is an autoimmune type problem where the small intestine becomes grossly inflamed and number three, there's a larger group of individuals who have what is called non-Celiac gluten sensitivity or simply they're gluten sensitive. That is at least 30% of humans who have an inflammatory reaction when they consume gluten.

Now inflammation is again the cornerstone of our most dreaded diseases, there's coronary artery disease, Alzheimer's, Parkinson's again Parkinson's is an inflammatory disease and even cancer. So 30% of the world's population at a minimum are challenging the physiology with a signal that is turning on inflammation and that signal is coming from wheat, barley and rye and it's called gluten. Now beyond that it turns out that when you consume gluten or foods that contain gluten it signals in the intestine the production of another chemical. I don't mean to be too technical but hopefully...

Robb Wolf: We get pretty geeky...

Dr. David Perlmutter: Good. I'm there. I'm geeky.

Robb Wolf: Yeah.

Dr. David Perlmutter: So consuming gluten turns on the production of something called zonulin and in the intestine zonulin makes that intestine leaky. When the intestines leak protein into the bloodstream, that's a problem at least to inflammation autoimmunity and cancer. And according to work from Harvard researcher Dr. Alessio Fasano with whom I lectured two weeks ago in Los Angeles, this is present in 100% of humans that the zonulin signaling by gluten induces permeability of the gut and incredibly now permeability of the brain by opening up what is called the blood brain barrier.

So we're just at the beginning of this unbelievable situation understanding how pervasive this gluten sensitivity thing maybe in terms of any number of devastating conditions that affect humanity. And you know, we're just beginning to get our arms around it. You know, there's a great quote by Dr. Hadjivassiliou and he says we must advance such concepts by abandoning historical misconceptions, meaning about gluten and Celiac, and reviewing current literature in an analytical and disinterested way. It is time to move from gut to brain and that means that we've got to understand that you know, the gluten is not a gut problem exclusively and in fact at times and in fact quite often the gut isn't even clinically involved and the brain can be involved.

[0:45:55]

So when I put a kid on a gluten free diet who comes to see me because he's been diagnosed as having ADHD and two weeks later the parents get a phone call from the teacher saying thank you for medicating your child, I have to pay attention to that stuff because it's real. When I have a patient coming in with rheumatoid arthritis as demonstrated by blood work positive rheumatoid factor who goes gluten free and is able to stop

powerful immunosuppressive medication, I've got stand up and take notice and beyond that I really feel called upon to get that message out. You know, William Davis did a wonderful job in *Wheat Belly*, still a New York Times best seller and now it's time to recognize that yes this is a powerful underrated player when it comes to causes of brain health issues.

Robb Wolf:

You know, it's almost damaging to the cause that gluten affects so many, basically can affect any organ or tissue system in the body. And so that being the case, it's kind of like well could it affect reproduction? Yes. Could it affect cardiovascular parameters? Yes. Could it affect neurological parameters? Yes. So then it starts sounding like you've got an answer, you know, a cure for all ills which in a way you kind of do but then when you're trying to actually sound credible and not like a fruitcake then you have some problems there. But really is kind of the story that's emerging now at this. I think we get both equal parts you know, buy-in but pushback also when people really peel the onion and see what the story is. It's quite remarkable. But until folks do the skull sweat to read all the literature... I'm going to open up a file here on my desktop Celiac and gluten and in this I have 11,036 journals and peer-reviewed articles in it on Celiac, gluten-intolerance, gluten sensitivity alone and I've read all of them. Now all of them aren't as pinpointed on the mark as say like Alessio Fasano's work although every published article he has is in there.

But if people spend the time to read about this stuff, it becomes very, very compelling and interesting and here again from a clinical perspective, you're just asking people to do something simple. Let's pull out gluten containing foods, let's recheck you in 30, 60, 90 days see what your neurological tests are, see what your blood work looks like and we'll just reassess from there.

Dr. David Perlmutter: Absolutely. And you know when you say that the notion that people are going to give me pushback when I say their gluten sensitivity is related to all the various diseases that we've talked about, I'm not saying that it's necessarily the case but it could be. If it could be what's the harm if you say of going gluten free as opposed to treating symptoms only by taking your prednisone or taking your immunosuppressant medication. Hey, whatever. Give me a couple of months, let's go gluten free. The world is not going to come to an end and you know, like you say you've got to peel back that onion and that's a painful process.

Tears will come to your eyes when you peel back the onion figuratively and literally because you're having to go to a place of less comfort. People generally in America western cultures want to pass the buck on to

their doctors to do something and fix something and I just want to get on with life and do what I want. Well unfortunately, it doesn't work that way because our most dreaded issues don't necessarily have pharmaceutical fixes. And it turns out that lifestyle has to be number one on the list. It's got to be. It's the most important issue in terms of health and in lifestyle the number one player is food. To this day, most medical schools in America don't teach any nutrition whatsoever so guys like I am have to do it on their own. You've got to put the time and then you have to study this stuff.

[0:50:11]

You know, it's very tough. I mean when I lecture to mainstream groups about these notions, about the toxic effects of carbohydrates, the role of gluten sensitivity in the brain, you know I say listen I mean many of you in this audience right now if you get up early in the morning and looked to the east, you see the sun will rise in the east. By noontime it's straight over your head and then you tell yourself, you're quite convinced that the sun sets in the west. What I say to them then is I've got news for you. It's time to change the paradigm. Look at this in a different way. What I'm going to propose to you is that the sun isn't moving that the earth is actually spinning. You know, some of them get that and some of them don't. They don't know what I'm talking about, which is kind of scary but that said we believe the sun rose and travelled across the heavens for most of the time that we've been here. Only in recent history did we realize that it's the earth turning that gives it that appearance. I simply want people to take a deep breath and not necessarily embrace what I'm saying but at least consider the argument.

So you know, my book is called Grain Brain and now there has been put up on the internet by the grain industry a play on the name of my book. I think it's called Grains are Good for Your Brain. They offer up all of these statements about Alzheimer's and eating grain. I mean it's just –fine make a statement but I'd like to see the references. Show me the science that supports your statement because that's what the public deserves. The public deserves the knowledge, what is the current science telling us? Not just do whatever the heck you want and when you're sick we're going to give you a pill because it's good for the doctor and it's good for the pharmaceutical companies. It's just not right and you know, as a caregiver and family member of an Alzheimer's patient, I get it as I've mentioned to you. I get that side of it as well and you know, that provides for me powerful motivation to do the very best I can day in and day out to research this information. You know your 11,000 references you've done the work, you know what it's like. It's hard work because we're swimming upstream and really part two is do whatever we can as you have done so well to get that word out that you can make these changes

today and go a long way to ensuring a longer and healthier life. It's basically not that hard.

Robb Wolf: Yeah. You know, my greasy used car salesman pitch is give it a shot. You know, see how you look, feel and perform. Track biomarkers of health disease and then at the end of that 30, 60, or 90 days reassess and if it's not worth it, then do something else by all means. But you know generally it seems like when people look younger and feel better and can think faster and you know that it's kind of like well okay, if I'm getting out some pizza I'm going to have it once every two or three weeks and it's going to be gluten free pizza, done. You know, I mean it's not that onerous an intervention and you know, then asking people to eat some bacon and eggs and maybe a small cup of blueberries or something for breakfast. You know, is that really taking you out to firing squad? You know, when you get used to that, that's really not that big a deal and it's actually pretty enjoyable.

Dr. David Perlmutter: Robb I completely agree with you and people tend to enjoy those moments certainly a lot more. But it's the day in and day out aggressive carbohydrate consumption that leads to elevations of glucose. I think it's important to understand that you know, what "we" have said a normal glucose of 90-110 everything is cool, we realized that that's just not good enough anymore. Now --

Robb Wolf: Right.

Dr. David Perlmutter: --here let me set up the fundamentals here. Your blood sugar strangely enough relates to your consumption of carbohydrate. There is a stretch. I'm obviously you know, being facetious here clearly. The carbs that you eat are going to affect your blood sugar to lower your blood sugar you eat less carbs. Last month in the prestigious New England Journal of Medicine appeared an incredible article study looking at over 2000 individuals and what they did was they measured their fasting glucose and they measured their cognitive function. What they found was that they followed these individuals for 6.8 years. They measured their glucose and then they followed for an average of let's say 7 years. When they brought the people back and measured their brain function, what they found was that there is a direct correlation between their blood sugar levels and the rate at which their brain function decline. Again this is published in the New England Journal of Medicine, volume 369, I hope I'm right. I don't know the page number forgive me but nonetheless the point is that this study showed that the people who weren't even diabetic who had so called normal blood sugar levels are what we would have defined as normal, 105. Everybody says hey that's fine, 105, you're

not diabetic that's 126 so everything is great. Keep eating the bread. Even at those levels of blood sugar, they were already at significantly higher risk for brain changes leading to dementia. It was just published.

[0:55:40]

I'm hoping when you post this, there's a link – we'll put a link to the article I put in Newsweek magazine now it's called The Daily Beast.

Robb Wolf: Andrew shot us a number of links and I'll make sure to that he gets us all of that stuff.

Dr. David Perlmutter: Because there's a link in that article to these studies which people can --

Robb Wolf: Got you.

Dr. David Perlmutter: --read and raise their eyebrows to.

Robb Wolf: Perfect, perfect. Doc, you know, expanding on the clinical test that you do and circling back to the gluten intolerance, you used the Cyrex labs both I believe the panel 3 and the panel 4. Could you tell people what are in those panels and kind of what you are looking at? Because one is looking specifically at gluten intolerance. The other one is looking at different kind of novel substances like chocolate and coffee and stuff like that that may have some gluten cross reactivity. How do you use that in your clinical practice?

Dr. David Perlmutter: So we have really waited for a long time for a really good predictive test in terms of this whole notion of gluten sensitivity. You know, Cyrex came along and really filled that gap in an incredible way. I guess necessity is the mother of invention and they knew there was this necessity. So prior to the advent of the availability of this Cyrex test, we were forced to get routine laboratory studies that would look at things like antigliadin antibody and that gliadin is one of the components of gluten. Gluten is made up of two proteins, glutanin and gliadin. To measure if a person was reactive to gluten we did a test called antigliadin antibody, which was interesting but hardly ever showed anything.

We then learned that there are approximately 12 different isomorphs or types of gliadin that are found in gluten along with a variety of other proteins found in gluten that or gluten containing products that people can react to. So that said the Cyrex laboratory offered an evaluation of a vast array of antibodies against the various forms of gliadin as well as other issues, transglutaminase, various other types of proteins that we've create antibodies against that can cause troubles or an indication of gluten sensitivity. So for the very first time, we have this hugely

comprehensive test that has identified individuals who are gluten sensitive that we – I can't say we would have missed. I can we did miss because I've run the Cyrex test on people who had the earlier testing and that was negative and the Cyrex test has lit up like a Christmas tree.

Now beyond that, we recognize that in individuals who are gluten sensitive they may and frequently do demonstrate reactivity to various other proteins that are found in other things like amaranth, quinoa, chocolate, dairy, a variety of other foods, rice. So the laboratory created a test called Cyrex #4 that looks at the 24 different possible cross reactivities because frankly we do have times when people are aggressively gluten sensitive they go gluten free and in fact their response may not be as ideal as there you would have expected. We then run the Cyrex 4 test and say lo and behold you're sensitive to eggs as demonstrated on the study. Let's pop the eggs out of your diet and see where you go. And it's just no pun intended the icing on the gluten free cake because it really can finally give these people that edge. They're trying so hard. They're gluten free in everything that they do then you identify milk as an allergy or whatever else it may be and they stop that and they're better.

You know, and I will say certainly that the gluten sensitivity thing is not 100%. There are plenty of people who have gluten sensitivity and sensitivity to other things, remove them from their diets and they may not improve. To me that's a call to heal the gut. Not only take away the offending agent but put back aggressively probiotics, add in prebiotics or things that let those good bacteria grow. Add in things like l-glutamine to realize because when you have constantly for however old you are all those years, challenged your intestines with this inflammation producing food protein whatever it maybe, it takes some healing that has to happen.

[1:00:20]

Part of the issue is that we are so dependent on the health of the microbiome, the bacteria that live within us, that are in fact also damaged and changed in individuals based upon inflammation caused by gluten. So it's not just removal of the offending agent but we have to replete the gut with good bacteria and we have to heal the gut using such things as L-glutamine.

Robb Wolf:

Doc, do you ever do any you know, more extended parasite testing or looking at small intestinal bacterial overgrowth or will you refer out if you suspect something like that? How do you handle that? Like if you've got somebody who clearly has some very deep gut pathology maybe even

going into some like cortisol HPTA axis dysregulation but you have this sense that it's kind of gut related. Like how do you tackle all that?

Dr. David Perlmutter: It's a very good question because you know, basically I'm a neurologist so then I would say well this person has this fulminant small bowel overgrowth syndrome, overgrowth of candidiasis, dysbiosis, which is an imbalance of good versus bad bacteria. So what would you think I would do? Well I mean commonly you'd say well let's refer them to a digestive specialist or a gastroenterologist and unfortunately over the years I've learned that many gastroenterologists and no disrespect intended don't really have a handle on that aspect of the gut in terms of what keeps the gut healthy or how to return the gut to health. You know, they are really good at doing colonoscopies and taking out polyps and treating using medications inflammatory diseases of the bowel. So to answer your question this neurologist yours truly I deal with that absolutely myself.

Robb Wolf: Nice.

Dr. David Perlmutter: You know, I get the comprehensive digestive stool analysis test on a daily basis. We do the breath test for small bowel overgrowth. We use the antibiotic protocols that are important keeping in mind that it's fundamentally desperately important to replete that situation using aggressive probiotics so you know, I'm the one who does the 24-hour cortisol salivary evaluations and which also includes melatonin. I must deal with that. I can't. I have to embrace the whole person.

You know, the hypothalamic pituitary axis that you talked about is fundamental in the degradation of the hippocampus, the brain's memory center. When cortisol is elevated, it is directly toxic to the brain's memory center and starts the process by which cortisol actually increases and continues to damage the brain's memory center.

So you know, I have to do that myself. I can't let you know, unless somebody is from out of town and I can call up on a colleague then that's what I'll do. But generally you know, I must embrace all that.

Robb Wolf: We need to clone you and we need you in every city in every nook and cranny everywhere. I mean this is you know, I don't know if you're aware I started this thing called the Paleo Physician's Network that when my book was released. I started observing that my book, Mark Sisson's book, Loren's book, I was doing tons of seminars. We're helping lots of people but this basic approach of like lower carb, avoid gluten, avoid grains in general that helped about 85% of people and it helped them dramatically. But there was another 15% or 20% of people that it helped

them a little bit but they clearly needed a full functional medicine intervention. Like it just went beyond the basics. They either had gut pathogens or they had some HPTA access dysregulation or combinations and it was outside the scope of being able to cover that in a book. You know, you can't create a logic chart that's going to meet every single individual's needs. You need a trained clinician to do that. So it's just so good to know that this is what you're doing in your practice.

Dr. David Perlmutter: Well you know, basically standard western medicine tries to make you fit into a category and it's really paying more attention to the illness a person has rather than the person who has the illness. Oftentimes patients do not fit into a specific box. There's not a specific name for what they have and you know, that's when you have to just take a deep breath and recognize that you're going to be there I use the word more holistic. I guess that's two words. But you have and you know, the holistic approach is looking at the whole patient. Some people think holistic is the term used because they have a whole list of problems. Well maybe that's true. But you know, when you say that we should clone me and all that, I'm honored and flattered that you would say that but you know, what I do is I teach and I'm an instructor at the Institute for Functional Medicine. They give a course several times a year called applying functional medicine in the clinical practice.

[1:05:27]

And how wonderful it is that we get two or three hundred doctors from around the country to come to these seminars who said you know, basically what they're saying is I didn't get enough in medical school. I know there's more out there and I want to keep learning. When I stand up and begin my lectures to these groups it's difficult for me to get started because I'm so taken by the fact that these individuals humbly said I don't have all the tools and I want to learn more. You look out at the audience at these faces of physicians just desperate for this information because they want to dedicate themselves to being the best caregivers they can be and that means basically giving the best information out to their patients. It is just so empowering for me to see that people are becoming more and more interested in learning this stuff.

You know, the more you learn the less you –the more you realize how little you know, I mean three of Dr. Fasano and Dr. William Davis and I lectured as I said in Los Angeles a couple of weeks ago and at the end of the conference and several other physicians as well. At the end of the conference, we were having dinner and I just said I feel like I know even less now than before because of all the information. I realize there's so many more places to explore and so it's an ongoing lifelong pursuit and

gee whiz it is exciting. It brings back the excitement in the practice of medicine. I wouldn't want to have it any other way.

Robb Wolf: That's awesome. That's awesome. Doc, for this last kind of question, this is actually catering to my own selfish needs.

Dr. David Perlmutter: Okay.

Robb Wolf: Trying to be an old dude athlete, I compete in Brazilian jujitsu a little bit and always trying to tinker with my performance and health and longevity and everything. But you know, I've played with lower carb and really glycolytically demanding exercise like crossfit and Brazilian jujitsu and MMA and stuff like that and I just can't seem to get it to work. I know Peter Attia has been on a two-year keto adaptation and --

Dr. David Perlmutter: Exactly right. You're exactly right.

Robb Wolf: Where do you see that playing out? Like for me I try to stick some carbs like sweet potatoes in my post workout period and then after that I'm largely you know, it would be ketogenic producing ratio of protein and fat if I were not eating those carbs post workout. But my blood work looks good, my cognition is good, my performance is solid. At 41 years old I'm able to hang with the 20 year old kids in there and everything. Like where do you see that playing out? Like am I just doing a tradeoff of some performance now for possibly some health and longevity downside later on or do you think that that's a good way to maybe ride the razor's edge of having both some good performance and mitigate some of the downside later?

Dr. David Perlmutter: I think that and again I don't have much information about you except now I know your age and I know that you're aggressively working out and I know that you with all due --well you think that you need to replete your glycogen stores post workout by having sweet potato. I think that's where with all due respect, I think that's where you're making your big mistake because you're inhibiting exactly what you mentioned and that is keto adaptation. So if you really want to be able to burn fat, in other words be able to burn ketones throughout your workup and thereafter, try not following your exercise routine by having the sweet potato and I think you're going to see that that's going to allow you to much more aggressively keto adapt.

And I don't know how aggressively ketotic you become. You can determine that by buying some keto sticks and testing your morning urine but I would say that not everybody can do it but any high end

athlete that I've worked with have generally been able to make this happen. But the key is to not fall into this mindset that you're going to have to carb load either before or after and you know, a sweet potato is interesting. It's got nice carotenoids, nice fiber but it's a pretty good carbohydrate load. And what you're doing then is you're supplying yourself easily digestible carbohydrate bringing your sugar up and that is what your cells are using to adapt and in so doing create lactic acid and all the negative things that you don't want to do.

[1:10:11]

So with all due respect, Robb I don't know that you have fully keto adapted if you've been hitting the sweet potato after your workout.

Robb Wolf:

Well you know, for years I did kind of gymnastics sprinting less glycolitically demanding work and I actually ate a ketogenic diet or acyclic ketogenic diet for years. I mean years and years and years. I found Dr. Atkins' book back in '98. Like my first foray into paleo was actually a ketogenic diet and then I found crossfit and actually got involved with those guys very early in their evolution and then started doing some stuff like Brazilian jujitsu and MMA, which is you know, when you map out like the energy demands of the activities, it's very – you know, you have like alactic and then lactate producing then more aerobic pathway type stuff. It just hammers that glycolytic pathway.

So I've played with this stuff but I've got to admit I didn't suck it up and do a two-year you know, mitochondrial biogenesis program like Peter has done. Peter seems to be reporting you know, it took him about 8 to 9 weeks to get full aerobic pathway buildup on ketosis but it's taken him about two years to figure out how to get his anaerobic engine running at a very, very modest carbohydrate and protein load. He'll get a little bit of gluconeogenic spillover but that doesn't seem to kick him out of ketosis generally. My ego is such that I just haven't allowed myself to get the tar beat out of me for months on end to get that ketoadaptation. But I'm intrigued you know, and I'm always trying to figure out how to ride that edge. But the nature of my sport if I do five five-minute rounds that's usually about it whereas like Peter hasn't even warmed up until he's done two hours of aerobic activity. So it's been hard for me like the time indexing of my stuff is so short that I'm not sure if this is something that I can plug that ketogenic--

Dr. David Perlmutter: Well, you know, you might want to try. You might want to abandon that the post workout carb load is what you're doing. You know, for your listeners they need to understand that Brazilian jujitsu if you're actually doing the five-minute rounds of combat it is highly demanding or really any type of martial art where you're doing rounds of kumite or fighting

that it is extremely demanding exercise. But you know, again there are so many levels that you can look at this. You know, this is becoming ketotic is the cornerstone of what I think is antiaging medicine. I tell my patients about this. I say look at me, I'm going to be 75 years old and they look at me and I don't necessarily tell them that's 17 years from now but I say I'm going to be 75.

Robb Wolf: Yeah.

Dr. David Perlmutter: But anyway, you know, the point is that I think the cornerstone of the aging process is this glycation of proteins and it's incredible that the acronym for advanced glycosylated end products which are --

Robb Wolf: Age.

Dr. David Perlmutter: Yeah is age, aging who knew? How did that just happen to happen? You know, it's pretty breathtaking.

Robb Wolf: Occasionally we get it right right from the get-go so. Yeah.

Dr. David Perlmutter: Yeah. But again does everybody need to be so aggressively ketotic? Well you know, truthfully no one is going to be 100% gluten-free and people are going to have carbs. And in Grain Brain you know, I give into that saying that let's try to keep carbs in general. Let's be sensible about this, 60 to 80 grams a day. That means yeah you can have a handful of blueberries or have an apple. There's going to be carbs in your vegetables so live your life. There's a little lactose in your milk that are organic full fat milk that you're putting in your coffee which I think is fair game.

So you know, my purpose there is to really reach as many people with the best information that we could recognizing that it has to be for the broad appeal it has to be user friendly. So you know, that's the mission that I think you were challenged with when you have been writing your books that we all have been challenged with. I mean you know, when you read Why We Get Fat and what we can do about it by Gary Taubes yeah it's pretty aggressive in terms of what he portrays but I think you know, again the mission for him was to portray the science and why he has said what he has said. The same thing with Loren Cordain who obviously is a professor and dealing with this stuff every day in the laboratory so he's got a wonderful hands-on support for making these statements.

[1:15:04]

So it's a very interesting time. You know, I mean at the end of the day Robb Wolf, what are we talking about? We're talking about powering the human body in a way that it has always been powered for again more

than 99% of the time that we've been here. All of a sudden, the tables have been turned upon us and not from our own doing. People don't deserve that. They deserve to know that the food pyramid that they've been given is absolutely topsy-turvy and that the foundation of our food pyramid being grains and high carbohydrate foods is absolutely the worst recommendation and you have to ask yourself what was the motivation ultimately behind giving the population that information to eat more whole grain goodness. Because it's absolutely killing people.

Robb Wolf: Well and you alluded to this very briefly but the economic cost of neurodegenerative diseases is only now starting to really hit the public awareness and policy makers and whatnot. You know, we've been pretty wired into heart disease and type 2 diabetes and cancers various types of cancers but it looks like cognitive decline in neurodegenerative diseases could make all of the rest of that look like a drop in a bucket. And I think that that is incredibly scary but again regardless of where we are on the mechanistic explanation, we have a mechanistic solution for this stuff without a doubt.

Dr. David Perlmutter: There is.

Robb Wolf: That's the thing we just need to focus on.

Dr. David Perlmutter: That's why you and I are here today because this conceptually is actionable. It's not as if we're talking about theory here and at the end people say well that's kind of interesting. There is a take-home message about what you should do today. The first thing is recognize that it's carbs that are killing you and that doctors by and large haven't been trained in nutrition. I would simply say to those individuals who go to their doctor the cardiologist or internist and that person says to them you know, you should be on a low fat diet, the two questions would be number one why and number two you're giving me nutritional advice where did it come from, where did you learn this. I don't mean to be rude in challenging that but I think it's a fair question because there is no support for that anymore.

You know, and this isn't news. We talk about the Atkins diet and so what would science do? Science would take let's say the Atkins diet and compare it to the zone diet. I mean not the zone diet, the Ornish diet. So for the listeners, Dr. Dean Ornish has proposed that fat is absolutely the worst thing that we could consume. We need to be on the lowest fat diet possible as opposed to obviously what Dr. Atkins proposed. Now that said when you go low fat you must by default increase your carb

consumption. So that the Ornish diet being very low fat is by nature a higher carb diet compared to the Atkins diet.

Now if you go to the Journal of the American Medical Association, published in March of 2007, March 7, 2007 that's how you can remember it. There's a study called –it's called the A to Z trial basically or you can Google that A to Z trial and then maybe put in JAMA. What they found was that across the board the Atkins' diet blew the Dean Ornish low fat diet out of the water in terms of any parameter that you might want to look at. Good cholesterol, total cholesterol, weight loss. Every measurement that you'd want to look at was improved on the Atkins high fat diet compared to Dr. Ornish's very low fat higher carb diet that's published by the American Medical Association so what does the AMA tell us? They're telling us low carb high fat.

So the problem is you know, you walk down the aisles in the grocery store and all you see is low fat with reduced fat Oreos or whatever it is. People somehow take that as a moniker of therefore healthful. And it's time to recognize as I said earlier that the sun doesn't rise the earth is spinning. It's a different perspective based upon the most well respected science that's available. That's how you and I got started on this conversation a while back is let's look at what the science is telling us right now. Science speaks volumes.

Robb Wolf:

It absolutely does and Doc were already at an hour and 20 minutes and I have a feeling we could probably be here for four hours and I didn't get to perhaps a fifth of the questions that I had for so clearly we've got to get you back on the show. Is there anything else that you want to cover before we wrap up? I know you're busy so I don't want to capitalize your whole day here. But I wanted to talk about like brain derived neurotrophic factors and exercise. We're going to have to hit that another day and I know folks will love that. You do an amazing job covering that in your book and the recommendations from my perspective I believe are spot on. And it's not just my perspective actually the science seems to indicate this stuff too. So neither you nor I need to make it up. It's actually been pretty well verified.

[1:20:35]

Dr. David Perlmutter: Well let me say this, let me offer this up as a prelude then, as a teaser for our next episode and that is that what you brought up is this concept of epigenetics and quite simply that means that we control or genetic destiny. It is not hardwired in stone in our DNA. That our lifestyle choices including exercise, sleep, emotional experiences and perhaps most importantly the foods that we eat control the expression of our DNA. I

have to tell you that is –you know, when I was in medical school in the 1970s you would never have said anything like that. They would have burned you at the stake. But now we understand that we have powerful control that more than 70% of the genes that deal with health and longevity are under our direct control and that is hugely empowering and relates to things like growing new brain cells in the brain or where else would they be? That you alluded through brain derived neurotrophic factors.

So let's continue this next time. I would be delighted to tackle that subject and other things that you think are interesting.

Robb Wolf: Awesome. Well everything you're doing is interesting. So this podcast will go up September 17th which happens to be the release date of your book correct?

Dr. David Perlmutter: It is. Grain Brain has not been released yet and it is here we are way before the release. It is now the number one book in American in neurology in Alzheimer's and dementia and what does that say and these are people who haven't even seen the book yet. It says that people just want this information that that status quo of taking a pill and hoping for the best people are understanding that's just not good enough. So I am so thrilled to see what's happening because finally there's going to be the other side, the support for the fact that our lifestyle choices are fundamental players in our long term health outcome. So it's a new dawn.

Robb Wolf: Well and so to goose people clearly if you're really in a hurry then we will have links to buy Grain Brain from the show notes. But even better than that so that we can help Doc make it not just on to the New York Times bestseller list but clean sweep and hit #1 on the New York Times bestseller. Go to a local bookstore, ask them if they report to the New York Times. Buy at least a copy. If you buy multiple copies, make sure that it's a different transaction.

Dr. David Perlmutter: Oh gosh.

Robb Wolf: So those books count.

Dr. David Perlmutter: You're gilding the lily here and I appreciate the time.

Robb Wolf: Yeah let's really give this thing a go and kick this thing over the top because it's – you know, I do some work with Naval special warfare and police and fire and this is a whole other thing that I want to talk to you

about next time is actually traumatic brain injury and the effects that a ketogenic anti-inflammatory diets can have on traumatic brain injury. Because we've been fighting multiple wars for ten years, our folks in the military are experiencing shocking amounts of posttraumatic stress, traumatic brain injury symptoms that are being very, very poorly managed and this is a whole other area of the cognitive neuro decline story that has dietary elements but also has these epigenetic triggers of stress low vitamin D impact to the brain both from shooting weapons and also you know, deploying parachutes and all kinds of different stuff that is really starting to manifest. We're just seeing the beginning edge of this wave and this wave is going to build over time and it's going to be another big problem. Everything that you described in the book it is completely appropriate for people that are dealing with those issues as well.

Dr. David Perlmutter: Well then let me end by saying that in the words of the yellow emperor fourth century BC prevention is the ultimate principle of wisdom. To cure a disease after it has manifested is like digging a well when one feels thirsty or forging weapons when the war has already begun. So you know, in addition to treating the various things that you've mentioned, you know, the notion of preventive medicine applied to brain health is unfortunately in its infancy. No one wants, you know, people talk about heart smart diet or aerobic exercise weightbearing for your bones but where is this discussion about preventing devastating issues that relate to the brain both traumatic and also degenerative and yet we've got that knowledge and we've got that knowledge today.

[1:25:15]

You know, that said to get back to the book I mean I guess if this is playing and today is September 17th that means today is the launch of my book. Gee, I'm really very, very excited knowing that this is happening today and Robb, I want to thank you for this opportunity. It's been really great.

Robb Wolf: Super excited to have you on the show. I told Doc before we started recording that it's rare that I'm nervous before an interview at this point, this is show #200 and we've done a fair number of these but I just respect you, respect your work and was honestly very excited for a bunch of very selfish reasons to talk to you on this. So I'm really excited and you know, really encourage people to go out and grab this book and share it far and wide. It's going to be a game changer for folks.

Dr. David Perlmutter: Well thank you my friend. You're very kind and again the work you're doing is over the top. You know, it's all about information and I applaud you for that.

Robb Wolf: Well thank you and good luck and looking forward to getting you back on the show.

Dr. David Perlmutter: Okay. Sounds great. I'll talk to you soon, Robb.

Robb Wolf: Great, Doc, take care.

Dr. David Perlmutter: Bye-bye.

Robb Wolf: Bye.

[1:26:31] End of Audio