



## **Transcript of “Nina Teicholz on Saturated Fats & the Soft Science on Fat”**

Bulletproof Radio podcast #149



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Dave: It's Dave Asprey on Bulletproof Radio. Today's cool fact of the day is about leaf-cutter ants. They're the only animal besides us humans who cultivate their own food. They like to cut off pieces of leaves, chew them up, put them into little compost piles ... and we've got our fermentation angle there ... and then they feed off the fungus the pile produces, which is actually a healthy fungus and not an unhealthy fungus.

It's not really the Bulletproof Diet that they're on, but it seems to work for them, and it's terrifying to imagine what they eat if they were living off Bulletproof Coffee so let's not go there.

Today's guest is Nina, and Nina I'm just going to freely say I cannot pronounce your last name even after trying. Would you please pronounce your last name perfectly for our listeners.

Nina: It's pronounced tie-scholl's, like a tie you wear and Dr. Scholl's shoes.

Dave: That is the best mnemonic ever. Nina Teicholz. Got it ... sort of. Beautiful.

Despite the fact that I have a hard time pronouncing your last name, Nina, I'm a fan of your book, because you wrote this awesome book, bestselling New York Times book called *The Big Fat Surprise: Why Butter, Meat, and Cheese Belong in a Healthy Diet*. That's amazing. You've also contributed to *Men's Health* and *Gourmet* magazines, *Cooking Health*, [We've Got to Be Friends 0:01:32], but you've also done these little things like *New Yorker*, *The Economist*, the *New York Times*, *Salon*. You've been an NPR reporter ... and basically you're way cool and I wanted to have you on the show. Thanks for joining.

Nina: Thank you for having me. It's great to be here.

Dave: If you're watching on video, you may have noticed I'm wearing a really cool shirt with astronauts on it. That's because I've been getting a lot into the

SpaceX program lately and just felt like today was time for astronaut wear, so I'm not exactly wearing my normal podcast whatever ... but it's fun.

Nina: Sorry, I don't have any astronaut gear on. I look just so conventional and boring by contrast, but I like your shirt.

Dave: One of the things I've been thinking about is that, if we could convince the space program to look at fat, and they understood that there was more calories per gram of fat, they could actually carry less food up into space station if would fat-adapt the astronauts. They'd save rocket fuel.

Nina: That's interesting because you must know of this team that just rode across the Pacific. They were fat-adapted, and they took all their food with them in a boat rowing across the Pacific. They did extremely well. I don't know if they won, but they did extremely well. It took them 28 days, and they have to carry all their food with them like a spaceship.

Weight [inaudible 00:03:07] must have been one of the factors that helped them, aside from the advantages of being fat-adapted for endurance athletes, which I'm sure you know about.

Dave: We just jump right into eating butter and living off fat and astronauts, which is unusual for the show. Why did you get into biology in the first place? You're written a book that is, I think, really a good book and very respect-worthy, but how did you get there from being an NPR reporter, studying at Oxford and Ivy League? Explain the transition.

Nina: Like you, I wasn't studying nutrition. I was an investigative reporter, and I was doing a series of investigative pieces into the food industry for *Gourmet*. My editor assigned me a piece on trans fats. This is back in like 2003. I wrote a story that broke open that whole subject. It was the first really in-depth look at what the issues were around trans fats. That led to a book contract, and I started writing a book about trans fats.

Some of the people that I talked to for that story just blew my mind about this bigger story, about all dietary fats. Your listeners might know. Mary Enig was this pioneering scientists who was completely harassed and

ignored by the establishment scientists, and then Gary Taubes, which I'm sure a lot of your listeners know about him.

It made me realize there was a giant story out there that had gone under-reported. I decided I was going to write about all dietary fats, which is a crazy endeavor. It took me nine years to write my book because I had to read every last study and really dive into this in a really intense, profound way. That took a long time.

Dave: The two authors you mentioned, Mary Enig who I have not had the pleasure of meeting, and Gary Taubes who I consider an amazing writer and actually was kind enough to speak at Silicone Valley Health Institute, which is an anti-aging group that I've been involved in the leadership of for a decade.

Getting to have dinner with Gary and meet Gary, it's like, "Wow!" This guy never wasted a word in 500 pages of *Good Calories, Bad Calories*. If you're listening to the show and you don't know either of those authors, they're both worth reading. If you're interested in learning a little bit more, other than the basic, "Hey, here's the Bulletproof Diet." "Here's a paleo diet." "Here's how to eat more fat." You don't know why, you want to get over a fear of fat ... science is hard to argue with. You can really pay attention to the things those two have written, so thumbs-up that you mention them, and thank you for providing that resource to the readers, or listeners as this case may be.

Nina: I think of Gary Taubes as the godfather of this whole movement. He wrote these articles in late 1998 and then early 2000s about ... He really was the first person to put together this story about, "How did we get going down this path of believing that fat and saturated fats are bad for health?"

He was first person to really stitch that ... "The Soft Science of Dietary Fat," was the title of his article, and he put that in his articles and his book that came out later.

Where I take the story from there is ... just for people who ... I know you have an educated audience. Where I take the story is I take the next step

from what Gary did. I cover some of the same history as he does. My book is geared to a little bit more of a general audience. It has, I think, in its best possible light, been called a "nutrition thriller." It's a page-turner. *The Economist* called it a page-turner.

I continue on the story about, "What about the Mediterranean diet? That's maybe not all that's it's cracked up to be. What's the story about olive oil?" I really go into more of the story about how the food companies played a role in this history. Gary's book stops in 1986, and I continue on with the science since then.

What has happened in the last decade? The last decade of science and progress in this area has been revolutionary. What was the role of Atkins? What's the role of Dean Ornish; I analyzed his science and [inaudible 00:07:39] some surprising gaps in it. I tell the story of trans fats, tropical oils, what happened when we took trans fats out with just a scary story, I think.

It covers some ground that ... where his book leaves off, I pick it up a little bit and carry the story forward. It's such a huge story. People have said, "Why do I need to read your book when I've read Gary Taubes?" and I say, "It does have this additional information, but also it's like World War 2; you need more than one book on World War 2." It's a huge story.

Dave: I would say your books are different, and page-turner is definitely true. Writing a nutritional page-turner ... I just finished writing the *Bulletproof Diet Book*, which is honestly not a page-turner. It's got the story of [crosstalk 00:08:28]. Thank you. [Roedell 00:08:31] December 2nd is our big launch.

The challenge of working in hundreds and hundreds of references but still making it accessible, so that it's like, "What do I do with all this?" versus the story. What I like about your book is that you have the story, but it's not dry. Reading a history of nutritional policy book would put anyone to sleep, and you totally didn't do that.

Thank you. When people learn how they've been basically defrauded by modern industrial food, they should feel a little bit betrayed and angry; and when they learn that it takes 600 days to replace half the fat in your cell membranes, you realized, "Okay, I'm not going to fix myself in a week, but I can probably feel better; but it's going to take four years to get 75% of my cell membranes back where they should be if I had just been eating the stuff I was supposed to be eating and someone lied to me about."

That kind of stuff should make you a little bit upset.

Nina: It does, and I get a lot of really passionate emails from vegetarians, from people who are angry that they've been carrying around extra weight, people who lost their parents because their mother or father was strictly, religiously eating margarine, following a low-fat diet, and still died of heart disease.

The stories ranged from the small to the tragic. As a nation, we have been so much sicker, obviously sicker, and one of the stories now that nutrition experts tell us ... They basically have two ways that they shift the blame away from their own bad advice, and one of them is, "You Americans, you are fat and diabetes because you don't work hard enough, you're all eating junk food, and you don't exercise enough. It's your fault."

One of the things that I document in my book is ... and this is available data to them, too ... we have reduced our saturated fats by 11% of the last 30 years. We have increased fruits and vegetables by 17%, and we've increased carbohydrates by 25% as we've been told. We have followed that food pyramid, eating most of our calories in that big bottom slab.

At the same time we're clearly fatter and sicker, so how can that truly be our fault. I don't think exercise is really an explanation because there were ... It's not like we were all hunters and gatherers running around the savannah anytime recently. People had [inaudible 00:11:12]. There were no gyms in our grandparents' day. The jogging craze didn't start until the 1970s, and we actually are a fairly active population.

Clearly our working hypothesis is not working, and the main message of my book is, "This has been our hypothesis, that fat, and saturated fat particularly, are bad for you. It's been our hypothesis since 1961 when the American Heart Association issued its first anti-saturated-fat guidelines. It's been our hypothesis for over half a century; it clearly isn't working. We need to try a new hypothesis.

Dave: It was that exact, "It clearly isn't working," thing that finally made me start paying attention to fat. I used to weigh 300 pounds, and ...

Nina: That's amazing.

Dave: You know you're fat when you're fat, and then you do what most people do which is, "It's because I didn't try hard enough. I have these clear recommendations ..." I'm like, "All right. I'm done. I am going to work out six days a week an hour and a half a day, make sure I get my exercise in, half weights half cardio," and I cut my calories to around 1800, sometimes 1500, and, "I'll eliminate fat, and will eat those stupid chicken breasts and whatever else."

At the end of the 18 months I was still inflamed, I was still fat, and I was strong ... but I was fat. I didn't have to buy new pants. I was still a size 46, and I'm a 34 today.

Nina: That's people's experience over and over again. I was also carrying around 10 more pounds than I do today, and I used to exercise strenuously, an hour every day. Now I have almost no time to exercise, even though I love it, but I don't have to worry that I'm going to ...

I love exercise, but it's hard for people if you've got a job and kids. There are so many stories like ours now.

I think that it's hard for people to realize. People keep trying the failed solutions and getting the same results. What is it? I think it's Albert Einstein who said, "People who are insane are people who do the same thing and expect a different result."



One of the reasons I think my book has had a decent reception, one is that it's got thousands of footnotes, so it's really road referenced and it lays forth a strong argument. I think also the doctors whom I've spoken with, including a cardiologist at the Cleveland Clinic, they are surprisingly receptive because they know that the solutions that they give to their patients are not working for them. How many more times will they say, "You need to cut down your fat. You need to ramp up your fruits and vegetables. You need to exercise more," and their patients aren't getting healthier?

I was going to say, there are two explanations that ... I started to say that there are two explanations that experts give about why we are not successful, the way that they shift the blame. One is by blaming Americans, themselves, and the other is by blaming the food companies for producing all this crappy food ... and they do.

One of the things I try to do in my book is to tease out ... I go into depth about the role the food companies have played in this whole story. I'll just give you a little tidbit of that, which is going back to the 1940s when the food manufacturers were starting to really grow up ... Heinz, Best Foods, Standard Food. They realized that influencing nutrition policy was the key to selling their products, and the American Heart Association in the 1940s was this sleepy little cardiologists' society.

In 1948, Proctor and Gamble goes to them and says, "We would like to make you the beneficiary of our Walking Man Radio Contest." Overnight, \$1.7 million flows into the American Heart Association coffers. Suddenly they're opening chapters all over the country, they've started a research budget, and that really transformed them into the national powerhouse that they became today, which they still are today.

Coincidentally, in 1961 the American Heart Association's first nutritional guidelines say you need to switch from saturated fats to unsaturated fats, which are vegetable oil, Crisco oil being Proctor and Gamble's major product.

The interests of [certain 00:15:39] companies have been in there from the very start, but I have to say that the story that I ... Ultimately I think that this is a story of failed science. Scientists [inaudible 00:15:53] results to ... making conclusions about results before the evidence was ready, and then perpetuating their bias for a certain hypothesis, ignoring evidence to the contrary.

The bulk of the story is really that ... making soft science suffice and not being rigorous enough about the science.

Dave: One of the things that really got to me when I was fat was that idea that I was being scientific, because you keep seeing this. What you don't know is that you have that huge selection bias, you have the funding problems, and then you have the marketing problem.

The companies you mentioned, all of them got their start even 50 years before the 40s as coffee companies, believe it or not. When you look at Post and Kellogg and all of that, they all started out selling something that, throughout history, has been a commodity, somehow making it different, or telling people that this was better, this was special, even though the whole time they were grinding down quality ... grinding down, that's funny ... grinding down quality, and did whatever they could to make it economically 1 more cent per pound of profit.

Then they became expert at saying, "Two cups of coffee ... they look the same so they must be the same." It was that ability to apply marketing on top of that that they then transferred to food, and then they transferred it to breaking public policy and hacking science.

I don't ascribe to these companies being evil, or the people running them being evil. It's like an emergent behavior. You have tens of thousands of people working toward selling more Raisin Bran, or whatever it is, it just goes that way. "Oh, I can grow soy bean oil. Let's find a way to sell it."

It's up to people to see, "Oh, wait. I tried that for a while, and I'm not actually better than I was before," and paying attention to personal results, and looking at what happens around you. Then it's up to scientists to look

at the double blind side, and then also look at the clinical side. "Wait, if the double blind says this but all of the clinicians say, 'Good God, my patients are dropping like flies,'" you need to balance both of those out because they're both useful datasets.

Nina: There are so many things to say about nutrition science and why it has gone awry. My chapter on trans fats, I got really deep into the world of food scientists, particularly oil chemists who are the people who work on fats. The story of trans fats, there's a section where I talk about how there was literally a mafia of guys who were there to protect vegetable oils, and particularly to prevent this story of trans fats from getting out.

Going back to Mary Enig, one of those original scientists I spoke to, she encountered this mafia. They would call up journals and try to prevent her articles from getting published. They literally told me they follow scientists around to conferences, and their job is to stand up and ask as many aggressive, hectoring questions as possible.

They don't think of themselves as bogey men. They truly believe that they're defending something ... that what they're saying is true. Nevertheless, they are organization by a trade association, the Institute for Shortening and Edible Oils, and this is part of what the vegetable oils company do. They're some of the biggest companies in the world ... ADM, Cargill, Bunge, Monsanto. They've been very successful.

Trans fats started in the food supply in 1911, and they were not even really ... there was nothing written on them until the 1970s. Mary Enig was considered a complete zealot for even talking about them for decades ... not decades, but a decade.

That's one of the stories about how bad the science is, the influence of industry, but it's also true that scientists inside the field are not doing great science, either. They're doing these epidemiological studies, and this gets to your point about how ... where they're ignoring what the doctors say.

It used to be that doctors were involved in research more, and they saw patients. They understood what it meant to try to get somebody to lose

weight. They can see that up close. Now most of the headlines in nutrition come from epidemiological studies because it's very easy to generate headlines out of these big datasets.

What those scientists do, they send out survey forms, they get back to survey forms, they do statistical analyses on them. They might never see a person who's trying to lose weight. They really are too detached, and they don't understand anything about biology, metabolism, basic biological processes. They're just looking for associations.

Then there's all kinds of problems with measuring people's diets. "How many peaches did you eat last year?" check a box ... 400 more questions. The validity and quality of that data is questionable, and many scientists question it, but currently epidemiologists are in ... they're some of the biggest names in science today.

Still I go after them pretty strongly in my book, and by name. They're behind all those headlines, scary headlines about meat-eating. "Meat-Eating Causes Cancer." "Meat-Eating Causes Heart Disease, Stroke," on the front of the New York Times. All of those come out of those kinds of nutritional epidemiological studies.

Dave: Earlier you mentioned Dr. Ornish. I called him out when Steve Jobs died. It took about two weeks of digging around to figure out what the Steve Jobs diet was, and it turns out it was the Ornish diet. I basically said, "Dr. Ornish, the evidence is pretty clear here. We've lost one of the luminaries in our tech industry, and your advice against saturated fat and for all this other extremism was a part of that."

He came onto the blog, "How dare you? I have evidence." I said, "Come on to the show. You're invited on to the show to tear me apart here for what I'm saying," but he wouldn't do it.

My understanding of looking through his research was that every time ... meditation effects, which are quite good for cardiac outcomes; plus or minus a low-fat diet, the meditation effects were a huge variable in getting the results. If you're going to mix things up like that, you need to unmix

them, and when you eat that low-fat, highly poly-unsaturated diet, you don't get the results you're looking for.

Nina: There's quite a lot I could say on this subject. There's a section in my book on Dean Ornish; it think it's the first time that his science has really been scrutinized, that I can find.

Dave: Thank you for doing that.

Nina: Thanks. I talked to him several times. He was called by his ... the colleague with whom he did all of his original studies, Dr. Gould, say ... When I got in touch with him, I don't think anybody has ever called him to ask about his views on those original studies that Dean Ornish did, he said, "Wow. I just can't believe how Ornish has turned those studies into the mega-career that he has."

It's a little bit like seeing an empire on top of a pinpoint. He did one well-controlled clinical trial on 23 men, 19 of whom finished, using a questionable outcome measure which is scans of your arteries, and those scans really do not track well with heart attack risk, it turns out it's a little more complicated than simply the diameter of your artery; and they weren't just about diet. They were about, as you say, meditation, supplements, other kinds of stress relief tools ... yoga ... all of which could have an influence on the outcomes.

It's a tiny study. It's statistically completely insignificant, but if you want to kick the numbers, there was one death by somebody on his diet and 0 deaths in the control group, so to ...

He likes to quote relative risks, which I don't like to do because I think it inflates the reality, but to use his numbers, there's a 100% increase in death on his diet ... 1 versus 0.

Dave: That's %1000 we could say.

Nina: That's the only trial that he did, and there are ... he really has created this huge universe on top of this tiny ...

He will say, he said to me repeatedly, "In the studies that we've done ..." I think it's fair to say he mischaracterizes his work. There was only one well-controlled study. The other study was so uncontrolled. They took one group to a Buddhist retreat and did everything for them for a week, and the other group they just left in their homes and did nothing for them.

There's something called the intervention effect where people, just by intervening with them, even just a health worker coming to their house to say, "What's in your kitchen? Can I help talk to you about diet?" and even just counseling once a week makes a difference for people. They respond to it. It's like a placebo effect.

There's really just that one study that he did, which he's based his empire on. It's really not clear that a very low-fat diet is good for health because, when they have tested it, it turns out that it makes your HDL, your good cholesterol, drop. It reliably makes HDL go down, which is not a good sign.

Fat-deprived people ... when people are deprived of animal foods, then their cholesterol is depleted in their brains, and that has been shown to cause ... not just be linked to but actually cause psychological issues, problems, mood disorders.

I can only add ... I'm not going to say this is a causative link, but I just want ... Robin Williams was on a vegan diet since 2009, and he's a friend of Dean Ornish's and they're neighbors; they live nearby each other.

I think a lot of people get better on vegan diets, and all diet works to the extent that, if you get rid of sugar and refined foods, everybody looks better if they get rid of junk food, and to some extent all those diet works.

If you go back to look at some early experiments on animals that were done with vegetarian vegan diets, they would say, "It's not impossible to be healthy on those diets, but it's much harder." Getting the right balance of legumes, grains, seeds and that makes it much more difficult to stay healthy on those diets, not to mention you can only get vitamins B12, B6 in animal foods; you cannot get those in a plant-based diet.

Dave: I was a raw vegan for quite a while, and after about ... I'm willing to do anything. I've tried just about every diet out there. When you're fat and you're motivated, you're going to get there.

During that time I did lose some weight initially. You end up eating ... actually you're not getting an excess of protein, which is also inflammatory, and I developed a bunch of autoimmune conditions I didn't have before that. I felt great for three months. You get the glow, which is also associated with famine. It's your body going, "Oh, my God, I'm not getting some of the things you need. Really, you should have a lot of energy. Could you go find some food?" I bought extra big bowls to fit enough salad to satisfy myself.

I really feel a lot of brotherhood with vegans because ... even though sometimes I tease them ... what's going on is they care enormously about food quality and animal suffering, and I do, too, which is why ... the cows I eat now eat grass that grows in my front ... on my property. I know the guy who raised the cow; his name is George. When I'm in the US, I know the guy who raises the cows there, and he's been on the show.

You can handle animal cruelty and even the environmental aspect of eating a diet that includes meat and dairy fat.

I've been honored when other people who are vegan will sit down and say, "I'm going to have sushi with you Dave, just because I've looked at the science and ..." you see that shaking first bite. It's so predictable.

I feel better. I'm not hungry all the time. I'm warmer again. Anytime someone has that level of courage to say, "I'm going to step outside my paradigm," or put some ghee on my lentils ... Okay, let's bring our brains back online all the way.

What else happens when people add ... when they're vegan or vegetarian and they add saturated animal fat back in their diet? What sorts of health parameters change?



Nina: The arguments that I make for saturated fat ... part of my argument is going through all the evidence about why we think these fats are bad for us, really reviewing that, and showing how weak it is. How did this whole hypothesis get going?

Then I talk only just a little bit about ... I talk a lot about the last decade of clinical trials. After Gary Taubes wrote his book, it unleashed this whole conversation in the scientific community that had been underground. People did not talk about fat, high fat. There would be nobody like you and me having a podcast.

There was this group of scientists who started looking into whether a high-fat diet could be healthy, researchers like Jeff Follick, Eric Westman, Steve Finney who's actually been doing it since the 1980s. They started doing a series of really rigorous clinical trials, looking at basically ketogenic diets, which are very low-carb diets. They say again and again and again that people look far healthier on that diet in terms of their ability to lose weight, in terms of their diabetes and heart disease risk factors.

Thousands of people have now been tested on that diet, and the clinical trial results are really clear. High-fat, low-carbohydrate trumps not only low fat but also trumps the Mediterranean diet it seems.

I think, "What's the case for saturated fats?" What are the actual benefits of saturated fats. One thing is: saturated fats are the only fat that will actually raise your HDL, your good cholesterol. We're all told to go exercise and drink red wine to raise our HDL, but you could also just have eggs and butter, and that will also raise your HDL. That's one good thing about them.

Another unsung virtue of saturated fats is that they are solid at room temperature, and what that reflects is that they are stable. They are stable fats that do not have any extra double bonds that can react with oxygen. That means that, when they're heated, they do not create what are [inaudible 00:31:46] toxic oxidation products, compared to vegetable oils which are polyunsaturated, meaning they have lots of double bonds, all of which can react to oxygen and all of that. They become more reactive at



high temperatures, especially for prolonged periods of time such as occur in restaurant fires.

I'm going to on a little tangent here, if you don't mind.

Dave: Please. I'm loving this.

Nina: One of the things that happened when we got rid of trans fats, trans fats are a byproduct of hardening vegetable oils. The reason you harden vegetable oils, in part, is to make them more stable, so they mimic what a saturated fat is naturally.

It used to be that McDonald's fried their French fries in tallow. When we had to get rid of saturated fats, they brought in, like all companies, these hardened vegetable oils. It's basically Crisco; it's a kind of Crisco. They can be hardened to various degrees, and they've been in our food supply since 1911 when Crisco was first launched.

When we got rid of the trans fats, starting off in 2007 all the big fast-food chains started ... because they could no longer use these more stable oils in their fryers, they switched to just regular oils ... regular oils.

Dave: Even worse.

Nina: McDonald's, Burger King, [inaudible 00:33:12] even more worrisomely all your mom-and-pop restaurants, like [out of 00:33:14] in New York City where we have a trans fat ban so no restaurant can use them. I worry more about my local Chinese place, or any mom-and-pop restaurant, is unlikely to change their oils frequently or have procedures in place. Nobody can test for most of the toxic oxidation products that there are. McDonald's and Burger Kings have developed some mechanisms to try to test for them or to counteract them.

Just to give you a little sense of how reactive and volatile these oxidation products are, it's basically all these fat molecules reacting with the air. The way I got to know about this story was a vice-president in one of the big oil companies said to me, "You know they have these horrible cleaning

problems in all the major fast-food chains when they switched over to using these oils." All this gunk was building up on the walls, they couldn't scrub it off, and clogging their drains, and when they took the restaurant uniforms to be cleaned, in the back of the trucks they would spontaneously combust. They were having fires in the trucks, and they would clean and they would have fires in the dryers because they were so volatile.

There's literally hundreds of these oxidation products with aldehydes, [acrylenes 00:34:36], degraded triglycerides. It's an endless list of them.

Getting back to saturated fats, saturated fats do not oxidize. We used to only cook with butter and lard before 1900, and there are still great cooking fats. They are solid and stable at room temperature. It's such a huge argument for them that we don't really know about.

Dave: I only cook with ghee or butter, and occasionally coconut oil if I want that coconutty flavor. It's such a big impact on health, and it's such a small change in behavior. You are going to cook in a fat. Just pick the right one. It didn't cost substantially more, it was so simple, but most people are still cooking in olive oil because they think that's healthy. What does cooking in olive oil do for you?

Nina: Olive oil occupies a unique place between solid fats and polyunsaturated vegetable oils. Olive oil is what's called a monounsaturated fat, so it only has one double bond. The oxidation products that it produces are somewhere in between. It's not as bad as most like peanut, corn, soy, safflower, those oils. It's a little bit better. I use olive oil in salads and [inaudible 00:36:00]

Now when I make bacon I take the fat from the pan and strain it through a coffee filter, and that's lard. Lard is great for cooking. I can't get over how delicious it is, and it doesn't smoke up in the kitchen. It's a great fat for cooking, and it is the main fat that has been used in Western civilizations since antiquity. The word lard is in the Odyssey, "A great [chine 00:36:30] of ox spread with lard," or I think that's what Homer wrote.

It's a great fat for cooking, and it's starting to make a little bit of a comeback.

Dave: One of the scary things is that, if you go to a normal grocery store and you get some lard, you turn it over it says in Spanish, Manteca, and I know that because I used to live in a town named Manteca, actually supposed to be named after butter but they named it after lard accidentally, a small town in Northern California.

Nina: Oops.

Dave: That lard is hydrogenated so it can be shelf-stable. You want to get grass-fed, high-quality lard, or bacon grease.

I cure my own bacon from Heritage Breed hogs that ate the right stuff, and I save it and I put it into a blended salad dressing. You take one of those olive oil or MCT oil based salad dressings, and you add the bacon grease to it, and you [end up 00:37:19], "Is the bacon everywhere in my salad," and all of a sudden ... it makes me happy to eat a salad like that.

Nina: That sounds amazing. That sounds great. You are so privileged to be able to live you ... walk you talk and do everything that you care about. There are now companies ... there is a company that's making artisanal lard, and there are just companies starting to get going, I think because there is now a demand for it.

Dave: If you look at where you're going to apply your food dollars, buying high-quality fats is one of the most important things people can do. On the Bulletproof Diet, I've over the years, looking first at fertility and restoring fertility, and looking and anti-aging and all, the recommendations are 50% of your fat is saturated ... minimum ... and you minimize polyunsaturated fats as much as possible. If you're going to eat unsaturated fats like olive oil, or monounsaturated, then what you want to do is never heat them, keep them in the fridge, don't expose them to light and air.

People are like, "Dave, you're a little bit obsessive about this, aren't you?" I just do the things that work the most, and it turns out eating unoxidized oil

that isn't damaged, building healthy hormones and healthy cell membranes, it rocked my world, and I walk around looking like I work out all the time and I'm a former super-fat guy for more than half my life. I do eat like that for a reason.

Nina: If you want to know the science behind that, I think I'm the first person to really review all the science that has been going on since the 1940s on these oxidation products, and what is the implication for health?

Dave: Your book is amazing.

Nina: I'm not trying ... I know I'm just promoting myself, but I want people to know that there are these ... that that's a completely new, original, interesting piece of research, and I desperately want it to be out there. The more we move away from trans fats, these are the cheap alternatives and we are all being exposed to them.

I really want people to know about that.

Dave: Nina, this topic deserved a book with all the references you did. It's not in my book. There's a few references, but honestly, it's a whole book.

Nina: It's hard to write a book. It is so hard.

Dave: You want to go in and you want to cover everything, and explain all the beautiful reason, and I beat myself over a head saying, "This is a how-do-you-do it," assuming that the science is there, talking about the big science pieces. To have a book like yours available, where you go into the whole story about how it became this way and what the science actually says.

I'm grateful that you wrote it because every person who reads that is going to look at the fried calamari on the menu and just say what they should say, which is, "Are you freaking kidding me? Give me the foie gras. Don't give me the fried calamari." There is a better choice.

Nina: I think our books are good ... it's a good pairing in the sense that people need to read the story and understand for themselves. They need to read the science. They need to read the history. They need to know the story.

I get all these messages all the time, "Okay, now what do I do? I'm committed to trying a high-fat, low-carbohydrate diet. How do I do that? How do I do it healthfully?" I have no idea actually. I'm just a rookie in this how-to world. Now I can refer them to your book.

I think people really need both. For people to get healthy and for the conversation to move forward, we really need both kinds of works, I think.

Dave: Here's the flip side of this question. There was a time after a raw vegan and all where I experimented all over the place. I was in extreme ketosis. I went three months on essentially zero carbs. I was eating a very high-fat, very high-saturated-fat, only grass-fed animal protein, eggs, and just tons of fat. This is when I was shocked. I was trying to gain weight, actually, using a high-fat diet to show calories in didn't match calories out; but I actually lost a little bit of weight over two years of doing 4000 calories a day or super high fat.

During that time, for three months, I cut my vegetables almost out. "I'm going to be like an Eskimo," and I totally developed food allergies. I got super-tired. I couldn't sleep at night. It was actually not a very good time, and I stopped doing that after I realized that bad stuff was happening.

I hear this from women and sometimes kids who are super-ketogenic. They're eating high saturated fat, but they're never eating carbs, and then sleep quality goes away and they get dry eyes and all that.

What's your take on the flip side. Low-fat diets don't make feel good, but maybe an ultra-high-fat, ultra-low-carb diet. Where is the middle ground in all the research you've done?

Nina: I'm not an expert in ketogenic diets. I really don't know. I would refer everybody to you are the person who ... Eric Westman and Jimmy Moore just wrote a book called *Keto Clarity*. They are the experts in this field.

Dave: Jimmy was just on the show. I'm so glad you mentioned. He's a good friend. I love Jimmy.

Nina: They have explored ... What I do, I talk about the history. Just mentioning women and children, that's a really interesting nugget there. There is no data on women and ...

Women and children were roped into these dietary recommendations that had been for middle-aged men, based exclusively on data for middle-aged men. In 1970 the American Heart Association said, "Let's just make this dietary recommendation for all people, women and children included, over the age of 2."

That was a practical measure. People eat together. If you lower everybody's cholesterol, it must help people. Children had been observed with fatty plaques, and it was assumed that you could never start out your fight against heart disease too early.

Women and children were also on this diet for decades, and they weren't studied at all. There was no data on them at all. I talk about what that data actually showed, that it seems like women look worse on a low-fat diet for various reasons, and children suffer nutritional deficiencies on a low-fat diet. It's amazing that they've been brought along.

Women and children may have suffered even more on this. I worry about children. Now the school system requires that children only have low-fat milk, and there's ...

Dave: It's horrifying.

Nina: It's really a full-on other issue, I think, about trying to get them healthy as well.

Dave: You've written that you recommend cheese and whole milk in school lunchrooms. At the same time, I've done a lot of work on proteins and inflammation in the body, and milk protein is such an inflammatory thing. It's linked with some behavioral ... actually, quite a lot of allergies and behavioral abnormalities. Would you support the idea of butter in lunchrooms as being even better than cheese or whole milk, or are you less

concerned about the protein side, or just haven't researched it? I don't know.

Nina: I don't know, actually. I think I would always opt for natural foods over their low-fat varieties ... for many reasons. Fat fills you up and is more satiating. You can't digest the fat-soluble vitamins A, D, E and K without the fat. Without those vitamins you can't absorb the minerals, and low-fat foods, processed foods like low-fat yogurt ... fat has a functional quality. It provides texture and creaminess and taste. To take out the fat you have to use what's called fat replacers, which are almost always carbohydrate-based and often just sugar.

You're typical low-fat yogurt has the sugar equivalent of a Hershey's bar in it, and that's not true on higher-fat products. They're lower in carbohydrates.

I think there are many reasons to have higher-fat products.

The protein findings, I just don't know whether that's ... too much protein in the absence of fat seems not really healthy. There's the issue of nitrogen poisoning.

Some of those protein results that you're seeing, that I haven't looked into, but I would suspect that they're looking at protein without the accompanying amount of fat that is needed to process it.

Dave: Super-important point about that. I see some of ... especially in the body-building community, people who are on a calorie-restricted diet, so they up their protein and they drop their fat. You can do that for a short period of cutting and get some benefits, but if you're going to do that as a lifestyle, to walk around [inaudible 00:46:29] all the time, it's going to affect your brain. You're going to have all this ammonia from the protein floating around, and it's probably not an anti-aging strategy that I would follow, even though it might work for short bursts.

It's such a balance. You want to look good, you want to feel good, and you want to live forever. How do you get all those?

One thing that I am certain of, more certain than any other thing that I've written about, is that saturated fat is a requirement for all three of those. You've got to do that, you've got to do that right, and then there's lots of other variables. I do my best to look at all the different variables and say, "The balance of the research I've consumed says this is probably better than this ... but it might be it's like this, and maybe your genetics are different."

The core principles there about eating enough saturated fat, I don't think you can be a high-performance human without consuming a healthy source of ... actually, all of the different saturated fats, not just coconut oil, because coconut oil is a great saturated fat but it's not the same as butter or animal fat. Those different fats do different things that your body needs.

Nina: All the scientific research of the last 50 years has been uniquely focused on fat and cholesterol. It's like these silos of the entire scientific community being involved, and looking at different fatty acids and their effect on cholesterol ... almost always cholesterol ... LDL, HDL. The reputation that different kinds of saturated fatty acids have gotten over time almost entirely have to do with their effect on cholesterol. It was always thought stearic fatty is good, the kind that's mainly found in meat, actually because it has a neutral effect on cholesterol.

Cholesterol has had this blinding effect on the scientific community. Cholesterol is just one effect of the many biological things going on your body. We have been judging foods, fatty acids particularly, based on their effects on cholesterol, but it's just not the only thing going on in our body.

The idea that certain saturated fats are good and other are bad, it mainly has to do with this history of looking at their cholesterol effects. I don't think there's much research to say that one is better than the other, at least in terms of heart disease risk.

Dave: That's awesome, and I've certainly come to the same conclusion there. You spent nine years working on this book, and I'm grateful for that. You must have come across some other malfeasance at food companies. Maybe it's [glypho 00:49:08], say Roundup or other genetically modified something or



another. What's the next myth that you're thinking about? What else has bubbled to the top of your consciousness?

Nina: I can tell you something that I write about in my book, which I think is an amazing story, which is the idea that we thought for so long that tropical oils were bad for us, that coconut oil and palm oil ... Why did we think they were bad? We thought they were uniquely bad.

That can be traced to this little story that I tell about how the American Soy Bean Association basically saw those fats as being their main competitors. They were seeing them imported, palm oil mainly from Malaysia, and those are ... they started taking over their market, basically for making manufactured foods. You need a type of solid fat, such as the kind you get in palm or coconut oil, in order for products to be long-lasting, be able to stay on shelves, not go rancid and bad.

The Soy Bean Association, their product was hardened vegetable oils, and they perform that function for foods. They didn't want the palm oil people taking over their market, so they launched what was described to me as a slander campaign. They set off across the country trying to convince people that tropical oils would kill them. This all happened in the late 1980s. They distributed brochures, they lobbied congress.

By 1990, tropical oils had collapsed as an ingredient in foods, and they basically were just run out of the country and run out of the market. They started making a comeback.

It's interesting that anti-saturated-fat sentiment that has existed in this country and is, I would say, even more prevalent among experts today. There was just an article about the head of the American College of Cardiology who says he thinks everybody should be vegan. That's also true of the people who run the dietary guidelines committee ... all anti-fat and especially anti-saturated-fat.

Everybody thinks the food companies are totally in there with them, but the food companies do not benefit from that advice. They need saturated fat for their products, again because it's stable.

Dave: Nina.

Nina: Yeah.

Dave: That's brilliant. Getting the good companies to lobby to get saturated fat because it lowers their costs and extends their shelf life, now that they can't use trans fats. We need to do that.

I have this dream that maybe someday, even though I'm not a supporter of Monsanto, if you're going to hack soybeans or you're going to hack canola. Could you hack it to make coconut oil instead of other crappy unsaturated oils? Maybe that would feed people in a meaningful way.

Seriously. Making it economically useful to include saturated fat is terribly important. I love that idea.

Nina: I think they would get behind that idea. I haven't asked them personally yet, but I still know some vice-presidents in food companies and [they're 00:52:18] oil chemists. Who knows.

Dave: I can tell you, Bulletproof ... if I can put saturated fat in something, like a cow butter, heck yeah. We're going to do it because it's what makes people full and satisfied, and it makes them perform better.

It's a requirement. I'm not going to do the unsaturated thing because it's just not right. That's awesome.

Nina: My argument is that I don't know if there's a limit to the amount of saturated fat that is healthy. I don't think that's actually ... other than 4000 years of human history, I don't know that there aren't really scientific trials on that. It's definitely true that the evidence against them has crumbled away.

What I say is: just let them out of jail. Why hold saturated fat to a higher standard now that any other food? There are many experts who say, "Okay, we understand the evidence against them has been discredited, but we still need a long-term, two years at least, clinical trial to prove that they're safe," to which I think the question is, "Why hold saturated fats to a higher

standard of evidence now than, say, broccoli?" Just let them out of jail. Broccoli doesn't have to go through a two-year-long clinical trial to prove that it's safe.

Dave: I wish raw kale smoothies would. One of the filmmakers I'm working with on the toxic mold documentary I'm filming, looking at another major hidden issue in our food supply and in our homes, she just came down with masses of kidney stones. She was doing three kale salads and a raw kale juice all the time, which can contribute there.

It's really funny. These things that we all think are healthy, they don't have those tons of science behind them that we're holding fat accountable for.

Nina: Kale is a goiter inhibitor which many vegetables are, and they prevent the uptake of iodine, which is terrible for health. Put them through a two-year-long clinical trial to prove their ...

Dave: [Crosstalk 00:54:18] cooked versus raw. Funny, when you look at the biochemistry, there's a difference. I cook my kale. I have it growing in the garden, but it's not that hard to make it less toxic.

It's funny. There are so many health experts recommending these things, but when you look at the science it's not there. It's totally unfair what you're saying about the standard that saturated fat is being held to, even though it's an ancestral food.

Nina: It is, and the evidence that was used to convict them in the 60s and 70s has been reexamined and has crumbled. I think that we now have two big meta-analyses by top scientists in the field, including some from Harvard, Cambridge, University of Berkeley. There was one in 2010, there was one in 2014, in March of this year, and they have both concluded, looking at all the clinical trials and all the epidemiological evidence, that you cannot say that fat ... These do not show that saturated fats cause heart disease.

That is huge. That reverses the most important piece of dietary advice for the past 50 years, and it's still obviously not mainstream, but those are big stakes in the road to change, I think.

Dave: They are, indeed. We're coming up on the end of the show, and there is a question that everyone who has been on this show has answered except that one guy when I forgot to ask him, and I still regret it.

The question is: out of all the things you've learned, not just from writing your book but things you've learned throughout life, the three most important recommendations you have for people who want to perform better. I don't mean more athletic or anything, just perform better at living, at their life, whatever it is they're here to do. What can you share?

Nina: That's such a huge question.

Dave: You can say, "Eat more butter." That's totally cool.

Nina: I think there is no question that a high-fat, low-carbohydrate diet is better for health. That's one. For obesity, diabetes, heart disease, that is clearly what the science shows. That's one.

I think that staying away from heated vegetable oils in restaurants or in your home is a really good piece of advice.

Then I think the importance of kindness above success and everything else. I just think if there's something to guide you in your life, being kind is a good one.

Dave: We share that last one. In the spirit of kindness, Dr. Ornish, if you're still listening to this, I know that you're actually working to help people. Just review the science one more time, please.

On that note, where can people buy your book? Where is your website? Give us your coordinates so people who are driving in their cars now can listen.

Nina: The easiest thing to do is it's [TheBigFatSurprise.com](http://TheBigFatSurprise.com). There are links to buying it there, and you can also buy it on Amazon, bookstores, Barnes & Noble. The easiest thing is just [TheBigFatSurprise.com](http://TheBigFatSurprise.com).

Dave: Nina, thanks again for being on Bulletproof Radio. It's been a pleasure. Thanks especially for talking about oxidized, cooked vegetable oils, because those are so bad. I'm so glad you've shined a light on that in your book. It's so worth reading.

If you enjoyed this podcast, if you're eating the Bulletproof Diet, you're drinking Bulletproof Coffee, and you want to tell your friends why, you should read *The Big Fat Surprise* because there's a lot of good science in there that's going to tell you why.

Nina: Thank you for having me. I really have enjoyed talking to you.

Dave: Have you heard about our new brain octane oil? It goes far beyond upgraded MCT or any other coconut product for creating maximum cognitive function. You owe it to yourself to give it a shot.

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