Human Heart, Cosmic Heart: A Doctor's Quest to Understand, Treat, and Prevent Cardiovascular Disease: A Special Interview With Dr. Thomas Cowan

By Dr. Joseph Mercola

JM: Dr. Joseph Mercola
TC: Dr. Thomas Cowan

JM: We have an epidemic of heart disease in this country. The conventional treatments don't work well at all. So what does? Hi, this is Dr. Mercola, helping you take control of your health. Today, we are joined by Dr. Thomas Cowan, who is a physician. He's written a book, *The Human Heart*, which will help answer that question. It's a fascinating book. Not very technical. I think you'd really enjoy it.

For those of you who don't know, Dr. Thomas Cowan is a founding member of the Weston A. Price Foundation. He's a family physician. He has a very interesting history. I've always enjoyed listening to him. I just take loads of notes. What I love about him is he's so humble, and he's funny. He really is known to have a lot of good wisdom in the years that he's put together. But this book is really, in some ways, an autobiography. He tells his life story in a lot of details that I wasn't aware of. It's a phenomenal book. Definitely, if you're interested in heart disease or you know someone who is, or is taking a statin drug, this is a book you must get. Okay, Tom. Did I leave anything out of the introduction?

TC: Only that the actual title is *Human Heart, Cosmic Heart.*

JM: Okay. Sorry. In my description of it, I abbreviated. I apologize for that. But it's a great book, nonetheless.

TC: Thank you. I'm so glad you liked it.

JM: Yeah. I think I listened to you lecture in Weston Price in Atlanta, which must be four years ago. I listened to you talk about the science for three hours, which was an absolutely fascinating topic. You know how best to present it. There are lots of pieces of the puzzle you put together. But essentially what I mentioned in the intro is that the conventional approach for heart disease is just basically wrong, putting in these quarter artery bypasses and stents, and putting people on statins to lower cholesterol. None of it is treating the cause. Why don't you sort of give us the basis and start describing some of the things? I'll chime in and maybe highlight some of the aspects that you're mentioning.

TC: Okay. Again, thanks for having me come on here. Basically, the book has three parts. For whatever reason, my destiny in my career is that I sort of take on some of the biggest accepted wisdoms. It's just sort of what's drawn me. I try to figure out whether they're actually true or not.

The first part is, as you've said, my story, which I hope people will be interested. That's just the first part. The second part, I examined the theory that the heart is a pump. As I'm sure you know, I say that the heart is not a pump. Then I have to explain why the blood moves and what the heart is doing and actually the interesting ramifications of that. The third part is the part that you're talking about now, which is what causes heart attacks. Again, it's sort of like mother's milk. Conventional wisdom, everybody believed it, I believed it for a while. Everybody knows what causes a heart attack.

Here is an interesting point: I learned in medical school there were four major coronary arteries. Some places, it says three. In some places, it says two. Even the basic how many major coronary arteries we have is actually in dispute. It's a matter of semantics.

Anyways, we have these coronary arteries, these major blood vessels, which we're told supply all of the blood flow to the heart. If one or more of them gets blocked with plaque, then the blood can't get through the blockage. There's a bottleneck. The part downstream from that blockage doesn't get any blood. It doesn't get any oxygen. It doesn't get any food.

First, it causes pain, which we call angina, and then worse pain, which we call unstable angina. If that keeps going, you get a heart attack, which means death of those cells.

The entire edifice of cardiology and the entire edifice of alternative cardiology, such as it is, is how do we get rid of the plaque? Do we do stents? Do we do bypasses? Do we do angioplasties? Do we lower the cholesterol because the plaque is supposedly caused by cholesterol, although now we know it isn't? Do we put people on no-fat diets, low-fat diets? All that. It's all about the plaque. My point in the book is that it's not about the plaque.

JM: Yes, indeed. Why don't we address one of the intriguing concepts that you've mentioned in your response, is with the fact that most people won't believe is that the heart is not a pump.

TC: That's switching topics a little bit, but we can go into that. The first thing is to be more specific. Because with all these stuff, it's very important to be as clear as possible with what I mean. When I say a pump, and what we're taught in cardiology and in medicine is that the walls of the heart create pressure, which causes propulsion of the blood through the body. When I say pump, I mean a pressure propulsion system caused by the muscular contraction of the ventricles. That's exactly what I mean.

The argument against that, if you would – by the way, that started in 1648 with the guy named William Harvey who wrote a book about it. Ever since then, we've believed that that was the case. But if you actually take a look at this in more detail, the first thing you notice is that it depends on how you look at it. You could spread the blood vessels out and it would cover three times the football field. That's a huge amount of blood vessels in the heart.

Another way to put it is if you put the blood vessels end to end, in a series, it would encircle the earth three times. That's a huge amount of blood vessels. The liquid in the vessels, meaning the blood, is this very sticky viscous fluid with a bunch of stuff floating around in it, the stuff being red blood cells, white blood cells, platelets, etc.

Interestingly, most of the blood vessels are capillaries, which are very thin-walled, very narrow tubes. The stuff, meaning the red blood cells, is about the same diameter as the tube. If you put that together, let's go with the three times around the earth. If you're listening and you say "It's not quite that long." Let's say one time around the earth. In other words, the pump theory is you could have a one-pound, somewhat thin-walled organ, and it's going to pump sticky fluid around the earth and it's going to do that every single day for 70 years, 60 to 70 times a minute. That one-pound, thin-walled organ can generate enough pressure by squeezing this thick blood three times around the earth.

Frankly, that's – I don't know what other word to use – that's ridiculous. But the interesting thing is that it actually gets worse than that. Because it turns out if you do a flow velocity diagram, it turns out that the blood is moving the fastest at the heart, both before and after the heart. As it goes into the arterioles and then the smaller arteries, it gets to the capillaries, which are the transition vessels where the blood and the gasses are exchanged. There it actually stops and does a little shimmy, or it goes very slow, depending on who you believe. But it has to go very slow.

The analogy is a narrow river goes fast and when it goes out into a wetland, it's going very slow. It has to go slow – it has to stop almost – to exchange the gasses and the food. Not only are we pushing all the way around the earth, but halfway around our travel, we stop and then we get going again. You're expecting that to be all from the push from behind. Again, frankly, that's ridiculous.

It even gets worse than that because we have an outflow tube of the left ventricle called the aortic arch, which among the videos I can show you, is shaped like an arch like McDonald's arch. The blood goes from the left ventricle, out the aortic valve, through the arch, then down to the body.

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The analogy I like to say here is if you stick a similarly shaped arch garden hose off your spigot outside of your house, and then you turn it on really hard, which recreates the pumping because we need a really big push to get three times around the earth, you would expect the garden hose to straighten out because if you put pressure, the arch would straighten. In fact, you can look on any angiogram and catheterization and you can see that arch actually bends in a little bit during systole, which from a pressure propulsion model makes absolutely no sense at all.

JM: Yes, indeed. I think you've provided some very compelling information to show us, at least intuitively, that the heart is not a pump, but probably serves another role. Because obviously, if a heart stops beating, we're not going to be living very long. I believe in the book you described it as a hydraulic ram. Maybe discuss that. But then if the heart isn't doing the pumping, then what is? It needs some alternative energy source. That's a really intriguing component of this, because we talked about a lot of the principles on our site about this. This helps tie it together and helps explain how that blood actually moves those three times around the earth.

TC: Right. It's really beautiful when you see it. I know you have interviewed Gerald Pollack maybe a number of times. His work was instrumental to me understanding it. Now, we're on to

the question of "How does the blood actually move if it isn't being pushed or pumped by the heart?" The first thing you'd have to say is "Well we know that the pump must be at the capillaries because that's where the blood has stopped." If the blood stopped there, we need to somehow pump it or push it to get it going again. As it moves up the venous tree, the blood vessels will narrow because they're eventually coalescing to come back to the heart. Just the narrowing of the tubes will make it go faster. Besides, there are valves and there's muscular contraction.

But often people say "Well, it's the movement of the muscles. That's what squeezes the blood up to the heart," which is also nonsense because easily proven by that would mean if somebody is paralyzed, they wouldn't have the blood go back to their heart. Clearly, that's not true. Not to say that there isn't some help, but that's not the reason. The reason is, as Pollack has described, water can exist in four phases, not three. The fourth phase of water is formed by the interaction of water and a hydrophilic surface.

What happens with that is you form a gel layer or protective layer on that hydrophilic surface, which is negatively charged. Therefore, the opposite of positive charge is dissolved into the bulk water in the middle of the tube. You can see this. He's put YouTube [videos] of water flowing through tubes. All you need is a hydrophilic tube, which forms a gel layer, which is negatively charged, and then the bulk water is positively charged. The positive charges repel each other and that starts the flow going up the hill.

As Dr. Pollack has also very clearly demonstrated, the energy for the separation of charges is basically three. One is sunlight, which I also know you've talked about a lot. Sunlight charges up the tubes and increases the flow. The other one is the energy that emanates from the earth. That's called earthing. That also charges up the tubes, creates this separation of charges, creates more positive ions and starts the flow going up the hill. Both of those, luckily, are free and abundant to any living system.

The third one is just the field effect from another living being, like laying on of hands. We have a certain electromagnetic emanation from the palms of our hands, just the touch of our skin. That also, Pollack has shown, charges up these hydrophilic tubes and makes more flow of the liquid inside. The three things that charge up our tubes, and therefore pump the blood are sunlight, the earth, and the communication touch from another human being. What could be better than that?

JM: Yeah. It's ideal. Another concept that helps solidify the information that you've just presented, it's helpful to view water as essentially a battery.

TC: Yes.

JM: What you're doing when you're exposing your skin – not just going outside. As we're recording this, winter is approaching. We're deep in the fall. Many people are not going outside without a shirt and wearing shorts. But if you do, there's still benefit. It's the sun penetrating your skin that provides it. It's interesting because when that happens, there's a massive increase of nitric oxide, which vasodilates. You can shunt literally 60 percent of your blood to the surface of your skin to absorb this radiation and then structure the water. That is a key component if you

want to have a healthy heart. The ideal is to be exposed to that sun while you're grounding so you're forming a biological circuit, which makes it work even better.

TC: Absolutely.

JM: I guess the best would be holding hands with your spouse.

TC: Yes. The best thing is to be, more or less, with shorts or naked on the beach, with the saltwater, which acts as an electrical conductor, holding hands with somebody you love.

JM: Right.

TC: I'll tell you. If you ask people, "When do you feel the best in life?" They'll say, "That time I went to the beach and I walked on the beach for two hours a day, holding hands with my best friend or wife or husband or whatever". There you go. That's exactly what you said. That's how you structure the water. Exactly what you said. The water is a battery. Those inputs separate the charges, charge the battery, the battery does work and it starts flow. That flow just through Bernoulli's principle, which is the wider it is, the slower it goes, narrows, it goes faster. It goes up faster and faster to the heart. That is the flow that is the reason the blood moves, in a nutshell. You got it.

JM: I think it's an important principle. Hopefully, there will be another piece of information that will motivate, encourage and inspire people to engage in this process. I was so convinced I moved to Florida and is actually able to walk on the beach for an hour, two or three hours a day, for 90 to 95 percent of the days, unless I'm travelling. I firmly believe in it. That's a really important —

TC: It's one of the best things a human being can do.

JM: I couldn't agree more.

TC: Yeah. Great, easy, cheap, feels good.

JM: No charge.

TC: No charge.

JM: You have to move.

TC: You have to move.

JM: Then you can actually play as a child, play as fun. That actually helps too. You can go into surfing. It's a lot of fun. But let's progress to the next stage, which I think is even more interesting. Because as I've mentioned in the introduction, the treatment model for heart disease, which is killing 40 percent of people, is fatally flawed. We also have another epidemic, which I didn't address, which is congestive heart failure, essentially cardiac dysfunction, primarily I

believe due to mitochondrial dysfunction. That's a whole other area that we can discuss, but there's not enough time to do because you have so much information.

Let's address some of the ways that you can advise or recommend people watching this if they have heart disease, or someone they know or love has heart disease, because that's virtually everyone watching this because it's such an epidemic. These are not necessarily preventive strategies. Preventive strategies are what we just discussed that everyone should be doing ideally. These are treatment options that have essentially almost no side effects and actually do address the cause of heart disease.

TC: Yes. I think, if you would indulge me, I think that means I should talk a little bit about what I think causes heart disease and what doesn't.

JM: Absolutely.

TC: Because I can tell you that – I just took a look at some of the information you sent me and your focus on the mitochondria is very similar to what I'm saying. I mean in fact it's really identical in a sense.

JM: You're referring to the book that I'm publishing in May of next year, the title of which we don't have yet.

TC: Yes.

JM: But it's essentially on mitochondrial dysfunction.

TC: This heart disease is a mitochondrial problem. I'll explain why, if that's okay.

JM: Sure.

TC: The first thing is why not plaque? It's like mother's milk, like I said. Everybody thinks it's plaque. The argument against that is first of all, if it's plaque, then it's something in the blood that's causing the plaque, like high cholesterol or, some people would say, inflammation. Which then should mean that since all the blood vessels, all the arteries are basically the same stuff, there's no difference between the splenic artery or the femoral artery, the coronary artery.

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The blood that goes through there is all the same in every artery. If there's plaque in one place, there should be plaque everywhere. In fact, to a certain extent, there is. You get plaque in the splenic artery. Interestingly, the coronary arteries, at least two or maybe four of them, the splenic artery there's only one. Here you have the spleen. It has plaque because it's in the blood. That's what we're told causes the plaque. Then the question that I asked myself for years is how come I never heard of a single person – I was an ER doctor for 10 years – I never saw one case of a spleen attack? I never saw a liver attack. I never saw a foot attack.

There is such a thing as renal artery ischemia. That happens, what, maybe 10 people a year or 100? I don't know how many. But basically, there are only two organs that have attacks. The brain, we call that a stroke, and the heart, we call that an myocardial infraction (MI) or a heart attack. Why not the other organs? Because that suggests that there's something different about those organs. It's not the blood vessels because the blood vessels, they're the same. There's something different about the heart and the brain that's causing the attacks, not the blood flow.

The second thing is it turns out, in the '40s and '50s when people were interested in starting this theory, most of the cardiologists didn't believe it. They said, "No. There are four coronary arteries, or two or three. But there's this massive collateral circulation." In other words, the body is not so stupid to put all its eggs in these two baskets. The flow, even from birth of the heart, is this collateral circulation, this network of fine blood vessels that is the flow. It doesn't really matter whether one area gets blocked or not, because the whole thing is like the wetlands and it will just compensate.

Then I started looking into – because there was such a debate about this, they did studies to figure out "Okay, person did it, had a heart attack and died, so you do autopsy studies." How many actually had a blockage in the artery leading to the part that had a heart attack? To my shock, I found that some studies showed 18 percent. Those are the people who died like they had a heart attack and they died an hour later and they had 18 percent blockage.

On the other hand, the maximum in the literature that I found – By the way, all these studies are on my website, HumanHeartCosmicHeart.com, and there's a book that any physician who's interested should read, by a guy Giorgio Baroldi. The print version is on the HeartAttackNew.com website. He did 40 years of pathological studies, and the highest is 78 percent. Those are with people who lived for a month or a week or six months after a heart attack. All that suggests – first of all, it's 18 percent, that's means 82 percent didn't have a blocked artery that caused the heart attack. Even if it's 78 percent, what happened to the other 22 percent if they didn't have a blocked artery? We're told that is the only reason you have a heart attack. What happened to them?

The other thing that suggests is that the longer you wait after a heart attack, the more blockages you see, which suggests that the blockages are a consequence of a heart attack, not the cause. If it's only 18 percent had a heart attack who died right away and the rest of them developed the plaque afterwards that blocks the artery, what happened to those 82 percent?

Then you see things like – Baroldi talks about a study, 66 percent of normal 50-year-olds who die of a car accident have a one or more, greater than 90 percent stenosis or blockage of a coronary artery. None of them had any symptoms. None of them have any heart disease. But 66 percent have a blockage. Don't misunderstand me here. I'm sure you don't. But I'm not saying blockages are good. I'm not saying plaque is good. What I am saying is it's nowhere near sufficient to explain why people have heart attacks.

The final thing that I tell people, because I see this once or three times a week. Every week somebody comes in, says "I'm not feeling as well as I used to. I have some chest pain, a little shortness of breath walking up the hills. I went on a five-mile walk yesterday and I'm not doing

as well as I used to. I go to the cardiologist. He does tests. He finds out I have a 95 percent blockage in one of my coronary arteries. He said to me if this blocks any more than this, you're going to have a heart attack and die. You better have a stent or an angioplasty."

I think to myself, number one, if all of the blood flow comes through these coronary arteries and he's got 95 percent blockage of this major vessel, how did he walk up this five-mile hill? In fact, how is he even standing upright if he's got less than 5 percent blood flow to a major part of his heart? So you mean to tell me – not you – if he blocks from 5 percent to 2 percent, that's it. Curtains in, you die. The reality is 5 percent is 0 percent, and blocking to 2 percent is the same as 0 percent. In any ways, it's very clear that the theory that the blood squeezes through the bottle neck in the vessel is complete nonsense.

The blood does not squeeze through the bottleneck. It bypasses it. It goes through these collateral vessels and the flow is more or less normal, although there is some problem in the heart, but it's not because of that blockage. That's why the Mayo Clinic and other studies, they unblock the blockage. It doesn't do any good for the patient.

JM: I think you've provided a really simple and elegant explanation as to why anyone watching this should not accept the conventional recommendations and wisdom to get a coronary bypass or even go on stents, because that's not the issue.

TC: It's not the issue.

JM: It's not what's causing the problem. Clearly the diet is going to be a massively useful intervention, but we don't really have time to talk about that here. We've discussed that frequently on the site. My new book will go in great detail on it. When I heard you lecture a few years ago in Atlanta, you had mentioned that there was one specific indication of a blockage. That was that the left anterior descending, the primary artery that supplies the heart, had a 90 – I believe – I might be misremembering this – you thought that might be a consideration for some type of bypass intervention.

TC: If you get a greater than 90 percent stenosis, blockage of the proximal part, that's the early part of the left anterior descending, that's essentially before it has a chance to branch out. That is a problem. It doesn't always mean it's a problem, but that's the one that is the most worrisome.

JM: Okay. I didn't remember it being proximal, but thank you. If you have that lesion, you may want to consider these other recommendations. You may want to consider the conventional recommendation, because there may be a small subset that people have actually benefited from that type of therapy.

What I think is really exciting, actually you don't talk a lot about it in the book for the most part, but your book is just massively interesting. I read it in one beach walk. It was so fascinating. You have two primary therapies as alternatives to the conventional recommendations. That is strophantus and then ECCP, or external cardiac carnal pulsation. Why don't we talk about this strophantus first because it's really intriguing on how it affects the autonomic nervous system and parasympathetics?

TC: Again, I keep going to background. If I can do two minutes or five minutes of what does cause heart attacks.

JM: Whatever you need.

TC: Okay. If it isn't blockages, then what is it? I say there are basically three causes. One, it could be plaque in a really bad place. That's not the usual, but there is some of that. Second is the failure of the collateral circulation. Interestingly, things like diabetes and smoking and high-stress all affect collateral circulation, not major blood vessels. Diabetes is well known to be a disease of small blood vessels. It could be a failure of the collateral circulation.

The predominant reasons are the following. Here is how you get a heart attack. Number one, we know that we have two nervous systems, a central and an autonomic. We're not talking about the central. We're talking about the balance of the autonomic. There are two arms. There's the sympathetic fight or flight. A bear's chasing you, you run. Then there's a parasympathetic, which is rest and digest, life is good.

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When you measure those, over 90 percent on heart rate variability testing have a decreased parasympathetic tone. This is from stress, from diabetes, high blood pressure, lots of different factors in life, emotional psychological factors, etc., cause a decreased tone of your parasympathetic nervous system. That's the first thing that happens. Then what happens is under the influence of a low parasympathetic tone, you get some sort of emotional, psychological or physical stress. That activates your sympathetic nervous system.

What happens with that, which is the thing you write about a lot and talk about, is that shifts your cell metabolism from the mitochondria to the cytoplasm and specifically from your cells in the heart using fat to generate fuel in a glycolytic way or fermentation, through fermenting sugar. Once that glycolytic shift, that fermentation, happens, as you know, you go into a glycolytic metabolism where you burn sugar and make lactic acid.

What happens with that is just like what happens with the muscles. If you run too much, you get lactic acid buildup in your leg muscle. The first thing you feel is cramps and pain. Same thing happens in the heart, that's what we call it. You start producing lactic acid because of this shift in metabolism, the fermentation of sugar. You build up lactic acid, cramps and pain. The next thing that happens and the difference between the heart and the brain and the rest of the organs is the heart and the brain each use about 40 percent of the sugar and they can't stop like your leg.

Once lactic acid starts, your leg stops, your spleen stops, your kidneys stop, your liver stops. It allows the blood flow to flush the lactic acid out. In the heart, that can't happen. It keeps metabolizing but lactic acid builds up, causes a localized metabolic acidosis, which necroses or destroys the tissue.

The other thing is when the tissue becomes acidic, the calcium can't get into the tissue so the muscle can't contract, which is why you see a hypokinetic or akinetic, which means a part of

your heart muscles stops moving like it should. I didn't say it pumped, but a heart muscle should move. That's how we find out people who have a heart problem. It's because the heart doesn't move. That's because there's too much acidity in the tissue. That prevents the calcium from getting in and the heart doesn't contract the way it should.

The next thing that happens after the difficulty of the contraction is it creates sheer pressure in the arteries embedded in the non-moving area of the heart, which then breaks off little pieces, which are the clots that the conventional cardiology fingers as the ultimate cause of this. The clots are the result of the non-moving area of your heart. The non-moving area of your heart is the result of not getting the calcium into the cells. That's a result of the acid forming from the altered metabolism in the heart.

Now, if all of that's true, which is why I believe, it turns out that there's an adrenal medicine, an adrenal hormone, made by the adrenal cortex, which is the parasympathetic organ of the body called ouabain, or g-strophanthin, which is an endogenous (meaning "made in us") hormone, which has the amazing property of going into the blood, going to the heart, converting the lactic acid into pyruvate, which is the preferred fuel for the heart. It breaks this central chemical that when it builds up, actually causes all the trouble. It converts that into a fuel and the heart can go on its merry way.

The other thing is strophanthin, which is from the plant strophanthus, or ouabain is the chemical name, it helps to create more neurotransmitters of the parasympathetic nervous system. It does the two things that are central. One, it supports the parasympathetic nervous system. Second, it flushes the lactic acid out.

JM: Terrific. One of the problems with using carbohydrates as a primary fuel – which actually most likely the majority of the people watching this are – is that it generates more reactive oxygen species and secondary free radicals, which chronically will cause the damage, especially to the mitochondria because that's where the [inaudible 35:30] is generated. I'd like to simplify it by saying that the carbs are dirty fuels. Dirty in the way that they generate more free radicals. I think the new title for my book has something to do with clean fuel, or how not to use dirty fuel for your heart.

TC: Exactly. Free radicals poison the mitochondria. They can't make this clean fuel. The dirty fuel creates this fermentation metabolism lactic acid produces. You're off to the races: cramps, pain, break down.

JM: Yeah. The answer is not antioxidants. The answer is to reduce the production, not to sequester them once they're produced. That's just foolish.

TC: Yes.

JM: Why don't you expand a bit more on strophanthus, because it's not easy to find. You're not going to go to your local health food store and pick this thing up if you have heart disease. But it is obtainable. Why don't you discuss a little bit more about the history and your use with it, which is quite extensive for at least 10 years, maybe 20.

TC: Yeah. Strophanthus was first identified by the famous African explorer, a guy named Livingston, who apparently saw the natives would dip their arrows in it. They would make a really high dose and it would stun their prey and then they could go and kill them. He dipped his toothbrush in a strophanthus extract and noticed the change in his heart rate. It slowed down. Basically from there, it became a heart medicine. It's in the same family as digitalis, but digitalis for instance doesn't convert lactic acid into pyruvate. Digitalis does not support the parasympathetic system. It's really different.

JM: Digitalis has one of the highest LD50s, or lethal dose. The ratio between lethal and therapeutic is really small.

TC: Really small. Because digitalis is fat soluble, while ouabain, g-strophanthine is water soluble. There are a lot of differences. For 20 years in Germany, strophanthus – the plant is strophanthus, the active ingredient is called g-strophanthine in Europe and ouabain in the United States – for 20 years, it was the main treatment for angina and preventing heart attacks. Millions of doses, lots of studies. One study that I found in Munich in 1972, 150 people with angina, after a week of taking, 144 were symptom free. After two weeks, about 146 were symptom free. It has a long history of use.

In fact, in the '50s and '60s, there was a test called a strophanthin challenge test in Germany where – All physicians know, sometimes a person would come in with chest pain. We don't know if it's because they're breathing too hard or muscle pain or something. You want to figure out whether that's from their heart. They could take them when they were having chest pain and give them g-strophanthin. If the pain went away, it was considered from their heart. That was the g-strophantin challenge test, because simply, it flushes the lactic acid. No lactic acid, no pain. It's not just for pain relief. It actually breaks the cycle that leads to heart attacks.

Then there was the whole thing about, well it doesn't get orally absorbed. I think this was the time when the cardiologists were moving away from it being a metabolic disease. It's all about the plaque and the arteries. They were developing stents and bypasses. There was a lot of incentive to push that therapy. They said g-strophanthin doesn't get absorbed orally. That was the end of it.

Now, there are very few places to get it. There's one compounding pharmacy in Germany, which you can import. There's a company in Brazil that makes an extract of the strophanthus seeds. That's what I've been using mostly for about 10, 15 years. I've had it tested so I know how much ouabain per milliliter is in there.

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It's been one of the best medicines I've ever used. People can't walk to the mailbox, they take it for a couple of weeks, they can walk to the mailbox, go skiing, etc. It relieves their chest pain and it does the exact things that you would hope a medicine would do. The place to get it now is a little tricky.

What we're hoping to inaugurate and hopefully by the time this podcast comes out, is people can go to our website, HumanHeartCosmicHeart.com, and they can find a practitioner – anybody, chiropractor, medical doctor, cardiologist – who will give it to them., who will supervise. I talk for 15 minutes with the practitioner, explain how to do it. They can get it from us and actually give it to the patient themselves. We're doing this so that we have somebody supervising, somebody working with people. I would ultimately like it to be internists and cardiologists, whether that will happen, I don't know.

JM: Terrific. That is a really great summary. There's a bit more details in your book. Certainly pick up the book if you'd like that, or go to Tom's website. The next intervention that I think virtually no one knows about is the ECCP. I first heard of this when I was in ACAM, the American College for the Advancement in Medicine. That's a common intervention they use. Those are the chelation doctors. But when I first heard of it, I was not impressed. I thought that it was a poor substitute for exercise. Boy, was I confused.

I had no idea of the mechanism of action and how it works. Now, I believe it probably absolutely needs to be considered as an alternative for bypass, unless it's this proximal left anterior descending (LAD) obstruction for most people, because it will increase the collateral circulation. Why don't you discuss a little bit about that time and your experience with it? Because to me, it's like one of the hidden gems of natural medicine.

TC: Yes. It's actually called EECP (Enhanced External Counterpulsation).

JM: Okay. I got it mixed up. Sorry about that.

TC: Yeah. And EECP.com will tell you if or where there is a site that does this in your area. It's a Medicare insurance-approved therapy, believe it or not. There are studies that show just EECP alone will relieve about 80 percent of angina. It definitely has some conventional literature behind its effectiveness. It's very simple and straightforward.

Again, it's interesting. The guy who invented, the first one to do angiography, a guy name Dr. Mason Sones, he eventually said – it's interesting because a lot of times people who invent stuff end up saying, like the PSA, "You know, it's not so good after all" He said, "you know what, these angiograms, they don't really work, because they don't show the collateral circulation because of the pressure and the heaviness of the dye etc."

Basically, the reason we don't have heart attacks is we're protected by this watershed flow. If you have a metabolism that's basically diabetic or chronic inflammation, all the things you talked about, that will eventually deteriorate your small blood vessels, your capillaries. We've known that for 40 years. Then you have a deteriorated small vessel flow. That's why you don't have enough flow in your heart, not the big vessel plaque.

What EECP does is basically puts big balloons, squeezy balloons, on your legs and pelvis. It's synchronized up with the EKG. When your heart is in diastole, when you're relaxed, the balloons are squeezing the blood. They're like doing this fourth phase water flow, just a lot harder. They squeeze the blood up to your heart, and that puts pressure on the flow in your heart.

If you do that for an hour and a half, five days a week for seven weeks, you essentially form a new collateral circulation. It's as simple as that. Putting pressure on it, the blood has got to go somewhere. It has an angiogenic effect. You sprout new blood vessels, and you make a new flow. New flow means people all of a sudden don't have angina anymore. Their physical endurance, sexual function, and all the things that have to do with blood flow, increase anywhere between 20 and 40 percent. It lasts for anywhere from five to eight years.

China has hundreds of them because they don't want to spend the money on bypasses. If you're 60 and you need more blood flow, you go to an EECP thing for seven weeks. You get new blood flow. You're also correct. Some people call this "passive exercise," because the only thing else that I know of that actually really encourages the sprouting of new blood vessels. There are some herbs that might do it. There's some interest in that.

But the thing that you've talked about for years, which is high intensity strength training, what that does to any muscle in the body – correct me if I'm wrong – is it encourages new blood vessel formation. If you're going to make muscle, you have to make more small blood vessels to nourish the flow. That's what happens. Anytime you're doing high intensity strength training or running up hills or whatever it is you're doing, that also does it. It makes more collateral circulation. The problem is –

JM: Go ahead and I'll talk about the high intensity because there's some concern about that.

TC: Yeah. The problem is a lot of the people who come with heart disease, you can't tell them to do high intensity training or hardly any exercise. The first thing they can do is just lay on the bed and they do this passive exercise. Then they have much more capacity. Then they can get into more of a strength training or some sort of exercise program, and have a much greater capacity to do that after they do EECP.

JM: The concern or the challenge with high intensity exercise, if it's done too aggressively and too consistently and a person has some type of a pathology, it actually can cause heart disease because it can lead to left ventricular hypertrophy and a consequence called diastolic dysfunction, which essentially decreases the effectiveness of the heart's pumping so that your ejection fraction, which is a measure of how much blood flow is out every cycle, is actually reduced. High intensity exercise can be a cause for this. The reason why I'm so intrigue with the EECP is that there's no type of exercise, other than appropriately used high intensity, that can induce this collateral circulation.

TC: Yes.

JM: Especially if you have this left ventricular hypertrophy and diastolic dysfunction, which is becoming an epidemic. In addition to that, it also creates stem cell production, which is just profound. You get a double whammy benefits. It seems to be the option of choice and I couldn't recommend it more highly. The treatments are about an hour five times a week, for seven weeks. Thirty-five treatments, as you mentioned, for the last five to eight years. Sometimes it's covered by a third-party insurance. I think angina is a valid indication so it would be covered.

TC: Yes.

JM: If it isn't covered and you have an indication where you might need it, this is the thing to get. If you have to pay it out of your pockets, mortgage your house because you need this. What is the range of treatments for 35 sessions?

TC: I mean I've seen it anywhere from 3,500 to about 6,000 [dollars].

JM: Okay. About 5,000 dollars.

TC: Yeah. This combination, and I agree, too much high intensity is probably straining and has a counterproductive effect. I'm glad you brought that up. But people need to move. They need to flex their muscles and use their muscles. You're absolutely right. This is the most direct way of increasing the collateral circulation quickly.

The therapy is really a combination of good fat, high fat, modest protein, high vegetable, low-ish carbohydrate diet – exactly what you've been talking about, I outlined that in the book – strophanthus, if there's any indication of any symptoms or pathology, and EECP. That's the basic treatment. I tell you that a lot of people will do really well with that, without needing toxic drugs, stents, bypasses and all the rest.

[-----50:00-----]

JM: Yeah. I think earlier you mentioned this was the protocol for myocardial infarction or heart attack. You implied – I just want to make sure that you reemphasize it – that this is also what is occurring in strokes. It's the same process. It's not only heart attacks. It's heart attacks and stroke.

TC: Same process. Yeah.

JM: It's under the umbrella of cardiovascular disease which includes both of those diseases. One of the aspects of your work that I really am intrigued with, because I resonate with it and also passionate about it, is regenerative agriculture. You, being a founding member of Weston A. Price, have been interested in this for years. You go in the book and you describe your history of actually first learning about this in Rudolf Steiner's work when you were in the Peace Corps, I think in some country in Africa.

That was a long time ago. You just continued to expand your interest. Why don't you give us a brief history of that so that we have people know the extent of your passion and what you're doing in regenerative agriculture?

TC: I first started gardening when I was in the Peace Corps. I was 21. Actually the youngest Peace Corps volunteer in the world at that time. Mostly because I was so disenchanted with school that I wanted to get out of school as quick as I could, so I joined the Peace Corps and taught gardening, and quickly learned about biodynamics and, as you say, regenerative agriculture. I've been doing it ever since.

Luckily in the last year and a half, I've taken that to a new level. We basically have a huge garden that we are using in Napa. We're collaborating with local farmers to provide wild vegetables and all different kinds of perennial vegetables and just using whatever influence we have to get as much great agriculture and wild harvested seaweed, ramps, fiddleheads, and cholla buds. Because I believe that probably the second most important food besides good fats is a huge diversity of vegetables in the daily diet. Regenerative agriculture or restoration of the land and growing food has been my life for 40 years.

To~~JM:~~ ~~Yes, indeed. For those of you watching this – we actually did a previous interview with you. We'll see to remember to put a link to that. But if somehow, the editing doesn't involve that, just put Dr. Cowan's name on the search engine above and you'll find a link to that really easily. It's really another fascinating topic. One of the things, and you don't really – this book is primarily about heart disease, and you do a phenomenal job of it. I think you've given us a succinct and concise summary of what it's about.~~

~~One of the things that you talked about in the agriculture, you don't spend a lot of time on it, but I'd like you to address it now because I think it's fascinating. I've encountered it previously but really don't understand about it, other than I know that it works. It's the real deal. It's not some hokey pokey, I guess, non-scientific – Well, it may be non-scientific but it works. That is ormus, specifically, monoatomic gold. Maybe you can discuss that a bit.~~

~~**TC:** It also gets into the thing we haven't touched on so far, which is "What does the heart do?" You mentioned – I have something else I want to share with you, which is totally incredulous when I say it. I'm not even sure if I believe it but it's so fascinating I just can't help but share it with you. I'll lead into that.~~

~~What does the heart do? The blood comes into the – it's moving fast. It comes into the heart. The heart stops the blood, and like a hydraulic ram, it holds it back. The walls expand. The pressure differential happens, and then it opens the gate and comes out. More so when the blood is in the heart, because of the unique shape of the heart, which interestingly was first written about by Leonardo Da Vinci. He made a mold cast of a bull's heart and then he blew glass around it. Then he dissolved or suspended grass seeds in the water. He watched the water go through this glass mold of the heart and it created a series of vortexes, spirals, in the heart. That's exactly what happens when you understand the geometry of the heart.~~

~~The heart is a vortex-creating machine. The part that I just heard about last week, because of the Weston Price conference and somebody gave me an article, is that it's such an interesting vortex-creating machine that it has these trabeculae or these fibers inside the heart. Each area of the trabeculae is connected with a certain part of the body. This area of the heart is connected with the spleen, and another area of the inner part of the heart is connected with the foot, and etc. The blood comes in and these areas of the heart create their individual spirals and package up certain parts of the blood, like the old red blood cells, package it into a vortex and send it to the spleen. Whereas another part sends the fresh new red blood cells up to the brain.~~

If there's a cut on your leg, it dissolves some of the inner fibers, puts that in a vortex and sends that to the cut on your leg. It's so wild. Again, there's an article about this on my website, as hard as it is to believe, that actually documents that in very clear terminology how this happen.

Now, to get to ormus. Ormus means there's two forms of certain metals, like platinum metals and gold. There's this sort of normal form or what I call the earthly form, which has electrons that are available for interaction in the outer part of the molecule. Therefore, these electrons of gold can join with chloride and form the normal gold salt called gold chloride. That's what we call normal gold.

There are certain situations where you can force or get the electrons to come closer to the nucleus to essentially be under the influence of the nucleus, then not be available to interact with any other substances. It won't form gold chloride. In fact, it won't even be measurable with a spectrophotometer because it can't interact with the spectrophotometer device. That's called monoatomic gold.

The way they conceptualize this is, think of a figure skater. With their arms extended, they're going slow and they can interact with their figure skating partner and make a dance. But when they want to go really fast, they pull their arms in and they can't interact with anything or anybody else. They go faster and faster and faster. That's the high spin monoatomic gold situation. Gold has these two forms. One is the extended form where there is interaction, and the other is contracted form where the electrons are in this high spin state. Those are the two forms of gold.

The thing that interests me about gold all these years is you have these amazing scientists, like Leonardo Da Vinci, Robert Boyle, Galileo, Isaac Newton, Pierre Celsis, and the entire scientific community for hundreds of years. What were they doing? They were alchemists trying to make gold. I've always thought to myself, "What's the big deal about gold?" Why do kings have gold on their head? Why are these alchemists making gold? You can mine it. What's the big deal?

The big deal is, and they called it, interestingly, the elixir of immortality, which that should be a big deal, because if we can find that, we then might have something. It turns out that what they were doing was taking the normal, earthly, extended gold and trying to convert that into the white powder of gold, which is this single atom or monoatomic gold, high spin state. Because what they found – now you can find these experiments – is that when you convert from this first form to the monoatomic gold, some very interesting things happen.

[– – 1:00:00 – –]

For instance, you have an explosion of light, but if you put a pencil sitting on a table next to the explosion, the pencil doesn't even fall down. There's no force, there's no heat, just an explosion of light. The gold loses 44 percent of its mass in going from one form or another through this explosion of light. Which then gets to the question of "Where did that 44 percent go?" What happened to it? The final thing that happens, which is very hard for most people to believe, is that if you do it on a tray, the tray actually can so-called levitate a little bit or go up against the force of gravity.

Now, I would just caution people because everybody will say "Well that's nonsense. How can an unseen force cause something to levitate?" Think about this for a minute. What about a magnet? You have a magnet and then you have iron filings. There's no connection, no strings, yet it's clear that just the magnet, that force, can cause levitation of something that it interacts with. This has also sometimes been called "anti-matter." I have a great quote from Stephen Hawking that if you meet your anti-self, don't shake hands because you will evaporate in an explosion of light.

The theory, believe it or not, is it somehow transports you into a different dimension. This has amazing repercussions because in the book and in other places, I say that the transmission of the nerves is way too fast to be, from neurotransmitters and ions going in and out of nerves. The transmission of nerve impulse has to be either light or electricity. I think it's probably light, although I can't prove it. So then the question is where does this light come from? There are a number of ways to turn gold into monoatomic gold. But you probably won't be surprised to hear that one of the main ways is to put it into a high speed vortex.

Let's think about what we know so far. People for ages, millennia have shown gold is everything. The Federal Reserve, the pharaohs, everybody's into gold. Number two, we know there are two forms of gold, one of which causes, when you transform, it causes the liberation of light internally. Number 3, people have connected the heart with gold forever. "I have a heart of gold", etc. Yet to a cardiologist or a cardiac surgeon, it's nonsense. There's no gold in the heart. There's no love in the heart either. Since they only believe in the stuff, it doesn't make any sense.

If you think about it – I know I'm going out on a limb here, but we're friends here so that's what we do – what about if the heart takes this small amount of gold, puts it through the vortex, creates this monoatomic gold, which then creates the light, which basically imbues our nervous system with the energy that it needs to function, which is about as close to the elixir of immortality as you can get? That's what I think.

JM: Thank you for providing the basis and the framework for understanding this interesting concept, because it's something that's not talked about a lot. I'm wondering what you have found or experienced to be practical applications of these, both in agriculture and gardening settings and in also human biology?

TC: At this point, I would love to say and I would love to be able to pull out my pocket a bottle of monoatomic gold. There are some in the market and I'm in communication with some alchemists who do it. Then I would love to say "Here watch this," and I'll take it and then I'll vanish in a puff of light. Then I'll be able to come back, which is like recreating the apple after you break it down into chemicals. But I'm not going to do that because I can't do that. I'm not sure any of the products on the market, whether they actually support this monoatomic gold process.

But here's what I do know: if you look at the substances that we can ingest that contain what we think is the highest amount of monoatomic gold, it's like a litany of the substances that are known to heal. For instance, aloe vera juice is one of the highest in monoatomic gold and a well-

known therapeutic plant. Concord grapes. In fact, the purple color usually means there's some monoatomic gold in there. I could tell you that every year, around end of August, I eat as many Concord grapes, especially the skin, as I can for about two weeks. Then I don't eat Concord grapes anymore. All of the herbs in the formula known as essiac are loaded in monoatomic gold, particularly burdock root. There's a bunch of plants, scarlet kale, the purple kale, has more gold in it than the sort of normal kale.

One of the things we're planning at Dr. Cowan's Garden is to make a monoatomic, biodynamically grown powder. We're going to take Concord grape skins, aloe vera juice and mix them into a powder and maybe that's the way to do it. But we're kind of out of ways from being able to do that. Whether taking monoatomic gold, I could tell you that increasing your vortex abilities. I like to put my water that I drink through a vortex machine and maybe that helps. I don't know.

Certainly, when we talk about this epidemic of congestive heart failure, to me has a lot to do with the heart losing the ability to create this vortex, which is where the energy moving the blood forward and the loss of ejection fraction comes from.

There was a very interesting study from Johns Hopkins who actually were able to document with CT scans and MRIs the vortex flow inside the heart. Again, I posted that article on my website. They're saying that the thing that is most correlated with people with atrial fibrillation or congestive heart failure, having strokes, forming clots, is when the inner vortex flow of the heart is lost. The heart is a vortex, monoatomic gold-creating apparatus or machine. When it stops doing that as well as it should, that's when trouble comes in. Blood doesn't go forward. You're not enlightened anymore or full of inner light, which correlates with the outer light, the sunlight, etc.

JM: I think one of the problems with the monoatomic gold or monoatomic elements, because it's more than just gold, is that it's hard to quantify. As you mentioned, you can't measure it with spectrophotometer. I just watched a PBS special last night or the night before about gold. Actually it was about metals, but the big part of it was about gold. People may not realize that if you put all the gold mined in the history of mankind, it would only go one-third up the Washington monument, which is not very much.

It's not even produced on the earth. It is produced in these -- not even our own sun -- it's from other hotter suns that are much larger than ours. It just floats around the universe and sort of collects in small places, which is why it's such an interesting metal. It's actually interesting. I think this may have something to do with its mechanism of action. It has the highest reflection of infrared. There's a lot of biology going, especially in the near-infrared. You've mentioned, referenced or implied the intracellular communication doesn't -- maybe light-based. I happen to believe that too. Gold may be a part of the way that happens.

TC: Yes.

JM: Then it actually quoted the new Hubble telescope is coated with 2 ounces of gold. They're seeking to do that to analyze infrared rays from distant galaxies and stars. That gold reflects

almost 100 percent of the infrared, which is interesting. But I'm thinking — you've mentioned these plants that have this monoatomic gold. My understanding is that if you supply the plants with the right materials, and some of those could be monoatomic elements, they actually produce it, because the soil microbiome, and I think a lot of the fungi might have this capacity, actually creates monoatomic elements.

TC: Yes. Exactly.

JM: Yeah.

[— 1:10:00 —]

TC: Exactly. You also bring up such a good point. These subjects that I'm talking about are so huge and so untapped. We've spent so many billions and maybe trillions of dollars on looking at just crass biology and ignoring all these really interesting things, like what is the function of gold and what's the function of light. If anything, I'm hoping I just stimulate people to contact me and you who've actually looked into this. We're just scratching the surface of what light and gold and monoatomic stuff can do. I mean, this is the history of the world we're talking about.

JM: Yeah. My book on mitochondria comes out next year, but the book after that I'm really inspired to work on this photobiology and its impact, because that is so massive. There are not many people that really study or understand it very well. Its impact is massive.

TC: Massive.

JM: Most people think we get all of our energy from food, but that's just not true, as you referenced earlier. We get it from light exposure.

TC: Yeah. True.

JM: Optimizing that light exposure is a vital, in the truest sense of the word, function of a healthy lifestyle.

TC: Absolutely. All I think I was trying to do was giving even a mechanism of how that interaction of the sunlight actually stimulates flow. Then there's this amazing correlation with inner light. The whole thing just starts getting really fascinating. To answer your question, what seems like it is the more minerals you put in the soil — to me, we should be humble enough to say to the plant "I don't really know what you needdo. But I know you need everything. I'm going to put all the minerals, all the compost, all the stuff in the soil. You figure out what you need. Based on you're an eggplant, or you're a kale. You know what's best for you."

Now, what they cannot tolerate is: a) being poisoned, or b) just giving nitrogen and phosphorus. They don't have what they need to do these transformations which are really life. Now this gets into another thing. We studied biology by studying dead stuff, because we don't know the difference between a live stuff and a dead stuff, so we do biochemical reactions.

What a plant is doing by sensing what minerals it wants and then transforming that into these monoatomic substances, these are life processes. They're like nuclear reactions, except we call them life, and so that they don't blow stuff up. They just do it in the plant with this amazing transformative energy. That's what life is. In order for them to do that, they need all the raw materials. My strategy with gardening after all these years is put everything in the soil I can, volcanic dust, compost and manures, you name it, and I'll let the plant figure out what to do with it.

JM: I like that strategy. One of the things that naturally oriented gardeners and farmers are using are these minerals, rock minerals, like azomite and just granite. Using those two help them. I'm wondering if you've ever had any experience with something I'm really passionate about. That is ionic. The key word here is ionic, ocean minerals. They were extracted from the ocean with the vortex. That's how they separate the sodium and the chloride out because if you don't do it well, it's not going to work. There's a number of different companies. We work with August Dunnings who makes the product we sell in our site. You could put it in the soil, but it seems to work even more effectively if you use it as a foliar spray.

TC: Yes. I absolutely do that. Dr. Cowan's Garden stuff, we sprinkle it in the soil, sometimes spray it on the plants. Absolutely. There are these special places in the ocean where these minerals come together and they create their own vortexes. There's this guy in France, I don't remember his name, who has been using these for years.

JM: I'm drawing a blank on it, too. But he actually was a national hero in France.

TC: Yeah. Exactly.

JM: Okay. I forgot.

TC: DancingWithWater.com website has stuff on him.

JM: Yeah. Absolutely. Dr. Pollock's just had a conference earlier this year where they had a few lectures on his water.

TC: Yeah. Right. This creative energy of the vortex, which is also actually what's happening in the heart, once we get away from this sort of pressure propulsion pump model, it's just flow. That's what creates the health of the blood vessels in the heart, etc.

JM: I think we've provided people with a lot of food for thought. Information, which is the key. Certainly, you won't become an expert by listening to his interview, but hopefully you've been intrigued, encouraged, inspired, and catalyzed to pursue this topic in more detail, because the potential here to transform not only your life but those of the ones you love, and save them from the challenges of cardiovascular diseases, both heart attacks and strokes is enormous. Secondarily, of course the neurodegenerative diseases like Alzheimer's, which doesn't have the direct mechanisms but is pretty similar, especially when it comes to mitochondrial dysfunction.

TC: Absolutely.

JM: Tom, why don't you tell us your website again and any other recommendations or resources you have for people who want to dig deeper into this.

~~[CUT [1:16:06 to 1:16:33] and [1:16:52 to 1:16:55]~~

TC: The website is HumanHeartCosmicHeart.com. My intention with that is to really not bore people with all these references during interviews like this, but to put all the references there. I want people to check into it, everything, from vortexes and ormus and "the heart is a pump," and heart disease, etc. Hopefully, we'll have some sort of newsletter and be able to really develop a community of people who are interested in looking at a whole different way of understanding and approaching heart disease.

JM: Okay. Thank you for writing such a great resource. I strongly recommend you get this one and put it in your library. You know I don't mention that frequently. There's only a few books a year that I think really deserve to be in everyone's library. This is one of them, because it's an easy read. It's a quick read. It's loaded with great information. It can save your life or the life of someone you love. I would highly recommend it. Thank you for writing this.

[END]