

# The Case for Avoiding Plant Foods – Reckless or Beneficial?

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

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## STORY AT-A-GLANCE

- › Evidence suggests we are descendants of omnivores, and that the increase in brain volume coincides with a transition to hunting for animal game and eating large amounts of animal foods
- › Phytoalexins are plant defense compounds that may be causing more harm than good when consumed, and people generally underestimate just how many defense compounds are in plant foods
- › It is commonly believed that plant molecules act as antioxidants in humans, but they do not act as direct free radical scavengers in your body; rather, they trigger your antioxidant response system – a mechanism known as hormesis
- › Animal foods are uniquely healthy for humans and provide all the nutrients required for optimal health, including vitamins A, C, E and K2, as well as choline, carnitine and creatine
- › Evidence suggests the reason people live longer in certain areas known as Blue Zones has to do with healthy lifestyle behaviors such as not smoking or drinking and staying active; it does not appear to have anything to do with shunning meat and animal foods

Dr. Paul Saladino trained at the University of Arizona with a focus on integrative medicine. He completed his residency in psychiatry at the University of Washington in 2019, and is a certified functional medicine practitioner through the Institute for Functional Medicine.

In this interview, Saladino discusses the surprising benefits of the carnivore diet, which is the topic of his book, "[The Carnivore Code](#)," which is currently available for preorder.

I view him as one of the leading experts on the health benefits of an animal-based diet. Saladino takes it to the extreme, though, advocating a carnivore diet to the exclusion of all vegetables or plant materials, which may strike many as debatable.

The evidence he presents for it, however, is quite compelling. I don't know anyone personally who has reviewed the literature more carefully and can put together a coherent argument for this strategy. (This is in part a side-effect of having gone through the basic medical sciences twice, as he went through medical school to be a physician's assistant and later an M.D.)

Saladino is likely to challenge your beliefs in this interview. This is not meant to offend anyone. If you believe you should avoid animal foods for ethical reasons, that's certainly your choice. If you're struggling with health issues that a vegetarian diet has not been able to resolve, however, or perhaps even made your condition worse, you may want to listen to what he has to say.

## **Busting Nutritional Dogma**

In his book, Saladino states he's going to bust nutritional dogma, which he does in spades. Saladino, who struggled with asthma and eczema, was actually a vegetarian and then a vegan for a time. It didn't help. In fact, it made things worse.

His health problems didn't resolve until he went on an exclusive carnivore diet, and he recounts the various twists and turns in his personal journey at the beginning of the interview. After hearing Jordan Peterson talk about the carnivore diet and how it improved his daughter's autoimmune symptoms, Saladino was intrigued enough to look into it. The rest, as they say, is history.

*"The more I thought about it and dug into it, I started to realize, maybe there's something to this," he says. "I'm at least going to try it. And so, the first time I*

*tried it, within a few days, my mood changed, and my outlook on life got to be significantly better and more positive.*

*I thought, 'There's something to this.' A few weeks later, the eczema had completely resolved and hasn't come back since. I've been eating a carnivore diet for the last year and a half.*

*But there really was this sort of personal quest throughout to find out what the triggering food was, and it was just so striking for me to see the eczema go away when I cut out all plants – and then the added benefit.*

*The mental clarity, the psychological benefits were surprising. That kind of hooked me, and I thought, 'OK. I need to just pour myself into this and understand this because this is going to help a lot of people, or it potentially could.'"*

According to Saladino, there's a clear ancestral history of eating an animal-based diet, which he details in the interview. In a nutshell, the evidence suggests we are descendants of omnivores, and that the increase in brain volume coincides with a transition to hunting for animal game and eating large amounts of animal foods.

Some vegetarian advocates have argued that it was tubers that caused our brains to grow. Saladino disagrees, noting that the levels of nitrogen and carbon in fossilized remains from 60,000 years ago are actually greater than those in hyenas, which suggests our ancestors were eating more animal protein than known carnivores.

He also points out genetic evidence suggesting Homo sapiens were not eating significant amounts of starch, as they developed a salivary amylase mutation.

*"What we see now is that all living people on Earth have a salivary amylase duplication because we're all descended from a Homo sapiens group that left Africa 80,000 years ago that appears to have had an amylase duplication," Saladino says.*

*"So, they were eating more tubers 80,000 years ago. But up until that point, there's no evidence for an amylase duplication, arguing strongly against the notion that we've been using tubers for any significant amount of nutrition."*

In the interview, Saladino also goes into the findings of Dr. Weston A. Price, a pioneering dentist who traveled the world to document the diets and health status of indigenous cultures. A big take-home point was that Price never found a culture that was thriving on plant foods alone.

*"The other point I highlight in the book is that there were some instances where he could directly compare African tribes that were more plant heavy and tribes that were more animal heavy, and the tribes that ate more animals were stronger, taller and had better health than the tribes that ate more plants."*

*So, he had a direct comparison looking at the overall health, strength, virility of people in Africa in the 1930s and 1940s, and he saw that people who favored animal foods were doing much better than the people that favored plant foods,"* Saladino says.

## **The Problem With Phytonutrients**

One of the most controversial issues relates to the health benefits and hazards of phytonutrients, i.e., plant-based nutrients. I was under the belief that phytonutrients were largely responsible for activating profoundly powerful pathways for longevity.

Saladino's work caused me to seriously reevaluate my views on phytonutrient supplementation. As Saladino explains, phytoalexins are plant defense compounds that may be causing more harm than good. A corollary to this is the issue of xenohormesis, which Saladino covered in a November 5, 2019, podcast interview with David Sinclair, Ph.D.<sup>1</sup>

*"I don't think anyone debates that plants make defense chemicals," Saladino says. "I just think we're not familiar with how pervasive they are, and how many of the plants we eat contain thousands of them ..."*

*You could get really sick from the oxalates in rhubarb, for example. We're aware that some plants are so toxic that they're frankly poisonous. We could die [if we eat them]. Basically, every plant in nature is part of a delicate balance, a delicate exchange system with other animals.*

*And [plants have] had to develop plant defense chemicals – phytoalexins. I think the part of this that is so radical and challenges so many of our long-held beliefs ... is that so many of the chemicals that we imagine to be phytonutrients or to be hormetics in plants are actually phytoalexins. They're plant defense chemicals ...*

*If I'm going to suggest a carnivore diet ... one of the things that people often question is: What about all the nutrients in plants that I'm missing? And there's a chapter in the book where I talk about the actual vitamins and minerals [found in animal foods] ...*

*In terms of vitamins and minerals, you can get everything from animals. Animals are a better source of all the vitamins and minerals than plants. But then people say, 'What about all the polyphenols and these phytonutrients?' ... And this is where we get into the realm of phytoalexins, the plant defense chemicals ...*

*So many of these chemicals that people think of as beneficial are plant defense chemicals. The majority of polyphenols are plant defense chemicals ... Resveratrol, for example ... is a defense molecule. It's produced in response to the botrytis fungus ... Resveratrol is an oxidative stressor to the fungus organism and does other things negatively for the fungus ...*

*Resveratrol ... definitely does activate SIRT1, which appears to be a good thing, but it has other negative effects in the human body. Specifically, there's a good amount of research on resveratrol suggesting that it affects hormonal metabolism negatively.*

*It decreases androgen precursor, specifically DHEA, leading to lower levels of DHEA and testosterone and other androgens. Many polyphenols do this in the flavonoid class of molecules ... Curcumin is another one.*

*And I'll clarify this briefly just so people understand my position. It's not that I'm saying these molecules have no value in humans. It's my urging, my suggestion when we're thinking about these molecules, that we think about them like pharmaceuticals, because they really are.*

*Pharmaceuticals are really powerful and can be lifesaving molecules. But if I'm going to prescribe or recommend ibuprofen or metoprolol or a psychiatric drug to a patient, I'm always going to have a conversation about the potential side effects.*

*What we've forgotten about with these plant molecules is that they too ... have side effects. Those side effects are what I'm calling attention to in 'The Carnivore Diet.' I think that for some people, plant molecules can have a medicinal value. But when we're using them as food, every day, my concern is that we can be getting too much of a medicine and the side effects start to outweigh the benefits.*

*That is where I think the elimination of them becomes valuable for people, and the cutting out of all the plants can be a game changer in terms of inflammation and autoimmunity."*

## **The Biochemistry of Plants and Mammals**

In the interview, Saladino also offers a descriptive analogy that helps explain why plant nutrients aren't necessarily necessary in human biochemistry. The biochemical difference between plants and animals can be likened to the operating systems of PC and Mac. While their apparent functions are the same, their operating systems are different and incompatible.

Your body has its own antioxidant system, which is different from that of plants. Your immune system is your primary defense, and you have innate and adaptive immunity. Plants do not have that. They only make molecules to defend against invaders.

The common belief is that plant molecules act as antioxidants in humans, but according to Saladino, plant molecules do not act as direct free radical scavengers in our body. They can trigger your antioxidant response system, however, which is hormesis.

*"We have glutathione, we have the enzyme, superoxide dismutase, we have uric acid, we have vitamin E. We have molecules that do the free radical scavenging the human body," Saladino says.*

*"What we're talking about here is the movement of electrons ... Unpaired electrons are free radicals. They run around the body and pull electrons off other molecules ... We have our cellular police force at glutathione to go and say, 'Hey, I'm going to give you an electron so you can calm down.' That's what glutathione does. That's our antioxidant system.*

*Plants don't do that. Plant molecules do not come into us and donate electrons. They're the reverse. Because they're plant defense molecules, they're pro-oxidants. Plants and animals have different operating systems and the molecules don't act in the same ways. The same is true of the vitamins and minerals in plants versus the vitamins and minerals in animals."*

## **The Unacknowledged Downside of Xenohormesis**

Sinclair, a professor of genetics at Harvard whom I have previously interviewed, and others have advanced the concept of xenohormesis, which means molecules that are outside of us are good for us because they contain tiny amounts of poison.

Saladino's problem with that theory has to do with the side effects. In the interview, he illustrates his objection using the example of sulforaphane, the primary glucosinolate in broccoli.

When an enzyme called myrosinase degrades glucoraphanin, it becomes sulforaphane, which acts as a pro-oxidant, not an antioxidant. By acting as a pro-oxidant, it triggers the antioxidant response system – the Nrf2 pathway. NRF2 is transcription factor that controls the activation and deactivation of genes.

It will activate genes such as glutathione peroxidase, involved in the antioxidant system. When NRF2 rises, glutathione rises, which is a good thing in the short term, as it decreases DNA damage. However, there is collateral damage.

*"The side effects of this molecule are what people are missing," Saladino says.*

*"We don't need sulforaphane to protect our DNA. We don't need sulforaphane to have optimal antioxidant status.*

*We can do things like heat exposure and cold exposure and exercise, which can also turn on the antioxidant response system and increase our supply of glutathione and protect our DNA.*

*They don't have any [deleterious] side effects. But sulforaphane has side effects ... [When] sulforaphane circulates in your body, it can oxidize membranes of cells and create 4-HNE (4-Hydroxynonenal) [and] acrolein, which are products of oxidation.*

*These are lipid peroxides, which can be very damaging. It also interferes with the absorption of iodine and competes with iodine at the level of the thyroid ... So xenohormesis, for me, the concept falls apart because of the side effects. We don't need these things. There are no examples of plant molecules that I have seen.*

*Again, we're all learning, but I am not convinced the plant molecules provide any net benefit. They don't let us do anything we can't otherwise do ... and they have all the side effects which kind of drag us down."*

## **The Unique Health Benefits of Animal Foods**



According to Saladino, animal foods are uniquely healthy for humans, and this is a topic he covers in great depth in chapter 8 of his book. One example is vitamin B12. Research cited in the book shows that B12 levels appear to be related to brain size, with low vitamin B12 equating to smaller brain volume.

*"We know the brain size has been declining over the last 15,000 years," Saladino says. "Certainly, when humans stopped hunting, they started farming more. Their B12 and many other nutrients went way down. And that's a compelling hypothesis for this decline in brain size ..."*

*[B12] is critically important in the folate cycle. It's needed to convert homocysteine to methionine and it's needed to make succinyl-CoA for the Krebs cycle. It's needed for all growth in our neurons. It's really important."*

Saladino also covers "the three C's," which are entirely or close to entirely lacking in plant foods:

- **Creatine** — Creatine, found only in animal food, not plants, is part of the phosphagen system in your muscles. It stores a phosphate item as creatine phosphate and donates that phosphate to ATP when it gets used up during intense exercise. It's also part of your body's energy metabolism.

"There are incredibly striking studies that I talk about in the book where vegetarians and vegans were supplemented with 5 grams of creatine per day, which is the amount of creatine in 1 pound of meat; invariably they had improvements in working memory, intelligence, decision-making tasks," Saladino says.

- **Choline** — Choline is important for the membranes of every cell in your body. It's also been shown to protect against nonalcoholic fatty liver disease.
- **Carnosine** — Carnosine is important because of its ability to limit oxidative stress by preventing the formation of advanced glycation end products (AGEs) and advanced lipoxidation end products (ALEs), both of which correlate to aging in humans.

Carnosine is not present in plant foods, and in his book Saladino cites research showing vegetarians have higher levels of AGE formation in their bodies. There appear to be dozens of clinical conditions for which carnosine is useful.

This includes [heart disease](#), cancer and Alzheimer's. It's also a precursor for histamine, and mitigates damage caused by ALEs, which are even more destructive than AGEs, and helps combat mitochondrial dysfunction, which is at the heart of aging and chronic disease.

## Vitamins A and K

Animal foods are also a good source of retinol vitamin A, which is better absorbed than beta carotene from plants, which must be converted into retinol. Many lack the enzyme required for this conversion, which means they cannot break down the beta carotene to make the active form of vitamin A.

*"Again, this is the operating systems concept. Retinol vitamin A is not found in plants but is exclusively found in animals. Egg yolks and liver are very rich sources. We have to eat 20 times more beta carotene to get the equivalent biological value of a molecule of retinol.*

*To get the right amount of vitamin A, you have to eat something like close to a pound of sweet potatoes a day. And if you ate 3 pounds of broccoli earlier today to get your choline requirement, I don't know how you're going to eat another pound of sweet potatoes.*

*Sweet potatoes are also very high in oxalates, so it's very misleading when people say you can get all the vitamin A you need from beta carotene. It's pretty hard to actually ... So, we have to get it from animal foods ..."*

Vitamin K is another example. Vitamin K1 is primarily found in plants while K2 – which seems to provide most of the benefits – is found in animal foods and fermented foods.

As noted by Saladino, research shows a clear correlation between higher K2 levels and lower incidence of cardiovascular disease. No such correlation exists for vitamin K1. Unfortunately, most nutrition calculators look only at K1, which is why many are under the mistaken belief that there is no vitamin K in animal foods.

*"Any nutritionists or anyone that tells you there's not enough vitamin K in animal foods is 100% wrong," Saladino says, "because there's actually more of the good type of vitamin K [i.e., vitamin K2] in animal foods that we can't get other places."*

The same goes for vitamins E and C. Neither is properly measured in animal foods, thus leading to the mistaken belief that you need plant foods for these nutrients. However, Saladino presents ample evidence in his book showing meat and animal foods contain sufficient amounts of both vitamin E and C.

## **A Note on Safety**

Importantly, Saladino has performed extensive blood testing on himself and others who are on an exclusive carnivore diet, showing consistently good results and no adverse biochemical consequences. He explains:

*"We've looked at a lot of stuff. There's individual variation. But I was just looking at one of my clients yesterday who was on a carnivore diet for months.*

*Her hs-CRP is 0.3. The F2-isoprostanes were very low, which is a marker of oxidative stress. There's no evidence for DNA damage with 8-hydroxy-2'-deoxyguanosine, et cetera. They're incredibly insulin sensitive. There's no damage to the kidneys. BUN is usually normal if people are getting adequate sodium ... There's no impairment in [blood] clotting."*

Another important side note relates to meal timing. If you're eating a carnivore diet 18 hours a day, you're probably going to run into problems — just as with any other diet. Saladino covers the importance of time-restricted eating in his book as well.

## What About Gut Microbiome Diversity?

In the interview, Saladino also covers the common perception that fiber and plant foods are essential for a healthy microbiome, and the prevention of constipation and cancer. This being an unusually long interview, I cannot cover all the details in this article so, for more in-depth information, please listen to the interview in its entirety.

With regard to fiber and microbial diversity, Harvard researchers demonstrated that people eating an exclusive carnivore diet have the same alpha diversity of gut microbes as those eating an exclusive plant-based diet for one week. In fact, the carnivore diet increased beta diversity, which is another measure of diversity, so total diversity actually increased.

## Carnivore Diet Excels in Treatment of Autoimmune Diseases

While the carnivore diet may benefit anyone, it appears particularly useful for those with autoimmune diseases.

*"I can't even tell you how many cases of psoriatic arthritis I've seen go away from it," Saladino says. "There are multiple stories on my Instagram. I've posted lots of testimonials from people who had bad plaque psoriasis, fibromyalgia, eczema, asthma and lupus ..."*

*I can't claim that the carnivore diet cures 100% of people, but it's a really powerful intervention. I think for some people, there's other things going on, GI dysbiosis or gut infections or heavy metal toxicity. Who knows? But it's a pretty darn effective intervention.*

*Generally, this is what the book is about: 'Hey, look, plants have toxins. Eating animal foods is safe. Don't fear them. If you're sick, if you're not kicking as much bud as you want to, then try the carnivore diet, especially if you have an autoimmune disease.'*

*It's incredible. I mean it totally resolved my autoimmune disease and I've seen it happen for people over and over and over. It's pretty cool. I think it's going to change medicine."*

## **What About the Blue Zones?**

Saladino even dispels the idea that plant-based diets are what makes Blue Zones, areas where people are known to be particularly long-lived, stand out. Blue Zones include Ikaria in Greece, Sardinia in Italy, Loma Linda in California, Okinawa, Japan and the Nicoya region of Costa Rica.

Crazy enough, these areas actually have the third highest consumption of meat per capita in the world, Saladino says. And they have the longest life expectancy. In the interview, Saladino delves into the specifics of each of these five areas, reviewing the local diets which, contrary to popular belief, are heavy on meat and animal foods.

*"Probably the most interesting one is Loma Linda. There's a big Seventh Day Adventist population there. Within the Seventh Day Adventist's population, there are a number of things that are advocated for. They suggest avoidance of smoking and drinking, and they don't believe in eating meat ...*

*They believe that meat creates carnal desires in humans, which is probably true because it allows us to have healthy hormone levels, right? ... They believe that if we eat a vegetarian diet, it will control our carnal desires, which it probably will because our hormones will tank in a negative way.*

*The Seventh Day Adventist region of California is a zone of longevity. They live about 7.3 years longer than the average Californian. But what's so interesting is that the California Mormons also live seven-ish years longer than the general population, but they don't shun meat at all.*

*So it's probably not the shunning of meat ... that's leading to longevity. In the case of Loma Linda and the Mormons, what they have in common is that they*

*don't smoke, they don't drink and they have a tight community. And that will be our takeaway from the blue zones eventually."*

## **The Problem With Epidemiological Studies**

Saladino also goes into more detail about healthy user bias and the problem with epidemiological studies (which are observational, not interventional, and therefore cannot determine causation), both of which have contributed to the belief system that plant-based diets are better than meat-based ones.

*"There's a great website that I referenced in the book, called [spuriouscorrelations.com](http://spuriouscorrelations.com). I would encourage people to go to that website," Saladino says.*

*"[It shows there's] a very strong correlation between cheese consumption and death by getting tangled in the bed sheets and things like this ... It's just so silly. You can make correlations between anything that don't have a causal relationship ...*

*What we're probably seeing is that people who eat more fruits and vegetables are also doing other healthy behaviors. And this is the takeaway from the Blue Zones too. People in Loma Linda live longer because they don't smoke or drink. The Mormons live longer because they don't smoke or drink.*

*The people who can do the exercise, be in the sun – those are healthy behaviors that are going to create longevity. But when it comes to diet, we really can't tell because that's a very complicated thing.*

*There's one study in the book that really drives this point home. It's called the UK Shoppers Study. They compared the standard mortality ratio of vegetarians to the general population. And the vegetarians live longer.*

*But then they compare the death rate of vegetarians to other people in the population who ate meat. They were omnivores, but these people did healthy*

*behaviors. So, they were actually able to compare two groups of people who listen to health advice and do healthy behaviors, and they had equivalent death rates.*

*So it's probably not the exclusion of meat that's causing these health outcomes to look good. It's the other things they do. This is healthy user bias ...*

*So what do we do? We generate a hypothesis. We go back and we test the hypothesis. It's just very hard to test that hypothesis because how do you do a study long enough where you're giving some people more fruits and vegetables?*

*So, what has been done is a series of five studies that I talk about in the book where fruits and vegetables were removed from the diet. This is an interventional study ... The other group ate like a pound and a half of vegetables a day ... At the end of four weeks they looked at oxidative stress, inflammatory markers and markers of immune activation.*

*What did they see? They were completely the same between the two groups. Meaning that when we remove fruit and vegetables (these are fruit and vegetable depletion studies), there is no detriment. There's no change. There's no benefit to having them in there."*

## **More Information**

I've only covered a portion of what we discuss in this interview, so if any of this has piqued your curiosity, please listen to the interview in its entirety. Saladino delves into many details that have not been covered in this text, including:

- The issue of cholesterol
- The impact of the carnivore diet on insulin sensitivity and heart disease
- Why you don't need to worry about excessive mTOR activation

He also discusses the importance of nose-to-tail eating as radically exemplified by Glenn Villeneuve of Life Below Zero in his recent 3.5-hour interview<sup>2</sup> with Joe Rogan. A carnivore diet is not just eating steak. You should eat the whole animal. This includes animal fats, organ meats and collagen from bone and marrow, for example.

It's also important to make sure the food is from grass fed and grass finished animals, opposed to factory farmed, as their diet differs tremendously, which in turn affects the nutrition you get from it.

A carnivore diet also is not exclusive to bovines. You can include seafood, eggs, chicken, turkey, pork and dairy, including goat and sheep milk. If you cannot stomach the idea of organ meats, there are ancestral supplements that contain freeze dried organ components.

*"In terms of basic macros [macro nutrients], people can go to my website, [carnivoremd.com](http://carnivoremd.com). I've got a carnivore diet pyramid there which has a lot of this laid out that you can download. What I recommend for people is thinking about how much protein you want to get in a day.*

*We may differ a little bit on these recommendations. I generally recommend 0.8 to 1 gram of protein per pound of lean body weight, and then a reasonable amount of fat to go with that. Then some organ meats and eggs and a lot of salt.*

*I think it's important to get a lot of good salt so the electrolytes don't get out of whack. I go into detail about all of that in the book, in chapter 12 and chapter 13, and I've got meal plans and everything in there.*

*I recommend that people avoid [plant-based fats] when they're doing a carnivore diet because of something called oleosins. Even in oil, we can find proteins that can be immunogenic. People could reintroduce these just like they would an elimination diet later.*



*But if you really want to see how your body does with no plant compounds at all, [then] you want to get rid of the all the plant oils because of oleosins ... I really believe that animal fat is more nutritious in general for people."*

To get all the information Saladino discusses in this interview, and then some, be sure to pick up a copy of "[The Carnivore Code](#)."

## Sources and References

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- <sup>1</sup> [Player.fm, Saladino Interview with David Sinclair](#)
- <sup>2</sup> [YouTube Joe Rogan interviews Glenn Villeneuve](#)