Nitric Oxide and Cardiovascular Health

Yeah. I mean, cardiovascular is still the number one killer of men and women worldwide and has been for the past 100 years, I think. And to me, that's unacceptable because we understand what leads to the onset and progression of cardiovascular disease.

When I have diagnosed that we know how to treat it, cure it, and prevent it. And nitric oxide is foundational for that. So, you know, we have a certain a finite volume of blood that we're pumping through these tens of thousands of miles of blood vessels.

And so if the blood vessels become constricted and tight, then you're pushing that same volume through smaller pipes. What happens? Pressure goes up. You get an increase in blood pressure.

And that's really the number one risk factor for the development of cardiovascular disease. So if we can maintain nitric oxide production we can maintain vessel dilation.

And more importantly, I think we can maintain the elasticity of the blood vessels. So with each beat of the heart it dampens that pulse wave. So that pulse wave doesn't cause damage to the endothelium.

With each heartbeat of the heart. And so that's number one. It's a vasodilator. Welcome to Doctor Talks the podcast where every episode leads to a healthier you.

Join us as we navigate the world of optimal health, uncovering groundbreaking strategies to conquer chronic disease. In each episode, we'll bring you the latest insights from leading health experts, medical innovators, and wellness warriors.

If you're seeking to transform your health journey, or if you're looking for answers to burning questions, you've come to the right place. Get ready to unlock the secrets of lifelong health and vitality.

This is Doctor Talks, real talk from real doctors on the issues that matter to you most. Welcome to Vitality made Simple. This is the podcast that is dedicated to helping you feel better, look better, and to enjoy better relationships.

You know life is all about relationships, and when you feel good, you have more to give. And it's with great joy that I welcome Doctor Nathan Bryan. He is someone who has opened my eyes to something so critical that it's going to blow your minds.

Welcome, doctor Bryan. Baby. Thanks for having me. It's great to see you. Great to see you. We met in 2018 at the American Academy of Anti-Aging medicine.

You were a keynote speaker. You had just launched your incredible book, Functional nitric Oxide Nutrition. I didn't have a clue, really, about the importance of what you were talking about.

Now, folks, we're talking about nitric oxide. This is not nitrous oxide. This is not happy gas that you get at the dental office. And I think a lot of people probably, confuse those two.

Doctor Brian. Correct. Now they do. I mean, they sound similar, but it's a completely different. They're similar. In fact, they're gas and they sound similar when you say them, but completely different physiological and biochemical functions.

Yes. Well, you know, your superpower is your ability to, unravel this complex subject, you know, this metabolic process, and to make it very, strategic.

So, so tell our listeners what nitric oxide is and why it matters for their vitality and ultimately for the relationships. Yeah. Well, thanks for that.

But I can tell you, I spent 20 years in academia giving scientific talks. So it really had to, you know, understanding the kind of the complicated biochemistry and physiology.

Then, you know, as you say, trying to make it understandable to the, to the light public and so people can appreciate what this is. But, you know, nitric oxide is a naturally produced molecule.

It's produced in the lining of the blood vessels and it regulates blood flow and oxygenation of every organ, tissue and cell in the body. So it's what we call a vasodilator, but it has many other functions outside and really critical, important as a vasodilator.

It reduces inflammation, it shuts down oxidative stress. It prevents the immune dysfunction we see in all chronic disease. But it's also the molecule that mobilizes our own stem cells.

So we can repair and replace dysfunctional cells and prevents the ends of our chromosomes, the telomeres from shortening, shortening. So we can have, you know, increased lifespan and longevity.

And it's what activates the mitochondria in our cells to produce energy or ATP. So when you talk about vitality, I mean there's nitric oxide is foundational for everything we know about, vital longevity, disease prevention and optimal human performance.

Podcast Introduction and Guest Welcome

Well, I think, Doctor Brian, people take cardiovascular health, loosely. I had a patient I remember years ago came in and said, oh, Doctor Debbie, I'm so healthy. All I have is heart disease.

And, you know, you just sort of fall out of your chair because, you know, we have, what, 30,000 to 60,000 miles of blood vessels. So tell us the, you know, the critical nature of nitric oxide in these blood vessels and all the areas of health that that impacts?

Well, yeah, I mean, cardiovascular is still the number one killer of men and women worldwide and has been for the past 100 years, I think, and to me, that's unacceptable because we understand what leads to the onset and progression of cardiovascular disease.

We I have diagnosed that we know how to treat it, cure it and prevent it. And nitric oxide is foundational for that. So, you know, we have a certain a finite volume of blood that we're pumping through these tens of thousands of miles of blood vessels.

And so if the blood vessels become constricted and tight, then you're pushing that same volume through smaller pipes. What happens? Pressure goes up, you get an increase in blood pressure.

And that's really the number one risk factor. The development of cardiovascular disease. So if we can maintain nitric oxide production we can maintain vasodilation.

And more importantly I think we can maintain the elasticity of the blood vessels. So with each beat of the heart it dampens that pulse wave. So that pulse wave doesn't cause damage to the endothelium with each heartbeat of the heart.

And so that's number one. It's a vasodilator. But number two, when we see the patients with cardiovascular disease, what that means is they have smooth muscle hyperplasia.

Or they get an intimate sickness and they get plaque deposition. And so eventually that plaque which basically occurs outside the lumen of the blood vessel.

But if it grows, then it starts to obstruct the lining of the blood vessel or the opening of the blood vessel. We call that stenosis. Where you get a constriction or an obstruction of the blood vessels that lead to the heart, and then with reduced blood flow, you get a schema, you get angina.

And really, that's kind of the physical properties of hemodynamics of cardiovascular disease. But the problem is when that plaque, that underlying plaque, whether you get 90% obstruction or less than 10% obstruction, when that plate becomes vulnerable and it ruptures, that's what leads to the thrombus, the embolism, a heart attack that happens in the heart or a stroke happens in the the brain.

But we have to stabilize the existing plaque number one, which nitric oxide does. But more importantly, I think if we can get a handle on our nitric oxide production, what the basic science and the clinical data clearly reveal is that the functional loss of nitric oxide production precedes the structural changes we see in cardiovascular disease by many years, sometimes decades.

So if we can prevent this age related decline in nitric oxide production, you can prevent the onset and progression of cardiovascular disease. But I think and we published on this probably ten years ago, if you're compromising your ability to make nitric oxide and you already have overt cardiovascular disease, coroners to know this province doses well, and we restore the production of nitric oxide, we can actually see reversing reversal of that disease.

So I mean that's critically important in that I mean, all this is basically done by modulating the production of one molecule and that's nitric oxide.

So I think that's why people need to be concerned with this because it's it's at the heart of everything we know about cardiovascular disease. Absolutely. It's totally upstream.

And I you do so well in your book encouraging people. I mean, you tell us that of course, it declines with age. Like so many things, about 1% a year. Correct.

And, so it can sound like, what do I do? No, you give a lot, lots and lots of strategies. So. And I think it's very much our modern lifestyle. Right? I mean, we have a couple of mechanisms for nitric oxide.

Tell us about those. You don't have to worry just because you're having days. You can still have plenty of good nitric oxide to to function in all, you know, in all areas.

How Nitric Oxide Works in the Body

Yeah. You know now we have devices and mechanisms where we can detect what's called our biological age. As you said, you can't do anything about the chronological chronological age.

I mean, with each passing year, each passing day, we're getting older, but logically. But now we have tools and devices where we can measure our biological age.

And, you know, we see 2025 year old kids that have the biological age of a 60 or 70 year. You the contrary. We're seeing, you know, 60, 70 year olds with the biological age of a 40 year, 50 year old.

So this doesn't have to be the case, because mechanistically, we understand how to correct that. But to answer your question, when we we lose this, we call in the signal dysfunction.

So the function of the enzyme in the lining of the blood vessel that makes nitric oxide becomes uncoupled. And this is due to really the Western diet and lifestyle, high carbohydrate, carbohydrate meals, a lot of sugar, sedentary lifestyle, smoking.

All the known risk factors lead to what's called endothelial dysfunction. But if we can restore the function of that enzyme, prevent its uncoupling, then we can prevent this age related decline.

So that's kind of from the enzymatic biochemical production. But we also unveiled another pathway. It's due to the oral microbiome. That's where dental medicine and and systemic medicine it's kind of the bridge and the oral systemic link.

Because when we do things to eradicate or to disrupt the oral microbiome, we're finding that this leads to a disruption in nitric oxide production. We see an increase in blood pressure.

You lose the protective benefits of exercise. And you see, you know, some degree of erectile dysfunction or sexual dysfunction. So things like antiseptic mouthwash, things like fluoride, anything that's antiseptic, it's destroying the oral microbiome.

It's shutting down nitric oxide production. And that's the things that people those are really the eye openers for people. And they go, what? I had no idea.

And then the other big polymer, you know, acids, you know, and acids completely shut down nitric oxide production and lead to increased risk of heart attack, stroke and Alzheimer's.

So these simple things and I tell people all the time, you don't necessarily have to change your habits and start doing things that you normally do. What I try to teach people is stop doing the things that you're doing that are disrupting, that you could set production.

You know, if you're on an acid, you have to get off. If you're using mouthwash, you must stop using mouthwash on a daily basis. Now, she's got a medical condition that's directed by your, dentist or an oral health practitioner.

Then understand, you know, kind of an acute use of a chlorhexidine or something to to eradicate a pathogenic infectious bacteria in the mouth is one thing.

Doing this prophylactically every day, year after year. The data very clear. This is damaging and detrimental to health. Absolutely. I saw it in real time.

I know I've driven you crazy texting you. What about this? What about this? And in folks, doctor Brian would text me back so kindly. That's anti-microbial debris.

That's antimicrobial. I had a patient who who was referred by a cardiologist, for memory loss. And so I, I do, salivary diagnostics, and and she didn't have any bacteria that showed up.

So as I start questioning, questioning, questioning her daughter, who who had to bring her, she was, this woman was only in her 60s. Her daughter said, well, she uses scope.

Can I say scope? We might have to, she has an anti-microbial mouthwash three times a day and has for 35 years. So I know because of you, I was like, well, I really think that's, you know, a piece, a big piece of her, of her memory loss.

So talk to us about how nitric oxide impacts memory and brain health. But when nitric oxide is produced, it's systemic. So it's a gas and it has a half life of less than a second.

So once it's produced, it activates a number of and a cell signaling okay, it's second messenger systems. And then that leads to vasodilation and all the known biological sex of nitric oxide.

So when we lose the ability to produce nitric oxide, whether it's through the disruption of the oral microbiome or an uncoupling of the enzyme in the lining of the blood vessels, then we don't get the vessel dilation, we get chronic constriction of blood vessels.

And in the brain, if you look at all patients with some type of neurological deficit, whether it's mild cognitive disorder and whether it's dementia, Alzheimer's, Parkinson's, ADHD, bipolar, the fundamental problem with all of these

patients is there's what we call SoCal ischemia, which means there's certain parts of the brain aren't getting perfused because and what we're finding is because the blood vessels can't make nitric oxide to dilate those blood vessels to regulate an increase in blood flow to the prefrontal cortex, for example, to recall memory.

So if you can you can image this through Spect, or you can functional MRI and look at the activity in the cerebral blood flow to that portion of the brain and find in all neurological disease there's decreased blood flow.

So if you don't if you're not getting oxygen and nutrients to parts of the brain, then those cells can't do their job. So you can't get the nutrients in.

You can't take out the metabolic waste products. Proteins become misfolded. What is that? That's amyloid plaque and tell tangles. So what we're finding, if we can restore the production and vital cog so that you can vaso dilate, get oxygen, nutrients to the brain, you can get glucose into the cell because things like Alzheimer's and dementia or diabetes type three.

So we improve insulin sensitivity, we prevent protein misfolding. And you completely eradicate everything we know about Alzheimer's.

Blood Vessels, Plaque, and Heart Disease

So nitric oxide based therapies I think well I don't think I believe in no. Well completely eradicate dementia and Alzheimer's. And that's what we're working on now through the FDA to get our nitric oxide drugs through clinical trials in Alzheimer's patients to address this condition, to which there's no known cure therapy.

Yes. And tie that back to, proton pump inhibitors. Your you did an absolutely beautiful job in the book unraveling the dangers of acid reducing drugs.

So, Doctor Bryan, tell us more. Well, it's never a good idea to suppress stomach acid production. And everybody needs stomach acid to break down proteins into amino acid to absorb nutrients like iron, calcium, magnesium, iodine, B vitamins, and also to produce nitric oxide from swallowing our own saliva so that all antacids are bad.

But specifically, the proton pump inhibitors are the one some of the most dangerous drugs on the market. And I say that because that's what the data reveal.

There's clinical data now showing that people who have been on PPIs, that's Prilosec, Prevacid, Nexium and members all Pantoprazole people have been on these drugs for 3 to 5 years, have a 40% higher incidence of heart attack, stroke and Alzheimer's.

That's the clinical data. No, those are clinical, bonafide, clinical and indisputable outcomes now. So when we see those observations, we try to work backwards okay.

What's the mechanism? How are these drugs causing heart attack strokes and Alzheimer's. Well, they're completely shutting down nitric oxide production from both pathways.

So these drugs lead to an accumulation of what's called asymmetric dimethyl L-arginine or ADM, which inhibits enzymatic production of nitric oxide. But it's also shutting down stomach acid production.

So we're not getting any nitric oxide being produced when we swallow our own saliva. And you can't absorb magnesium. Magnesium is a central cofactor. To make nitric oxide, you can absorb iron.

We need, GM iron as a source to make nitric oxide. We become hypoxic because of the potential hydrogen. And the voltage affects, you know, the solubility of oxygen within a cell.

So all of that, everything we know about physiology and human physiology and acid base regulation in nitric oxide production is dependent upon stomach acid secretion.

So inhibiting stomach acid production is the absolute worst idea that I can think of in human physiology. And yet you can buy these drugs over the counter.

Now you don't even need a prescription from your physician to to buy these. And I know people who been on these. I just got an email yesterday, a guy who's been on PPIs for 40 years had high blood pressure.

Ed, we've got a clear overt cardiovascular disease. And he stopped. He weaned off of him. He started taking our nitric oxide products. His blood pressure went down 20 points within one day.

His sexual function improved his energy improved. And that's just one of hundreds of emails and texts that I get every day from people who just follow these simple common sense approaches, and their body restores its function.

So it's not, you know, nitric oxide, the one's called a miracle molecule. And it's no longer miraculous because miracle implies that we don't know well how it's working, that it's not explainable.

We understand and we can explain every biological action of nitric oxide. So it's a remarkable molecule, but it's not a miracle molecule. Well, you do a great job of breaking that down.

And I think, your book helps people get back to the design of our bodies. I mean, you're really just going back up stream, Doctor Brian and saying, okay, what are the basics we need here that are going to improve so many other things?

Now, you talk a lot in your book about food. So tell tell our listeners, you know, this, I have a wonderful, wonderful audience. And they want to feel good and they want to do what they need to do.

What should what should we be eating and how should we be chewing it? Well, I like to start with what shouldn't you be eating this slice? I think a much clearer explanation.

Sugar's the enemy. I mean, sugar is the toxin. Sugar is the poison. It's the most addictive substance on Earth. Perhaps something more addictive than. Than cocaine.

And in a lot of studies. Because sugar, if we don't, if we can't regulate our sugar balance. Sugar is sticky, right? And if you have ever spilled a sugary beverage on the countertop and come back the next day, it's sticky.

Well, that's sugar. That's what the sugar. Sugar sticks molecules together. It sticks to hemoglobin. And we measure that as hemoglobin A1. C it's the amount of sugar that's stuck to a protein.

In this case hemoglobin. But it also sticks to the enzyme that makes nitric oxide. And it shuts its conformational change down. And enzymes can't do their job if they can't change their shape and structure and function.

So sugar makes everything stick together and that's bad. So you have to get rid of sugar. Don't follow the government's food pyramid. I mean, it should be inverted. It actually. Yeah.

But I like, you know, people, I think we need a balanced diet in moderation. I'm not a big, extreme straight, vegan, vegetarian, straight carnivore, ketogenic.

Oral Microbiome and Nitric Oxide Production

I think we need a balanced diet in moderation. But the key to both of those extremes is there's really an elimination of simple carbohydrates and sugar.

But we need stomach acid to break down proteins. We need some green leafy vegetables as a source of inorganic nitrate. That provided we have the right oral bacteria, then the bacteria can metabolize that down into nitrite and nitric oxide and provide this compensatory redundant source of nitric oxide.

Then the other big thing is just moderate physical exercise. You know, we have to move. We have to increase our breath rate. You know, nasal breathing can stimulate nitric oxide production.

So increasing our heart rate, our breath rate, nasal breathing balanced diet and moderation and exercise. And there you go. But eliminate. So I say that.

But under the assumption that we're free of toxins. And that's not the case because, you know, as you mentioned earlier, people get sick for only two reasons.

And that's because their body is missing something that it needs, or it's exposed to a toxin that it doesn't need. So we focus on replacing missing nutrients and then eliminating the source of exposure to toxins.

Then the body heals itself. We just we got to get out of the way. Right. The body is a lot smarter than we are. How does stress figure into this? Like stress is a killer.

I mean, because it leads to if you're stressed, you don't sleep well. If you don't sleep well, you don't heal and recover and repair at night. You know, you get into this fight or flight mode and you get this autonomy and, you know, sympathetic overdrive and that leads, you know, that that stress response is needed for survival.

But it's we have to be able to manage the stress and down regulate the cortisol levels and balance our autonomic nervous system to where we can, you know, rest and digest instead of in this fight or flight mode all the time.

But yeah, look, we we don't live in a stress free environment. I mean, everybody, it's a stressful world we live in, but we just have to be able to manage the stress and not let it kill us.

Yes. And I think that's sort of part of living by design, too. Doctor Brian is is realizing we're not going to get out of here alive. So enjoy enjoy life while you can do the best you can.

You know, everything you've talked about has had such an impact on relationships. If people don't have energy, if people, you know, are sick and in any of those chronic diseases, sexual dysfunction, anything, it's going to impact relationships.

So tell us, I mean, people are going to, you know, we're going to get older, we want to get older, so we're going to lose nitric oxide production, and then we're going to eat the best we can.

What else can we do? I mean, you've you're quite an innovator. In this whole area, you've lots of lots of, bio what would it be? Biohacking. Biohacking.

So tell us about that. Yeah. You know, once we, you know, I spent like almost 25 years in the basic sciences, in academia. And so we were we were just kind of trying to answer four fundamental questions.

Number one, how does the body produce nitric oxide? Number two, what goes wrong in people that can't make it. How do they present clinically? And then once we had answers to those four questions, then the next question was how do we restore and prevent this age related decline in electric shocks and production?

And once we got answers to those questions, then we started developing product technology. And my objective from early on was to develop safe and effective drug therapy so that if you get sick and go to your physician or doctor, they can prescribe you a drug.

I never intended to develop dietary supplements because up until 20 years ago, I never took dietary supplement, didn't even know anything about. But once we figured out that this what we were doing, we could repeat nutrients and that could drive nitric oxide production.

And most people were deficient in these nutrients. Then it fit the kind of the paradigm of dietary supplementation. So I developed an early disintegrating tablet, that you place in your mouth.

And this releases nitric oxide gas. And so it's the only solid dose form of nitric oxide gas. So this is through our product line called in 101, dot com.

We make a fermented beet powder. Beets became popular probably 10 or 12 years ago during the 2012 Olympic Games. And, you know, I tested most of these products on the market.

And most beet products don't do anything in terms of restoring or activating nitric oxide production. So we know how to do this. So we made a beet powder called beets that generates nitric oxide.

Yeah.

Brain Health, Memory, and PPIs

So our whole thought process was if your body can't make nitric oxide then we gotta do it for you. You know, if your body can't make testosterone or estrogen, what do we do?

We give that it's hormone replacement. If you're low in vitamin D, what do we do? We give you vitamin D, we don't give you precursors and hope your body can make it.

And that's that was our philosophy is I got to give you nitric oxide. Get in. So did the development of this orally disintegrating tablet, the solid dose form of nitric oxide gas.

When you place it in your mouth, it dissolves over 5 to 6 minutes. But during that time, it's releasing gas. We dilate the carotid arteries within 10 to 12 seconds.

We fix the enzyme in the lining of the blood vessel, and it's restoring the oral microbiome. So not only is it hormone replacement therapy for nitric oxide, but it's fixing the reason your body lost the ability to make nitric oxide on its own.

And that's what makes my products different than any of the products out there. Hundreds of so-called nitric oxide products on the market, and none of them work.

Most of them don't do anything well. And you've tested your products and shown what, a progressive increase in that, endothelial dysfunction? Yeah. We put our products to the test in the same rigor that you would do in a drug study.

What are meaningful endpoints that we can move the needle on? And so we look at vascular function. We look at the vascular structure. We look at vascular compliance.

We look at relevant biomarkers like high sensitivity C-reactive protein triglycerides blood pressure, blood flow through noninvasive imaging. Everything we do and every test we put this product to the test on, we move the needle and we've done comparative analysis with other products on the market, other nitric oxide products on the market, and it's a placebo.

In fact, we use a lot of these products as placebos in our randomized controlled clinical trials. And that's the difference. And, you know, we've I've been sued by companies for revealing this.

The products that don't work. And then a medical trade shows we go and I take these instruments to the trade shows. And then, you know, we get in trouble sometimes because we're revealing that competitors, 2 or 3 booths down and we're showing that their products don't work.

And obviously companies don't like that. And so we become a target. But, you know, the truth is the truth. And we can develop the truth and show the truth through scientific rigor and investigations and, you know, I think and I hope eventually that people will start to see the deceptive and creative marketing by these companies that offer no science and stop buying from them.

They'll go away. And then we can inform and educate consumers on what nitric oxide is and which products actually deliver. And then, you know, we'll eliminate a lot of these imposters in the field.

Yes. We've started taking, your, your product and it tastes good too. I think that's got a life's got to be delicious. Well, Doctor Bryan, people, there may be listeners who are saying, okay, you're talking about nitrate.

Nitrite, nitric oxide. Aren't nitrates bad? And that. Well, this may be a surprise to some, but the mainstream media in Big Pharma has somewhat misled us over the past 50 years.

So really, could you do that? Similar to them trying to convince us that cholesterol causes heart disease, they once tried to convince us that nitrate, nitrate and cured and processed meats were carcinogens and toxins.

You know, that started in the 1950s. And so that started this whole line of investigation into that eventually led to the discovery of nitric oxide gas.

So it was once thought that nitrite was used in curing meats like bacon, lunch meats, ready meals. Because it serves a very important purpose. Nitrite actually cures meat.

It prevents the overgrowth of bacteria. It prevents the warm over flavors it it prevents lipid oxidation and rancid. So in cured meat and ready to eat meat, that's necessary.

It's not. These products wouldn't be shelf stable. And there would be a global outbreak, a seaborne illnesses, botulism, and salmonella and Clostridium and all of these things that that would, that would grow in these meat products.

So then early on, probably in the 60s and 70s, these nutritional epidemiologists revealed that people who consume certain proportions of cured and processed meats as part of their diet have a higher incidence, somewhat slightly higher.

But they call a relative risk index of developing gastroesophageal cancers. So there was an association. But association is not causation. And then that triggered the National Toxicology Program back in the early 2000 to do a dose escalation study to determine if nitrites, nitrate were in fact carcinogens, had led to increased risk of certain cancers.

And the outcome of that study was published in 2001, revealed that nitrite and nitrate have no carcinogenicity whatsoever. In fact, that some doses it actually prevented cancer in eliminated the natural, progression of certain cancers.

And we published on this in 2009 showing that nitrites, certain doses actually prevented tumor growth, cancer cell proliferation, and actually prevented metastatic disease, prevented the metastasis of the primary tumor in the other tissue.

So today we now know. And the other thing again we look at observations. If not try to nitrate cause cancer in the epidemiology data would clearly reveal that people who eat a plant based diet would have ten times higher rates of cancer than meat eaters.

And we know that vegetarians and plant based diets are protective from cancer, because a plant based on you're getting ten times much higher concentrations of nitrite and nitrates from eating plants than you do from eating cured meats.

In fact, there's little or no residual nitrite in cured meats.

Diet, Sugar, Stress, and Lifestyle

And we published again and again on that in 2015. So we laid that to rest. In fact, Walter Willett, the head of

epidemiology at Harvard Medical School, actually wrote a chapter in my textbook revealing they got it wrong.

We don't he doesn't dispute and I don't dispute the data. What I dispute is the interpretation of the data. And he even admitted that nitrite, nitrate are not cancer causing agents.

In fact, they're cardioprotective. They have anti-cancer effects. That explains the mechanism of action of the Japanese diet. Mediterranean name diet, a plant based diet, dietary approaches to stop hypertension.

All of that can be explained by nitric oxide and the nitrate. And I tried content of those food. You surprised me in your book about how the the level of nitrates vary among regions of the country.

I know you and I are neighbors. You're in Texas and we're in Oklahoma. It was pretty shocking. We you know, the question we were trying to answer was once we realized that nitrate is a nutrient in foods that can be utilized to make nitric oxide, my question was if I wanted to make dietary guidelines and change the dietary recommendations, how much celery or lettuce or spinach or kale would one need to eat to get a certain threshold of nitrate from that food that could then be utilized to produce nitric oxide in normalized blood pressure?

Pretty rational question, I thought. So we went to five cities across the US. We went to New York, Raleigh, Dallas, Chicago and Los Angeles. And we just measured.

We bought groceries off the shelf, and retail grocer brought it back to my lab, and we analyzed it for the nitrate content and found that there's as much as a 50 sol difference in the nitrate in celery bought in Dallas versus New York or Chicago or Raleigh.

And it's the same the variation within lettuce amongst all five or celery amongst all five cities was as much as a 50 fold difference. And then the variability from nitrate in lettuce, celery, cabbage, spinach was, you know, could be a 10th of a difference.

So that told us our interpretation was there's no way we can make dietary recommendations because it depends on where you live, what vegetables you're reading.

In the other moment for us was organically grown vegetables have on average about 5 to 10 times less nitrate than conventionally grown vegetables. So you really can't eat enough organic vegetables because the soil is depleted of any nitrogen.

And the, the plants and the vegetables that are grown organically aren't assimilating any nitrogen in the form of nitrate. So you become depleted of that.

That was crazy, because we all think we're doing ourselves such a favor, and we are in some ways to eat organic, but it's just not enough. So so I would encourage everybody to follow Doctor Brian on his Instagram.

You might pick up a book. This is an inexpensive book. Give one to your physician for sure. Give one to your dentist. I you know, I've been a dentist for 40 years.

This is not in any continuing education classes for dentistry. You know, it's it was through functional medicine, training that I met Doctor Brian. And this is key.

You guys, this is upstream. This is essential for your vitality. This is essential for your health span. And you make it easy. So thank you for taking time to do my mind.

Well thank you. My objective is to educate, inform and really bring the science forward to educate and inform consumers. So now they can make informed, educated decisions and do what's and empower them to take control of their own health.

Nitric Oxide Products and Research

So I think it's clear that physicians today in America aren't making patients better, but we're getting sicker and sicker by the year. Well, you know, of all the around the world, US is the US uses 50% of all prescribed medications around the world, yet we have the sickest population.

So it's clear to me that prescription medication isn't the answer to making people better. But, Debbie, I will tell you, I got a new book coming out February 24th.

I'll be on 32 morning shows all around the US. Launching this new book is called The Secret of Nitric Oxide Bringing Nitric Oxide to Life. So what I've tried to do is chronicle this 25 year history in basic science and reveal the fundamental discoveries we've made, and really try to open up the world of nitric oxide to everybody around the globe.

And so it's it's educational, it's informative. It's kind of a part autobiographical. It's it talks about my discoveries and kind of the challenges we had to overcome and, you know, think differently.

So be on the lookout for that book. The functional nitric Oxide Nutrition Book. It's, you know, I think was just mentioned 7 or 8 years old. So we've we've learned a lot since then.

So, yeah, be on the lookout for that and follow me on YouTube. Doctor Nathans, Brian. Nitric oxide. Doctor Nathan s brian.com educational website Instagram.

Doctor Nathan s Brian I'm on LinkedIn Twitter. So I'm searchable, you're searchable and accessible and I still appreciate this book. I will preorder your next book, Doctor Brian.

But you know the nice thing about this? You can throw it in your bag. It's an airplane. It's an airplane read. And your passion and curiosity shows through in your bravery.

And I really appreciate that because, it's pretty obvious that you've you want to tell the world because you're probably not hearing it from their health care provider.

And it's so basic. So thank you very much. I will, listeners, I'll put all of Doctor Bryan's contact information in the show notes and, this has been so fun and it's just fun to know you and see you at conferences.

I've heard you speak so many times, and every time I learn something. And thank you for that. I know it's very tiring to, to prepare all these lectures and.

Well, we have a mission. I mean, this this information is too important not to get out there and educate and inform. So thank you for continuing to come to the lectures, and I'm glad to hear that we're continuing to to put new topics forward that are new.

And, you know, you learn something new. So that means I'm doing my job. So thank you. You are you're doing it well. And, it's great to know you and and listeners, thank you all for joining me.

Thank you for subscribing. Share this with anybody. It can help. I think it will help every person. Like Doctor Bryan said, people are getting older at younger ages now and that's a problem.

So we are now vitality made. Simple because of you all is now. And I think 136 countries in maybe over 5000 cities.

Nitrates, Food Sources, and Closing Remarks

And thanks for subscribing. Thanks for joining me. I just feel like you all are my son, friend, community, family and we're going to have lots of great speakers this year.

Start start it all off with Doctor Nathan Bryan. Upstream health with nitric oxide. Blessings. Until next time. Thank you Debbie. Hey thank you. Thanks for your time.

You got it. It's great. Now you and I look forward to your book. Yeah. I'm excited. We're going to be, on 34 morning shows the day of February 24th. We'll be on every major market around the US. So.

So you're pre-recording those. How does that work? I'll be in a studio in Florida, and then they'll just, zoom me in or warm and, live on TV from, you know, we'll obviously start out on the East Coast and then, you know, 34 cities all across the US, east to west.

Are you going to change shirts? Are you gonna try to like different kind of, you know, probably not. You know, because the same people that are going to watch in New York aren't going to be watching.

Yeah. You know, later that day. So yeah. Yeah. Oh that's fantastic. Well you've earned it. You've put the time in and I see you hustlin carrying all this stuff through conference, you know, Applause and thanks so much.

Thank you Debbie. Well, thanks for your time. Yeah. See you later I appreciate it. Bye bye. Thank you for tuning in to Doctor Talks. We hope today's episode has enlightened and inspired you on your path to optimal health.

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