# An Inflammation Nation: How to Reduce It through Diet, Lifestyle and Natural Anti-inflammatories Transcript

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## Introduction and Guest Background

Hello, everybody. Welcome to the Global Cancer Symposium 2.0. My name is Nathan Crane. I am the award winning filmmaker of cancer. The integrative perspective, as well as the director of the Health and Healing Club.

I encourage you to take a look at that after this interview at Health and Healing club.com. But today I am really excited and honored to be speaking with Doctor Sunil Pi, and I think you're going to gain a ton out of this interview.

So stick around with this to the end. Make sure you're taking notes. There's a lot we're going to cover really fast. Doctor Pi is just incredibly knowledgeable, very research based, very evidence based.

He works hands on with patients every single day. So, you know, this is truly an incredibly renowned expert and Doctor Who you can absolutely learn a lot from.

We're going to be talking about, what we're titled, an inflammation nation and how to reduce inflammation through diet, lifestyle and natural anti-inflammatories.

And as we know, chronic inflammation is one of the core causes of cancer. Right. So let me read you, Doctor Pye's bio and then we'll bring him in. We'll dive right in.

Sunil Pi, MD is an internationally recognized expert in integrative medicine and author, video podcaster, health activist, influencer, and thought leader in the wellness industry.

He's one of the first formally fellowship trained integrative medicine MDS over 20 years ago at the Program in Integrative Medicine at the University of Arizona, directed by Doctor Andrew, while Doctor Pi also became one of the first board certified MDS in Holistic Integrative Medicine in the US.

He's further trained with Doctor Deepak Chopra as a primordial sound meditation instructor and a Creating Health, which is based in Are You Vedic Lifestyle Instructor as well as he studied medicine in India.

Additionally, he has certifications in functional medicine, homo toxicology, physiological regulating medicine, acupuncture and neuro acupuncture, yoga, and plant based nutrition.

He has a really vast background where he's coming from, which is incredibly beneficial when you're dealing with something as complex as cancer, right?

Doctor Pi is a deacon of the House of San Giovanni Integrative Medicine, health and Lifestyle center, located 60 minutes from where I live. He's actually in Albuquerque.

I'm up in Santa Fe, and it's a nonprofit organization where they, work with people every single day. They provide full service health education and integrative medicine services with emphasis in natural medicine.

His website, the San Giovanni Dot net, San Jeeva and I's and Jovani dot net encourage you to go to the website right after this interview. So a lot of great resources there for you.

Doctor Pi, thank you so much for joining us, man. Thank you for having me again. So it's been a while since we've connected. You know, we've done a lot of great stuff over the years together.

I've done multiple sit down interviews with you. You have spoken at my conferences. You've been on my summits.

You have a great multiple segments in my, you know, award winning film Cancer Integrative Perspective.

And I'm sharing this because, you know, I really believe and and trust the the work that you do, the research, the evidence based, approaches that that you bring to the integrated field of helping people with cancer and all chronic diseases, for that matter.

And I know one of your major specialties is inflammation, right? Because we know inflammation is, one of the underlying causes of cancer, as well as one of the underlying contributors to pretty much every chronic disease, lifestyle related metabolic diseases that we deal with today.

Right. So maybe we'll start with answering this question for everyone. What exactly is inflammation, right. Or chronic inflammation? And what are the primary lifestyle behaviors that cause chronic inflammation.

So perfect question. So thanks again for having me and thanks your audience for listening. So let's start off with what you know, what inflammation is in generally it's a complex source of, you know, metabolic, physiological, anatomical, immunological processes.

It sounds really complex, but in a nutshell, we can always say the word inflammation just means fire. You know, in terms of defining what, you know, flame inflammation means and inflammation just means itis itis, you know, like when we write something.

So when we think of inflammation, it's just inflammation is the chronic degeneration through a lot of these variety of diet, lifestyle, environmental, sources as well.

And even stress is one of them is, for example. And these trigger these responses that are supposed to normally kind of balance the body. Like you need to have some inflammation.

You don't have too much, but when it's too much, then it progresses a disease that we may have into disease. Right. And then some of those diseases actually can progress into cancer.

And so the key is reducing inflammation as a whole. When we look at inflammation, just to give you an example and I think I've done this before. But I always like to tell the audience every time is, you know, inflammation.

Well, just think of anything with an idea. So if you have one of these things you have a problem. So, you know, dermatitis, you know, red eyes, conjunctivitis, runny nose, rhinitis, sinusitis.

You know, gingivitis of your, you know, esophagitis, laryngitis, thyroiditis, you know, gastritis, colitis, prostate, vaginal, you know, arthritis, tenderness.

We have over 200 different irises now. And unfortunately, Western medicine sometimes looks at just treating the symptom. So, you know, we can give a pain medicine.

We can give some kind of direct aspect. But from our perspective, using evidence based integrative therapies, we're looking at, can we find the underlying triggering mechanisms that are causing the inflammatory responses in each individual?

Some of them are general, you know, like diet and lifestyle. Then we go further like what specific foods may be in their diet, what are the maybe triggers in their environment as well?

Even the stressors in their mind as well. And then can we help reduce that naturally and improve their overall outcome today? What's happening right now is with the standard American diet lifestyle.

This is why we have so many inflammatory responses. And as I mentioned before, I think, you know, a long time ago in my book, you know, I had the the U. S.

was ranking 46 out of 48 industrial nations in terms of chronic diseases. And the outcome, even though we spent more than any other country, you know, I think the top 10 or 15 combined. Right?

So we were the wealthiest nation with the poorest chronic outcomes, because chronic inflammation is a little bit more challenging to treat. To treat from a conventional standpoint.

You know, they're really good at acute care. So for example, you sprain your ankle, which is an immediate acute inflammatory response. That's a good thing when you have a fever, when you're sick, that's a good thing.

Your body's evoking its immune response to fight, fix and repair. However, if you have a chronic fever so now your fever is ten days, right? Or your ankle still small, you know, then there's a problem because that can cause some degeneration or lack of healing or inhibition of getting to that optimum healing response.

So what we have to look at from our perspective are what are the triggers which we usually address when we approach our patients, and then what are the ways to lower it naturally.

And even if someone is using conventional therapies as our goal is, how do we even make those therapies, less side effects, you know, and improve their outcomes.

So what kind of data driven and how we look at things and we're not anti this or pro this.

## What Inflammation Is and Why It Matters

We're looking at how do we just improve the outcome of whatever they're using or the opportunity that they have in front of them. So talking about chronic inflammation specifically in regards to cancer right.

We know. Well, you know, I don't want to assume actually that everybody knows this. But, I know, you know, through your work and through the extensive research I've done, you know, I'm I've actually been filming a masterclass and, and researching for a new book about cancer.

And, you know, when you do, like, research for a book, it's like heavy. It's like hours and hours and hours of looking at day to day to day to day to right.

And I didn't even fully understand exactly how chronic inflammation caused cancer, specifically until I started really digging deep into the data. Right.

And so it was like, yeah, chronic inflammation is a, certainly one of the underlying conditions that are associated with cancer and most chronic diseases, all the is that you said, right.

But actually chronic inflammation causes cancer, right? Can you maybe you can help explain for all of us, you know, even including myself, like how would you explain to somebody who isn't data driven, who isn't into understanding, you know, scientific jargon, if you will?

So chronic inflammation actually causes cancer. And, and what we need to be concerned about that, you know, right. Since we are in and as you stated, the title of your book, An Inflammation Nation.

Yeah. So, you know, in my book, I actually summarize, you know, the 1500 references of studies and, you know, medical, articles and journal articles that have been published on this topic, try to put it in an easy to understand fashion so those people don't have to look and dig deep like you and I would.

But when you look at a disease, for example, let's just take, hepatitis, which is do say due to hepatitis C, that chronic inflammation in to someone's liver over a period of time, like a decade or more increases the risk of getting liver cancer.

For example, people have esophagitis. They get, you know, chronic heartburn. And, you know, that they take these

drugs or we would give we would actually change their time, heal it.

But when people take these chronic issues, the idea is that that chronic inflammation, the erosion of those cells in the esophagus is due to the chronic insult from the acidic inflammation, from a different area in the stomach that actually changes that tissue to turn, you know, into a cancerous, cancerous cell.

And so, you know, when people have, like, cervix issues. So women that have to get pap smears and say they have HPV, which is a virus, that virus can cause chronic inflammation into the cervix.

And over time this can turn into, dysplasia into a metabolism, meaning the cells of the cervix will change over time to eventually lead into a cancer, or put that patient at a higher risk of getting cervical cancer.

Same thing with chronic bronchitis, particularly due to smokers as we know you know, they can get lung cancer and their lung cancer is the highest risk as you as most people know.

But still, what happens is that chronic inflammation when it does is it's not only just causing degeneration or, you know, destruction of the tissue, but it also has an immunosuppressive, activity.

So it's it's suppresses your immune system, which I usually call the soldier cells or Army, Navy, air force. You know it. You know your Marines, the military.

So if your military's not able to fight, fix and repair and there's chronic damage, then there's just bad outcomes coming over in any kind of, area of tissue where the body has the inflammation.

Yeah. I mean, that's, you know, very well said. You're able to take something complex and make it super simple for people. Right. And like basically how I understand it and correct me if I'm wrong is, you know, one of the, you know, some of those causes of chronic inflammation are things like, you know, persistent infections, right?

Also persistent exposure to toxins. Right. It's a toxic substance continuously, you know, chronically infecting the area, causing the damage. And then your body is sending, you know, leukocytes into to heal and repair, and then you've got damage and repair and damage and repair.

And through that process, you have this volatile thing that happens right between, the chemicals that are being released from the cells that actually can, turn to the cells into cancer cells.

Right, right. And what is that chronic situation of, damage repair, damage repair, damage repair over time that starts the spread of cancer. Is that right? Correct.

And then when we look at this, when we look at the overall lifestyle of a patient and we look at the data, you know, it goes tobacco is one of the highest causes.

And contributing, as you know, of cancer. Right. Obviously. But you know, diet is actually the first and foremost number one. Cause and then aside of so goes diet it goes tobacco and then it goes obesity because obesity then triggers all sorts of inflammatory hormonal responses and other kind of issues in terms of leading to other comorbidities.

And then we look at infections, which is, you know, just, getting our immune system. And then we look at the environment, and then finally we look at, you know, genetics, which is only 3% of all diseases are genetically related.

So it's this epigenetics, which is the diet lifestyle environment, which is triggering this onslaught of inflammation that we can control. Now I'll give you another example.

Say people have colitis okay, which is inflammation in the colon. People have colitis for about 30 years, have a 43% increased risk of getting colorectal cancer.

Because this is a chronic inflammation of their colons, constantly bleeding is constantly inflamed. You know, that can then trigger, you know, changes in the colon, which then can make more polyps grow and the polyps can eventually turn into cancer.

So not having polyps, the cancer, for example, but those people have colitis, have higher risk of having more inflamed paths, which puts them at a higher risk.

People that have, rheumatoid arthritis. So someone has active, active rheumatoid arthritis that is not treated correctly in ten years. They have a 71 time higher rate of getting lymphoma because this is a systemic in fact, their whole body's on the joints are actually degenerating.

So it actually, you know, triggers, you know, the immune response that goes, to another level. It's like, I can't even fix this. I can, you know, I'm out.

And then more bad things occur because the inflammation is still coming in to those patients. So obviously, I mean, you know, chronic inflammation is a major culprit.

We have to address which. And we're going to get into in this interview, I know you're going to share with us some really, practical and evidence based approaches what we can do to, you know, reduce our chronic inflammation, which ultimately is going to help our bodies do what it's designed to do, which is to heal itself from chronic diseases like cancer.

Right. But we've got to get to the underlying cause and condition, that is creating the chronic inflammation. And you know, you just mentioned some of the core causes or really the core causes of that.

Right? And you mentioned diet. So, you know, because you're so research based and, you know, you, you know, the science behind this, what is like the, let's say, what is the most scientifically proven diet, you know, or foods that directly cause inflammation or chronic inflammation.

Right. So at the end of the day, you know, when people come to this diet discussion, you know, I think it's kind of been put to rest because we know that all the research and all the published evidence, will show that eating a whole foods, plant based diet is the best.

Now, even more so is that instead of people, you know, getting into that bitter debate, you have to ask, you know, everybody has to ask a simple question are you eating a pro-inflammatory food or an anti-inflammatory food?

You know, does the food have phytonutrients or not? You know, does the food have fiber or not? Is the food is a food high and rich in antioxidants or not?

You know, just have cholesterol or not because, you know, so those are some kind of is it cause endotoxins or disruption to your microbiome or not? And so if you understand those kind of concepts where you need, you know, we all need fiber in our diet to feed our microbiome, to have colon health, to reduce blood sugar, etc., etc.

we need phytonutrients, phyto meaning plant. Those are all the nutrients that you know. Now everybody goes to the health store and we buy every single phytonutrient on the shelf, which is like, you know, beta carotene in my in my flavonoids and my reserve at all my green teas and my curcumin roids and, you know, etc., etc., etc..

So those are all the phytonutrients that only come from plant foods, you know. So fiber only comes from plant foods. Antibodies are higher and richer in plant foods than even, the wild caught in the grass fed animal protein foods.

And remember, plant foods have no cholesterol and animal proteins have cholesterol. I remember, you know, three people every minute still have a heart attack in America.

So heart disease is still, you know, side of this year being Covid, is still the number one cause of death in the

United States and also worldwide. So with to look at, you know, is it pro-inflammatory or anti-inflammatory.

So in general all the plant foods are anti-inflammatory. Unless someone has a sensitivity and we can talk about those kind of things to certain foods.

But we want to look at us, you know, eating a whole foods plant based diet, which is anti-inflammatory, in general, you know, the data will show 80 to 82% of all diseases will get reversed or slow down the progression of the disease.

So like diabetes and heart disease. And those things are very simple to treat. But diet, I mean every day we get people with 50 to 70 points drop of their cholesterol.

You know, A1C can drop 3 or 4 points just moving in a diet within a month. So it's not like, you know, a huge like, oh, I've been eating this way for 65 years.

Go take me another 65 years to get healthier. I'm like, I'll take you less than, you know, three months to so totally, you know, to recheck your blood sugar and to get another blood test.

So these things are really easy to, to treat or to give advice to for people to follow. However, these are also lifestyle changes which, as you know in America is one of the most difficult things to change because people want convenience.

They want, you know, fast food, they want quick and easy and sometimes cheap, but you can still eat, you know, plant based diet. You can even eat organic very inexpensively.

I think there's a misnomer that, you know, people want to push it to sound like these things are expensive. But really, at the end of the day, your body is your vehicle.

So I tell everybody, you know, treat yourself like a Ferrari. You'd only put good fuel in your Ferrari. You know, if you want to run like an old jalopy, then that's what you're going to get.

And so I think most people want to drive like a Ferrari. They want to feel like a Ferrari. So then you got to take care of yourself just as much as you would take care of your car.

I got to say, that's first time I've heard somebody say jalopy aside of myself in the last 15 years, so. Well, I didn't want to say another car car manufacturer because I might be liable first for saying something bad about a car manufacturer.

So just for purposes of living in a jalopy, I think hopefully there's no jalopies out there. But, I could think of a car manufacturer that's defunct now.

You know, it's like, is it like maybe have you say like, oh, that's great. Yeah. I, I had to mention that I'm like, oh, I thought I was the only one that ever said jalopy. Yeah, yeah.

Oh. So, so if you were to, if you would identify the top five foods that are pro-inflammatory or what, what are they? Okay, so the top five foods that are pro-inflammatory are, first of all, you know, anything that has a mother or face, right.

So those are animal proteins right. But first when I when I kind of put them in the ranking order. Right. Because when I see patients, you know, I'm not a perfectionist.

I'm a realist. Right. So we want to move them. Now if they're a cancer patient, they got to go plant based immediately if they want to have the best improved outcome that the data will show.

However, first and foremost, I always start with dairy because dairies, the big one, you know, dairy, you know, we

consume more dairy product than almost any other, food product.

You know, we're having on average about 2 pounds per day of dairy products per person, which is kind of insane.

## How Chronic Inflammation Drives Cancer

Dairy stimulates insulin growth factors. We know cancer cells have 10 to 12 times more insulin receptors. So it actually is one of the things that when we show it, not only in animal studies, but even in cell culture, you can actually grow a cancer cell, say, breast cancer cells can multiple, multiply it just directly by putting the, the dairy protein.

Remember, dairy is supposed to stimulate the growth of of a young animal, right? Like so cow's milk is not our mother's milk. You know, we were breastfed from our mom, but it's a different source of protein, in fact, that protein sources as much, much higher than human milk.

And so there's all the data will show that, you know, I would avoid, you know, always, you know, first and foremost starting dairy. And remember, dairy also doesn't improve their bone health for a number.

So that's also a misnomer. You know, milk does not do a body good. So much so that they cannot say that legally. And that's why the USDA took out that in their advertising.

Okay. So there's no reason to have a growth promoting type of foods, particularly that. And we're not baby animals anymore. You know, after the age of four, even lose the enzyme to break down dairy products.

That's why most people have lactose intolerance around the world. Okay. But there's an industry. There's a lot of groups that are still continue selling it.

And, you know, one of the things that makes dairy really difficult. So think, you know, is that dairy contains case of morphemes in the case of morphemes, are these proteins in the dairy that triggers the opioid receptors in our brain.

And so when we eat it, you know, when you're when you're sad, it makes you happy. When you're happy makes you happier. That's why ice cream always wins no matter where you you go to the grocery store, there's ice cream that goes for the whole side of the store.

These days, this freezer is full of ice cream. Doesn't matter what kind of ice cream right is, because it is something that we can take pleasure in immediately.

Right? So we got to get rid of the we got to get rid of the dairy eggs. Is that what about that? What about raw, organic like locally hand milked milk?

It still has it still triggers insulin growth factor. So so so what they're doing with the organic and this is also with all the grass fed and you know wild card is yes they're removing some of the hormones from that. Right.

And pesticides from that. So that that is is clean food is cleaner. But it doesn't mean that it's healthier. Right. So it still is still has no fiber stores, no phytonutrients, still has, you know, still pro-inflammatory.

And dairy is one of the most pro-inflammatory foods just when it comes to allergies and inflammation. So that's why, you know, even pediatrics you know, we always tell people get your kids off of milk and then boom, they're ear infections and respiratory and even acne 300% increase in acne in teens who consume milk cut off the milk, their acne goes away.

So these are all things that, you know, we drink drinking. I mean that's one of the things you can see, right? I grew up drinking tons of milk and eating lots of cheese and.

Yeah. Oh, you know, when I quit drinking all dairy stuff, like, one of the things that improves is you have a lot less

mucus, right? Correct. So it's very prone flights are very pro-inflammatory.

And, you know, most people understand that, you know, outside of, you know, the growth and development in this very small, small period of time, there is no further advantage of of eating that food.

We're no longer babies. Right. So we you remember a cow takes, you know, a relatively short period of time with the need to rapidly grow to 1500 pounds or 2000 pounds.

We have 18 years that we're going to save that to become an adult. So, you know, all the data has shown that. So there's not really an argument anymore.

But people, you know, this is our lifestyle, right? We put cheese and dairy in yogurt and ice cream and and whey protein drinks. And so it's a it's a cultural thing that we have to learn how to change.

But now the benefit is that there's so many plant based options and alternatives now that there wasn't, you know, say 20 years ago that, you know, there's plant based cheeses and milks and there's a milk of every kind in the store.

Now, every day they're squeezing something, getting something out of a seed or a nut of some kind, which is great. And, you know, so it does provide that.

So people can have their cream, their coffee and their cereal, and they can have their vegan ice creams and all stuff, like still has a lot of sugar, for example, but it's still healthier.

We're trying to move this transition of not taking these pro-inflammatory foods, and you can make your own, like we make our own almond milk all the time, right?

Sure, you can make it in a blender. We ended up getting an almond called an almond cow, right? And literally we put water all made a little bit of, vanilla organic.

Yeah, a little bit of salt and a touch of maple sirup and yeah, no preservatives, very low sugar. And it's super, super healthy, delicious. You know, milk.

Yeah. We we we we teach people how to do that as well. The second the and the second food that I avoid is eggs. What. Interesting. You know, what about ghee?

Because ghee is this huge thing that so many health experts are promoting nowadays, right? Yeah. So it's it's controversial because if, you know, depending on how vegan you are, right.

You know, so some people like I don't want to have any animal protein at all. Like I didn't even have vitamin D because most vitamin D comes from, you know, animal sources.

And so there is, you know, plant based things as well that people can have. I'm not that much of a purist in coming, you know, with the either the background to get the ghee has a lot of health benefits from a fat source.

Right. You know, when we when we clarify the butter, we're actually removing the animal protein content. And that's why ghee doesn't get you know, ghee is stored outside the refrigerator.

You can keep ghee for hundreds of years. It doesn't spoil like butter. So from our perspective, if someone doesn't have a dairy allergy, which we will check for in our clinic and blood testing, and they're not so strictly like I can't touch an animal product, which I would respect if they said no.

Then we have other options. Then it can be used as a healthy fat. We do see that, you know, it does not affect their lipids, in a negative fashion. And that's one of the things that when I was in India during my training, you know, when they do these hospital, treatments called Punch of karma, it's like a kind of a detox, but it's a full, not the

Western detox is real where the word detoxification comes from.

They actually give people ghee during the treatment. When I went there 20 years ago as a Western doctor, my white coat, I was like, oh my God, you're going to cause heart disease.

And I was kind of like shaming them. And they would just show me the blood tests on the lipids and they don't go up. And I was shocked because I didn't understand the difference between what they called bio transformation of foods.

So so the clarification of butter is a process of actually removing most of that harmful contaminants. And so for those people who lose to it's like a healthy fat, like, you know, it is it's a, it is a healthier fat, but it's still coming from an animal source.

So those people who are like, who are still like, I don't want to touch anything from an animal that I say don't have ghee. However, for example, there's a lot of people who are still doing this trend of like putting like MCT me to medium chain triglycerides or a lot of coconut oil and things and their lipids will go up, you know, so even vegans, you know, they'll take that stuff in there.

The cholesterol can be 300. And then when I switch them over and say, hey, do you want to try a little bit of ghee? Instead of that, their numbers will go down.

But that's more of a personal choice. We find that it does have some other health benefits and other qualities that we're looking at in terms of balancing their constitution.

Okay. All right. So I think we covered just about everything on dairy that we could. So we're now you were talking about eggs is a second pro-inflammatory.

So yeah. So so eggs is something that because you know the first two like dairy and eggs or we think of vegetarian right. And so vegetarians we say hey you know I'm not eating pork or beef or this, I'm eating a lot of eggs and dairy, you know, cheese, eggs and, you know, breakfast burritos.

But the eggs, you know, side of having the highest amount of cholesterol two eggs have about, you know, about 423mg of cholesterol, which is seven times more than any other serving of food of an animal protein.

So if someone had, for example, four ounce piece of steak or a four ounce piece of, chicken or something like that, or, you know, have about, you know, 64 ounce, 64mg of cholesterol, two eggs, raw.

I mean, before you cooked them without the butter and all these oils and stuff, you know, it's about seven times more 423mg. So the average person having that in terms of risk of heart disease is high.

But in the last five years, we've understood that when the eggs, the protein of the eggs goes into the microbiome, which is so utterly, you know, not so important is that it converts to something called TMO.

And TMO is a new, it's understood as a kind of a pro carcinogenic metabolite that's being converted. So it's not just, you know, is it white? Is it the whites or is it the yolks or is it the cholesterol.

You know that that was part that's heart disease and inflammation. Now understanding is triggering another mechanism where, you know because most of us here in New Mexico like you know you being up in Santa Fe, you know, we all used to get our eggs from Taos.

So it's organic, free range. And, you know, all that stuff's on come by, guys. The cleaner. Rather than getting a factory farm egg, however, it still converts the TMA.

Well, we're understanding right now is that all animal protein still causes dysfunction to the microbiome. They all produce endotoxins. And even when we get an animal protein that's organic, grass fed.

Walcot. And even if we cook it, boil it, and even we have stomach acid, it still creates endotoxins in the gut, triggers inflammatory responses and things like leaky gut and other kind of inflammatory disruptions to where 80% of your immune system is functioning in your gut.

So so there's no there's so now the a lot of times a lot of people will argue, well, this is better than this. And they do that all the time. Right. So like fish is better than chicken.

Chicken is better than beef. Beef is better than pork. So that industry will always do that. But what will supersede all of that in terms of like you just not eating any of it as much as you can, as often as you can.

So that's true for I mean, is that true for wild cod? Let's say it's very low mercury. You know, wild cod salmon. Is it. Yes. Is that. Yeah. Because remember, it has an endotoxin to be generated in the. Yes.

It's true. And also remember the so yes, it has a mega three is a salmon right. But it still has no phytonutrients. It still has no fiber you know. So so there is a you know, it starts cholesterol.

So the idea is that, you know, we're everybody's trying to especially in that industry. They're trying to still say well it has some benefits. And on some level comparing it to something worse is very easy.

But at the end of the day, you just got to answer those questions. You know, because they have phytonutrients. They have fiber is a pro-inflammatory is an anti-inflammatory.

Does it have, you know, high in antioxidants or not? And, you know, does it have cholesterol or not? If you do, if you understand those things, it will keep leading you to one, aspect.

It was trying to eat plant based. Now, to be fair, there is issues with certain plants and and the reason being is if someone has a food sensitivity, that's this.

You know, one of the things that we specialize in is like we move people to what the evidence will say is eat a plant based diet. However, we still respect your individual immune system and say, like your body can say, I have a trouble with wheat or soya, corn or kale or avocados.

And we have to look at, through testing to see, does your body have a reaction within an hour or up to four days later after eating something that's triggering a chronic inflammatory response?

Because when people move to plant based diets, sometimes we're eating more of these foods, right? So I'm eating more kale and eating more blueberries, more avocados.

And so we want to make sure that every food that's comes in someone's diet now. So we know like here's the evidence based information that plant based is better.

But now we go further.

## Diet as the Main Driver of Inflammation

So what makes our practice different and unique is we go further to say, you know what we now want to analyze. And so that can we look at what specific foods, even on this side of the aisle, may your body have a problem with.

And if we can eliminate that or reduce it, or we train the body to tolerate it, then even that overall inflammatory burden is lower. So you talked about dairy.

We talked about eggs. You talked about well, more more about animal protein. Right? Yeah. I mean yeah. So so it's like, you know, same thing or same thing will go to the beef and same thing will go to pork.

And you know, in my book, you know, one of the things I do, which is very interesting and for those who are

listening, is that if you want to learn about each industry because you know, the answer was, you know, and believe it or not, before I went plant based in 2006, I was that guy who was getting clean food, you know, my my fish became from that special fishery in Alaska, and my, my beef came from Japan, that I had a massage therapists work on it and, you know, and my chickens came from Thailand and they were selling Cambodia.

So I was that person. And I thought I was being healthier and I'd go out and pay a little extra, you know, go out of my way to buy these things when people would come over.

But at the end of the day, it didn't answer those same simple questions. The foundation of nutrition and health, and therefore all it was doing was just paying a higher rate of cost.

Now the data shows that even conventional there's a recent study showed last year that eating conventional, you know, a factory farm versus organic, right.

It didn't really show that much of a of a difference in terms of health benefit. Right. Because it still doesn't answer those same quality. So yes, we do have a little bit less hormone.

We have a little bit less pesticide. Herbicide. Right. But it still doesn't have those other main foundational nutritional aspects that you need for optimum health.

Well, here's here's what I've seen in and this is my perception, my belief, what I've seen in the, you know, let's call the health guru the health expert industry, if you will.

You know, naming names. But there's some really key figures that I know everybody out here has probably heard of, maybe even trust them in their in their intelligence.

You know, they have millions of followers. And when you look into kind of like, okay, what do they really recommend for the healthiest foods for people you know with cancer, with autoimmunity, with diabetes, etc.?

They all lead to basically the same path that the data shows us, right? Which is a whole foods, plant based, diverse, organic, highly nutritional diet.

Right. But one thing a lot of them do, and I noticed this and this may answer some of those questions like, well, why does so and so say to eat grass fed beef or so on.

And so says it's okay to have some wild caught salmon. And, you know, this is my my perception of that because I asked the same question. And if I if you look deeper into it, I really feel it's more of like they don't want to polarize or lose that huge chunk of their audience.

Right? And they haven't really looked at the hard data on the wild caught salmon or on the, you know, the grass fed beef. And they go, well, if you're going to eat beef, if you're going to eat cows, make sure it's, grass fed.

Right. And they don't say much more than that. They don't go into the cell, they don't go in the science, they'll go to the information. And, and I and I think you're right in that sense that, you know, that they're afraid of ostracizing or polarizing.

But at the end of the day, you know, when I work with patients, it's kind of like this. You're joining the Olympics, I'm your coach, and if you go to go through the training, you're going for gold.

You know, I don't I'm not looking for bronzes or silvers. And when you're dealing with cancer, you're looking at improving your outcome. So a little bit of cancer is not good enough.

And that's the disconnect where when they are free to kind of speak towards the patient saying like, yeah, these are these are lifestyle changes. You have to make these lifestyle changes.

Well, the choices of the patient, whether they want a gold, a silver or a bronze. And, you know, the idea is that if you really want to overcome cancer, no matter what stage of disease, no matter what type of treatment is, you have to be working on doing gold activities, right?

And it's like you just can't go say, I do this partial thing and expect to go to the Olympics. And I think the problem with a lot of the providers, as well as if they themselves don't also want to make the change. Right?

And, you know, to be frank, it was tough for me in the beginning. People read my book, you'll read my story. You know, just like you when I see you on Instagram.

Exercising. No, it wasn't easy. Probably in the beginning to go to the gym and to do sit ups and pull ups every day. The first probably three months, were hemming and hawing and like us, this, you know, but then, then your body is like, wow, I transform, I look better, I feel better, I'm playing with my family, my kids.

I'm sleeping better, my my libido, my cognition is better, my mainstream is stronger. And then you go, I love exercising now. Right? So so so just like when when I tell people when they change and they transform their diet, we help them.

We give them recipes, we give them alternatives and all these other things like that is that over time when you achieve wellness, you never go back. Like once you drive the Ferrari, the jalopy is never going to work again, you know what I'm saying?

But but most people that have never felt good, most people have never had, you know, they've always had a chronic disease all the when they come in. So many people have these conditions older than me.

They're like, I've had this before you were born, doctor. Octopi, you know what I'm saying? Well, that's too long. You know, I'm saying like that's too long.

I but but but their reference range of what wellness means, you know, most people at the at the end of the day, they're just trying to keep their head above water.

They're treading, you know. And for us, it's not just teaching people how to swim. It's teaching people how to sail. And that's a completely different level of wellness and optimum health.

Rather than saying, well, my disease is managed, it's under control, right? That's still not normal. That's just controlled through drugs or even through natural therapies.

We haven't improve their physiology mental, spiritual, spiritual and on on down. There has to be a complete transformation in that patient. If they want to truly achieve optimum wellness.

I mean, I, I love the metaphor of, look, you know, you have cancer, like we're going into training, right? Like I'm a CrossFit athlete. Like I train to compete because I love it and I train for longevity for the rest of my life because I want to be healthy and vital and energetic.

When I'm in my 90s, I want to be hiking mountains with my great, great grandkids. Right? Great, great. But great grandkids, right? Yeah, sure. You never know.

Yeah, right. Yeah. You never know. But like, those are my goals, right. But what you're saying is like, look, you've got to take this serious and you can't just, you know, greenwash the information if you.

Right. It's greenwashing. Want to eat some grass fed beef? It's okay. It's like. No, it directly causes inflammation and or toxins in your gut to be released.

We know it's going to contribute to cancer cell proliferation. You need to cut it out 100%. And it's like if you're not willing to give people that hard fact, that hard truth, I think you're doing a disservice to people.

Right. And that's right. Unfortunate. And and to give you an example, one of the things just recently in a study that came out a few months ago was there actually, because, you know, we actually help people with transitioning their diet, right?

It's not eating kale and quinoa all day, which is a misperception. I'd say whatever you're eating, like if I'm having Mexican food or Indian food or Thai food or Thai food, I'm just changing out to make it more plant based options. Right.

And there's a study that just came out recently, which is really fantastic because it helps people with this transition. And it goes like this. They took all this wild, caught, organic, grass fed, you know, animal proteins, fish and beef and chicken.

Okay. And then they took processed frozen plant based alternatives that are said like, so here's your, you know, your your, your, meat substitute plant base is your chicken substitute plant peas and they're processed. Right.

So they're they're not fresh. So everybody comes in, they'll say, hey, you know, I'd rather eat the real stuff than that fake food. But the study showed is that they match the amount of protein and the amount fat in the foods, because that's what gives us the energy feeling full.

And that mouthfeel like that burger was really juicy, the fat and the fattiness of that. Right. Or whatever we're eating for example. And so they match in the study what they showed us at the end of the study of these people eating these foods, and they did the nice crossover and everything like that, is that the people that ate the plant based substitute still did better on all the parameters inflammatory, cardiovascular, you know, diabetes, blood because you still getting fat.

Any chance you're still getting some some fiber. You're still getting it's anti-inflammatory. It's not pro-inflammatory. You know, it doesn't cause endotoxin disruption doesn't cause you no microbiome.

So even then so then if I tell people, hey, if you don't know how to cook this way or you know how to, then then go get a plant based sausage right now, go get a plant based burger.

It's transitioning them to not have the things that are worse. And now I can actually say that, you know, before and some people might say that sacrilegious because you should always be Whole Foods plant based.

I am trying to move that patient to get a gold. And again, eventually you got to go from a bronze to silver to a gold. It's hard. It's to go, you know, it's hard to just jump in your time. Right.

Like if you're an athlete, right. You got to get a little bit stronger and healthier. So giving people a little bit more examples and saying, hey, you know, we're not talking about perfection here.

You know, if I can give you a plant based alternative, I will, if I can get a cleaner food and also if we can avoid some of your food sensitivities, then we transition it.

It's really easy. And once people have that comfort because it's comfort food that we're all used to eating, right? Standard American fare. Then it's easy.

It's not as it's not as restrictive. It's not eating salads and, you know, drinking green juices all day, which is a misperception, again, of of what, you know, the alternative cancer world might be offering or selling online.

It's actually, you know, providing really healthy, good food. Yeah. It's fascinating that that study and it of course makes sense even if it's processed.

It's not the, you know, whole fresh stuff. It's like you're still getting more nutrients. Right? Which is which is really interesting. Right? So like and it was and I'm really happy to do that study because it takes this burden off of people saying like, oh my God, do I have to be perfect?

Do I have to go to the, the, the grocery store all the time? And, you know, if I, if I'm living by myself, the, the produce sometimes goes off a little bit.

Can I buy something for. Yes you can. Like I'm transitioning them to get to a place where they can maybe make their own almond milk, but if they can, if they're sick or they don't have the time or the or support, then there's still other things that they can simply do to still be a better, healthy option to provide better health outcomes.

Okay, so so in in terms of order so far, what's number one. Number two and number three. Pro-inflammatory. So eggs yeah eggs or what's the order you would say I mean all animal protein is pro-inflammatory right.

So it depends on how much they eat. So you know if I'm in if I'm in Texas it might be barbecue foods. Right. You know if I have Mississippi it might be a lot of the fried seafood.

Right. Like, you know, I'm having po'boy sandwiches all day long. And so, you know, you know, also remember, it's not just the animal proteins. It's as the high omega sixes that we're using.

So even the vegetable oil. So remember right. So it's like the cheeseburger and the French fries remember. And this is where this is where people who go plant based or I think sometimes the younger the younger generation, they, they're also can be in unhealthy just eating French fries all day and saying, hey, I'm vegan.

I know Oreos are vegan. You know, beer is vegan. You know, so well, some of them are so, you know, it doesn't mean it's a whole plenty of unhealthy vegans.

It's not about. Yeah well no. Yeah. So for us it's like eating plant based foods and, you know, a donut. Still a donut, even if it's vegan now, doesn't mean that people can't have a donut here or there or can't have a piece of pie or cake on a holiday or a birthday party or anniversary. But.

But what happens every day is is game day in America. Every day is celebrated in America. That's why we have the ice cream aisle across the store and etc., etc.

you know, I'm saying. So that's where the, the, the I think the danger of sometimes is that there's too many options right now of even plant based desserts.

So I can go to the health food store. And there's just so much junk food there as people would think. Right. Cause that's when you go and there's donuts and cookies and all that right there.

Like then the taste, the the produce is way over here. Right? I just tell people, you got to go to the produce, fill your produce out first, fully thought first.

And, you know, try to avoid because otherwise, you know, we're all victim to the marketing. And it's funny, when I go shopping, that's exactly what I do.

First, I always go straight to produce and get as much produce like that. Feels like most of our cart, you know. Right? Right. All the other, you know, healthy packaged stuff. Right.

And I tell people when you get, you know, when you get packaged stuff, try to limit it and try to try to not put it in your, your and your your, your, your cart.

Because, you know, we all you know, if I get something, if I get even a vegan, I'm going to eat it. If I get chips, I'm going to eat it like it's one of those things that, you know, we are.

Will is not as strong as we think. Right? And, you know, the marketing is very strong and pricing and placement and, you know, sociability. So I like we just can't fall victim to that because this is the, you know, the standard American diet has victimized not only the United States, but the rest of the industrial world.

And everybody else is following that. And it's no longer sustainable from a health care cost perspective, an environmental perspective, any kind of perspective.

So we really have to just like we're changing our energy sources, we gotta change our food sources. Okay. So what are the next two, the number four, number five of the really, you know, culprits?

I mean how would you pork and beef, you know, as that, you know, I would say all animal protein in group, all of the all meats and the like. One should say I would I mean, I would just say, don't eat any of them.

Like, I don't like that. You're asking me these top five I'm trying to put in five, but I don't think there's one better than the other because they still they still are failing to meet that test of what?

What is optimum for foods, for nutrition and health and healing. But, you know, the idea is that it depends on how much people eat. So some people are eating like, you know, eggs every day, like dozens of eggs, or some people are just drinking cheese and yogurt.

And so I always sort of start with the one that's consuming a lot more, because it's about the reduction in the beginning. It's the reduction of the biggest things that are hitting them, or if they have a food sensitivity as well.

I need to remove that food because that also is triggering inflammation. Well, you know, if it's coming from a plant and so are legume or grain or, you know, fruit.

And so we still have to look at the totality of what are the things are triggering inflammation directly as we know as a food source. And then, you know, from their own perspective immunologically is there a sensitivity.

And if you remove those, they're in a completely anti-inflammatory state. Then when we give anti-inflammatories naturally or other therapies for targeting their cancer cell metabolism or their immune system or microbiome, they respond very well.

The problem is it's like throwing all this on top of it or throwing, you know, the oncology drugs are throwing on top of this. You know, we have a concept called pre-health.

You know, like if patients get diagnosed and it's not a, a fast or an aggressive tumor in their early stage and sometimes like, oh, I got to get a lumpectomy or I got to get a surgery or something, but it's not going to be for three months.

I'm like, well, let's just take this three months so that you can get as healthy as you can because then you recover better from surgery. You know all your parameters.

The doctors will love it when they have less risk, and you will love it when you have a better outcome. And so it's always like we have like you mentioned before, we have to get healthy for even treatment now, right?

Because these treatments that people get oncology wise is not very simple. It's not easy. They all are. You know, the chemotherapy is chemotherapy. It is never going to be easy.

It's we try to get more targeted as years goes on. We have now immunotherapies and targeted cell receptor therapies. But they do have side effects. So it's still like you know, training is training.

You know the sport is a sport. You can improve your risk of getting injured if you train correctly. And then you get you get that better outcome. And that's what we try to do with everybody's.

We're trying to make them healthier as much as we can.

## Pro-Inflammatory Foods to Avoid

So if they do choose or they have to just by default of what their stages are, what the type of cancer is, then we're always looking at. Our goal is not saying this versus that.

It's always improvement of outcome evidence space wise. Absolutely. So what are some like maybe a couple of, pro-inflammatory whether they're foods or they're something that often people think, well yeah, that's actually pretty healthy.

Like aside from meat. So from dairy aside from eggs, where are some other maybe not as well known things that actually cause inflammation? I think when we look at like protein powders, that's a that's a big issue because a lot of cancer patients, you know, and as you see on the store, there's bone broth, there's collagen broths, whey protein whey protein ensures boosts, you know, slim fat, you know, things that are just easy to can that people, you know, that we give to adults just like, you know, hey, you're a senior.

Take this nutrition drink and you know, you'll see you in the commercials. They'll show the can, they'll show all these vegetables around it kind of thing.

But it's not if those vegetables are not in the, you know, it's like they're trying to give this perception like, hey, I'm hanging fruit and vegetables.

These are just, you know, these are pro-inflammatory foods. We have tons of, you know, corn sirup and sugars and bunch of chemicals and stuff. So it is classified as a protein source, but it's still a pro-inflammatory protein source.

And we still got to be careful with even young people because everyone's doing, you know, trying to bulk up, you know, at the gym. And so it's like whey protein, you know, these protein powders and that stuff that's triggering a pro-inflammatory response on top of doing a pro-inflammatory activity.

So the recovery is a lot harder. So if they switch to a like a plant based protein, they actually recover better. And they can continue to train more.

You know. So that's true with bone broth. Yeah. Because I mean I know bone broth is huge marketing you know fad craze right now. And everyone say, oh, it's so healthy.

Everyone I hear broth, bone broth, bone broth. You're saying it's also inflammatory? Well, I mean, there's no data to show that bone broth will support anything in terms of, you know, fixing the microbiome.

There's none now, it's been marketed as is. There's no studies on that because why no phytonutrients, no fiber. It's pro-inflammatory, has little to no antioxidants.

You know. And what we've now investigated at those are really throw away from the animal industries. Right. Like a lot of people think like if somebody somebody's making this nicely, it's like my grandmother and I'll, you know, there's nothing in the bones that we really needed that wasn't in the animal protein of the meat source, remember?

It's just that people who used to have these things because we couldn't afford the rest of the meat sauce. I didn't say, like, that's what you said. Most people who grew up like. Well, my grandparents, you just. Yeah.

Because your has lived through the depression. You know, I'm saying like that's all they got. You know, if you were from the South, you know, if you were a slave, for example, that's all they got.

So, so now, you know, when we get these big food industries that usually throw this away, they've been able to now make this into powders. So just like they classified as a protein and then sell it out.

Now the problem is with that is that there is heavy metals and toxicities that have been shown in multiple studies, even in the organic forms of that, because where does heavy metals, store physiologically in the animal and in the human is in bones.

So we're just concentrate. So people like, oh, I need to worry about heavy metals and like they're drinking these things. And we have now tons and tons of patients where we can show like, oh yeah, they took they took these products and they're off with the, you know, heavy metals, pesticides, heavy metals.

And actually prescription drugs have been found in the studies, using these kind of products. And again, you know, they're marketing really heavy, but those were of people who never seen patients before, right?

There's people who've never actually opened up a journal and said, well, how does this affect the microbiome? They'll show you a nice picture of some kind of coating.

Your gut feels good. This is good. One of the things that's also misnomers that people think that if you eat a food it's got that contains that part, it's got to go directly to that part in your body. Right?

But it doesn't work that way. Like I can't eat eyeballs and get better vision. I can't eat hearts and get a better heart, you know, or eat brains and get smarter.

Now there is still a thinking of that because, you know, culturally, for millennia, every culture has these ideas, right? Like, if I have Rocky Mountain oysters, my virility is going to be stronger.

This part of the rhino. So we understand that, like, that's a kind of a human innate idea, right? But when we actually look at the the nutrition aspect from the data in the sciences, no, we we wouldn't do that otherwise.

We would be smart eating those things or we would actually recommend, you know, for heart disease patients eat more hearts and your heart would get better.

So it's like if I eat collagen does mean that just got to go to my joints. It starts to break down into amino acids, starts to have the proper digestion, assimilation and excretion to actually provide any kind of nutritional benefit.

So there's a little bit of like it's a little too simplistic, but remember, the average person has not had any kind of health class in school or even nutrition class even as a physician or even as a chiropractor.

Naturopathy. Truly, at the end of day, right? So everybody has the same whatever the marketing is for, for, for patients is the same thing that their practitioner usually has, has watched over their lifetime as well.

I mean, speaking of collagen, specifically, like I was like, what's this huge craze about college? And. Right, so start researching collagen. And that's basically what it is.

It's that it's the throwaway parts of the animal. Right? It's like it's the herbs and it's, you know, you don't even want to know. Well, and yeah, parts of the animal, it's like, you think that I'm going to blend this up and put it in my body and it's somehow going to benefit me.

The, you know, the arcus of the animal is somehow going over. Yeah. The, the dead tissue that is going to, you know, that has no, none of the important parts. But here's another aspect.

So going to going in further since this craze, you know, has really still persisted over the last five years and it still continues to grow because they're just repackaging now.

They're going to say collagen peptides and trying to make it smarter, just like the you know, first I was like Atkins. And then they went to paleo and then they went to keto to sound smarter.

So it's like they're always trying to repackage something that once it starts, the trend goes down and they, you know, reformulate, repackage it again.

But the problem with the, the, the those powders is that there's now come a point where there's you cannot be producing that much powder from that source.

Right. So actually the, the consumption of that is actually higher than so, so 9 billion chickens say Tyson does a year for example, in the industry. Now we're selling more of these, these products here.

So what happens when you actually investigate. And there's been some few investigations. We sent out some a couple of years ago. Is that when they look for organic sources, meaning we need to find organic compounds to see like it's real, like it's from a real chicken or a cow or a pig or whatever is that?

It shows no traces of organic material. So that means it's a synthetic. So that means that these now, now, now we can trace that a lot of these products might be adulterated or synthetically formed a spike.

So for example, with the dog food problems that happened in the last ten years where they were spiking the dog with melamine, which is the chemical that we get from, you know, our, you know, our boards, our particle boards and the things that we use in kitchens and stuff like that and stuff like that, that industry that was coming from China and other countries, they're just spiking.

So it's spiked a little bit, you know, gas chromatograph saying this is protein source. So dog foods, all the dogs got sick. So there's a little bit of like now we have to be careful because now when you look at those products there's so many manufacturers.

And now the cost of it's all over the chart. We can get vats of this stuff, you know, at gas stations even or even that the fancy health food to the gas station, to the big box or they're selling so much of this on every corner of every place in America, you're like, there's a little bit of a now a supply issue, like, how are we supplying even though we eat a lot of animal protein as American producers and all, there's now some kind of, you know, people have to look at like, how can they do this?

And how can they do that so cheaply? You mentioned keto. And so I do want to go into keto before we do. I you know, I've been interviewing, as you know, hundreds of experts in the field of natural medicine, integrative medicine, functional medicine for years now. Right?

And I really try and go out and find the people like yourself who are working hands on with thousands of patients, look at the literature who, you know, see the results.

And, you know, I gleaned that information. And as everybody here is there learning from your decades of research and experience. Right. And so you're able to help me, you're able to help all of our listeners take decades and condense it into, you know, profound information that can change people's lives.

And as I've been doing this over the years and we see this huge ketogenic trend, I've come across three major schools of thought with k genic. Right. And the first is, people who are absolutely proponents of it.

They've seen some short term studies and they've put their whole life's work and energy and everything into promoting ketogenic. Right? Because of the, the short term benefits that they've been saying of anti-inflammatory and, you know, burning ketones as energy, so on and so forth that we all know about ketogenic.

The second school of thought I see is, the complete opposite. Ketogenic, actually, you know, the the science proves that a long term high fat diet is actually the precursor to diabetes.

It is actually the, you know, you can pretty much guarantee on getting diabetes and diabetes, your risk for cancer and other chronic diseases go up exponentially.

Your long term inflammatory markers actually increase all of that, right? So short term benefits, long term, pain and problems. And then there's a school of thought in the middle, which are some really cutting edge integrative medical doctors that are working hands on with thousands of patients that will use it as a therapeutic approach, like a vegetarian or vegan ketogenic, you know, for weeks or months at a time, you know, specifically with certain types of cancer, brain cancer and some other types of cancer, where they will use this diet to help, you know, kind of start starving the cancer cells of glucose help to burn ketones, and they'll see a reduction in tumors pretty quickly.

Right. So I wanted to hear what is the research showing you? What do you do about ketogenic. What do you believe about Khan genic. What is it trying to say about ketogenic.

Help us understand this really complex because everyone say don't you Jack? Don't you can't. Yeah yeah yeah yeah. So help enlighten us here. So so so here's the here's the information.

And this is actually from you know it's a great it's a great evolution of understanding cancer cell metabolism okay. And so in 2008, you know, as part of there was a conference that was at actually John Hopkins looking at ketogenic diets.

And, and that conference was about looking at, you know, a couple of specific cancers and it was looking at brain tumors. It was looking at prostate as looking at colon, and it was looking at breast cancer.

And what it did show in the beginning. And and I was part of this group, you know, talking to the scientists and researchers that are looking at this kind of concept is that we understood cancer cells having 10 to 12 times more insulin receptors.

Right? So cancers like this higher gluten, you know, it's steels that glucose. And that's why we do Pet scans. So we can see where cancer is spread. So we understand that cancer has a higher metabolic functioning tissue or entity however.

And what the data showed was that in that first month when people went on a ketogenic diet, there was some shrinkage of tumor. And what happened was, you know, obviously if you stop eating all you can eat breadsticks and footlong subway sandwiches and donuts, you know, that highly refined, you know, carbohydrate.

We're not talking about complex carbohydrates, which are good for you. We're talking about a highly refined carbohydrates that are predominantly in the standard American diet.

Right? That that actually, by that reduction, you were reducing the glycemic load. Right. And for that idea we were starving cancer cells. So, so that first month there's this kind of nice trend downward.

Okay. So what happens? The industry took that one month. Doctors took that one month. And they've written that for the last since 2008 forever. Right. Like we're starving cancer cells. We're going to win this thing.

And for most people, you know, just in terms of the general person who doesn't have cancer, losing weight is their main issue, right. And as you and I talked to, there's a million ways you can lose weight, right.

Even masking tape diet as we talked about. So the cheapest I gotta go to the video. The hardware store. And for $3 you got your your your plan. Just put some tape on your mouth and you don't want to eat food.

But but you know, seriously, all setting aside the jokes is that when we look at this ketogenic diet is that everybody just took it to town, right? Because that's really the industry wanted to find something like to promote, we want to sell more of our foods, which kind of what Atkins was doing almost even 10 or 20 years previously to that.

Now, when we further look at that data, though, what happens at that month? Two, there was a plateau of that cancer cell growth. Okay. And then at month three, we start seeing this exponential rise of growth of those patients tumors.

Now the interesting thing is at that time, you know, again you're being the expert in inflammation. That's kind of my focus in integrative medicine. Using these natural therapies and all these other aspects is that I was thinking at that time, and a lot of the researchers were thinking that, okay, well, because now we've shifted from this, you know, kind of this regular kind of die to this kind of really ketogenic.

So you're starving the cancer cells and now, you know, maybe it's just increasing because all we're doing is eating pro-inflammatory food animal protein, animal protein, animal protein, no fat nutrients, no fiber. No.

So that was kind of what I was thinking at that time, which is true really. But in 2010, with the data started to show, is that when the researchers took that further, they said, let's put this animals now on a complete ketogenic diet, because, you know, the average person, although you'll see it all over the Insta internet, you'll see it all over Instagram.

They have measuring. And then this shakes and these kind of ketone products and everybody will lose weight. Losing weight again is easy to do in America, right.

It's not sustainable. You won't see people a year from now doing the same thing. It's a new trend every year, right? However, when we're talking about cancer cell metabolism, is that what we started to see is that when they when they made the animal and put it into a 100% ketogenic state, so it's only using ketones for fuel.

The sad thing is that the actually the cancer growth increased, okay. And it increased not only just a little bit, it was like two or 3 or 4 times more.

And the risk to it, I think it was like 2.

## Keto, Biohacking, and Cancer Metabolism

7 or 3 times more, the growth and also the metastasis, particularly to lung, was ten times. What happens is that the demonstrated is that the cancer cell actually converts it's metabolism and uses ketones as fuel.

Right. Like that should be like the silence now in the room. Like what? You know, that time, you know, our heads exploded. We're like, what does this mean?

Well, what it means is because, remember, cancer's been around longer than we have, right? If I, if I open up an text that's, like 4000 years old or Chinese medicine text, you know, it talks about cancer like it's nothing new.

We might have more of it. We talk about it differently. We might have other exposures. We have ways to diagnostically look at it or biopsy. But cancer has been around.

And that's what makes it so difficult because it's always adapting to its environment. That's why it's metabolic, you know, I'm saying. So it's kind of like a cockroach. It's been here forever.

And even with Fukushima in Hiroshima, cockroaches still come from the ground in those areas that we drop nuclear weapons, you know, I'm saying. So it's an adaptable thing. Now, this is even scarier.

So then further research went on and they said, well, let's just look at this cancer cell because we don't know how it's, you know, it's using the ketone.

So it fooled us. But what if we cut off the vascular support to the tumor. Right. So we call it angiogenesis. Right. So a vascular endothelial growth factor people have certain cancers.

It takes something called Avastin, which is a, VEGF blocker that blocks the blood vessels. And sometimes when people have tumors, they actually like it.

They actually come in, they close off the blood supply. Because if you don't have blood supply to the tumor, it won't grow. Right? It's not getting your oxygen, it's not getting your nutrition, it's not taking your sugar and stuff like that.

So they block all of these. The flow of the the arteries to the tumor put on a ketogenic diet. It still grows well. So now we're like, how does that work?

Because, you know, things should go through the highway to get to the house. Now it's like is taking a backhoe just jumping over a fence. We don't really understand the true metabolic function of how that even works.

They've shown it. We don't understand the signs of it because our body's a lot more complex. I think what I want to get across to your the audience here today is that you can't biohacking the body at the end of the day, right?

So people and that's a big term these days people are making millions of dollars. Biohacking, biohacking, biohacking that's kind of the trendy thing. But you can't bio hack something.

It's kind of like, you know, you have to understand the laws of nature, right? And if you understand the laws of nature, the body, and, you know, nature rewards you in kind, if you cheat it, you get this short term benefit.

So yeah, I can drop 15 pounds in a 30 days. I can go to my reunion. Like really good. I go to Cancun on the beach, you know, and go without a top or whatever.

I mean, everybody can kind of have that quick fix, but is it physical? Is a physiological functioning correct or not? Is it still pro-inflammatory? Is it immune suppressive?

Is it triggering these, you know, inappropriate responses. So biohacking which is what you know, ketogenic diets are trying to do right now. You know, it's trendy because most people will get some kind of initial as you mentioned I feel good or I look good.

Right. But what is that doing long term is terrible. And what and it's not sustainable and they're just putting themselves in pro-inflammatory states, through all these other triggers.

But you know, now we understand that cancer is a little bit more tricky. So even when people are doing the vegan ketogenic diet, right, as you can see, somewhat a little bit better because they're still trying to reduce the glycemic aspect.

But we are finding right now that that doesn't really even matter. Like it might be just out there on a plant based diet, and you're just kind of making it a little bit more restrictive or less restrictive, you know?

But it's just like the main thing if you start getting these main things, you'll do well. If you're not doing that, then this other aspect is just something that, again, we're still following because we still think that the gluconeogenesis genesis and the and the glucose uptake in the cancer cell is so particularly the most important thing.

Well, we have to look at is it is a factor, but we have to look at is it still pro-inflammatory fuels are coming in. Is it fat to nutrients and antioxidants and things that are either immunosuppressive or amino strengthening.

That is helping. And that's different than just looking at ketones. But you know it's fascinating. They said that because, you know, in my research, you know, for the book I'm writing, I mean, I've already found three sources of energy that cancer cells can switch to depending on their environment.

So if they're starved of glucose, you know, they can switch to ketones, for example, right? Even if they're starved of oxygen, we know we need oxygenate the cells.

We oxygenate the body. Right? Cancer lives in an anaerobic, right anaerobic environment but just starving it of oxygen. Also it can switch to other, forms of fuel.

Right. So as you said, right. Credibly biohacking like just do one thing, right. Because it's about the foundations and the principles of how our bodies are designed.

Right, exactly. And I give a I'll give a quick example like, you know, biohacking just think of code. So if I'm working on my website and I don't know how to do it stuff.

And so I have I have, you know, college students come in and like, oh, can you fix it? Like I was too quick to do all this stuff to fix a problem. So they kind of hack, I'll put one line of code and, and it kind of looks good.

But later on, like there's a glitch and that card doesn't work or the, the. Yeah, it's not, it's not it's not just shopping cards like not working or the email is not going through because, you know, it works temporarily, but it's not a complete fix of the program.

And so we really have to understand that, you know, if and that's why when you go back, you know, in my book, when I had these, these ten steps and the epigenetic changes, that's the evidence.

But it's not trendy. It's not like these are simple things that people need to do. Like you're doing exercise, you have to have stress reduction. You got to clean up the environment as much as you can.

You got to, you know, being on an anti-inflammatory diet, you gotta, you know, take natural things that can help support and strengthen your immune system and lower inflammation.

But if you do those simple things, they're not complicated. But people want to make it more complicated because that's what sells, right? Like I got to do I. V.

therapies, I need vitamin C, I need, you know, blah, blah, blah. I need to be in a hyperbaric. You're expensive. You know, things that people pay for.

And I'm like, no, what you need to be doing is feeding your microbiome all those nutritional components to actually then trigger these cascades of effects with all these fat and nutrients and all these other chemicals.

We now are finding all the research saying that all these things I've done are not as good as people claim it. That's why I've never been a proponent of that, because we've actually visited clinics.

We've been there for months. We've actually looked at people getting, you know, 100g of I. V. vitamin C and, you know, B17 and, you know, all these other kind of, you know, hyperbaric and O's and can they have certain benefits on certain levels?

Sure. Is it something that's like this natural chemotherapy and people are walking out? No. If they actually did work the pharmaceutical companies would have already planned it and they would be billing your insurance ten times more than you can get it in a clinic in Mexico.

The problem is that the data is like everybody wants to run from something that they don't want, which is which is understandable at certain level. Right?

Like, no, everybody's had a bad experience or family member or friend with chemo, radiation or something like that. But we also want to make sure that they're not running to the other side, which is like, oh, well, let's just try these things. And then they come really desperate.

You know, I see patients all the time who have come to all these cancer clinics. You know, they spent God, you know, hundreds of thousands of dollars, and they've gotten their mortgage houses and selling cars, doing church races and fundraisers and stuff like that.

And they're like, how come I'm not better? Because they're not doing this simple basic epigenetic changes, you know, because it doesn't sound sexy eating healthy.

You can't really charge for that. You know, I'm saying, but people can charge for nutrition by the. Right. So I was like, I can sit here and be passive about it.

But at the end of the day, it's like you have to be a participant, like they're not going to hand you the gold. You got to work for it, right? Well, that goes back to once you know, the foundations and the principles of what creates cellular regeneration in the body, what actually makes the body inhospitable to cancer cell proliferation.

Right. And the principles that you follow is like, once you have those principles and foundations that, you know,

reduce chronic inflammation and create cellular regeneration, then all those extra adjuncts that you add on, if you do it, you know, high dose vitamin C and high dose vitamin B, and you're adding in, you know, extra minerals and, and extra supplements and herbs and things like that.

It's like those things just start adding a percent here, a percent here. Right, 2%, 3%, 3%. But those aren't going to do the trick. If you don't have the foundations right. They're 90% really.

It's like, right. They're not game changers, you know, but they're sold as if they're game changers. So why don't you mention some of those, but maybe take a few moments and talk about I know in your book Inflammation Nation, which I encourage people to go get, you can look at it, you know, pretty much anywhere online.

And Inflammation Nation, I encourage people because you go into a lot of depth in that book. But tell us, what are those ten, you know, major kind of steps, foundational elements that people can do right now to start reducing. Sure.

And, and, and before I do that, just want to give a kind of an explanation on what this year, you know, with Covid being a big issue, inflammation just kind of hit back again into the news, right?

Like a lot of people, you know, had my book, it was popular. But then again, you know, I was like, okay, it goes on. And all of a sudden, you know, this word inflammation, inflammation, this virus has triggered these chronic inflammatory syndromes and all these patients.

And, you know, for me, it's like, wow, all of a sudden people are like paying attention. So just to give you an example, a lot of people were buying my book because they were concerned about what inflammation was from the news, from the virus and all these other things.

What the feedback I get now, many months later, people who bought and read the book, it's like my diabetes got better, my heart disease month or my my cancer got better.

And they're not my patients. It's just like, because if you do the foundational steps, like you talk about your health, this gets better. Like it's common sense.

It's like the basic one, two, three fundamentals. If you can't do the one, two, three fundamentals, don't try to do x, y, z right now. You know, it's like so that's one thing when we look at the just in general, I always like to talk about first, you know, moving to a plant based diet number two, always looking at like what are the triggers of inflammation.

So it's always testing the foods because you still have to go that one step further. Do they have any kind of food sensitivities. Number one you know and to test for that you know, we always want to look at, you know, obviously stopping smoking, you know, making sure they're not taking non-steroidal and inflammatories like ibuprofen, Motrin, Advil, those kind of things.

My book will go into all that data. What a black box warning is. If you don't know what a black box warning, highly recommend you read in the book, because there's a lot of black box warnings now on a lot of the over-the-counter products that people don't need.

So they're not, a lot of patients come and say, oh my God, I'm worried. My, my, my, my oncology drug, you know, and I'm like, I'm more worried about because depending on whether it has a black box warning on, someone's more worried about their ibuprofen that they're taking it or their naproxen that they're taking every day just for joint pain, you know.

So we want to look at, you know, detoxification. We want to look at, you know, how do we actually do a full body cleanse, but not like a trendy thing.

We're actually thinking, what's the science like in our Vedic medicine? You know, how do we actually reduce the

stress? How do we actually look at controlling glucose and salt intake?

How do we look at, you know, community and love and and spirituality and, and finding belief? Because belief is part of the aspect that actually can change your epigenetics because, you know, you can eat a perfect die, you can live in a perfect environment if you're stressed out or you don't feel like you have community, you don't thrive.

You don't do well. And at the end of the day, we want to change all our patients to be cancer thrivers not just cancer survivors, right? Anybody can survive. At the end of the day, anything.

We're Americans, we have Hurricane, we have famines. We'll have, you know, Covid, we have. And so as a country as a whole, we will pull through, but we're not doing as well as we were blamed for that.

So thriving is a different concept. But, you know, we always start off with natural lean time inflammatories in addition. So when we look at things like Boss America.

So I would say our flagship anti-inflammatory, we're looking at what is the evidence that we can show that this works. What is the the ingredients now can we show.

Yeah, there's 144 studies with just one of these ingredients in this product that are in like clinical and pre-clinical trials. So we're not just talking about cell culture or a little bit of like, oh, I measured a test tube.

We're actually looking at, you know, what is what is the major cancer hospital is now using in conjunction with or solely so everything that we look at it with our patients at the end of the day, there's something that we do specifically if they're taking a medication, say in oncology drug or if they're doing anything natural, we have to look at it from our expertise of looking at how is it being metabolized, you know, what is the pathway that's going to deliver certain things you can take with certain chemotherapy and radiation therapies?

Actually, we have data now that will be a synergy and actually will lower the side effects and make it more effective. And certain things we can't. And you have to be very specific as six hours is that 36 hours is at 72 hours, that you cannot give this at the same time.

Right? So a lot of times the challenge that we have now when we look at, you know, when we provide this guidance is that a lot of providers will say on one side, take everything and the oncology side will say, don't take anything with this stuff.

And you have to understand the stage, the pathology, what the patient's overall health parameters are on all these other levels outside of cancer, all other co-morbidities.

And then you have to factor in, you know, what can we do at this time to help augment that and improve their overall response? But the challenge right now is everybody's trying to kind of be polar on that.

So, you know, it's always about reducing the inflammation. Yeah. Sorry. It's that you just reminded me of, you know, when my grandpa had cancer and he was going through the conventional chemotherapy and radiation.

Right. And when I was visiting him in Arizona and this was, you know, 2012 going in 2013 and I really didn't know much about cancer then. I had already been in natural health for, you know, seven, eight years up to that point, but didn't know much about cancer specifically.

I knew, you know, plants, you know, plant nutrition, vegetables, fruits, green juices, berries, these kinds of things would have helped him. I didn't know enough to really explain it.

Well, and you know what he told me, though, was. Yeah, my doctor said I can't eat fruits and vegetables, I can't eat berries, I can't eat these things because, you know, my my immune system's compromised from the chemotherapy and radiation that these things could have.

Bacteria that could kill me. And I just I knew at that time, like, how backwards that sounded to me, that the exact thing the body needed. Right, right.

The doctors tell him he can't have because, you know, it could actually kill him, right? That's what you're talking about. So you need to understand, actually, you know, what can support, if you're going through conventional medicine, chemotherapy, radiation, like, what are the things you actually can taking that actually will support rebuilding your immune system since those treatments are destroying it.

Right. Because at the end of the day, you know, I'm an integrative physician, so I'm not alternative. And I know this holistic or functional like that.

That umbrella is all of those. Right. But the idea is that you have to improve their outcome. And a lot of times, again, this is polarization where people like, don't get this, just do this, don't do that, just do this.

## Core Lifestyle Steps to Reduce Inflammation

That doesn't get anybody on both sides of the aisles, anywhere to where they want to be. Right? And that's why the data over here is not as good. But also the data over here is not as good or they have no data, right?

So at the end of the day, we have to be data driven. Let's say can we do this. And if we actually look at what some other countries are doing or even certain hospitals here that they're doing, because again, you know, most of my patient that I'll see they're all going to be taking some kind of conventional therapy or they're already in conventional therapy.

They're like or more importantly, 30% of my patients are recurrent patients. So they already went through chemo, surgery, radiation. And then when in five years they've had a recurrence, some of my patients are recurrence times two are recurrence times three.

Meaning it's like the third time cancer is coming back. And they're like, well something is wrong. I'm like, yeah, because we need a, you know, you need to change the terrain of the individual of what set them up for that perfect storm.

Remember, it's not just you mentioned, it's not just going to be one food or one this or one that or oh, I just smoked or I did didn't exercise. It's the culmination of like all the ten steps that I mentioned in my book that, that you need to work on.

But at the end of the day, you have to, you know, we can't just be polarizing people. We have to look at there is times where some of these treatments are going to be lifesaving, but we also get them.

We have to get them through the treatment and also have a quality of life after that. It's not just the treatment of the cancer. And so we need as an integrative physician, I need sometimes treatment, but we also need healing and supportive care.

And that's the combination that, you know right now. Sometimes it's just like they treat the cancer. They don't treat the patient, you know, saying or like, oh, likewise here.

They're just like there again with the natural therapies that throwing all these things at the patient, you know, even if they're natural. But at the end of the day, like are they doing better?

Is their cancer showing better signs of regression or remission or, you know, response? Or is the quality of life just even improving? We have to do more than just give hope at the end of the day.

And a lot of people saw that. But we have to go further than that. And that's going to be improving outcomes. Yeah. And I mean, that's what I love about, the work you do, doctor, I just want to say, you know, I want to honor you and thank you for, you know, being so dedicated to one really helping people, but also really looking at the data and

being open and researching and then living this yourself.

I, I've known you for for a few years now, and I know that you know, you live what you teach. And I think it's a really important thing for anyone who is, you know, educating and serving and supporting people going through cancer, that you're actually doing what you say yourself.

I said, well, absolutely. Because, you know, once you drive the Ferrari, you want to stay a Ferrari. No more Jalopies then. And I used to be a jalopy, like, you know, everybody remember, I always want to make sure that the audience, the audience understands. Yeah, yeah.

I want the audience to understand that. You know, it's not saying that we're better than anybody, right? The goal is that, you know, you cannot afford to get sick in America no matter what kind of insurance you have.

You know, money doesn't buy you out of your cancer money. You know, even Steve Jobs do all these, you know, the world's richest people, they all get cancer eventually, and they all have heart attacks and diabetes and strokes and all this stuff.

And even, you know, wonderful Hollywood actors can get colon cancer. It's a tragedy. It's a tragedy. So the goal is like it's not saying, you know, these are these are lifestyle changes that are not easy.

Every everything every day is trying to, you know, sabotage us from making a wrong decision and eating this or trying this or not working or not exercising like you're going to the gym.

It's a practice that you have to get in. But at the end of the day, I think people have to respect themselves enough, love themselves enough. You know how that community support enough.

Hopefully you'll build that with some of your podcasts or your email groups because of the goal is like, it's not saying, oh, I'm the perfect person. The idea is that I work on it every day because I never want to be on the other side of the seat that I'm talking with the patient, because it's never an easy decision, and it's always easier to change those lifestyle behaviors now than in the middle of crisis, where now you're in crisis mode, you have to make these life, you know, challenging decisions.

And now I'm telling you what to eat. You're not eating on top of that, which. So sometimes that's what you gravitate to. That's the only thing that's going to give you some pleasure. Right.

So some people like, oh, let them eat whatever they want. They're getting chemotherapy. That's not really how we want to work with the patient. We want say we want to get you through the chemotherapy successfully, or we want you to maybe not have to get the chemotherapy.

If you respond adequately, but it's never a failure of the patient. I think it's it's been a failure in the system of providing the adequate choices and options and kind of that integrative approach.

So, you know, as a practical steps moving forward, right. Get the pro-inflammatory foods out of your body, immediate correct. Like step one. Step two, put the natural anti inflammatory foods, nutrient supplements into your body.

Right. Correct. And you talked about all the other things we can do to reduce chronic inflammation. Obviously reducing stress meditation, yoga, qigong you know taking care of the mind.

You know we know stress actually causes inflammation and causes can cause cancer cells to proliferate. Right. So all those things I need to go into more depth, in your book, but if you were to leave people with kind of one final thought or once, you know, step that they could take right now, that would drastically change for them, really help reduce inflammation and really start taking back control of their health.

You know, what would that what would that one thing be? Well, you know, we always talk about using boss

memory because it's a quick it's a quick introduction to feeling better using natural therapies. Right.

So if you have some is evidence based like here's all the research. Right. Not only for chronic inflammatory conditions, but now we're looking at for actually role in treatment of prevention of certain types of cancer.

And even with certain type of, oncology treatments, the boss America says, is kind of what our goal is. Because once people realize that plants can do this, they take that within 20 minutes, their inflammation is going down into an eight hour sustained release. Right?

So it's got the four main ingredients that are natural, that are patented or clinically tested. But when they realize the power of that plants can do, then they will switch because you'll say, gosh, for plant can do this.

What about my breakfast, lunch and dinner that has more than just these four ingredients, right. So so you know that I really always want to start with that because I think right now people, they need something quick.

You know, before I'd be like, just don't eat mothers and faces foods that I used to say that, you know, like, well, don't even start with that. But even that's a challenge because that takes time.

It takes effort. They're kind of like, what am I going to shop for when we eat for breakfast tomorrow, blah, blah blah blah. My family, my, my spouse, my kids, whatever.

And here's like, if you take something a wow, my inflammation, my pain, my condition is is immediately drawn down or my parameters are getting better.

What if I said my body? Not only that, but really this full, comprehensive total, you know, rainbow colored dye to phytonutrients, antioxidants and anti-inflammatory foods.

I have fiber, you know, that's where the plant based medicine and then the food is medicine at the end of the day, but we end up doing is like, we don't end up giving like vitamin C, we don't even give it the nutrients unless it's deficiency on their test.

I only prescribe and recommend targeted things. So we have protocols now for every single cancer and every two weeks we have to review that literature a patient comes in.

Even if I saw someone two weeks ago, the similar, cancer, the reason the data is coming out like this ingredient, this one they want to look at is there in vivo and in vitro studies showing the benefits on this cancerous type, this cell and that person.

And then we have to look at then potency purity safety and efficacy. That's our mantra. And that to look at is that dose that clinical dose is that source.

What was found in the study. And that's what we deliver to our patients. We're actually giving them what's something that's been published. Everything else is just like sounded like a good idea.

And then it's marketed and you'll see that all the time on social media, like, oh, everybody's some kind of expert. But the idea is an understanding plant medicines have power, because that's derived from plant foods.

So, so it's just kind of like we're concentrating that, trying to give them a little bit of a jumpstart, a little bit of a kick, and also to get them in a place where they can actually have some relief immediately.

But then that's the drive. Like if they try the boss mereka sa. And then we look at other things like glucan 300 and vitamin D and simple things that help, you know, keeping your needs stronger.

You know, these are simple things that people can do. Checking the microbiome. We look at their, you know, fats or proteins or carbohydrates. Their, you know, is our leaky gut, is their inflammation, is their parasites overgrowth.

Gut disposes. If that is all evaluated and that's what we do, then we know it's like rebuilding that individual because most of us, you know, we've been beat up.

We become a jalopy over time, right? We got fender benders and people did or dinged us. And, you know, along the way, maybe there's acid rain or mud on our car.

We haven't got a car wash. So it's like you have to really restructure that individual. So it's not only just looking at the cancer thing, how do we kill it?

How do we kill a lot of people and just go and attack like a natural oncology? And our goal is like, how do we just restructure? How do we make everybody into the bionic man or woman that they truly are?

Right? And if we do that, then the epigenetics, you know, the body has innate ability to heal. You just got to give it what it needs to do it to do that.

That's it. I mean, I think that's the that's the gold statement right there. I interviewed I the heal and it'll take care of itself and you'll be driving over.

But you got to give him the right things. You know. You got to give it the right things. Well, listen. Thank you. Doctor five appreciate your time is all.

Thank you. Always fascinating talking with you. Thank you. Have so much wisdom, experience and, you know, evidence based information to share. So you know thank you so much.

Appreciate. It's a pleasure. I thank you for having me again. Absolutely. That's the best of health. Yeah. Thank you. And I want to thank all of you for tuning in.

Here's to the Global Cancer Symposium. Make sure to share this with friends, family, anyone who needs to hear this information, make sure to visit San Giovanni Dot net to order Doctor Pies Book and Inflammation Nation.

You learn more about his products, their bodies. Magnets are You can consult with him and visit his clinic. San Giovanni Dot net. Also take a look at Health and Healing club.com and join our global membership dedicated to helping you get and stay healthy again.

I'm Nathan Cray and I wish you all ultimate health and happiness. Take care.