

The Evolution of Cardiology

Presenter: Dr. Steven Masley

The purpose of this presentation is to convey information. It is not intended to diagnose, treat, or cure your condition.

James: Hello, and welcome back to The Evolution of Medicine Summit. This is James Maskell. And I've got a very special guest here with me today. Dr. Steven Masley is here all the way from Florida. Doctor, great to have you here today.

Dr. Masley: Delighted to be with you.

James: Dr. Masley is a board certified physician, a family physician, nutritionist, longevity researcher, and an award-winning patient educator with his books *Ten Years Younger*. He also has a book called *The 30-Day Heart Tune-Up* and his new PBS show called *Thirty Days to a Younger Heart*. So we've got someone who's obviously very passionate about the heart and about getting people well and keeping people well.

Doc, you're not a cardiologist. But you're obviously very dedicated to the heart. What is it about a non-cardiologist that you think is relevant for someone talking about the evolution of cardiology?

Dr. Masley: Well, the evolution of cardiology has changed so much in the last fifty years. It used to be the study of the heart. Unfortunately, in the last couple decades, it's becoming the study of doing cardiac procedures. And unfortunately not all of those procedures really have long-term benefit for folks. They treat your symptoms. But most people don't realize they don't prevent future events.

So I look at this from a preventative perspective. I've done research for The American Heart Association for years on how do you prevent this? What can we do with lifestyle? And I've even recently been appointed a fellow by The American Heart Association, kind of as a reward for my preventative work. So I'm really happy to be a non-cardiologist helping to prevent heart disease. So we need less cardiologists. [Laughs] That's the interesting part of it.

James: Yeah that is interesting. So most people out there probably understand the concept of a heart attack and these kind of diseases that are affecting the heart. Where are these diseases starting? What's the beginning of the genesis that ends up with someone having a heart attack or having a heart-based symptom?

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Dr. Masley: Well, here's the myth: that your arteries are ten percent blocked, thirty percent, fifty percent blocked, seventy percent, ninety percent. And at ninety-nine percent the artery is blocked off and you have a heart attack. That's the myth and that's just wrong.

We know that what causes heart disease, cardiovascular disease and all the troubles that happen for a heart attack or a stroke, the heart of the matter is are you growing plaque? If you're growing plaque, your arteries are thickening. And there's some risk to that. But it's baby plaques that cause events. And that's something that's been new for about ten years, really information that baby plaques cause it. The big obstructions cause symptoms. The baby plaques are what cause events.

So it's really looking at are you growing plaque? That determines your risk for having a heart attack or stroke. And we should point out that's the number one killer today for men and women.

James: So what's causing this plaque to start the process? What do you put it down to? What are the major causes driving the production of that?

Dr. Masley: Well, we've had these classic risk factors for years, right? We had high cholesterol, high blood pressure, diabetes, smoking, and family history. But we've realized whether cholesterol was important in the past or not, that's debatable. Your total cholesterol is not very important now. We realize that.

The number one cause is what most people call pre-diabetes, your blood sugar's up. So if you have elevated blood sugar...It's small elevations in blood pressure, blood sugar that pre-diabetes is really pre-death because more people are going to die from pre-diabetes than die from diabetes itself just because it's so common. It's a third of adults have pre-diabetes. And half of baby-boomers have pre-diabetes. And that's the number one cause for heart attacks and strokes today. So and it's been missed for a long time and most people have not realized this.

James: So can you take us back to the middle of the last century when there was a certain focus now on maybe initially cholesterol, but fat particularly. And what happened at that point? And where did we go? And what are we doing right now?

Dr. Masley: Well, if we go back a few decades, here's the irony. I was a resident in the 1980s, training to be a doctor in the hospitals. And we were just starting to talk about cholesterol then. And many people were doubtful that it would really make a difference. And maybe some of those turned out to be right.

But my first lecture I ever gave in public was that high cholesterol may be causing heart disease, and treating it would have a benefit. And I just presented at The American Heart Association recently. And now I'm not saying that anymore. It's changed. We now have new risk factors for what causes it.

So clear back decades ago, we were thinking about that, but it wasn't clear. People thought of it like plumbing in your house. If the pipes are blocked, the only way to treat that was with surgery. So back in the 70s and 80s, we looked at heart disease like something that if you had it, diet didn't make any difference. Exercise didn't make any difference. You could only fix it with surgery. Now we realize surgery doesn't do very much. It's a lot less effective than we thought.

So we've gone from this fully plumbing look at it, to now more of a biochemical and a nutritional and an exercise. And how do we make our arteries healthy? It's been a dramatic transformation in the last few decades.

James: That's great. So I'm sure as the transformation happens and physicians like yourself are on top of that, the kind of recommendations that you're going to make to patients changes. I know you're well known for writing exercise prescriptions. You want to take us through what that looks like?

Because I know there are doctors listening to this. There are probably patients who have had cardiac events and there are probably all kinds of other health professionals or otherwise. What does your model look like that you've modeled in this *30-Day Heart Tune-Up* that you feel like could be useful for a lot of people out there?

Dr. Masley: Well, we've been studying and doing research on what predicts if you're growing plaque? So as I said briefly before, having a lot of plaque means the plaque is stable. It's not going to hurt you. Have a little bit of plaque that grows, it can be like a pimple in your arteries. If that little pimple pops—we call that plaque rupture—that plaque rupture, that pimple popping releases chemicals and that makes your artery clot. If your artery clots, that's what causes heart attacks and strokes. So, in fact, on more than eighty, about ninety percent of heart attacks and strokes are because the little baby plaque that doesn't hardly block the artery at all ruptures.

And it's small. We could only operate on things that are blocking seventy percent of an artery. So if ninety percent of heart attacks occur because something blocking less than forty percent is rupturing, that means in surgeries and procedures are only for seventy percent blockages or more, that makes these procedures very ineffective—almost totally

ineffective—but often nearly ineffective at preventing heart attacks and strokes. So that's the recent transition. That's the new information.

Let's clarify. If you have symptoms—that you have chest pain when you walk upstairs—you have two approaches. You could improve the function of your arteries so it dilates. You could help change your lifestyle so your plaque shrinks. Or you can do a procedure to bypass and go around that obstruction.

In the past, we only gave people the option of procedure. Now we're starting to realize, "Wow! What's growing plaque?" So in our clinic, we're looking at the factors that predict, are you growing plaque or not, so that you can identify what you need to do to stop it. And if you have it, to reverse it and shrink it.

James: What are some of those factors that you're looking at?

Dr. Masley: So in our study I just presented at the American Heart Association, we looked at things like...So of those classic risk factors I mentioned before, cholesterol, LDL cholesterol had no impact. One that did was blood pressure. Blood pressure does have an impact. And that's not surprising because your blood pressure's the measure of not a risk factor. It's the function of your artery.

But apart from blood pressure, some other things were really powerful. Your fiber intake, that's the roughage you get from fruit, vegetable, beans and nuts. Fiber intake is critical to whether you grow plaque. And fitness. The fitter you are, the less likely you have plaque in your arteries. And those were actually the two most powerful markers that we noticed for arterial plaque growth.

James: That's amazing. So is that a 180-degree shift from what you saw before? Or is that sort of a different look?

Dr. Masley: From the 1980s when we were only offering surgery? Think about it. Before they were still offering surgery. And basically we're still selling bypass surgery the way IHOP's is selling pancakes, one after another. [Laughs]

James: Yeah. [Laughs]

Dr. Masley: The thing of this transition, you go to the hospital with chest pain, getting out of there without a procedure is tough.

James: Yeah.

Dr. Masley: Because they still think of it as plumbing. They don't think about it in a biochemical way. And the other things we noticed that were very predictive of plaque growth were your fish intake, your body fat. And there's specific food nutrients like magnesium that were really important.

So we now realize people get to make choices to determine whether they grow plaque or not, that aren't dependent on their doctor at all. Yes, the physician can help them. And obviously many of us do. But the person, the patient, the person has much more power than the doctor. And this is much more important than looking at surgery. So that's a huge transformation!

James: And is that why you've started doing so much like writing books and TV work because you want to get earlier on in the process and catch people before they have the surgeries?

Dr. Masley: Well, I have my professional interest with my patients. But here's my disclaimer: I have two family members whose lives have been ruined by cardiovascular procedures.

James: Oh, wow!

Dr. Masley: The first was Chuck, my stepfather. Here's this great guy. My parents were divorced when I was a kid. And then growing up, my mom started dating Chuck, the state park director of Washington state. I said to her, "Marry him. He's wonderful!" He was so supportive of me and he was a great grandfather.

But right after he retired, he got chest pain. They took him to the hospital. They said, "Let's just do a cath and take a look." Well, that cath knocked plaque loose and it destroyed the whole right side of his brain. And his life was ruined. It was utterly destroyed. Massive stroke. So Chuck was in misery for years and I watched that until he died. And on his deathbed—he was like in a coma—Chuck sat. He'd been out for a week. He wasn't eating, wasn't drinking. And I went to say goodbye to him as he was dying, he sat up in bed and said, "Don't let what happened to me happen to others."

James: Wow.

Dr. Masley: I sat there and cried. And I held his hand and I promised. And that transformed my career.

James: That's amazing.

Dr. Masley: It's really made a difference.

James: Yeah. Well sometimes those big moments are what sends you in a different direction.

Dr. Masley: It made me really think, "This should not have happened." He didn't need that procedure, one. And, two, if we had offered him what I am offering people today in *The 30-Day Heart Tune-Up*, they could prevent this whole problem. It's so tragic. And here's the thing, cardiovascular procedures hurt Chuck much more than the disease.

James: So would you say that was actually more of an iatrogenic death?

Dr. Masley: Oh, absolutely! But we know one percent of people, six per thousand, have a major serious, about one percent of people have a major event when they have a heart cath. And most people don't realize that. And six per thousand of those are a stroke.

James: Wow!

Dr. Masley: Devastating. So one percent. You think, "Oh, that's not that big." Well, it's pretty big when it's you or a loved one.

James: Yeah.

Dr. Masley: And that's just for a stint when they go up there. When people have bypass surgery, it's much more serious. There was a study in the *New England Journal of Medicine* a few years ago, showing that forty percent of people who have bypass surgery have a twenty percent drop in brain function. What happens is when they're working on your arteries and they're changing things and they're manipulating, a ton of plaque, hundreds of pieces of plaque shower the brain like a meteor shower.

And my mother-in-law is a perfect example. How many guys can say I had a wonderful mother-in-law? Well, I did. I was lucky. But shortly after meeting her—I hadn't even married my wife yet—she started having chest pressure and a little pinch in her shoulder watching Jane Fonda workouts, of all things. They took her to the hospital. And they basically did a treadmill test and operated and did bypass the next day. Her memory was never the same. She had a major drop in memory loss, just like those studies. And now she's demented. Her life has been ruined.

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James: Wow. So that's an amazing statistic. And I think that speaks to something that's probably part of this evolution of cardiology, which is really understanding the heart in the context of the rest of the body, the knock on effects. So the brain is obviously one area. Can you give examples of other areas where the heart and other organs and systems are completely interlinked and can't be seen in isolation?

Dr. Masley: You know this pretty well. Most things are interconnected like a web. Your heart function depends on your circulation. Your circulation impacts your energy, your sexual performance. For men with sexual dysfunction, romantic dysfunction, most of the time the number one cause for that is cardiovascular disease. They are intimately linked.

If you have poor circulation to your extremities, that means you have heart disease. So here we have these people taking these little blue pills to enhance sexual performance. What they don't realize is they might drop dead tomorrow from a heart attack or stroke. So they're intimately related. When we think of hormones and hormonal symptoms for menopause and things like that, they're related. For blood sugar control. Blood sugar is probably the number one cause for heart disease today, just people having elevated blood sugar. So all of these things are intricately linked.

It's not just that you have a heart and pipes out of it and you fix the pipe and everything's fixed. No. The quality of your health is so intricately related, it's phenomenal. Brain, heart. If our gut's enflamed, we're going to grow more plaque. There was even a recent study showing if your gums are enflamed—like when you see the dentist for gingivitis, bad gum inflammation—that increases growth of plaque in your arteries. Anything that increases sugar or increases inflammation, promotes heart disease. So it's very global, as you were alluding to.

James: Yeah. So sugar plays a big component. Do you want to talk a little bit about inflammation and what that's being driven by?

Dr. Masley: Well, inflammation means that you are...In Latin, Greek, it's *inflammō*. It means your tissues is being set afire. So if your joints are inflamed, you get arthritis. If your brain's inflamed, it shrinks and you get Alzheimer's. If your artery's inflamed, you grow plaque.

So what makes inflammation? Well, it's a tissue reaction. It's supposed to fight off infections. But too much of it is autoimmune. We're attacking ourselves. So if you have inflamed arteries, they're going to grow a lot more plaque.

And here's something. A lot of people think statin meds are like cholesterol lowering meds. I think the most important benefit of a statin med is that they lower artery inflammation, not because they change your cholesterol. And people don't think of it that way.

So there's a whole new field out there. And what can we do? And what's an anti-inflammatory diet? And how do we lower inflammation? Because inflammation is the common denominator for accelerated aging.

James: That's interesting. So in that situation with the statins, is that a good short-term strategy? A good long-term strategy? Or just something in between?

Dr. Masley: Well, in our study, when we first meet people, "Do you have plaque?" Whether they are on a statin had no impact. What I've found—here's what I've used for them—is we have hundreds of people who've shrunk their plaque by more than ten percent. In other words, their arteries are ten years younger from having followed our *30-Day Heart Tune-Up* program.

And what we realized is that if people are having trouble, either they're not following it or they've got bad genetics or whatever, if I just put someone on the statin, I've seen people's plaque grow by—normal growth is about one percent per year—I've seen people take a statin, lower their cholesterol and their arteries still grow plaque at five percent per year.

I've seen people shrink their artery plaque with no medication at all, just the keys to our program. Add healthy food, measure your fitness. Get fit. Manage your stress and meet your key nutrient needs. But if you add a statin to that lifestyle, it's much more effective. So the combination of adding a statin to this seems to shrink plaque faster. And my goal is if I put someone on a statin, it's for two or three years. We shrink the plaque. We get their arteries back to normal. And then we can take them off the statin medication. They don't have to take it for life.

James: And that's not a typical plan, right? Normally when people go on statins, that's the plan from now on.

Dr. Masley: Well, up til now. Ninety-nine percent of doctors say, "We put you on a statin. You have to take this forever."

James: Yeah.

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Dr. Masley: But, see, they're just using it like a drug. They're not shrinking...If you only put them on the drug and they've been growing plaque, it's going to slow their demise. If the only thing you want to do is decrease the number of days to disability and grave, fine.

My goal is to tune-up one's heart, circulation, energy, waist line, turn up your romantic life, feel better, enhance your brain, improve your quality of life. And you can only do that with making the lifestyle choices we recommend. You can't do that with just medication. So but I'm not adverse to using meds to help people achieve a goal like plaque shrinkage. But I'll tell you, half my patients who've shrunk their plaque by ten percent never needed medication. They did it with lifestyle alone.

James: So lifestyle is obviously something that's bigger than news, one way or another. What's the best one? How does it work? Has your understanding of this changed since you've become interested in nutrition? What's been the shift?

Dr. Masley: So back in the 70s for diet, what did we say? We said ultra low-fat, right? First we had Pritikin. And then we had Ornish. And I was even the medication director at the Pritikin Longevity Center. And we put people on these ridiculously low-fat diets.

And I always wanted to say, "Let's test a Mediterranean study with a low-fat diet and see what happens to the heart." That was my goal. But over time, what we're realizing—and in the last year—there's been several publications on this new Mediterranean study. And clearly adding more olive oil and adding more nuts, healthy fat, is good for your heart. And it's good for your arteries. It decreases your risk of heart attack and stroke.

So I am thrilled that that's been a big evolution in the study of heart disease, that we now know that you can add healthy fat. It makes your food taste better, it's better for your heart. And there was no weight gain with it. They did not gain weight by adding olive oil and by adding nuts, probably because their food tasted better and they were more satisfied. They didn't need to eat so much junk.

So I think from a food recommendation, that's been a huge evolution to go from ultra low-fat—zero fat and people were eating junk food like pretzels—to now we say the key is healthy fat, healthy carbs, healthy protein. And that just makes so much more sense. Cutting out all these refined carbs, cutting out bad fat, adding lean, clean protein, that's been the biggest change that we've seen probably in the last twenty years.

James: That's great. And so where do you see this going from here? What's around the corner for cardiology?

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Dr. Masley: It's getting back to the biochemistry. What causes plaque to grow? And how can you get it to shrink with lifestyle? And how can you come up with a realistic plan so people can follow it? Nathan Pritikin, famous as he was—and he was a genius for his time in the 70's—but he said something I can't forget, "If something tastes good, spit it out." Well, that is just wrong because no one's going to stick with that plan long term.

The challenge is how do we make healthy food taste good so people can enjoy eating it? And that's what I've done. You said I'm a physician, a nutritionist, I'm fellow certified with the American Heart Association, American Academy of Family Physicians and the American Academy of Nutrition. But I went back and did a chef internship at the Four Seasons. I went back and did a chef internship because I was doing research studies and I wanted food to taste better. So our challenge is how do you make delicious food healthy so people love eating it? And so that's what I've really focused on. That's been my direction.

And it's what foods to add? For years we told people what they couldn't have. And that's just not very effective, telling people what to cut out. It's much more effective to say, "So I have five categories of food. Let's find foods you love and enjoy in these five categories so it makes it easy to add them." Then you're just so successful.

James: So changing the mindset away from taking things away to adding in new things is a starting point for getting some momentum into your plan?

Dr. Masley: Yes. So of the five food groups, number one, fiber, from some form of vegetable, fruit, beans, nuts. Maybe some non-gluten whole grains like quinoa or brown rice in small portions. People have to get to thirty grams a day. So it's going through, "Okay, do you like apples? Do you like blueberries? Do you like broccoli? What do you like? Do you like almonds? What do you like and how are you going to get to thirty grams of fiber a day from these foods?" That makes it easy to do and be successful.

Number two, was lean and clean proteins. So many people are eating mean protein. It's just awful! All this processed, commercialized, hormone and pesticide enriched protein people eat today, it's terrible. A lot of the poultry and meat is just literally hormone, antibiotic, and pesticide enriched. So it's getting back to free-range, organic poultry and chicken. It's if you're going to eat steak, it should be a lean cut like sirloin. And it should be organic, grass-fed, not hormone fed. Wild seafood.

Healthy protein powders like either whey protein. Or if you're dairy intolerant, pea/rice blend protein. So it's easy to get lean and clean protein. But it's giving people sources that they like so they can add them more easily and more often.

James: So you mentioned a couple of fats there before. Well you mentioned fiber as the first of five categories. What are some of the other categories that you have?

Dr. Masley: So first was fiber. Second is lean and clean protein. Third is healthy fat. So use olive oil. Add more nuts. Eat avocados. If you don't want to cook something with olive oil, use a nut oil like almond oil, hazelnut oil. They have a very high smoke point. Avocado is a great fat.

If you have heart disease, here's one of the big controversies out there that is unclear. Coconut oil, coconut products is a saturated fat. It raises cholesterol levels about thirty, fifty, seventy points. Is that good or bad? Most people don't know. So if you're healthy and you want to do something for your brain—a stable, healthy fat for your brain—I think coconut oil is great.

If you're concerned about your cholesterol and your heart, I'd avoid coconut oil and coconut products. And I'd use other nut oils and products instead. So I'd use almond oil, walnut oil, avocado oil. Because we know those are excellent. And it doesn't have that controversy. Even though I still think coconut oil's probably good for your brain and good for your immune system. So healthy fats, number three.

Number four is beneficial beverages. People get a ton of junk from what they drink. And sugar. Some people get twenty-five percent of all their calories from drinking sugar. And that's just awful. Major source of obesity today. So beneficial beverages, what is that? That would be like for breakfast, have a protein smoothie. Drink more clean water, water that comes from reverse osmosis or glass instead of water out of plastic.

It means having green tea, which is great. I'm okay with one or two cups of coffee a day. I certainly enjoy mine. But green tea is really better for you if you like caffeine. Have a glass of red wine with dinner. It helps digestion, your blood sugar, your cholesterol. Just make sure you can limit it or don't have it. And then chocolate. Have some cocoa every day. Those are the beneficial beverages that I think are really important and we need to drink more of.

James: That's great. And so what's number five?

Dr. Masley: Fabulous flavors. People don't realize how important it is to have flavor in food. And spices and herbs are very...You asked about inflammation before. The most anti-inflammatory things we've got are spices and herbs: garlic, ginger, turmeric, curry spices, chili spices, rosemary, Italian herbs. Those are all very, very anti-inflammatory, anti-aging. They rev your metabolism. We need to use more spices and herbs so our food tastes great. Now I've had people challenge me, "Okay, how can you say flavors are a food category?" But who's going to argue with adding more dark chocolate?

James: No argument from me!

Dr. Masley: Right? Dark chocolate's awesome!

James: Yeah.

Dr. Masley: In *The 30-Day Heart Tune-Up*, you have to have at least one ounce, twenty-eight grams of dark chocolate every day. And when I say dark, we're not talking milk chocolate. That's candy. We're talking something that's seventy percent cocoa mass. So when it says seventy percent on the label, you're supposed to have that every day for your heart and your brain, please.

James: That's great. So that's the food recommendations. And that sounds very solid. What are some of the other things that you do? I know you do the exercise.

Dr. Masley: Well, fitness...Here's what was really interesting. You talk about exercise. But how much? How do you do it? What we've learned from our study was how many minutes people report working out had no predictive value. Whether you said you worked out twenty minutes a day or sixty minutes three days a week or seven days a week. I was surprised by that. But it's because what is active to different people is so different. What mattered is how fit are you?

So fitness is important. So we measured fitness and that's strongly, powerfully connected to whether you grow plaque, whether you're healthy, whether your brain's fast, whether you're trim and fit. So here's the bottom line, if someone wants to be trim, fit, sexy and prevent heart disease, they need to be fit. And I would say ninety percent of people have no idea how fit they are.

James: So how do you find that out for them? How do you help them to find that out?

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Dr. Masley: Well, we came up with a very easy fitness test they could do. So we designed this, I worked with a cardiologist at Duke. What would be safe? What could we do? We gave people a protocol to follow so they could do a fitness test. So anybody who's got access to a bicycle, treadmill machine, elliptical machine, anything that tells you how many METS you're working out at, they can do our fitness test and assess their fitness. So easy, simple to do. It takes a few minutes.

And if you're uncomfortable with that whole concept, I speak to about twenty physician groups around the country. You've been at some of these. So I'm looking at promoting what can people do? If you don't know how to do it, in *The 30-Day Heart Tune-Up*, we've got a chapter that shows you how to do a fitness test. But a simple, easy thing everybody should probably do a test with a trainer once a year. Find a good quality certified trainer, do a fitness test with them once a year. Have them help you identify how fit are you and what are the next steps you take to get fitter. That's just so critical.

James: And so is any particular type of fitness that you've seen to be...I know some people do different types of weight training or muscle mass. Some people do more like interval training. What's your recommendation?

Dr. Masley: Well, for aging, I think muscle mass and aerobic fitness are equally important. For your heart, we didn't see that. Whether you're growing plaque or not, there was a trace relationship to strength training. But ninety percent of the benefit was all aerobic. The more efficient you are at burning oxygen running up a hill, that's the key factor for heart health, aerobic conditioning.

So I personally think of myself as an age management, some people call it anti-aging doctor. How do we optimize the aging process? I think both are critical. But for our focus here on the heart, it's mostly aerobic. So it's doing that treadmill fitness test, elliptical machine, bicycle, some way to measure your oxygen burning capacity, which is what METS are about. And most machines show what's your MET level while you're working out at gyms. So it's an easy, simple way for people to do that.

And then here's the key, when you do your fitness test, we want you to calculate what's your maximum heart rate because it's different for every person. When you know your maximum heart rate, we want people to work out at seventy to eighty percent. If you want to get trim, fit, and sexy in less time, you've got to know your heart rate so you're working out in the right zone. If you underdo it, you underdo your benefit. If you overdo it, you're beating yourself up. You really want to work out at seventy, eighty percent on a regular benefit to get the most return on the time you invest.

James: That's so interesting. Yeah, it's such a powerful tool to start. So you've got the food. You've got the exercise. What are the other things that are part of the program?

Dr. Masley: Well, really we found there were specific nutrients that are absolutely essential to heart health. And more than fifty percent of Americans are deficient in the most common key nutrients that are important to your heart. I'll say fiber again because it's that important. You can take it as a supplement or you can take it as food. So fiber's number one.

Number two turned out to be fish oil. Fish, like from salmon or sardines or fish oil from a high quality—now we're talking rancidity is a big issue—but high quality fish oil was absolutely essential to heart health. So that means having salmon, sardines, three times a week. Or taking a fish oil product that gives you 1,000 milligrams of EPA and DHA a day. And you do that every day.

And it can't be rancid. Rancid oil is associated with cancer. And there's actually been some studies that showed that people with high levels of EPA and DHA, if they get it from fried fish and things like that, seemed to have a higher cancer risk. So it's got to be good quality or don't do it.

Number three—a little surprise to me—was how important magnesium is. Magnesium is a mineral that helps your blood pressure, your blood sugar. If you're low in magnesium, you get muscle cramps, constipation, migraines, palpitations. And if it's really low, then you get sudden death, which makes it important, right?

James: Yeah, very important.

Dr. Masley: So magnesium is like seventy percent of Americans are magnesium deficient. And when we looked at what predicted people's shrinking plaque in their arteries, magnesium was one of the most powerful predictors that we ever saw.

James: Well, why are people so short of magnesium?

Dr. Masley: We get it from seeds, nuts, beans, and green leafies. Those are not keys to the American diet.

James: Yeah, I know. They're not right now, anyway.

Dr. Masley: So and the irony is you can get it in a supplement. But the most common supplement sold is magnesium oxide, which is a gastrointestinal irritant. It's an awful ingredient. And it causes all sorts of gastrointestinal symptoms.

James: So how do you like to get your magnesium?

Dr. Masley: So I suggest if they eat my eating plan, they're going to get beans every day, nuts and seeds every day, and lots of green leafy. But that's not most Americans. So most people need to take a supplement with about 400 milligrams of protein bound magnesium so it's easier on your stomach and well absorbed. So that's like magnesium glycinate, magnesium chelate. There's a bunch of different brands out there that are available that are so important. At least a non-irritating form. A cheap one is magnesium citrate. That one's fine. So that's even good for constipation. So magnesium is so critical.

Number three turned out to be vitamin D. You've heard this at several meetings. Most Americans, if you're not taking a vitamin D supplement, you're going to be vitamin D deficient. I'm in Florida. We call it "The Sunshine State," right? Like eighty-five percent of my patients are vitamin D deficient.

James: Okay, wow! That seems like that's a big number.

Dr. Masley: So in New York, it's a lot worse.

James: Yeah, I'm sure. So what's happening?

Dr. Masley: So people need about 2,000 international units a day. If you don't take a supplement, you're not getting that.

James: Okay.

Dr. Masley: And you almost need to take a separate vitamin D supplement. There's a few multivitamins that have 2,000. But they're pretty rare and far and few between.

James: So you've got the supplements. I know you've got the food. You've got the other things. Let's talk a little bit about stress because I know that that's a huge part.

Dr. Masley: Yeah well you've got it, that's the fourth pillar. So if you stress yourself out and you don't manage it—I like people having stress because it gives them personal challenge—but if you don't manage the stress, then it ages you.

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So high levels of stress causes your cortisol to go up, makes your blood sugar go up. Your blood pressure goes up. It ages your heart. Your brain shrinks. Your arteries grow more plaque. And you lose muscle and bone mass when you're stressed out. None of which is good, obviously.

So the key, the steps to managing stress for me are the tips are feel loved and supported, build connection in your life. Two, get enough sleep. So many people are sleep deprived. Three, have some peace and calm each day. Some relaxation time, meditation time, prayer time. And get a good work out. There is no drug nearly as effective as going out and sweating to manage stress. So those are really the four pillars to not just optimal heart health, but if you do these four steps, it's going to tune-up your heart, your energy, your waist line, and even your sex life gets better, too.

James: That's great. Well, that's a good overview of what doctors could be recommending and patients could be doing. If we take a step back, Dr. Masley, and we just talk about, this whole summit is on The Evolution of Medicine. And some of the themes that we've seen throughout has been a move towards individualization, towards an understanding of systems biology, towards a way of working with the causes of chronic disease rather than the symptoms. How do you feel like cardiology fits in that new model?

Dr. Masley: Well, when you think of the way we have been treating people with heart disease...And heart disease is probably one of the worst because we wait until you have symptoms. A lot of people's first symptom will be a heart attack, stroke or death. If we're not preventing it, people are dying. And they're disabled. And up until recently, we've spent—this is awful—we've spent ninety percent of our resources for cardiovascular disease for the last twenty years on procedures and hospital care that don't do anything to prevent future events. Ninety percent of all our resources. So I don't know if there is a disease that's as poorly aligned with what we should be doing as cardiology.

And here's the irony. Maybe we can prevent fifty percent of Alzheimer's. But we can prevent ninety percent of heart disease with the lifestyle I recommend in *The 30-Day Heart Tune-Up*. Ninety percent by following these four steps! That's incredible. So think what a transformation! Instead of spending ninety percent of our resources on procedures in hospitals for end stage care, we can prevent ninety percent of this.

James: So what would have to happen for that to happen? If you just start with the rose tinted glasses of looking at the future from a very optimistic point-of-view of what you hope will happen. You've been on the TV this year, on PBS stations to five and

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ten million people. What do you think the knock on effect of that could be? And what would it take to get us to a point where we're mitigating half of these kind of issues?

Dr. Masley: It's going to be a revolution in self-care. You said some of it eloquently. It's more about self-care. What can people do? People have to take responsibility for their own health. We've got to start advocating that to our doctors. The doctors, if they're seeing thirty to forty people a day, they might care. They might know what they want to do. But they don't have the time.

Right now we have disease care in America. We don't have health care. The only way to have health care is to empower people to take charge of their own health and to be responsible for their own health. And they have to start by measuring are you getting the key new foods? Are you measuring your fitness to optimize your fitness level? Are you meeting your key nutrient needs? And are you managing your stress? If we do those four things well, we could prevent ninety percent of our healthcare costs. I know that's true for heart disease. I think that's true for everything else, as well.

James: Yeah. Let me just ask you because I've seen for myself some of the most amazing results. My mother-in-law actually lost a hundred pounds. And the only thing that she did differently was to have an accountability buddy that she would have to call to tell them what she was eating and so forth. What do you see as the leverage points for this kind of revolutionary change?

Dr. Masley: Well, I love that partnership like your mom had. So we're doing a corporate wellness program. And I want everybody who's participating for these companies to have a partner that they're working with. I love the idea of an exercise trainer. A trainer becomes a bigger role in everyone's life, someone who's holding you accountable for what you're eating and how active and how fit you are. And someone who's actually going to measure those things. Because we can't afford to ask our doctors to do that. It's just too expensive. Our doctors can encourage it.

I've been, for twenty years, traveling around the country, you know, speaking at medical meetings. And one of the main things I've said is, "Your patients need to have an annual assessment of their nutrient intake. And they need to have their fitness measured every year." So I've helped hundreds, maybe a few thousand physicians do more nutrient intake assessment and fitness testing and working with trainers. But that's just a drop in the bucket.

Now if we got people to do that on their own and they were in charge, we're going to get a lot better. Trying to get doctors to do something is like herding cats.

James: Yeah.

Dr. Masley: We're going to be vastly more effective if we just...Eighty to ninety percent of the time when a physician finds out their patient's following my program, they're thrilled. They're like, "Thank God you're following something." It makes sense. They're so excited half the time when they tell me they found out one of their patients had bought my book or something. They're like, "Thank God." Because they wish they had the time. And they don't. It's not that they don't care. They can't do this. People have to.

So how do we get the right resources into the hands of the right people? I think that's part of what you're doing. That's part of your whole summit here is to get people in charge of their own lives. And I applaud you for what you're doing with this whole process.

James: Thank you, doctor. Yeah, it's certainly a very efficient way to distribute information. Anyone can come on. It's free. It's available to everyone throughout the process. And I think it's certainly valuable.

So if you were to talk directly to cardiologists now...And there's cardiologists who are listening today. Because I met you at Heal Thy Practice, which is a conference for doctors who are finding new ways to practice and actually reclaiming their freedom and being able to practice in a way that they want to do. If you're speaking to the average family physician or cardiologist about some advice of The Evolution of Medicine and how they can best play their role in it, what would you say?

Dr. Masley: Well, here's the challenge. And here's the cynicism on their part. I say to a cardiologist or a regular family primary care physician, I'll say, "You've got to get your patients to eat better and be more fit, meet their nutrient needs." And they go, "I tell them. And they never listen." And I go, "What? What did you tell them?" Did you just say 'Lose weight. Eat better. And go exercise,' and that was it?" One half sentence and that's all the tools and support your patients got? And you're surprised they failed?

So they're like, "I tell my patients to do this and they never listen." That's their perspective. What they don't realize is that is never going to work. People need tools. They need support. They need training. And there's so much misinformation out there, as you're aware.

James: Yeah.

Dr. Masley: So what I do in medical meetings is I'm trying to let doctors know there's hope, there's tools, there's support. And they can direct their patients to these proven sources, programs and feel confident that these are going to help them.

James: Absolutely.

Dr. Masley: So that's the shift for physicians is that showing them results that have been proven to work in clinical studies, which I've got. I've done multiple, randomized, clinical trials showing the results work. We're showing the results of hundreds of patients who've shrunk their plaque and saying, "If you can get your patients to do this, it'll work." And then in the past, it was like, "Well, yeah. If I could win the lottery, that'd be nice, too." But now it's like, "And I am willing to give your patients the tools—video programs, recipes, books—all the tools to succeed." And now they're finally getting excited.

James: That's awesome. So what's the best strategies that you've found to enable patients to actually want to do this? Because that's another thing and part of this Evolution of Medicine is like we're moving away from this patriarchal relationship you have with the doctor where they're the boss and they tell you what to do and you know nothing and they know everything, to more of this empowered hand-in-hand guiding process.

Dr. Masley: Right. And we're cynical about our doctors. And not only is that patronizing model not working, we've become very cynical about what our doctors say. But do you know who we trust? Here's the irony. Someone like Oprah. So if we want to make a difference, if we want to get people to change, we have to work with the media. So here's the irony. To be a critical, successful program, not only does it have to work in a scientific way, it has to work in a sex appeal way so the media will pick it up and take it out there.

James: So is that part of your message?

Dr. Masley: Well, that's why I'm doing this PBS program.

James: Yeah, yeah, yeah.

Dr. Masley: It's going on throughout the year. And it's exceeded my dreams and my hopes. We're going to reach millions of people with a program that gives you about ninety minutes to two hours of material in a show, plus a package that provides all the tools and support with video and cooking classes and stress management tools and

Everything, all the tools and all the support to actually help people succeed. I mean, how incredible is that? So a scientific program that the media has picked up and is going viral, it's going widespread.

James: That's great.

Dr. Masley: That is incredible!

James: When we met a few years ago, Dr. Masley, in the Heal Thy Practice 2011 where you were the conference chairman, I know you shared with me your vision to be making large-scale change. How far is this along from your vision? And has your vision increased since then now that you are making that?

Dr. Masley: Well, this has exceeded my hopes to date. That's incredible because I had pretty lofty hopes, if you remember.

James: Yeah, no definitely.

Dr. Masley: But it's not just about heart disease. It's about how to reverse diabetes, how to reverse Alzheimer's? How do we stop joint pain from arthritis? But you mentioned it before. All these systems are interconnected. We have to stop thinking of it as one disease at a time. And it's about optimizing health. And when you connect all the dots, what you realize is the same program that's good for your arteries is going to make your brain better. It's going to prevent diabetes. You're going to have more energy. You're going to lose weight. Your joints are going to hurt less. That's the eye-opening thing. Something that's good for a part of you is usually good for all of you.

James: Yeah, that's so true. We've had Dr. Perlmutter and Dr. Hyman ahead of you with these PBS shows. And I think it's valuable for PBS. It's valuable for you. And it's valuable for everyone watching. So that's it.

But that's one of the things that I see time and time again is that if you were to take your book and really do the best work and do everything that you mentioned today, it's not just your risk for cardiovascular events it's changing. It could be all number of areas. So rather than just taking aim at specific symptoms and looking to modulate them, we're actually taking a look at the causes of them. And if you unwrap and unravel some of these causes, it typically has a knock on effect to all of these other dysfunctions that were either maybe clinical or subclinical.

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Dr. Masley: Yeah, and you feel better. On our HeartTuneUp.com website, one of the themes for the title is, "Tune-up your heart, your energy, your waistline, and your sex life." But it's true. If we stop heart disease, that means we improve your circulation. If we improve your circulation, your energy's better. If you're energy's better, your metabolism's better. If your metabolism's better, you lose weight. And if I improve your circulation, for men and women, it's a marked improvement in sexual function. So your total quality of life improves dramatically. At the same time, you can prevent and reverse heart disease.

James: Yeah, that's huge. That's huge. So another thing that we've seen...I know this is slightly not in the topic of your book. But I'm really interested to your though. One of the things that's been coming up a lot in this has been looking at the new understanding of the gut and the microbiome as part of the evolution. Is there a reaction or is there an interrelation between what's going on there with the autoimmune disease, the microbiome, gluten, so forth?

Dr. Masley: You know this. You already know the answer. There's multiple relations. Just to pick a couple of them. If your gut is not in balance, if it's not in ecological balance with your biome, it's inflamed. So if your gut's inflamed, your brain's inflamed. Your artery's inflamed. Your whole body's inflamed and you're getting old rapidly. You have accelerated aging.

And this is interesting. Autoimmune disease like gluten intolerance, if you're gluten intolerant, that's an autoimmune disease. It's twenty percent of the U.S. population. But here's what I'm finding fascinating, I'll take people who did not know they were gluten intolerant, but some symptoms began. If I tested them, I found they had a positive test showing gluten intolerance. We took them totally off of gluten. And often times their artery plaque will shrink five to ten percent in one year.

We changed gluten in their diet. It's not just an autoimmune disease that can impact your brain, your thyroid, your gut. It increases your inflammation. And when you take that inflammation away, your artery plaque shrinks.

James: So this is almost the opposite. You're talking about gluten and sugary drinks as the drivers, which are basically sugar based, whereas for a long time, we've been thinking that it was fat that was actually causing this plaque block-up. So it's almost like a shift across...

Dr. Masley: Well, we still have trans fats out there. So one of the three big toxins in the American lifestyle, there's sugar. But I would say anything that's in the form of flour,

any form of flour and sugar from a biochemical thing, they act the same. When you grind a grain that finely, it acts just like sugar in your bloodstream.

But don't forget trans fats. Not all fats are good. Trans fats, hydrogenated fat, that's basically embalming fluid. I mean they're really bad. In New York, you don't have to see them. They're banned.

James: Yeah.

Dr. Masley: But in the rest of the country, we still have them. I'll tell you, they're all over in the food supply down here in Florida and across the country.

James: Where are the most obvious places to find them?

Dr. Masley: Any packaged food. Restaurant food and packaged food. It just increases the shelf life dramatically. The box might go bad before the inner food goes bad.

James: Yeah. Definitely.

Dr. Masley: So they can change the wrapper and keep the food inside.

James: Yeah, exactly.

Dr. Masley: The rest of the country has to catch up to New York and ban trans fat. But I don't know if that's ever going to happen. But people can choose to not buy food if it has hydrogenated fat in it.

James: Well, I have to say, that's been another theme of this whole thing, Dr. Masley, is that you only get to vote once every four years. But you're actually voting every day with your dollars.

Dr. Masley: You do. So cut out sugar. Cut out trans fat. Get active. Add these food groups. You could transform your life. And all of these things are interconnected in a web-like fashion.

James: Well, Dr. Masley, thanks so much for your time today. I think that what you described today is this Evolution of Cardiology, which is that it's a lot more patient-focused. It's a lot more patient driven, it's a lot more preventative in nature. And what we're looking for is ways to be able to reduce the risk of these heart events. And it seems like if we could take this really seriously and we can move forward with doing

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this, we could actually make an impact on all other areas of chronic disease, autoimmune disease, and the other areas that are driving the majority of our costs.

Dr. Masley, is there a final word you'd like to share with all the people on the line today?

Dr. Masley: Well, when it comes to heart disease, don't wait because if you wait until you have symptoms...It's not like arthritis, you get some early joint pain. You could have a heart attack, stroke, or death. This is your opportunity today to tune up your heart, your circulation, your energy, your waistline, and your romantic life. So take action. Do these steps. It's not just going to prevent heart disease. You'll feel awesome at the same time.

James: Awesome. Well, that sounds like something worth doing. Thanks so much for your time, Dr. Masley. And I hope everyone enjoyed it.

And this was The Evolution of Cardiology. And we'll speak to you soon.