No Time To Die: How To Assess The Health Of Your Arteries Transcript

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Introduction and Guest Background

This is Doctor Talks, real talk from real doctors on the issues that matter to you most. Hello, everyone. Welcome back to another fantastic episode inside of the Heart Attack and Stroke Prevention Summit.

And I've got a fellow cardiologist here with me today. His name is Michael Twyman. He's a medical doctor out of the St. Louis area and he's a cardiologist.

He's a heart attack prevention expert and the founder of Apollo cardiology is his company. He's also a decorated veteran. He served as a medical core physician in the Navy and was appointed department head of internal medicine.

at Naval Hospital, Beaufort, while simultaneously earning his MBA. Pretty impressive to do both those things. Following his military career, he continued on a path in cardiovascular medicine, which led him back to his hometown of St.

Louis. And so he, like me, he worked in the hospitals, you know, for several years. And then eventually he would start his own integrative cardiovascular medicine practice, conventional and functional medicine to get to the root cause of cardiovascular issues.

You will see that he is wearing blue blocker glasses on his interview today. So we'll dive into that as well. Dr. Twyman has appeared on national stages, podcasts, and on some pretty big interviews as well.

So again, Dr. Michael Twyman, welcome to the Heart Attack and Stroke Prevention Summit. Thank you for having me here today. This is going to be a lot of fun.

All right, sounds good. So listen, if I tell me, tell me where the medical community are, our brothers and sisters in the conventional cardiology realm, where are they going wrong with heart attack and stroke prevention?

It's just not their area of focus. I mean, you were in the cath lab and you know that, you know, you're there to kind of pick up the Humpty Dumpty's who are completely broken and it's very rewarding to save people's lives, but unfortunately you don't get to save them all.

And I think, as you understand, you have to reverse engineer. How do you get this far down the pathway? You've got to go way upstream to figure out, well, how do you stop it?

And that's where we start getting into ideas of, well, how healthy is the endothelium, the glycocalyx, and things that we were never taught in our fellowship.

And most our colleagues still don't even know about those topics. So you mentioned a couple of things. You mentioned the endothelium and the glycocalyx.

Endothelium, Glycocalyx, and Vascular Protection

So let's talk about, we can talk about them together since they are obviously attached and intimately intertwined. So what is the endothelium? What is the glycocalyx and why are these areas so important as it relates to heart attack and stroke prevention?

As a combination, I call them kind of the force field for your vascular system. You have reportedly nearly 60,000 miles of blood vessels lining the arteries or something called the endothelium and it's one cell thick.

I've been told that if you took out all your endothelium, it'd be the surface area of six tennis courts. That's one of your largest organs that you don't know that you have.

I think I first learned about this back in like 2013, 2014, but in the past few years, it was understood that there's a layer that sits above the endothelium called the endothelial glycocalyx.

And I tell my patients, think of like a fish coming out of water and it's got slime on it. That's essentially what the glycocalyx says. It's a gel coat that lines your endothelial lining.

And there's hundreds of things that could damage this gel coat, you know, oxy of stress, inflammation, heavy metals, infections, high glucose, many, many things.

But once the glycocalyx gets disrupted, then that underlying endothelium, if it starts getting impaired, you may be off to the races of developing vascular disease.

So I love that analogy as like the outside of a fish. And because I tell people that, you know, nothing sticks to the outside of a fish. So if you make the inside of your blood vessels, like the outside of a fish, you're going to prevent a lot of heart attacks and strokes most, most certainly.

So the endothelium you said is that one cell layer thick that lines all of the blood vessels. And obviously it is, is very voluminous as far as what the reach of that is.

The endothelium, what are the strategies to make the endothelium and that glycocalyx? Let's dive into one of the most important foods you think that would really help in that area.

The name of the game is optimizing your nitric oxide for that structure. Nitric oxide is a short-lived gas that dilates the arteries, but also it helps prevent things from sticking to the arteries to begin with, and endothelium releases the nitric oxide.

There's other pathways, but this is the main pathway most people have up to about the age of 40. And, you know, the first kind of rule is like always trying to find the insults that are breaking those pathways and try to remove those first.

You know, the person smoking, obviously stop smoking. If they have insulin resistance, attack that first. But if you've done the kind of the low hanging fruit and they're still having issues with their nitric oxide pathways, there's various lozenges and capsules that can boost nitric oxide.

And then there's products that help support the glycocalyx as well. And what do you think about things like beetroot powder, for example, that would be kind of the classic examples of a food-based nitrate, maybe some of the other green leafy vegetables.

Do you find that to be effective? And then if you find it to be effective, how do you measure the level of success? Is it with blood pressure or using other tests?

Yeah, the general rule for most people is, you know, if your blood pressure is greater than 120 over 80 at home, start looking to why you might not have optimal nitric oxide levels.

And as you mentioned, you know, beads, green leafy vegetables, the arugula, the spinach, the kale, they all have nitrates in them. And if you have a healthy oral microbiome, the oral microbiome may break those nitrates down to compounds that eventually become nitric oxide in your stomach.

But many people have poor oral health, or they're just not getting a nitrate rich diet. And I take care of a lot of people who are on a carnivore diet or keto diet, and they're just not eating those food stuffs.

But the other challenge is that, you know, what is the soil quality that these foods are grown in? And most people

want to, you know, eat organic to avoid, you know, glyphosate and other things that you don't want to get in, you know, conventionally grown foods.

Nitric Oxide, Diet, and Testing

But the organic foods have less nitrates in them because they can't add nitrogen fertilizer to the soil. So sometimes it's very hard to get enough nitrate-rich food if you're eating an organic diet.

Well, you're not going to get me out of eating organic diet so that we load it up with synthetic nitrogen sources. I know you're not proposing that either, obviously.

As it relates to, you know, you mentioned carnivore and I know you've been interviewed and been, you know, around, you know, people like Paul Saladino, maybe Sean Baker, some of these famous carnivore people.

Um, and, you know, Saladino has kind of gone off carnivore. He's kind of, he'll call himself animal based. I mean, personally, I'm a paleo guy. That is my book, right?

You know, so it's like, we are hunter foragers. We eat the animal products, we eat the seafood, but we also, you know, forage, you know, for vegetables and fruits.

And that is the optimal strategy. But I think the carnivore people would probably say that, well, they're getting in lots of amino acids, right? The L-Arginines.

that would lead to conversion through nitric oxide synthase to open up those blood vessels as well. And therefore as a vasodilator by producing nitric oxide through that sister pathway.

And I think it really highlights how important nitric oxide is, right? Cause nature gives us so many different ways to make it. Exactly right. And yeah.

Yeah, I tell patients, yeah, I'm not going to judge them based off of their dietary patterns, but you have to assess what's going on with their vascular system.

So, you know, I've seen some patients do very well on carnivore diets. I've seen people have very severe vascular disease on it. And you're talking about, if you're going to stay on that pattern, you know, you're going to have to, you know, optimize things that boost nitric oxide, or you're going to have to consider pharmaceutical agents at times if you really aren't going to change your diet.

So really test don't guess like anything, right? It's like, it's again, you know, all of us can all talk about what we believe are the best strategies, but you got to get objective about it.

You got to look at the nitric oxide testing. Are you a fan of the nitric oxide salivary test strips? Yes. And there's a couple of different vendors that make them.

I usually have kind of a bias is that like if you've done them and you get the kind of the bright red, you know, colors on the salary test strip and kind of like it's like litmus paper puts live on if it's white, you don't make good nitric oxide from that pathway.

If it's bright red, you're doing a good job. But I have seen a few people who've never had a positive. And they have good other markers of nitric oxide, endopath scans, vascular activity testing, blood pressure's normal.

But that salivary pathway is always low. And I think it's probably just their oral microbiome isn't optimized yet. And there's companies that are coming out with different type of probiotic gums and such that might help improve that pathway eventually.

So I think it's really useful for people who've had normal levels and they see it go low. Often that's something that

they're not getting enough nitrates into their diet, or they've done something to disrupt their oral microbiome.

They're getting a lot of fluoride in the water. you know, using Listerine scope, something that disrupts it. Those people are useful, but if they're always low, I don't get too concerned if all the other kinds of metrics are normal.

Okay. So we talked about a couple of different ways we can boost nitric oxide with the idea of opening up blood vessels, as you mentioned, decrease clotting.

And when you open up blood vessels, decrease clotting, you're likely to have less heart attacks and strokes, which is the objective that we're talking about here.

But when you look at this third way that I love to talk about increasing nitric oxide levels, and that is with sunshine exposure on your skin, on your solar panel.

Talk about that a little bit. So that's honestly where I ended up starting with most patients. Yeah. They're coming to me because they have quote high cholesterol.

They have a family history and they wanted to get screened. Like we're going to do that, but we're going to talk about circling biology and that your body is solar powered, you know, just because you think you can live inside under technology's rules.

Doesn't mean your biology is designed for that. And so, yeah, I love that you're starting with that. So UVA spectrum of light, which is generally present in your atmosphere when the sun is above 10 degrees in the horizon.

It's also kind of like when your skin starts feeling warm when the sun's hitting it. That wavelength of light interacts with your skin and liberates nitric oxide from the dermal pools.

So people who avoid the sun tend to have higher blood pressures because they lack nitric oxide through that pathway. And the, the conversion and I was, I guess at this moment, we can also talk about, cause I love this thing where, you know, elevated cholesterol is a sunshine deficiency in the sense that, well, you know, the sunlight UVB hits cholesterol coursing through the skin turns it into vitamin D.

Everyone knows vitamin D is good. Vitamin D levels go up. Total cholesterol levels go down, which I think is very exciting in that area. Listen, you went through a lot of medical training.

You went through the same cardiology training that I did. How often in your training did they talk about the benefits of sunlight as it relates to cardiovascular disease?

I think never. I don't think a fellow ever sees the sunlight. Let me ask you this. Well, not only do we never see the sunlight, that's for sure. Especially I mean, because, you know, because I trained in Chicago, you know, for sure I never did.

What would happen to guys like us or other cardiology fellows who would attempt to talk about nutrition and lifestyle? How do you think, how do you think our colleagues would have handled that conversation?

Say if you're lucky, they just ignored you. Otherwise you got ridiculed. You know, you weren't a part of the herd and they would try to ostracize you.

Sunlight, Light Exposure, and Circadian Health

Yeah, I mean, you're a military guy. And I mean, I'll just kind of say, it's almost like I can remember back when I was a member of the fraternity house, you know, an undergrad at University of Illinois.

You know, it's almost like you'd get hazed if you talked about something that was not related to pharma or some kind of procedure, really. It just happens to be where the excitement was at the time.

And that's really obviously a condemnation of what we're doing there. Talk about light. As it relates to the endothelium, the glycocalyx, and maybe touch on the exclusion zone.

You and I have not talked about exclusion zone before, but obviously, you know, Jack Cruz, I think I first heard about it through Jack. As it relates to, you know, you know, the work of, you know, Gerald Pollock and the fourth phase of water and stuff like that.

But, and again, I mean, you and I are just diving into the stuff. It's really just common sense things, right? And we're just talking about, well, good sunshine.

Well, that makes common sense. You know, all of our ancestors were on the sun. So maybe talk about that area, you know, more about the glycocalyx and really dive into the exclusion zone and what it means to get light and how that helps prevent heart attacks and strokes.

So the glycocalyx is heavily full of this easy water, or coherent domains is the other synonym for it. And again, think of it like outside of a fish. It's a slime gel layer.

If that gel layer gets damaged, then things are going to start sticking to the glycocalyx. The glycocalyx is heavily negatively charged. That's part of what happens with the coherent domains is the electrons and protons separate in the presence of infrared light.

So the sun, from sun up to sun down, there's infrared light. That's when your skin is feeling warm. Evie light also basically expands the coherent domains and so think of water is a battery in your system.

That's potential energy. If it's charged up by the right wavelengths of life, if your glycocalyx is charged up, it's going to repel the lipoproteins from sticking to the arteries is going to repel the white blood cells from sticking to the arteries.

And so I tell patients, think of it like a maglev train. If your glycocalyx is super healthy, everything going by just slides on by. But if a glycocalyx is dehydrated, then more protons are basically exposed.

That's kind of like Velcro, and things are attracted to that. And then you start getting things where it starts sticking to the endothelium, getting retained in underlying intima, and then inflammation and the plaques start to build.

So the health of the glycocalyx in the underlying endothelium is paramount to vascular health. And what do you think about sleep? Sleep is, you know, cause we talked about, uh, you know, some of the best foods we talk.

Actually, before we hit that, is there, are there any other sulfur rich foods? We know that the glycocalyx, the endothelium, it's a very sulfur rich, a lot of sulfates that are there, heparan sulfates.

glucosamine, sulfate, things like that, that are very beneficial in that area. What other sulfur foods do you recommend? And then we can maybe talk about sleep as kind of like this third major factor.

I mean, garlic's one of the main ones I would think about. You know, I suspect that's the main way that the Kylo-Age garlic helps stabilize plaques is it's donating these sulfur units to that, you know, coherent domains.

So always those things are then, yeah, and then there's the broccolis and other things that are high in sulfur. It's always a good kind of starting point for some people.

And what about eggs? Of course, eggs, you know, the egg smell, right? But didn't they tell us eggs are bad? Yeah, dietary cholesterol has very little to do with the cholesterol that you see in your serum.

So yeah, I personally have like five eggs almost every single day. So I'm not too concerned about it. I'm a huge egg fan as well. Most certainly asleep, you know, cause I know your big circadian rhythm guys.

So, I mean, obviously people are going very wrong here. They're going to sleep way too late. They're in the artificial light. I mean, it's, it's a, it's a lot that we have to discuss with people, but it really is common sense things.

Our ancestors went to sleep. When it got dark and they woke up right before the, you know, before the light came up and, and that simplicity, although it's, uh, it's, it's simple in theory, it may be difficult in the 21st century, you know, in your home, you know, your hometown, you know, you know, St.

Louis and, and me, you know, coming from, you know, Chicago, we personally, we are, as we speak right now, I am essentially outdoors with all windows open in the mountains of Costa Rica, uh, trying to live that appropriate lifestyle, which, which is definitely the healthiest, but what role is sleep?

play, let's just say what role does sleep play in heart attack and stroke prevention? I think it's a very large pillar of health. I mean, most people are gonna focus on their nutrition exercise and they're important, but if you neglect the sleep, it's almost like it doesn't matter how much you exercise or what your nutrition is.

I'll throw the question back to you. How much did they talk about sleep during your cardiovascular training? Or how much sleep did you get when you were doing Q3 call in the hospital?

Very little. So you have to lead by example eventually. And that's kind of what happened to myself. I didn't purposely sleep poorly for years, but you're put in those situations.

But eventually when you realize how important light is to your overall biology, Your sleep is one of the things you're going to start to prioritize. And so if you get your light right, almost all this other stuff goes right.

And so I tell patients just like you do is like, it's easy to talk about it. It may be hard in your life, but the sicker you are, the more you have to get this right.

Yeah. When you sleep your mitochondria, which I tell patients, they don't think I'm like engines. If you don't sleep well, it's like you've never tuned up your engine.

And then you're going to go out the next day and put in this premium gas. You're eating perfect organic food. You don't cheat. Your engines can't burn that fuel as effectively because you've never changed the spark plugs.

You have to think about sleep is basically almost like when you start your day. So some people, it might benefit them to basically set a reverse alarm.

Set an alarm like, I'm going to bed at nine so that I can have a time to get seven hours of sleep. And if you get your light right, you're almost never going to stay up to midnight.

That's almost impossible. You're going to be tired by that point. So that's the reason that I wear these glasses when I'm ever on a computer is because I don't want my brain to think that it's the wrong time of day.

The sunlight always tells your body what time of day it is.

Sleep, Exercise, and Nervous System Balance

But when you come inside under artificial light, your body basically gets a signal that it's always noon time. And you're going to pump a lot of cortisol then to stay alert and go forage and hunt for food.

You really need that darkness cycle so that melatonin that's been produced during the day starts to get released and helps you sleep. And melatonin is basically the fuel that repairs the mitochondrial damage that happened during the day.

Oh, for sure, melatonin is such a critical, critical hormone, but we want our bodies to make it naturally, right? I mean, not necessarily take it exogenously.

You know, funny story, you get a kick out of, I was talking to a patient some time ago and he was telling me he doesn't go to sleep until 11 o'clock. I said, why aren't you going to sleep?

Like, what are you doing? Like, I know you've got a business, you're very successful. You know, presumably your business day ends at like five or six.

He's like, well, you know, you know, then I eat dinner and then I'm in the sauna and then I'm in the red light bed and then I'm meditating. Like he's doing all these biohacking things, but because of it, he's not getting adequate sleep.

And I said, you're, you're, you're missing it here. I said, I love all the biohack stuff, but you got to get that into, into the normal, you know, part of the day.

That's the best of your ability. Physical activity, nitric oxide production, blood vessel health, heart attack, stroke prevention. Where are you with this kind of physical activity movement, otherwise known by most people as exercise?

So four pillars of health, exercise, nutrition, stress management, and sleep. And you gotta get them all right to have optimal health. Usually you have three out of four, but most people, it's rare that they have all four at the same time.

So exercise, extreme importance, one of the best anti-aging drugs that's out there. And in my office, I have a device called the Endopat, which tests how much nitric oxide your arteries make when there's a vascular stressor.

But I tell patients, this is what happens when you exercise. The blood is going to rush down your glycocalyx. The body gets a signal. Hey, here's a lot of blood.

We got to open up the arteries to get this blood into the muscle so we can get away from the threat, or today, the treadmill, or whatever type of exercise you're doing.

So exercise is one of the best things to stimulate nitric oxide release. Excellent. What about other things like parasympathetic maneuvers? You get into some of this stuff, too, where people talk about gargles, saying hum, that kind of activity which boosts nitric oxide levels.

Yes, I know that's the theoretical. I don't know how well I could have measured in my office. Yeah. I think it's something to add in there. Yeah. If it's definitely relaxing to that person, do it particularly like the humming exercises.

Yeah. I'm a big fan of biofeedback through using heart math. So people got like actual instant feedback that, Hey, their nervous system's out of balance or Hey, things are going pretty well.

Um, but you know, we all face stressors. That's not the problem is that there's the people who kind of get stuck in that fight or flight response and don't understand how to get back into that rest and relaxation response when they need to.

Yeah. And, you know, I don't have any data that would necessarily, you know, directly support this, but, you know, chiropractic care, the chiropractic adjustment influencing the autonomic nervous system through the chiropractic adjustment, I think is another great way to boost up nitric oxide levels.

Again, I don't have any definitive evidence to say that I can kind of string it along indirectly, but. Maybe someday somebody will come up with a study that would show the value there.

And I think also kind of like, one of our pillars that we often talk about is that area of holistic dentistry. And like you said, that teeth and that oral microbiome as it leads to the conversion of.

nitrate into nitrite and then eventually through the acidic stomach, which right. Most people are missing the acidic

stomach. I convert that nitrite into nitric oxide.

What back to the, back to the glycocalyx. There are some supplements that support the glycocalyx and the glycocalyx I like to think of is like this almost like seaweed-like layer on the inside of the blood vessels that's kind of swishing along and it's actually protecting you know, the inside of the blood vessel, you know, here and kind of like, so things are bouncing off.

So it's like the seaweed-like projection. And it's interesting that the product that both you and I use very often is from a unique form of seaweed. So tell us about your thoughts about the product we're mentioning here called our Tiracil.

Correct. And so, you know, one of their things is that it has Ramanan sulfate in it. And we talked about earlier that the glycocalyx has heparin sulfate and chondroitin sulfate.

And so it's basically donating that sulfate to that glycocalyx and trying to regrow it. So I'd love your analogy of the seaweed kind of the floor bed.

I often talk about, think about like, you know, an infection is like a lawnmower that just buzzes it down. And now all of a sudden the glycocalyx is gone.

the products like arterial cell help regrow those kind of seaweed strands and then things start sliding across it again. So I love artericil in that sense of helping to repair the glycocalyx to almost like this, you know, artericil has data, blood pressure reduction.

They also have data on plaque reduction, which is pretty cool, specifically in the carotid arteries. And presumably if it's affecting the carotids in a positive fashion, it's affecting the coronary arteries in a positive fashion.

Have you seen much in the way of changes clinically? In people, I think blood pressure is an easier measurement, but maybe in the form of CIMT or other kind of plaque assessments.

Correct. And that's one of the reasons I really do use a lot of this product, because they have such robust data behind it. And then they talk about what I call them toys, but they're medical devices that they're using these trials.

And I have many of them in my office. So I can test patients when something's abnormal, say, let's do a round of something that boosts nitric oxide and supports the glycolic.

So here's arterial cell. And then a few weeks later, repeat certain part of the test. Usually blood pressure is starting to improve. But one of the quick ones you'll see is the pulse wave velocity.

Our device, we have the Max Pulse, but there's other vendors that make them. You might be able to track it with like an Oura rings. They have that arterial age, which is basically pulse wave velocity.

So if your arteries are more elastic, you're presumably be making more nitric oxide at that point. So I like seeing that. And yes, for sure. We, you know, we assess crotted endometrial thickness, cancer, CMT is on almost every patient yearly.

And generally we see things at least stopping, it stops going forward. And oftentimes you start seeing things regress or shrink back. Excellent. Excellent.

And then as far as like, maybe like a natural blood thinner. A supplement protocol. What are your, would you include arterosil in that? And maybe even, I don't know, let's say it's a patient with atrial fibrillation who maybe you think doesn't qualify for anticoagulation warfarin or one of the newer agents, you know, where, where would you fit arterosil and maybe some other stuff in for like this natural blood thinner protocol, if you will.

I wouldn't think of arterial so much as a natural blood thinner is that, except that it does kind of like support the

glycocalyx so you don't activate the, you know, the clotting cascade.

So in that way, maybe it's sort of that, but I would think of more of some like natokinase, you know, helping with breaking down fibrinogen and fibrin.

And then just we didn't talk about, but yeah, it was just grounding. You know, when you're outside and you're connected to earth, you know, you're absorbing those electrons that is going to prevent the red blood cells from clumping together.

Yeah, excellent stuff.

Advanced Vascular Testing and Clinical Monitoring

What are some other strategies you're utilizing over there as it relates to heart attack and stroke prevention or even, you know, maybe, you know, whether it's strategies for that and, you know, what are the other kind of blood tests that you're focusing on?

So I start with optimizing people's circuiting rhythms and sleep. And once that's out then, then we go down the testing pathways. And I always say there's a combination of biochemical, so like what's floating through your blood right now, and then the biophysical, like what are the arteries actually doing?

And I think sometimes commercial cardiology just gets too locked into just one lab value. And it's more complex, like what is going on with the arteries.

And there's numerous tests that can look at your nitric oxide pathways. We talked about some of them. So you can start with this salivary nitric oxide test strips.

That's available to the general public. They can have those at home. You can assess your blood pressure. You know, without being on medicines, your blood pressure really should be less than 120 over 80. If it's not, then you got to go looking to why not.

And then in the office, there's devices that look at the elasticity or the stiffness of the artery. There are devices that measure something called pulse wave velocity, so how fast is the blood expanding an artery and snapping it back.

There's a device called the endopath, which is basically like a stress test for your arteries. It tells you how much nitric oxide the arteries can release when there's a stressor.

We mentioned the CIMT, so now we're starting to look at actual damage to the artery. So the CMT measures two big pieces of information. It's how thick is the intima.

The intima is the layer underneath the endothelium. And it should be very thin normally. But if it starts thickening, that's often a mark, and there's a lot of inflammation in that layer.

So think of it as lipoproteins are getting retained in there. White blood cells start gobbling it up. And it's kind of like having a splinter in that area.

And it starts to swell as this inflammation cascade kicks off. So that's the part of the test that gives you, quote, vascular age. And you want to be about your vascular age and your biological age or ideally younger Vascular age.

You could also see if there's plaque in the carotid artery, because often if there's plaque in the carotid artery, it's about an 80% correlation what's going on in the coronaries.

And then there's a couple of tests that we like to look at the coronary arteries non-invasively. I think I know your views on stress tests. They're not that useful unless you're actually having symptoms.

Um, but the test that I tend to recommend people, and I used to have a soft cut off of 40, but I've seen some very interesting calcium scores at 36 years old.

So maybe 35 is my new cutoff, but a calcium score just looks for hard calcified plaques in your cornea arteries. It's a very low dose. CT scan, radiation CT scan, and if you have hard plaque in your arteries, you definitely have soft plaque as well.

So not everybody loves the calcium score test, but it's a good tiebreaker for some people if they're very on the fence of how aggressive to be with lapar proteins or blood pressure.

Like you're already developing significant plaque. You might want to do something about that. Got it. Got it. Got it. Got it. Um, I mean, I think we certainly covered a lot there.

Anything else that you can think of that we would have missed? You know, I did actually hear something recently about how if you improve your spinal health, and I'll, of course, you know, default to chiropractic, I'll give all credit to chiropractors, including my wife, who pulled me from the medical matrix.

But that actually, if you increase, this kind of spinal mobility through exercise. And this may be where yoga comes in, yoga, Tai Chi, uh, really just any kind of movement that by increasing spinal mobility, you actually improve arterial health and you do lower some of those markers that would lead to, you know, abnormalities in pulse wave velocity.

And therefore actually lower your vascular age just by improving on these movements. and therapies. What do you think about that? I think it's probably a combination of that.

It, you know, is increasing blood flow is with the exercise. I think it's also, you know, decreasing like sympathetic drive. Ultimately, once you've finished the exercise, so it's parasympathetically stimulating.

And then also more kind of the quantum reason is that when you exercise, you're creating infrared light, you're creating heat with that exercise.

Spinal Mobility, Movement, and Closing Remarks

And that heat is helping probably structure the exclusion zones or the coherent domains in the glycocalyx. I love that answer. Excellent, brilliant, brilliant, brilliant.

All right, everyone, fantastic. Thank you so much, Dr. Michael Twyman for being on this episode of the Heart Attack and Stroke Prevention Summit. Check out all Dr.

Twyman stuff. Michael, where can people find you the best? I'm located in St. Louis, Missouri. My practice is a polycardiology. My website is drtwyman.com.

And if you're looking for me on social media, mostly on Instagram, Dr. Twyman. Well, there you go. Thank you so much, Michael Twyman. We'll see you with another excellent episode coming up next.

Thank you for tuning into Dr. Talks. We hope today's episode has enlightened and inspired you on your path to optimal health. Each day is a new opportunity to make choices that empower your wellbeing.

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