Criticism of *The China Study*
A Special Interview with Chris Masterjohn
By Dr. Mercola

CM: Chris Masterjohn
DM: Dr. Joseph Mercola, DO

Introduction

DM: Welcome everyone. I’m here with Chris Masterjohn, who will enlighten you about some very important components of the defenses of vegetarianism through *The China Study*. Chris has a particularly unique experience because he is one of many people that tried vegetarianism. Through experimentation, he found that it caused him health challenges. He’s currently in a nutrition PhD program. He is adept at carefully analyzing and studying scientific literature. Welcome, Chris. Perhaps you can expand on what I’ve just mentioned to our listeners and describe your health journey.

CM: Thank you so much Dr. Mercola. I’d love to describe my journey to you and your audience. I had initially been interested in vegetarianism during my late teens because I was interested in animal welfare. Seeing the way that animals are treated in many of today’s factory farms made me very interested in animal rights. Because, really, anyone with the sensitivity to the welfare of animals should be rather indignant when they see some of the nasty practices that go on in these farms.

I had read a book by John Robbins called *Diet for a New America*, which can be broken into three parts. The first part was a really beautiful part about some of the natural intelligence that many animals have. It tells a lot of anecdotal stories and also shows some of the science about animal intelligence and the friendliness that animals often have with people.

The other two sections of the book were convincing to me at that time. But it took a lot of personal experiences and a lot of other reading for me to really understand in a more critical way. Those two parts basically said that eating meat is bad for your health and bad for the environment.

My personal experience was primarily in the health aspect. What happened to me was really surprising because I was reading in this book that protein causes the body to acidify and causes calcium to leech from the bones and the teeth. I thought that having read this book and this argument that I would be protected for ages to come from dental decay and osteoporosis. But one of my principal experiences after several years of vegetarianism was that I had come down with
a mouthful of tooth decay, which was a real surprise to me. As I was going through my vegetarian path, I went vegan for about a year, and then I started adding some animal products.

What I started to realize was that if I was primarily concerned about the welfare of animals, it might be better to support the farmers who were raising their animals in a humane way. For example, pastured eggs and so on. That’s when I started adding a few things like eggs and fish. What really struck me was at a certain point come Christmas, I was really starting to crave meat. When I started eating meat again, I noticed that a lot of the problems that I developed while I was a vegetarian started to disappear, like anxiety and some of the digestive problems that I’ve had. Not too long after, my boss at, of all places, the dining hall I was working for in college, gave me a pamphlet on raw milk that introduced me to the work of Weston A. Price. From there, I started changing my diet more to include a lot of nutrient-dense foods like organ meats, shellfish, and other things that were really important. That’s the gist of my journey.

DM: Great. And you’ve been experiencing improved levels of health since you started incorporating meat to your diet?

CM: Correct. Over the course of the time that I was vegetarian, I had developed severe anxiety problems, for example I was having frequent panic attacks. Those all basically stopped within a few weeks of me reintroducing red meat into my diet. That is not a problem and the tooth decay is not a problem for many other vegetarians but those were some of the health problems that I was most vulnerable to. Removing those nutrient-dense foods that I needed in my diet were going to precipitate those particular problems in me.

DM: It’s not the intention of sharing your experience to justify that everyone should eat meat. That is not what we’re seeking to explain here but I think we both believe that there’s a wide variety of requirements for humans and in fact, some do quite well when avoiding meat in their diet.

I wanted to make a comment too on your experience with the neurological anxiety symptoms. I was treating a friend of mine who owns a very large company that most people would know. He lives in the Chicago area and had a severe anxiety disorder to the point that he was nearly crippled and couldn’t run his company any more. He had seen the top experts across the country and came to see me. Initially, I was thinking that there was an emotional component to his problem but it was clear that there wasn’t any. All we did was change his diet. Like you, he had almost the same symptoms of panic and anxiety that was really debilitating. He was also a strong Protein Type and was eating a really healthy vegetarian diet of high-quality foods, which just didn’t work well. As soon as we switched his diet, he experienced the same improvements that you did. That kind of highlights a book that was written by George Watson, a PhD who was one of the innovators of Nutritional Typing. He wrote the book *Nutrition and Your Mind*. 
Studying the China Study

After making those points, I’d like you to comment on some of the investigations you did on The China Study, the primary study or book/set of data that is used by most people who chose a vegetarian diet to justify, from a scientific perspective, this position, this choice, this viewpoint of superiority over every other type of diet.

Dr. T. Colin Campbell has certainly done some good work but there were some flaws in his study which I think you’ve uncovered. Please give us a history of your experience, of your initial rebuttal and that of others who’ve also examined the data and shared their information.

CM: Sure, absolutely. When I first got interested in vegetarianism, I read this other book, which I was talking about earlier, Diet for a New America by John Robbins. There’s this argument that animal protein causes leeching calcium from bones, and so on. People nowadays are much more likely to read The China Study by Dr. T. Colin Campbell and encounter the argument there that animal protein causes cancer and a number of other problems.

Dr. Campbell basically blames all degenerative disease on animal protein. In fact, he focuses primarily on cancer, in respect to his own research. He has three parts to this argument. First, he did some animal experiments showing that casein promotes cancer. Second, he did a very vast and comprehensive epidemiological study in China – the study the book was named after – showing that animal protein intake is associated with cancer in humans. The third is basically a presentation of many different practitioners’ clinical experiences and many other science outside of his research.

I had originally written a review of his book about five years ago and I had three criticisms to his arguments – one for each argument. The first criticism had appeared in Wise Traditions, the quarterly journal of the Weston A. Price Foundation. It was a very short review. The first criticism that I made was that Dr. Campbell’s animal experiments were using casein. He showed, or at least he says he showed, that casein promotes cancer in rats. Then, after showing that several plant proteins such as wheat and soy don’t have the same effect, he concludes that all animal proteins have this effect. He says a general pattern is emerging – that all the nutrients from animal-based foods were associated with disease, while all the nutrients from animal-based foods were associated with the protection of health.

So I made the criticism that casein is just one animal protein; and not only that because you’ve divorced it from the natural food context – that you would ordinarily consume it as milk. First of all, who knows whether casein actually has an effect when you consume it as milk? Secondly, how can you generalize from casein, to beef protein, to chicken protein, to egg protein, when in fact, you can’t even generalize from casein to whey because there are experiments nowadays where you can see the different effects of casein and whey. If you can’t generalize from one protein in milk to another protein in milk, how can you generalize from that protein to milk itself, let alone to all animal-based foods? It just doesn’t make any sense.
The second criticism was on the China study itself, the epidemiological study that Dr. Campbell and many of his colleagues had conducted on the Chinese population. Here, Dr. Campbell argues that the China study recapitulated what he found in the rats. If you look closely at his argument, it doesn’t quite support that. For example, while he makes this statement that it is difficult to tie the animal protein intake to the incidence of cancer in the China study, all blood markers of animal protein, however, were associated with cancer. And you have to follow a footnote at the back of the book. You’ll find that buried in this footnote, he lists several biomarkers, such as plasma copper and some hormones, that are the supposed links between animal protein intake and cancer.

But the fundamental fact is that animal protein intake itself wasn’t associated with cancer and all of these biomarkers were very convoluted biomarkers. He doesn’t provide references showing that they’re reliable, when in fact many of these things can be influenced by so many other things in the diet. For example, plant foods are a good source of copper.

DM: I’ll make a comment here too. This was described as a study, but really, is a set of observations because in a true study, one would have to get a control group, protein or non-protein, and then another group, which would have to be a low or no-protein diet. He never did that, he just did an observational evaluation which he passed as a study.

CM: That’s absolutely true. In fact, Dr. Campbell has come out and said that he disagrees with most other scientists about the implications of observations versus experiments. According to the scientific method, you observe something and then you try to explain it. Your explanation is your hypothesis. Then you have to test your hypothesis by experimenting. So you design a test, like what you were just saying, you feed one person one thing, you feed another a placebo or some other type of control. Through your experimentation, you test your hypothesis.

But Dr. Campbell apparently feels, as he has described publicly and in private to me, he describes his viewpoint as “if you have biological plausibility, then you can go out and test your hypothesis by making an observation.” The scientific method doesn’t say that, but that’s what Dr. Campbell apparently believes.

Yes, that criticism can certainly be applied to the China study as well as any other epidemiological study. You’re making an observation when you’re looking at a statistical relationship; you are not testing a hypothesis. We need to test the hypotheses that we generate from those observations and not pretend that – by observing more and more things, and repeating the same observation over and over again – that’s testing our hypothesis. That’s certainly a legitimate criticism.

But in my review, I focused on something beyond that. The criticism that can be applied to this epidemiological study is that the connection that Dr. Campbell claims to have found doesn’t exist in the data.
The third observation that I made about this book was when he presents the other scientific data that is beyond the scope of his own work, when he presents the clinical experience of many health practitioners, he only presents the health practitioners that have success with a vegetarian or a vegetarian-like diet and never presents the experience of health practitioners who find success with other diets.

Like you were saying before, some people may do better with a more plant-based diet and other people may do better with a more animal-based diet. I do happen to believe that everyone would be better off if they include some animal products in some form in their diet but certainly, there are many people who do well by having the majority of their diet or a vast majority as plant products.

What you find is an enormous selection bias when you look at only one practitioner who’s only treating people with vegetarianism. If you take a practitioner like Dr. Joel Fuhrman, for example, he may be a great practitioner and may have great success with his clients, but if you take someone like that and say that every single person or at least 90 percent of them do fine with less than 10 percent of animal products, do you really think many people who intuitively feel that they do better with animal products are gonna go to a doctor who’s telling them that they should cut out all the animal products and eat at least two pounds per day of leafy green vegetables in their diet? Probably not, so what you see is this enormous bias that’s introduced by focusing on three or more clinicians who are using that type of diet, and completely leaving out all of the other evidence.

This was a criticism that has been used as a resource for many people about the China study over those several years. Over time, there were a number of other people who have made important criticisms – Dr. Yves recently, Anthony Colpo, and of course, you had made your own criticism.

What was fascinating about Dr. Campbell’s response to you was the indirect way in which he basically tried to make the same criticism of me. When he originally responded to my criticism, he did not focus on the arguments at hand and instead focused on the fact that I was young – I was 23 when I wrote the review – and that I didn’t have any credentials. But when he responded to you, since you obviously are from an older generation and have more credentials, as indicated by the “Dr.” before your name and the “DO” after, he couldn’t say, “Well, Dr. Mercola is only in his 20s and doesn’t have any credentials.” Instead, he started off by saying, “Dr. Mercola’s critique looks much like Chris Masterjohn’s critique and Chris Masterjohn is young and has no credentials.”

Dr. Campbell has continued with the same theme as more and more people have responded to him. In the past six months, the most significant of those responses has been a really fabulous set of critiques by Denise Minger, who is also young and has no credentials. She runs a blog called RawFoodSOS.Com. She had made this far more extensive critique of Dr. Campbell’s The China Study than I have ever made. I looked at a few statistics and said “Look, the connection’s not there.” She spent hundreds of hours going through the raw data and found that all of the
connections from the dozens of pages of rat experiments in his book were either not there or weren’t there when you actually looked at some of the confounding variables that he completely ignored. In some of those connections, he had to ignore certain data points when he was analyzing one thing and then include them in the other and so on. She had made a really important insight about his rat research as well. She had made the point that when Dr. Campbell found that casein promoted cancer in lab rats and that wheat protein didn’t, he also found that if you added lysine into the wheat, the wheat was became a powerful cancer promoter like casein.

**Distorted Findings**

This was a really interesting finding that made a light bulb go off in my head and made me go back and look at all of Dr. Campbell’s dozens of rat experiments, in the set of experiments where he claimed to have found that casein was promoting cancer, I found that Dr. Campbell made a much more grievous omission, or to use a not-so-friendly word – distortions – of his findings.

What Dr. Campbell claims in *The China Study* is that he was down in the Philippines trying to investigate the association between aflatoxin – a carcinogenic mold toxin found in peanut butter – and the incidence of cancer. While he was down there, he stumbled across two findings. One was that the best-fed people, the people who had the highest intake of animal protein – and probably also the people with the highest intake of refined food – were the people who had the highest incidence of liver cancer.

If you read *The China Study*, Dr. Campbell gives us this impression that his initial research on the question of whether animal protein causes cancer was inspired by his experience when he was down in the Philippines. He was there to find out whether protein can be safely fed to malnourished children through the use of peanut butter, while avoiding problems caused by aflatoxin, a carcinogenic mold toxin found in peanut butter.

He says that he came across an obscure study published by some Indian researchers where they fed animal protein to rats and showed that the animal protein was necessary for aflatoxin to cause cancer. Over time, he began to mull over this and started to do some of his own experiments. The first thing he tried experimenting with to see if he could feed rats two levels of protein, and show that the protein would determine the levels of this particular drug-detoxifying enzyme that is involved in actually activating aflatoxin to make it carcinogenic.

Lo and behold, he says that the rats fed five percent casein had lower levels of activity of this enzyme and the rats fed 20 percent casein had higher levels. Later, he said research showed that because of this reason and several other reasons, when they fed rats five percent casein, they would be protected from cancer and become basically immune to it, but when they fed them 20 percent casein, they would have cancer turned on like a light switch. He then generalizes from casein to all animal proteins and so on.
If you go back and look at the original research that Campbell was conducting, you’ll find something really surprising. In that first paperwork, he looked at the activities of this enzyme that activates aflatoxin into its carcinogenic form. The first sentence of that paper, published back in the 1970s, is “Low-protein diets have been shown to increase the toxicity of aflatoxin in rats.” I read that first sentence and I said, “Whoa, wait a minute.” I highlighted the sentence and I moved on.

As I found, Dr. Campbell never lets on to this fact that these researchers from India had actually published two papers. They published them as a pair of papers together – basically two sides of the same story. Campbell only tells us one side. What they actually found was that when they fed the rats the low-protein diets, they more likely to get cancer but on the other hand, they were also much more likely to get acute toxicity to aflatoxin, which causes all sorts of tissue damage and ultimately led to death.

Even in the second paper, where they showed that low-protein diets protected against cancer, they had to stop giving them aflatoxin halfway through the experiment because half of the rats in the low-protein group had died already, when none of the rats in the high-protein group died.

You get a very different picture from reading the actual research than what you get from reading Dr. Campbell’s book, *The China Study*. Naturally, we all want protection from cancer but how many of us want a 50-percent chance of dying early due to some type of toxic reaction just to protect ourselves from cancer, 30 years down the road? Obviously, it’s a much more difficult way to make a case for vegetarianism – to tell people that they’re gonna get all sorts of toxic tissue damage in order to protect themselves from cancer.

But if you read further in this paper, where Dr. Campbell showed that the activity levels of this enzyme were lower, it’s very interesting to see the reason for this decreased activity. According to his explanation, they found that the rats in the low-protein diet developed massive fatty liver disease. Fatty liver disease is emerging as a very relevant thing nowadays because as many as a hundred million Americans might have this disease.

This is particularly concerning because it’s like the new cancer or new heart disease. These rats had so much fat stuffed in their livers that in a particular membrane called the endoplasmic reticulum – a membrane within a cell where this enzyme resides – had three or four times more fat stuffed into it. Dr. Campbell and his co-authors suggested that all this fat was clogging up the enzyme and decreasing its ability to work.

You have some sort of a contradiction here. If this enzyme is so bad, why does its activity go down when the rats have fatty liver disease? It’s curious but in fact, the enzyme is not inherently bad; it detoxifies most chemicals. There are just certain poorly behaved toxins that are in the environment that are activated or turned into something bad by the enzymes that are supposed to detoxify them. This enzyme is only a “bad” enzyme if you feed rats a huge dose of aflatoxin, so that’s a particular experimental model. The enzyme itself is not inherently bad; if it were bad, we
would not have the enzyme, obviously. These rats were suffering from fatty liver disease, which is decreasing the activity of this enzyme.

Dr. Campbell never said in *The China Study* that he was investigating fatty liver disease. He never said that decreasing the activity of this enzyme may have had a bad effect. He never, ever lets on that the decrease in this enzyme activity might actually be the result of some kind of toxic effect, some negative, adverse effect that we don’t want from these low-protein diets. This was the first thing, Joe, that really blew my mind when I started reading this research – that these rats weren’t very healthy; they weren’t growing, they had fatty liver, they had all kinds of problems.

The problems just keep growing and growing when I was reading the research. For example, Dr. Campbell claims that animal protein has an effect and wheat protein didn’t have an effect. What he doesn’t tell us is when you add back lysine – which is one amino acid wheat is poor in – to wheat, the latter was just as effective as casein. He doesn’t tell you that he was adding methionine, which is the limiting amino acid for casein, the entire time – that’s why casein was effective in the first place. When I realized this part, it kind of said to me that maybe there’s this general effect of protein promoting cancer.

But then, when I started to investigate this further, this probably was the biggest discovery of all about the omissions that Dr. Campbell made. What he actually found was that if he gave a high-protein diet to the rats before he dosed them with a massive dose of aflatoxin – the equivalent of us eating millions of contaminated peanut butter sandwiches over the course of a couple of weeks – dramatically protected them from cancer. But if he fed them with a high-protein diet after he gave them the massive dose of aflatoxin, it promoted cancer.

And in all of these experiments where he claims that he used the low-protein diet to protect the rats from cancer, if you look at the methods, what he actually did was to give them a high-protein diet up until the time that they were given aflatoxin, and then a low-protein diet after they were given aflatoxin. So half of the benefits of his low-protein, low-casein diets were actually due to the fact that he fed them high-casein diets before he gave them aflatoxin.

What kind of distortion is this – to tell people that it’s an effective low-protein diet when in fact part of the beneficial effect was due to the high-protein content early on in the study? This gives us this really difficult question to grapple with if we’re trying to interpret his research because none of us, I mean, Dr. Mercola, for example, have you ever been invited to someone’s house and been asked to sit down and eat two million peanut butter sandwiches?

**DM:** Not in the recent past, no.

**CM:** You might die from immediate obesity or your stomach bursting before you have any problems with aflatoxin, if that ever happens …

**DM:** Is a dose of aflatoxin of that magnitude really necessary, where it’s literally a seven-fold or six-fold increase?
CM: The dose of aflatoxin used was massive. I calculated it. If you go to my article, “The Curious Case of Campbell’s Rats” – that’s on Wise Traditions – it will give you the calculations and a link to an article that describes the upper limit of aflatoxin contamination in foods in the U.S. Using the upper limit of contamination, you would have to eat millions of peanut butter sandwiches to correspond to the dose of aflatoxin.

DM: Wow.

CM: It goes back to another good point. Dr. Campbell doesn’t say that environmental toxins don’t matter but he gives the impression that the protein content of your food is a far better determinant of your cancer risk than being exposed to some particular type of toxin. He makes the case that the doses used in experiments showing that nitrates or something are carcinogenic, are just massively more than anyone would ever consume. I noted one of his paragraphs in The China Study where he says – and that’s why I made the calculations on the peanut butter sandwiches – that you would have to eat millions of bologna sandwiches every day for 50 years or so to get this amount of nitrates. Sure, the aflatoxin he was using was lower than that, and you wouldn’t have to eat 200 million peanut butter sandwiches every day for 50 years, but you’d still have to eat a couple of million sandwiches. This dose is massive. In one of his studies, he actually showed that you couldn’t find any cancer in the high-protein diet unless he had this this massive dose of aflatoxin.

The fact is, he showed in his experiments that the dose of aflatoxin was very important and that the protein content, both in absolute content and when it was fed, whether before or after the aflatoxin, was also very important. But he chose to run with the finding that the protein content was important, running with the fact that protein only increases the carcinogenicity if it was fed after the aflatoxin. After he found the dose response of aflatoxin, he ignored the dose of aflatoxin. After he found that high-protein diets were protective before he gave the rats aflatoxin, he ignored that for the rest of his study, to be looked at only if we use this particular massive dose of aflatoxin and if we always see the high-protein diet before the aflatoxin dose.

What is the effect of protein content after the aflatoxin dose? That is the only question he allowed himself to investigate. We’re left with this problem to grapple with because none of us are fed with one massive dose of aflatoxin at one particular point in our lives. If I were – Dr. Mercola, I find Campbell’s research really rigorous research and really interesting – and if I knew that when I was 30-years-old on December 1st that I would eat 200 million contaminated peanut butter sandwiches, if I knew that 30 years ago, then I would eat a high-protein diet for the first 30 years of my life, based on his research. Immediately after I ate the 200 million peanut butter sandwiches, I would go on a low protein diet for the rest of my life so I don’t develop cancer from the aflatoxin.

That’s what I could conclude from his research but the problem is we are exposed to very small amounts of carcinogens in the environment every day on a chronic basis. What is the effect of protein on carcinogenicity in a realistic model where we’re exposed to low doses every single day of our lives? He didn’t do many experiments with that model, and in the one experiment where he did, he found the same thing that the researchers from India had found – which is that his rats on the low-protein diets were dying left and right when they were given the chronic dose
of aflatoxin. In that one experiment, probably the one experiment that wasn’t regressing and wasn’t controlled well, he decided to feed his low-protein rats with half the dose of aflatoxin compared to what he fed the high-protein rats so they could survive the experiment. He also found that the low-protein rats, even in the cases where the cancer risk was decreasing, was increasing toxicity while decreasing tissue repair and all kinds of things that we need.

These questions are unanswerable at the level of research that he’s done. What we want to know is, now that we’ve discovered this timing effect, is there some ideal protein concentration in the middle of that that protects both before and after the dose of carcinogens, that provides maximum protection when we’re fed chronic, or exposed to chronic doses of carcinogens in combinations every day. Is there a way to determine what level we need – one person might need one particular level of protein and other person a different level – that provides maximum benefits against carcinogens. Are there ways in which we can determine which level of protein is appropriate for which type of person – something that you’re very interested in. Or what is the effect of eating meat? Certainly, when you feed isolated protein, you’re feeding it divorced from all of the natural nutrients that it is associated with, especially casein, which is associated with whey protein and milk, let alone vitamin B6 and vitamin A, which are two nutrients you need more of when you eat more protein. There are a whole host of other nutrients with protective factors and they interact with protein.

The next question we want answered, based on his research, is what is the effect of a protein-rich food when you feed the food instead of the isolated protein? But Campbell never investigated all of these interesting questions that we want to know the answers to. Instead, he came up with his hypothesis that eating too much protein causes cancer and all the other diseases of modern civilization. He then went on to conduct *The China Study*. Actually, he was really conducting it at the same time, but in any case he had this hypothesis and he begins looking through these massive, hundred thousand correlations that *The China Study* provided, 8,000 of which were statistically significant, yet expects 5,000 statistically significant correlations just by random chance so he can mine whatever he wanted out of his data. He just goes on to pick his hypothesis out of the data wherever he can find it, instead of pursuing this really interesting questions that his research should have stimulated us to ask.

That’s the big problem with *The China Study*. Looking at all this animal research, the big problem that I see now is that Dr. Campbell stumbled on some really interesting leads then picked his pet hypothesis, ignored most of his own findings, and then went on to investigate this one pet hypothesis, this one little question that he wanted to investigate instead of the broad spectrum of questions that his own research should have stimulated.

**Conclusion and Recommendations**

**DM:** I really want to thank you for that detailed explanation and all the effort and work you went through to uncover these findings. Chris is the rare person who’s actually taken the time and trouble to go to the actual, original research to read the papers to come up with these findings. As I’ve mentioned in the beginning, his book and his study is very important from the perspective that so many highly-committed people who are truly, authentically interested in being as healthy as they can and eating the healthiest diet are using his clearly flawed research to justify a
position, which, in many cases, is likely not pushing them towards their goals of achieving ideal health; it’s actually pushing them in the wrong direction.

We’re both strong supporters of the scientific method and I imagine we’re equally opposed to anyone who uses this method to manipulate it and prove their own personal agendas. That appears to be what Campbell has been doing. It’s really shocking that he can use casein as an indication of any high-protein diet when it’s not. Then all of the other details that you’ve articulately described have provided us with a phenomenal reference to eloquently defend people’s arguments that a low-protein diet is what’s needed to stay healthy.

I really thank you for the incredible amount of time, thought, effort, and energy you put into really debunking his hypothesis.

**CM:** Thank you so much for your kind words, Dr. Mercola. I also need to give credit where it’s due and give my own acknowledgement to Denise Minger for really doing the same thing with the statistical work this summer. Had she not reignited the debate over *The China Study* in the blogosphere, I never would have thought to go back and look at all this research. I definitely agree with you on the fact that the scientific method is a great thing and even Campbell’s research could’ve been a great thing, could still be a great thing if we just stick to that scientific method and continue to test our hypotheses instead of going out and looking to find evidence just to support them.

The real flaw with *The China Study*, as you keep making the point over and over again, is not that a vegetarian diet is inherently bad because there are many people who will thrive on a diet based on mostly plant products. I personally believe that most people or maybe everyone will probably do better to include some animal products in their diet. I think what Dr. Campbell and some of his associates like Dr. Joel Fuhrman discount is that even if they allow a small percentage of animal products in their diet, even for people who thrive on a plant-based diet, the small percentage of animal products, if they’re nutrient-dense, can be really important. Joel Fuhrman, who Dr. Campbell respects very highly, allows 10 percent junk food and shellfish or liver, in this example, would fall in as candy in this “junk food” allotment.

The idea that animal food is evil rather than an important option that some people need to consume a lot and other people need to take in very small amounts but nevertheless health-promoting in the right context – this idea does not enter into their paradigm at all. And so, to take one aspect of the food chain and run with it, or to take one aspect of your research and run with it and not try to incorporate all the data, all the clinical experience, and all of the experimentation into one overarching, unified theory of health – if you’re not trying to do that, then you’re not bringing us any closer to the truth.

**DM:** I couldn’t agree more and I want to thank you for providing the basis for a phenomenal, solid defense against the use of animal protein for fear of the risk of causing cancer. I believe we both strongly hold the position that we’re seeking to provide information to the readers and the people who don’t have the time and the knowledge and the educational training to evaluate and investigate these studies more carefully. But ultimately, it’s their choice. They need not listen to me or you or Dr. Campbell or Dr. Fuhrman or Dr. Cousins. Ultimately, they need to make a
decision and try one or the other approach, and then listen to their body and let their body tell them what’s best for them. If they’re thriving or glowing in health and are not suffering from diseases and health challenges, it’s a probably a clue that they picked a good approach. Ultimately, they need to let go of their brain and the intellectual attempt to justify a particular strategy of health and actually listen to what their body is telling them very loudly, which, many times, may be in direct contradiction with what their rational mind is seeking to apply.

**CM:** Absolutely. The most important thing for a logical, rational, or scientific person to acknowledge is a logical, rational, and scientific understanding of the limits of logic, rationality, and science. I mean, if all an experiment, let alone an observation study, can tell us is that we should have more or less confidence that an idea might apply to the real life situation, then we don’t understand science at all.

The scientific method is one with being very logical but if you think that you can use logic from an experiment to decide what is always the case for everyone – that you must eat this ratio of this and this and this – then you’re really missing the point because science is all about acknowledging the uncertainty that’s there and trying to gain more confidence in our ideas.

But ultimately, the fact is that even in a randomized, controlled clinical trial, if I show that the mean of variable y is higher when patients are given drug x, then all that shows is the statistical concept, and by definition, some people fall above the mean and some people fall below the mean. That’s why it’s called the mean; if you’re not behaving like that statistic is behaving because you’re not a statistic, then you need to do something different than what that study showed because that study was showing what the statistical mean effect was.

The reality is we are all people; none of us are means, none of us are mediums, and none of us are modes. Ultimately, like what you said, what we need to do is apply that research as best we can as a starting point and then ultimately listen to our bodies and respect our bodies enough to fine-tune our approach based on what our bodies are telling us.

**DM:** Thank you so much for your words of wisdom, again, for all your hard work. I want to extend my sincere appreciation not only for myself but for all our readers and listeners who I’m sure, are gonna be very appreciative of the information that you’ve shared. I very much look forward to having future discussions with you on equally important topics because you’re really committed to this and you have a really strong basis in the scientific method and a philosophical grounding that I really appreciate so thank you very much.