DANNY LENNON: A very big welcome to Dr. Nathan Bryan, thank you so much for taking the time to join me today.

NATHAN BRYAN: Well, thank you. It's an honor and a pleasure to be with you.

DANNY LENNON: Can you give people a background into your own work, what you've been doing in this area, and some more of your background?

NATHAN BRYAN: Yeah, of course. So I've been in the nitric oxide field for, I guess, more than 20 years now. I've got an undergraduate degree in biochemistry from the University of Texas at Austin, and then I have a degree, a PhD in Molecular and Cellular Physiology from LSU School of Medicine in Shreveport. From there, I did postdoctoral training at Boston Medical Center, really trying to understand the physiological significance of nitric oxide – how do we diagnose this – how do we diagnose nitric oxide deficiency in specific patient populations, what goes wrong in people that can't make nitric oxide, and then how do you fix this. And so, over those 20 years, and my first faculty position was at University of Texas Medical School in Houston, where I was recruited by Ferid Murad, one of the gentlemen who shared the Nobel Prize for the discovery of nitric oxide.

So my entire academic career spans more than 20 years now, has been singularly focused on nitric oxide biochemistry and physiology, published dozens, if not hundreds of peer reviewed scientific publications, given over 200 lectures around the world, and have several dozen issued US international patents on our nitric oxide technology.

DANNY LENNON: Fantastic, and I think that kind of gives some context for much of what we'll get into and, I suppose, the big question to start off with that might be useful for people as well, why are we even talking about this, what exactly does nitric oxide do within the body, what are some of its primary roles that are a good starting place for this discussion?

NATHAN BRYAN: Yeah, it's a very good question. I'm still surprised, I lecture 30-40 lectures every year, of how little awareness there is around nitric oxide, not only in the physicians and healthcare world, but also in consumers, I think the awareness is growing. But nitric oxide is still relatively new in the medical literature, it was only discovered 30-40 years ago, but nitric oxide is a molecule that's naturally produced in the human body; and when it's produced, it acts as a signal, so it's a signaling molecule, it tells other cells to do certain things. The most important function is in regulating blood flow and blood pressure, so when nitric oxide is produced in the lining of the blood vessel, it tells the blood vessels to open up to dilate, to relax, to improve oxygen and nutrient delivery, to downstream tissue. It's also a neurotransmitter, it's how cells in the brain communicate with one another, and it's important in our own immunity. So when we're exposed to a virus, or a pathogen, or bacteria, or anything for that matter, our immune system is designed to mobilize, go to the site of infection, and then kill the invading pathogen, whether it's a virus or bacteria. But if your body can't make nitric oxide, you become immunocompromised, it allows for the infection to set in and people get sick. So it's

really recognized now as one of the most important molecules produced in the human body, it controls and regulates most, if not all, biological functions. And when you lose the ability to make nitric oxide, it's recognized as the earliest event in the onset and progression of all chronic diseases.

DANNY LENNON: That's quite a big statement. So maybe a good place to get into would be mechanistically what is going on, and one of the things you mentioned is that the body's production of nitric oxide, so hence suggesting that we produce this endogenously. And I think for what we'll discuss both on the nutrition side, but also from other avenues that I want to ask about, it's probably important for us to understand that. Can you maybe outline how it does actually produce nitric oxide endogenously, and some of the pathways that are involved there?

NATHAN BRYAN: It's a very good question, because you can't fix something if you don't understand what goes wrong. So now, I guess, 30-40 years after the discovery of nitric oxide, there are two main production pathways in the human body. The first pathway to be discovered was through an enzyme called nitric oxide synthase. That enzyme converts L-arginine a semi essential amino acid into nitric oxide, and that's the enzyme that's found in the lining of the blood vessels, it's the enzyme that's found in neurons and epithelial cells, endothelial cells, and even in our own immune cells, macrophages, neutrophils, and monocytes. It's the function of that enzyme is what becomes dysfunctional over time. So the older we get, the less nitric oxide we make through that pathway. In clinical terms, we call this endothelial dysfunction, so if you have endothelial dysfunction, that means your endothelial cells can make nitric oxide, you can't control and regulate blood flow, blood pressure, you develop sexual dysfunction, vascular dementia, you develop high blood pressure, diabetes. So the loss of nitric oxide through that pathway is

shown to be the earliest [inaudible 00:08:29] the onset and progression of all those conditions.

Now, more recently, probably 20 years ago, it was recognized that diet plays an important component of this, because inorganic nitrate, which is found naturally, primarily in green leafy vegetables, it was popularized more than a decade ago in beets, and nitrate can then be converted to nitrate and nitric oxide, to compensate for the loss of the enzymatic production, nitric oxide. So they both kind of balance the weight of nitric oxide production. If you don't eat a good diet, and you're young and healthy, your endothelial production can compensate for a poor diet. If you have endothelial dysfunction, and you eat a good diet, then you can overcome some of those effects of loss of endothelial nitric oxide production. If you have endothelial dysfunction and your dietary pathway isn't intact, then you become completely devoid of nitric oxide, and that's when things start to go bad – you start to develop symptoms, you start to get sick, and it's a slippery slope in the development of cardiovascular disease, which is the number one killer of men and women worldwide, along with a number of other symptoms and diseases.

DANNY LENNON: So with those disease states where we see this loss of nitric oxide production, maybe one question then that people would have is, how clear are we on the causality or the direction here that's going on, is it that we see this loss of nitric oxide production, and that then causally leads to these things, or are we seeing something else cause this drop of nitric oxide production when someone has a certain disease state, how do we parse amongst all of that?

NATHAN BRYAN: Well, it's a vicious cycle, it's a feed forward cycle, and the best example is when we do animal studies in basic science, there's now technology that you can knock out the enzyme that makes nitric oxide. And so, when you do

this in mice, if you knock out the endothelial nitric oxide synthase enzyme, these mice develop high blood pressure, they develop insulin resistance, type 2 diabetes, and as this enzyme is, the older they get, the more symptoms and more diseases they develop. But the first signs and symptoms are insulin resistant type 2 diabetes, and they develop high blood pressure. And that's a pandemic, it's not just here in the US, it's worldwide. Here in the US, two out of three people have an unsafe elevation in blood pressure. We're dealing with an epidemic of diabetes, insulin resistant diabetes, even in type 2 diabetes in young kids. So it's recognized now that the functional loss of nitric oxide precedes a lot of these symptoms and structural changes by many years, sometimes decades. So it's the loss of nitric oxide that leads to the symptomology of these many diseases, and then once you get these diseases, and the best example is diabetes, then it further suppresses nitric oxide production. So if you don't correct the underlying causation, or the problem of the symptoms or the disease, you can never reverse it. So what we have to do is figure out okay, what goes wrong in people that can't make it, do you have endothelial dysfunction, is the enzyme dysfunctional, are you not getting enough nitrate from your diet, are you using mouthwash disrupts this process, are you using an acid. And then start to correct all those things, and then the body naturally self-corrects, and is able to generate nitric oxide.

DANNY LENNON: So with that, then if we're trying to work out, okay, someone may have an issue with nitric oxide production, and we've already said that there's these two different pathways in which someone can endogenously produce that, what does the process look like of determining why this particular person may have low nitric oxide production or where along that pathway might be the issue?

NATHAN BRYAN: Well, you have to interrogate both systems, and there are FDA cleared medical devices that

basically give you a readout of endothelial function, or how well the enzyme, the nitric oxide synthase enzyme is working. This is called venous occlusion plethysmography, there are a number of devices out there that look at what's called reactive hyperemia. And so, that's really a direct measure of nitric oxide production, and it really tells you if you have some degree of endothelial dysfunction. So if you have endothelial dysfunction, that means that the nitric oxide synthase enzyme is uncoupled, it's not functional, it can't make nitric oxide. That may be a reason you're nitric oxide deficient. The other one, people with good endothelial function, we can then begin to interrogate their diet and figure out, okay, are you able to utilize the nitrate from your diet to make nitric oxide, and years ago, I developed a nitric oxide test strip, saliva test strip, that basically give us a readout of how well your body converts nitrate into nitrite and nitric oxide. So we use this and we tell people, okay, measure your saliva levels, get a baseline, and then go out and eat some spinach, some kale, some beets, some arugula, and then 90 minutes later, let's test your saliva. And if that test strip improves in color, then you know that that circuit is intact. But what we are finding is some people, it becomes even more complicated now, because we're finding that a lot of these green leafy vegetables don't contain sufficient nitrate, the other important consideration is 200 million Americans wake up every morning and use an antiseptic mouthwash, that kills these bacteria that are responsible for generating nitric oxide from your diet, from the nitric found in your diet. The other problem is antacids, over 200 million prescriptions written for antacids every year. You have to have stomach acid in order for this nitric oxide pathway to be intact. So we have tools to interrogate what goes wrong in people, and in many people, it's both, they have endothelial dysfunction, they're not eating a good diet, or they try to eat a good diet, but they're using mouthwash which basically eliminates the positive benefits of good diet or

they're taking antacid. So once we understand in the individual, what their underlying problem is, and nitric oxide deficiency, you can then implement a change in dietary or lifestyle strategies, get modern physical exercise, eat more green leafy vegetables that have enough nitrate. If you're using mouthwash, stop using mouthwash. If you're using antacid, stop using antacid.

DANNY LENNON: Just to clarify, on the side with mouthwash, that is a disruption due to the loss of bacteria within the mouth that would convert nitrate to nitrite along that nitrate-nitrate NO pathway, and then for the antacids, where along that pathway are we seeing disruption then?

NATHAN BRYAN: Well, it's part of the process. So when we swallow our own saliva, our saliva is naturally designed to be enriched in nitrite, if we have the right nitrate producing bacteria. And if you go back to the physical chemistry of nitride and nitric oxide, the pKa of nitrite is about 3.4, meaning that at that pH, nitride becomes protonated. When you protonate nitride, it becomes nitric oxide. So, when we swallow our own saliva, provided there's sufficient stomach acid production, that generates nitric oxide gas in the lumen of the stomach, and that nitric oxide kills things like H. Pylori, the bacteria that cause gastric ulcers. It'll kill things like E. coli or Clostridium or a lot of these foodborne pathogens. But it also enhances gastric mucosal blood flow, so you can enhance nutrient absorption in the stomach. And so, now it's clear and then if you give proton pump inhibitors or antacids, you disrupt that nitric oxide production, but you also inhibit an enzyme called DDAH that leads to the accumulation of an inhibitor of nitric oxide called asymmetric dimethylarginine or ADMA. So if you're taking antacids, you're basically completely inhibiting all endogenous nitric oxide production, both from the enzymatic formation from nitric oxide synthase, and from the dietary impact of reducing nitrate-nitrite to nitric oxide. So those are probably one of the

worst drugs you can take in terms of inhibiting nitric oxide production.

DANNY LENNON: And just out of interest, in a clinical setting when someone presents with certain symptoms, and typically where nitric oxide, let's say, if someone's going to investigate what the production was like, what is done on a clinical setting in terms of what does that test actually entail?

NATHAN BRYAN: Well, in terms of the devices, it's a five-minute test, they basically put blood pressure cuff on your arm and squeeze it to where it's super systolic levels, to where there's no blood flow going into your form. So it's a little bit uncomfortable, because you can imagine five minutes without any blood flow to your form, your fingertips go to tingling, you get some numbness, and it can be painful to some people. But what we're looking for when you release that blood pressure cuff, and with an ultrasound, or there's other devices that measure temperature in the fingertips, the degree at which those blood vessels dilate, when you restore blood flow in there is indicative of nitric oxide production. Or the rate at which the temperature in your fingertip goes back to normal is indicative of nitric oxide production by how fast you can get blood to those previously starved tissues and cells, so that the rate of which those blood vessels dilate is indicative of nitric oxide production. The problem is, in a lot of people, is when you release that cuff, there's no dilation of the arteries, which tells us that the arteries aren't making any nitric oxide. And there's an algorithm that will give you an EndoPAT score or measure of endothelial function. So those are clearly, it's a five-minute test, it's reimbursable, they're very useful devices. The problem is most clinics, most physicians don't utilize this. And then the other way is really the best way to measure nitric oxide is in symptomology, because it's not like your vitamin D levels or cholesterol levels, we can't draw blood and say, oh, your nitric oxide levels

are low, there's no biomarker or lab that we can draw to tell you what your nitric oxide levels are. It's based on functional test, but more importantly, it's based on symptomology. So if you have the elevation in blood pressure, if you have high blood pressure, even what's called pre-hypertension, then that tells us your body's not making enough nitric oxide. If you have erectile dysfunction, in both men and women, that tells us your body's not making enough nitric oxide. If you have mild cognitive disorders, and we've measured this through functional MRI of the brain, that there's reduced blood flow to that region of the brain, there's reduced blood flow because your body can't make nitric oxide to perfuse that region of the brain upon demand. So all of those are symptoms that relate back to a single cause, and its lack of nitric oxide production.

DANNY LENNON: With that proposal, that is a big statement that this could underlie these variety of different disease states, what is some of the common pushback or counter arguments you've heard in relation to that, and how has that idea generally been received over the years and has that changed over time?

NATHAN BRYAN: It has. Look, there's an adoption curve to every new concept. The challenge for us is retraining physicians on how the way they're taught medicine, right? So cardiologists typically ignore oral issues, they ignore GI issues, neurologists typically don't look at the gut microbiome. So this medicine has become highly specialized to where the specialists only look at the organ of interest, and they forget that the body is connected. And there's clear evidence now for hundreds of years that oral dysbiosis or gingivitis periodontal disease increases your risk of heart attack. So there's a connection here, and so, what we have to do is go back and it's clear that the etiology of every single disease, whether it's kidney disease, heart disease, liver disease, lung disease, all of those have decreased blood flow, what we call ischemia-hypoxia, they have low blood flow

and they have low oxygen. And if these cells and tissues and organs don't get the oxygen and the nutrients in the blood they need, they fail. So the unified theory of disease management really revolves around getting blood and oxygen and nutrients to those tissues. This is very apparent in cardiology, if somebody has a heart attack, because they got an occlusion in the coronary arteries, well, how do you save them? You take them out to the cath lab and you remove the clot, and you reperfuse that portion of the heart, and you save the patient. That's all revolved around restoring blood flow. The challenge has been, you don't have to wait till you have an infarct or thrombus or an embolism, you can treat this early on and restore nitric oxide production before you have a critical event or, in most cases, a fatal event.

DANNY LENNON: And in terms of the literature base that you would point people towards, maybe they present you with counter arguments to some of the literature that they have seen, where are we in terms of showing that kind of causality maybe in some of these cases, how easy or not is that to demonstrate with something as complex as this, given the nature of these disease states, and what is the strongest evidence that you tend to direct people towards when they ask you about that?

NATHAN BRYAN: Well, in the scientific literature there’re, I think, now probably over 175,000 scientific papers published on nitric oxide. The good news is there's lots of information out there. The bad news is you can find whatever you're looking for. Right? So you have to figure out what's noise and what's not. The good thing is there's enough randomized placebo controlled clinical trials on different modes of nitric oxide technologies that show, number one, clear safety at the right dose, and, number two, clear benefit in terms of outcomes from a lot of these. And so, that's the metric in the scientific literature, do you have randomized, placebo controlled clinical trials for the technology that

you're hoping to, I mean, that's what we have to do in drug studies to show safety and to show efficacy, and so, that's the metric. So when we look at what the literature suggests, as we know that nitric oxide at the right dose, at the right place, at the right time, has enormous protective properties in every organ system throughout the body.

DANNY LENNON: So if we look then at interventions to actually restore some of that nitric oxide production, and you've highlighted some of those already, we can look at dietary interventions. Later on, I'm definitely going to ask about some supplemental interventions, but if we look specifically at dietary interventions, and you've mentioned, we can look at various sources that are particularly high in dietary nitrate, the question then becomes, in terms of how much we need to restore this function – is that a kind of linear dose response that just more and more is going to have that, is there certain threshold we need to get beyond, how much do we actually need, and how should people conceptualize what that means in actual food based terms?

NATHAN BRYAN: Yeah, it's a very good question, and we always recommend diet and lifestyle is always the first strategy to restore health or to combat disease, because it goes back to Hippocrates, let food be thy medicine and medicine be thy food. The challenge over the centuries has been what is it in our food that confers those protective benefits. So it's not a linear curve. In fact, like most molecules, it's a U-shaped curve. So we know too little is bad, there's an optimal amount, and then too much can be bad. Right? So if you look at the published literature, it's evident that you need 300 to 400 milligrams of nitrate in a single serving of a vegetable or any given meal. And you need that much because there's inherent inefficiency in the reduction of nitrate to nitric oxide. So when we consume nitrate about 25% of that is absorbed in the gut and it's put in our salivary glands. And then each time we salivate, about 20% of that that's

in our saliva is reduced to nitrate provided we have the right nitrate reducing bacteria. So 25% times 20%, you're basically getting a 4% conversion – of 4 to 5% conversion of the nitrates you get from your diet. And that's been shown to lower blood pressure, it's been shown to enhance performance in well trained athletes, number of clinical benefits.

Now how does that translate into how much beets or celery or broccoli or kale which you need to eat? We set out to answer that question back in 2015, and what we found was quite shocking. We went to a retail outlet in five different cities across the US, New York, Raleigh, Chicago, Dallas and Los Angeles, and got the same vegetable off the shelf, brought it to the lab and analyzed it for the nitrate content, and found as much as a 50 to 100 fold difference in the nitrate content of celery bought in New York versus Chicago versus Dallas. And so, there's no way we can make dietary recommendations on how much nitrate you get from your foods because they're regional differences, this is different for organically grown vegetables versus conventionally grown vegetables, organically grown vegetables have about 10 times less nitrate than conventionally grown, because to have an organic label, you can't add nitrogen based fertilizers to the soil. Without nitrogen, there's no nitrate to be assimilated in the vegetable. Without nitrogen, other minerals become deficient. Nitrogen – nitrate form of nitrogen is needed to assimilate other nutrients like vitamin A, vitamin E, selenium, zinc, chromium in these vegetables. And we've known now for more than 70 years that these vegetables are depleted in many nutrients compared to where they were the 1930s or 40s. So the point is the vegetables that we're eating are depleted of not just nitrate, but any nutrients, many nutrients. So the point is, it's hard to eat enough vegetables to give your body all the nutrients it needs to do its job. So we almost have to supplement.

DANNY LENNON: So if we turn to supplementation and some of the supplementation interventions, I think a lot of people for health reasons wouldn't have thought about a nitric oxide supplement before, but many people that are listening maybe from a sports nutrition background will have known that these are incredibly popular supplements in various different forms, and we'll maybe talk about some of their efficacy in a bit, but they would have known that for a long period of time in various nitric oxide enhancing supplements or pre-workout supplements, particularly, you see things like L-arginine, or L-citrulline, or more recently, citrulline malate has become quite popular. In relation to these types of ingredients and these types of products that propose they do all sorts of things related to nitric oxide production, how does that actually relate to what we've discussed in actually enhancing nitric oxide production?

NATHAN BRYAN: Well, it's frustrating as a scientist, because here there's a clear distinction between marketing and real science. So in this supplement space, everybody can say the same thing. Right? Whether there's scientific evidence around it or not, all the people can make certain claims. So there's two different categories of products. There's the arginine-citrulline based products that are in one category, then there's the beet root products that are in another category. The arginine-citrulline products are basically a waste of money. There's never a human condition where people become arginine or citrulline deficient except one called argininosuccinic aciduria, it's a very rare disease found in newborn babies. So the body makes enough arginine and citrulline through the recycle to saturate the enzyme that makes nitric oxide. So you're never out of arginine or citrulline. The problem is the enzyme that converts arginine to nitric oxide with citrulline as a byproduct, becomes dysfunctional. So the analogy I like to use is, it's like putting gas in a car with a blown up engine. You can put gas in the gas tank, but the engine isn't working. So

you can take arginine but the body's unable to convert that to nitric oxide. In fact, it can even cause harm. There's a number of clinical studies showing that if you take a lot of arginine, you actually make the person worse. Post infarct patients taking arginine in a clinical study, more people died on the arginine than the placebo. Patients with peripheral artery disease taking an arginine product actually got worse. And two, if you take too much arginine, you can get into nitrogen imbalances or you lead to the expression of arginase, which diverts arginine away from nitric oxide and disposes of it as ornithine and urea. So those products, look, save your money, your body makes enough arginine as it is, so those are worthless. The beet products, there's hundreds of those out there now, and I've measured and analyzed most of them, 98% of those out there don't do anything. They don't contain any nitrate. They don't contain any nitrite. They're basically good placebos. In fact, we use a lot of these commercial beet products as our placebos in our clinical trials. The only thing they do is turn your pee and poop pink and cause a little bit of anxiety. They provide no nitric oxide benefit whatsoever. But many companies are using this as window dressing, because there's enormous awareness, and really some good clinical trials published on beet roots that actually contain a certain amount of nitrate. But companies just do this, they take some cheap beet product, put it in their product, and get a nitric oxide claim, and it provides no benefit whatsoever.

DANNY LENNON: And so with some of those companies, because some of the literature, particularly in sports nutrition have shown, let's say, benefit for concentrated beet root shots, that's typically used tend to source that from a couple of the bigger, maybe more reputable companies, some of these are at least doing a good job of maybe preserving nitrate in some of those products, hence why we're seeing a benefit in clinical trials, but then you get a flood of other

types of products that haven't actually been tested.

NATHAN BRYAN: No, that's right, when you design a clinical trial, you have to have a standardized amount of your active ingredient. So when all the published work on beetroot, there's a standardized amount of nitrate in that beetroot, and so, that's the metric, but nobody, very few people actually standardize the beet root to nitrate or nitrite. So if you want to use beet as a way to supplement, make sure that you have a standardized amount of nitrate-nitrite that's tested, that's quantifiable, that's verifiable. And then, you can actually get the benefits from it, provided you're not using mouthwash, and you're not using antacids, because that pathway is completely disrupted if you're using both of those.

DANNY LENNON: And next step on from there, and one of the things that I've seen you discuss in some of your lectures was around the development of this nitric oxide lozenge. Can you maybe give more context and an introduction to people to what exactly it does, and the reason behind it, I guess?

NATHAN BRYAN: Well, yeah, it goes back to trying to get to the root of the problem, and I'm trained as a basic scientist in biochemistry and physiology, so once we understand the reason that people become nitric oxide deficient, and we discussed that earlier, they have endothelial dysfunction or they have oral dysbiosis or a poor diet, then how do you overcome that, how do you create a technology that works in every single patient, whether or not they're on antacid, where they're taking mouthwash, where they have endothelial dysfunction, independent of their diet? Well, the only way to do that is with this concept that if your body can't make nitric oxide, then we have to do it for you. Nitric oxide is a gas that's gone in less than a second. So creating safe and effective nitric oxide technologies or therapeutics has been really very challenging. So I developed this concept of

an orally disintegrating tablet years ago, so we put it in this matrix, that when this matrix falls apart as it's dissolving in the mouth, it generates nitric oxide gas. So if your body can't make nitric oxide, we do it for you. You can detect the nitric oxide coming off the lozenge as it's dissolving, and it's vasoactive, meaning we can see dilation of the blood vessels within seconds of putting that lozenge in the mouth. So that's the first part of the technology. The second part is how do we fix the underlying problem with enzymatic conversion of nitric oxide. We know through some complex enzymology, the redox ratio or the voltage potential that's needed to recouple that enzyme. So we put components in there that basically prevent the oxidation of tetrahydrobiopterin, which is the rate limiting step in nitric oxide production, and recouple that enzyme. So now when you take this lozenge, it generates nitric oxide, provides a bioactive source of nitric oxide, but it recouples the enzyme and restores endothelial function. So we've accomplished everything we set out to do is give the body a source of nitric oxide that it can't make, but over time, improve the body's ability to make nitric oxide on its own. We call this restorative physiology. That's the best way to overcome any chronic condition. Give the body what it needs, and the body heals itself. We focus strictly on nitric oxide, and so, it sounds simple, but it's really even more complicated. Because the lozenge works no matter what, but if you don't stop using mouthwash, if you don't stop using antacids, there's going to be limited utility of fixing these underlying problems. And if you're sedentary, if you're obese, if you smoke, again, there's going to be limited utility of anything we do. You have to stop doing the things that disrupt nitric oxide production, start doing the things that promote it

DANNY LENNON: Before I get to my very final question, Dr. Bryan, for people who are interested in finding out more about your work, your publications, etc., where are some places on the internet, you

would send their attention to get hold of some of that?

NATHAN BRYAN: I'm on Instagram, Dr. Nathan S. Bryan, I have an educational website, drnathansbryan.com. I do a monthly blog. There's some educational videos on there. And the whole objective is to create awareness and education around nitric oxide. I'm not trying to sell you anything, I've got a number of commercial products on the market, but I don't drag people there. My objective is to provide truthful, evidence based information so that consumers can make informed and educated decisions. And so, my website, drnathansbryan.com is the go-to place, you can Google me, you can go to PubMed and look at the number of scientific papers we've published on nitric oxide. I have a YouTube channel, a lot of my lectures are recorded there.

DANNY LENNON: Okay. And for everyone listening, I will link up to all of that in the show notes to this episode, which you can go and check out there. And then to finish the conversation, I always end on the very final question that can be to do with anything else, even outside of what we've discussed today, if you so wish. But it's simply: if you could advise people to do one thing each day that would have a positive impact on any area of their life, what might that one thing be?

NATHAN BRYAN: The one thing, well, I start by saying there is no silver bullet. The human body is very complex, nitric oxide is important, but it's not an end all be all cure all. It's very important to get your body moving in the right direction, but to me, it's to be thankful and live with gratitude, because we have one life to live, and hope, and gratitude is a very powerful force, so it's to live life with gratitude and make the best out of each day.

DANNY LENNON: And with that, we will close this out. Dr. Bryan, thank you so much for taking the time to talk to me today, and for your input and for the work

that you've done, it's appreciated. So thanks for doing this.

NATHAN BRYAN: Thank you very much. It's an honor.

[00:37:09]