What I want to point out is it's very important to get that blood pressure under control as quickly as possible. I have my patients come back weekly for medication, dietration, to their blood under pressure control, usually in under a month.

But I always tell people you have to put out the fire before you can plant flowers. So a lot of people think that when they get a medicine, it is permanent.

And for many it, but for people who are willing to make these massive lifestyle changes, they can get off of their pills, which is really, really awesome when you do it.

This is Dr. Talks. Hello, I'm Dr. Laurie Marvis, and today I am very excited to introduce Dr Andrew Freeman, who's not only a friend, but a very amazing cardiologist who is really going to help us understand high blood pressure and the regulation and a few of those questions.

But how are you doing today, Dr Freeman? I' m great and thanks for having me. No, absolutely. Well, thank you for joining us on this summit. And I can't wait to hear your pearls of wisdom as we really look to understand blood pressure regulation and really understand maybe the plant-based perspective, which kind of gets me to my first question.

So what are the foundational principles of sustained blood-pressure regulation, especially maybe from a plant based perspective? Yeah, so I mean, maybe I should even back up and let people know that the scope of the problem is humongous, right?

So something in the range of 50% of Americans suffer from high blood pressure, commonly known as hypertension and medical jargon. So it is incredibly prevalent.

And the reason why it matters to people like me, and it really should matter probably to all doctors, is it's super low-hanging fruit to improve cardiovascular outcomes, meaning for roughly every 20 points that we go up on average over 120 systolic the top number the risk for dying doubles so you can imagine that is an exponential problem that very few people do well and the truth is the vast majority of Americans that are quote under treatment unquote for blood pressure don't necessarily have aggressive enough approaches.

And we know that aggressive blood-pressure control in quote community dwelling individuals, meaning not people in institutions or nursing homes, et cetera, actually really improves outcomes.

So really the major principles are that first it should be guideline directed. There's a lovely humongous document from the now ACC AHA and a number of other societies together on the management of hypertension.

And it goes into all the different pearls of wisdom and facets, classes of drugs and where to start and so forth. The truth is the goal is to get people under ideally 120 over 80. And there's a lot that has to be done in order to measure blood pressure well.

And a lotta people don't realize this, even doctors don' realize, that when someone zips into your clinic, they ran from the parking lot, got through traffic, you throw them into the medical assistant work-up booth and you through the blood-pressure cuff on, and their blood pressures high, then that's the pressure that we record.

Of course, it's not their accurate blood. So I always tell people, the doctor, blood, pressure, I take with a grain of salt. You know, you're supposed to sit quietly.

You're suppose to pee and empty your bladder, believe it or not. Your supposed have both feet on the floor, your arms uncrossed, Your arm at heart level, like all these things that none of us do at any doctor's office and so our

blood pressures are often wrong.

And then the other thing that patients need to do is periodically calibrate their blood pressure cuffs, meaning they need bring it in and either have it tested against what someone can hear or a medical grade calibrated blood-pressure cuff.

So once you get all that out of the way, then you're like, okay, does this person actually have high blood pressure or not? And then what do we do about it?

The truth is, most of high-blood pressure, we don't fully understand why people develop it, right? We call it essential hypertension, which is a weird thing to call.

It's certainly not an essential thing. And it's really not something that anyone wants to have. Most of it is what we call idiopathic. We don' always know why.

But what we are learning is that as people get heavier, as their lifestyle gets more sedentary, and as they have untreated sleep apnea, untrated diabetes or undertreated diabetes, their blood pressure tends to go up and their cardiovascular risk goes up.

And these are all sort of interconnected in every way possible. So when we treat blood-pressure, we often will start actually the guideline-directed therapy for all comers is typically a drug like chlorothaladone, which is in the same class of drugs like hydrochlorothiazide, although chlorthalidone happens to be three times more potent.

And very effective, although there is a slightly increased risk of diabetes with using it in hypokalemia, hyponatremia can occur. So you have to always monitor for that, but that said, it's a very effected drug.

And then from there, we go into the various classes of ACEs and ARBs, and calcium channel blockers and beta blocker and all the other things. But in general.

You know, the goal is to hit multiple pathways to control blood pressure. And so that's a really important concept because it used to be, and for generations ago, on the people who train me, right, you would start one drug and then maximize it to the maximum possible dose, then you add another drug.

Now, we sort of do a little smattering of this and a smuttering of that, to try to get all the different pathways at once, which is much more effective.

That said, what is the most effective antihypertensive? It's probably exercise and diet together. And so what does that mean? Well, it turns out that if you can get 30 minutes of breathlessness in every day, this is an amazing effect at lowering blood pressure.

For those of you that really want to geek out on this, as you probably know, if start exercising, your blood will actually go up for a bit. Then when you stop, actually comes down lower than when started.

That's the effect we're really after. So 30 minutes a day there. The other thing that most people don't realize is we consume far too much salt. So salt used to be incredibly scarce in the diet and now it's incredibly prevalent in their diet.

And so we are quite avid as human beings for salt because it was so scarce. And animals do this too, right? Salt is scarce in an animal-based diet, if you're a deer, you are eating grass or whatever it is, You would go find a salty rock or a salt lake and get salt in your diet.

And if they had chips on every corner, they would just eat that, which is what Americans do. So that said, salt content, and believe it or not, Salt hides in everything.

For those of our listeners that may still eat meat, poultry, for instance, is one of the number one sources of salt on

the American diet and that's even before it leaves the grocery store.

So, salt is an amazing component. And then the other part of it is, there's something quite magical about eating plants. It could be the potassium content, it could the naturally occurring nitrate content of many green leafy vegetables and beets and other things like that, but they all have factors that seem to relax blood vessels and keep blood pressure low and improve vascular health.

That's really where the magic is. So how many times have I had a patient call me up and say, You put me in all these great medicines. I changed my lifestyle because I actually thought what you said made a lot of sense and now my blood pressure is 90 and I can barely get out of the chair.

And I'm like, great, let's get you off of these blood-pressure pills. So I would say that, you know, there are certainly people out there who have, and there's a more of an emerging epidemic of this hyperaldosterone and some more people respond to spirtolactone.

A lot that also has to do with lifestyle, but there're lots of reasons for people to have high blood pressures. But I think it really, really responds to lifestyle probably more than almost any other disease.

I like how you're saying you need to hit multiple systems at once. And that's kind of how we've changed our principles of treatment with medications. But maybe that also kind to go to the next questions.

How do whole plant-based foods contribute to stabilizing blood pressure levels? And are there any specific foods or nutrients that have been shown to be particularly beneficial?

Yeah, so a great question. So you probably are familiar with the portfolio diet and DASH diet, right? The portfolio was one of the very first medically tested plant-based diets and the DAS diet dietary approaches the stopping hypertension.

And if they're not fully plant based, they are mostly plants, whole and unprocessed with limited added salts, highly effective in lowering blood pressure for a variety of reasons, as you mentioned.

We already know that's the case. But it also turns out that many athletes, as you may know, are sort of doping, if you will, with beets and beet greens these days.

And they're surprisingly effective with no drug effect, right? Which is pretty great. The only thing beats might do is turn your urine in stool red, which can be scary for some.

But in general, very effective. In fact, there was a study several years ago that showed that the equivalent of roughly a can, so 250 cc's of beet juice a day, can lower your blood pressure as well or better than many of the pills we commonly use.

So beets are a great thing, greens are great things, potassium rich fruits and vegetables are an amazing thing. And there's really not one superfood, if you will, that I say, oh, this is what's going to lower your blood pressure.

But when you cut out junk, when cut our processed food, you know, all of the highly ultra processed foods we eat, it works great. But I should I would be remiss to not tell about sort of lifestyle factors beyond food, which I know you're going to get into.

But stress is an incredibly important thing, right? And I knew you were probably going ask me about this, but maybe I'll jump. You know, the medical word for high blood pressure, of course, is hyper tension, right?

Too much tension. And there really is something to be said for that, we all notice like if you almost get into a car accident or you watch a scary movie, or do you get in to a fight with your significant other or whatever it is, you can feel your blood pressure rise.

Some people turn beet red, because their blood pressures are so high. So, these things really do happen. We live in a maxed out stress world. Is there a way to get rid of stress?

And the answer is definitely. Will that contribute for sure? No, that's exactly right. So I was definitely going to speak to stress. Are there any particular evidence-based strategies for stress reduction that can contribute to an improved blood pressure?

Yeah, so you'll get a kick out of this. You probably already know this, but there are the so-called type A or type one personalities, which most of us doctors are.

Turns out that that actually puts us at risk for a variety of cardiovascular conditions. So, you know, figuring out how to de-stress by any mechanism.

But I would tell you is actually more recently things like yoga and other mindful meditation approaches are very effective at lowering blood pressure.

Simply focusing on your breathing, whether you call that yoga or focusing your on breathing also works. And then in many parts of the world they do really interesting things, right?

They go for hikes or in Japan they call it forest bathing, where they go out in the woods and it actually works to keep their blood pressure down and so forth.

So I guess what I would say is yes, I think there's a lot of things out there that can certainly lower blood-pressure, physical activity being a key one, diet, and then of course some form of stress relief or mindfulness is a really powerful approach.

Um, you know, there hasn't been a lot of randomized control trials here because you can imagine it's difficult to tease out all the different things, right?

So for instance, some of my patients say, well, I find myself most mindful when I'm at church or synagogue or mosque or whatever it may be. You know we haven't thrown blood pressure cuffs on people while they're in, intense prayer and whatever, although we probably could, that would be a neat study and see what happens.

You know, so anyway, bottom line is I think there's a lot out there and a lots emerging, but it appears that getting rid of stress or turning disease into ease really seems to do wonders for people's blood pressure.

No, I think that's great. Just a real quick story. I had a patient who had elevated blood pressure. Like, he was like close to 140, was close 90 diastolicly.

And what was interesting is she had lot of anxiety. So we just had to do the four, seven, eight breathing. It's basically four repetitions of breathing in over four holding your breath for seven and releasing over eight.

And her blood pressure, and I checked it with my ears, it wasn't any type of electronic blood-pressure cuff. It dropped 15 points systolicly, literally in a matter of minutes.

So I think it really speaks to the importance of being mindful in how we're responding to stress. Because we'll see stress, but how are we responding?

The mindset. And actually a lot of that breathing that you talk about is some of the cornerstones of many of different mindful techniques. Listeners that are interested, there's this wonderful institute you may have heard of called the Art of Living Institute and they offer a variety of meditation classes that actually designed for doctors in many cases to help with burnout and resiliency.

And some of their breathing techniques are very, very similar to that and it's pretty effective at getting rid of stress. So anyway, food for thought, if you're looking for some outlets, do that.

And then I would also say there are many religions that are quite welcoming to outsiders that would encourage you to visit to learn mindfulness by various parts of our country that I wouldn't encourage people to check out.

Buddhism and Hare Krishna and a handful of others all incorporate many of these. It's really interesting and unique to hear about this. Many of them actually practice plant-based diets as part of their beliefs, which is pretty neat.

Yeah. Well, one of the blue zones right here in California, Loma Linda is 70 Adventist and mostly vegetarian vegan. Absolutely. And so another question I think is really interesting is can you explain the role of sodium and potassium in blood pressure regulation and the importance of their balance?

Because I do know that, you know, consuming maybe soy-based miso, even though it gives you that little bit of salt, is less likely to raise blood I'd love to hear your explanation of that, please.

Yeah, so I don't know if there's a clear set of guidelines here or this is what the experts all say. So what I would say is this, salt is salt. And in theory, if you consume salt, be it potassium chloride, sodium chloride magnesium chloride which most people don's it's really road salt but and so is potassium for that matter.

But, you know, they all in the theory can raise blood pressure via oncotic mechanisms and a number of other things. What seems to be the case is that things that are higher in potassium seem to lower blood pressure and the mechanisms behind that I don't think are entirely clear.

So what I usually tell people is, that you probably don' ever need to add salt to your food and of course it tastes good, we all get that. And then the things occur naturally in your fruits and vegetables will probably lower your blood pressures better than anything.

So I'm not sure there's an exact balance and I think you're right that some of the fermented soy and other soy products, miso, et cetera, which are quite tasty and maybe more naturally salty by virtue of their production, don't seem to have the same potency as, say, eating a bag of chips or a hot dog or something like that.

So I think there is a variety of factors at play, and it would be hard to say, well, how do you know it's not the soy and all of its antioxidants playing a role?

And how you do know that it is not this? So, I guess what I would say is, do your best. If it comes from a package, try not to eat it. The thing I often say to my patients is the longer the shelf life, the shorter your life.

And if they can get to a place where they're eating a predominant produce-rich, minimally processed diet, great. And then when it comes to things like miso paste, use them sparingly, right?

They come in these little teeny tiny tins because they should be used sparringly. They're really tasty and they can be yummy and feel free to do it, just don't overdo it.

And there are people amongst us, and you probably know many of these people, that if they go off for a salty meal, they cant get their rings off or their bracelets get too tight or they're socks get so deep in you can't see them in their calves anymore.

So those types of people might have to be extra careful of salt, their very salt sensitive. And why they're salt sensitive, I don't know. It may be genetic, it may something else altogether.

I wish I could just tell you. But I would say that there's not an easy, clear set of guidelines about how much sodium versus potassium, but what it turns out is more potassium seems to be beneficial.

Absolutely. Well, just kind of segueing into the salt, can you explain the salting mechanisms and what actually, how that drives the blood pressure up?

Because you gave a little hint of it, but yeah. Yeah, so I don't claim to be a nephrologist. They're much more

cerebral than I could probably ever be.

And that's really the people that might know the answer. If you haven't had a chance to speak with Dr. Joshi yet, he's pretty smart and probably could give you a much better answer than could.

But when we consume salt and water stick together just to keep it simple. And so salt and water stick together and that sort of sodium chloride solution, if you will, often can stay in the blood vessels and raise blood pressure.

And what it's really doing behind the scenes is it triggering your body to produce a whole bunch of chemicals like renin and aldosterone and angiotensin, and all these things that we now have drugs for that block that effect to raise the pressure or lower blood-pressure depending on what's going on.

Most of these mechanisms are actually adaptive, right? They're designed like if were to become acutely hypovolemic, like you were bleed to death or something.

Your body would constrict down as a result of all these different things being released in an effort to keep your blood pressure up and keep you mind perfused.

And so in a modern society where we are, you know, typically not bleeding out, although I guess it happens, when you eat a lot of salt, it triggers all sorts of mechanisms that contribute to blood-pressure elevation.

Part of that is also to help push the salt back out into your urine, right? So that you can excrete the And then when it becomes chronic, it starts to become much more disarrayed.

So that's my overly simplistic cardiology answer. I don't know if that was in line with what you were thinking, but… No, I think that is fine. Yeah, just speaks to bringing in more fluid into the vessels, hardening the arteries, that basic salt.

And I didn't talk much about the harding of the artery, right? So a lot of people, if you go to probably your and my parents' generation, you know, when they would forget things as they were older, they'd say, oh, the heartening of arteries.

And there actually was probably some truth to that, right? So hardening of the arteries is simply atherosclerosis or calcification of athroscleroses, which is a marker of coronary disease, cerebrovascular disease whatever it may be.

And as we eat junk and we don't exercise, aterosclarosis becomes more prevalent and our blood vessels lose their elasticity and suppleness. They also don t respond well to things like nitric oxide and all these other things that relax blood vessel.

And so there's a whole variety of mechanisms that as we start to eat poorly, if we develop diabetes, for instance, it impairs all sorts of endothelial function, which are the cells that lie in the blood vessels.

And we end up with the inability to significantly dilate our blood vessel when we might need to. So you can imagine that if you have very stiff blood muscles and you eat a lot of salt and water, that that pressure has nowhere to go except to raise the pressure on the vessel.

You know, it's funny, many of my patients that I see, typically the men who come in later in life and they have erectile dysfunction, I always screen them for ankle brachial indices, which is a blood pressure on the arm compared to the leg.

And many times the blood from the legs is so much higher than the arms. We're of course looking for the opposite lower. All that means is the block vessel has become non-compressible or nearly non compressible.

You can't really tell if there are significant blockages in there that way. So anyway, very interesting stuff. The more you look, the more find these things.

Yeah, that's true. The more you look, the more find for absolutely, which brings me to the conclusion, at least to this part of our conversation, but I want to say thank you to for the audience for joining us today.

And I hope you found our conversations insightful and inspiring and engaging. But if you're a summit purchaser, stay right here. We are going to dive in a little bit deeper into this conversation.

If not, you can click on the button below and get to decide or access the deeper conversations. So Dr. Freeman, I have a question regarding a few different things at home and maybe some resistant hypertension, but could you discuss the importance of launching blood pressure at Yeah, so if you are somebody who is suffering from hypertension, and especially if your trying to change your lifestyle, what I want to point out is it's very important to get that blood pressure under control as quickly as possible.

And though this may sound strange to some of your listeners, but my suggestion, when I do, is I have my patients come back weekly for medication titration to their blood under pressure control, usually in under a month.

And then from there, I always tell people you have to kind of put out the fire before you can plant flowers. Planting the flowers is changing your lifestyle and then getting off of these meds.

So a lot of people think that when they get a medicine, it's permanent. And for many it is. But for people who are willing to make these massive lifestyle changes, they can get off their pills, which is really, really awesome when the do it.

In general, when I first see a patient, we used to prescribe these things called ambulatory blood pressure monitors. I don't know if you had any experience with these.

And then they were largely denied by insurance and in order to get it now you have to like prove all these crazy things. So what I usually tell people to do is to go onto a website called validatebp.org and find a blood pressure cuff that they like.

They're usually around 50 bucks. Some of the good ones are from like Omron, O-M-R-O-N and others. And get a good blood-pressure cuff and then I want them to spot check.

So one of the things that I actually hate the most is when a patient will come in and they have checked their blood pressure for six years at seven o'clock in the morning every day.

And then they tell me their pressure at 7 o clock in morning is always normal. So you really wanna spot check and do it randomly. So when you're first diagnosed with high blood pressure, it makes sense to spot-check three, four, five, whatever you have time for, or five times a day.

The ambulatory blood-pressure monitors we used to use would check every 30 minutes or an hour, depending on how we had them set. We got a lot of data and we could figure out what was going on.

Interestingly, we often found that people had nocturnal hypertension, which would often be an indicator of sleep apnea, Which is also highly associated with daytime hypertension.

So, nevertheless, I recommend people check it three or four times a day, randomly throughout the day and kind of get a running average. Now, remember, you don't have to call your doctor if your blood pressure hits 140 once, right?

So if you're watching a scary movie or you get into a car accident or something like that and you decide to check your pressure, it might be high. That's okay, blood-pressure is an adaptive mechanism to keep you alive or safe or flight or whatever it is.

But at the same point, if it's staying, and usually I tell people over 130 is normally our action threshold, even though we want blood pressure lower, to give your doctor a call to get that under control more quickly.

And so typically we'll have weekly visits where we adjust meds and check blood work and adjust Meds, until we get it under controlled. So the bottom line is, Be aggressive with your doctor.

Remember that your Dr, your nurse practitioner, or your PA, whoever it is, works for you. And you want them to be aggressive, with you care to keep you out of harm's way.

If you're not finding that, take it as your own hands, right? So check your blood pressure and say, Dr. Smith, my blood pressures been running 138 every time I check it and I need you to make an adjustment in my medications while I change my lifestyle.

Very reasonable. Perfect. Yeah. And I also like to say, you know, make sure you're checking at least once without medications, because that'll give me an indication how you are outside of medications.

Right? So if you take medications and it gets low, we'll kind of get an idea. Do we just need to slightly titrate or take you off completely? That's always really helpful too.

I do that one just a little bit differently only because some of the medications have longer half lives. So I wait until they get closer to like 110 most of time, and then I'll back off the drug.

Yeah, absolutely. Yeah. Absolutely. Especially if they're symptomatic at all, standing, getting dizzy upon standing or they had great energy and now they are super fatigued.

And then also, you know, kind of speaking to people who are improving their health, if there's others in the home that are also on high blood pressure medications, please convey this information to them because they actually might also be finding some benefit.

I call it positive collateral damage. So… Yeah, exactly. Exactly. So share the information, but getting to a little bit more tougher cases for those with resistant hypertension, which doesn't seem to respond to like to common interventions.

What advanced strategies or treatments might be considered or reasons why that's happening? Yeah, so resistant hypertension, and it depends on which definition you like.

Most people would say that they're usually on four or more drugs, usually one of them a loop diuretic. So I would tell you that sadly, a lot of those cases that I see are not on looped diurestics.

And those are pyrosamide or torsamide, or bumetanum, whatever your favorite is. So a lot of those are aiming to get rid of that extra salt and water. For those of you that are on a loop diuretic and it is not working, first, most of them are threshold drugs.

Meaning that if you take furosemide at 20 and doesn't make you pee much more and you don't have a major effect on your blood pressure, you might need to double the dose because your body has gotten used to it.

Some people would refer to that as tachyphylaxis. So that's one. Two is, a lot of people, they take a water pill, and this is like the bane of my existence, is they get thirsty and then they drink a lotta water and they eat a lotta salt and completely defeat the pill.

And I always tell people that if you remember that Seinfeld episode with the soup Nazi, he said, no soup for you, soup is truly the antidote to a watercolor, it's saltwater.

So I usually tell the people no-soup-for-you and be wary of hidden salt in a variety of things you never think of as salty. Once you exclude that, then you typically have to try to get somebody on a drug like spironolactone because many people do respond and you don't have do all the formal testing for hyperaldo and all these other things, but you can.

And then after that I typically will reach for less commonly used drugs. You know, believe it or not, things like minoxidil or clonidine or whatever, which I don' love using for one reason or another.

won't bore all your listeners unless you really want to know those details. And then I hesitate to reach out to either an endocrinologist or a nephrologist for them to weigh in with us because many of these advanced cases of refractory hypertension have some underlying endocrine issue or nefrology kidney issue.

Nephologists are a surprisingly beneficial entity when it comes to managing resistant hypertension. So use them well. And then most importantly is many people are not necessarily doing a lot of lifestyle coaching.

Many of the patients that I see, I'm the first one that ever talks to them about their diet or their exercise or sleep apnea or stress. And I would tell you, gosh, how many times have I had a case of, quote, refractory hypertension where the spouse says, you know, Joe snores like he could wake up the whole neighborhood and we sent him for a sleep study and lo and behold, he has rip roaring sleep apnea.

We treated him and all of a sudden his blood pressure is normal. Or Joe starts exercising and loses as little as 3% of his body weight, blood pressure can drop.

So there's so many amazing lifestyle things that people are never told for one reason or another that are effective and sometimes really effective. That's exactly right.

So lots of conversations that should continue on maybe with a specialist or cardiologist like yourself makes perfect sense. I think the final question would be great with the focus on a plant-based diet.

How can individuals ensure they're getting all the necessary nutrients while also working on improving their blood pressure? Are there specific food categories that you would highlight over others?

Yeah, so first, a lot of docs out there are in the habit of giving out supplements on their first visit in large quantities. And many of those doctors actually sell the supplements, which you can imagine has its own conflict of interest, and sometimes they need them, right?

So that's great, but sometimes not. And remember that eons and eions of human beings survived without vitamins and whatnot. So we have clearly made it this far without, and now people are eating poorly.

If you eat a grain that has been stripped of all of its nutrients through bleaching and processing and whatever, you're going to be nutrient deficient.

But I would say that first of, if you a well-balanced diet, which means that you are all the colors of the rainbow. You're eating whole grains for starches and energy and so forth.

The likelihood of a deficiency in anything is really low. The only thing you might become deficient in is B12. And that typically can be gotten either through nutrition or brewers yeast, if you like that on your food or through a multivitamin.

Most of us that live, you know, Colorado and above and other parts, maybe vitamin D deficients. You can get a lot of that from mushrooms that are grown in the sun as precursors and then some sun exposure yourself and if not a supplement.

And then there are some people out there who might have DHA, EPA deficiencies. This is pretty controversial on how they may represent and show up in the clinic.

But if you eat an occasional walnut or ground flax seed or something like that, or if want, you can take algal oil, which is where your fish get their fish oil from, right?

Or just eat algae if your prefer, but you've got to eat a lot of it. Our bodies are not that efficient at making that but

they're efficient enough that they can do it, so in general, I think you can do fine.

You know, me personally, I've been plant-based for, more than a dozen years. If I remember to take a multivitamin once in a while, i'm proud of myself, but in general, usually eat well enough that I don't need it.

I usually try to take B12 a couple times a month. As you may know, the pill that you all will take is something like 10,000% of your RDA, your recommended daily allowance.

And that's because it's not absorbed all that well. So do take that from time to time if you can. But I think in general, you probably won't go nutritionally deplete in any way, right?

So one of the things that has been told for years is, oh, if your kids grow up vegan, they're going to grow these little pinheads and be, you know, mentally slow and unathletic.

And the truth is that's all been disproven. In today's massive childhood obesity epidemic, we really should all be going plant-based for our children's sake, as it is.

But of course, the American curse is you grow your whole life, save your money, retire, and then you look forward to heart attacks, strokes, dementia.

We should be doing this early in life anyway. That said, I think if you eat a well-balanced diet, the likelihood of nutritional deficiencies are low. If you're worried about it, they make a variety of multivitamins designed for vegans.

There's one out of Boulder and a handful of others that are out there. You know, are surprisingly effective and can help you maintain it. But you know there's a lot of people out there who are going for those dried fruit and vegetable powder pills.

And I just tell people to eat the fruits and vegetables, right? It works. It's tastier, it's filling. You can't feel full on a little pill full of dry powder.

So that water weight that you eat with the foods and the vegetables really helps to keep people going. Long-winded answer is saying you don't usually need supplements, but there are some occasions or special cases where you might.

Absolutely. So again, it goes to fruits, vegetables, beans, legumes, whole grains, and nuts and seeds, in looking for a variety of colors in a varieties of plants throughout a week.

I think that's fabulous, absolutely. Just to make sure the audience is comfortable, one last point is you don't have to eat like beans and rice together.

That's all been proven. And so I just want people to know that if you have beans today and rise tomorrow, you'll be just fine. Yeah, and actually, all plants have actually all the elements of all amino acids.

It's just in varying amounts. That's why you want to eat different foods as well. So really interesting research coming from Stanford on that. But again, thank you so much, Dr.

Freeman. I keep wanting to call you Andy. Trying to be your friend later, Doctor Freeman, And we appreciate your valuable service to our community as a cardiologist.

And thank for being on the summit. My pleasure. Its been a lot of fun. Absolutely. 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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