Dr. Drew Sinatra: The holidays are here, and people with diabetes and high blood sugar often feel deprived and restricted throughout this season. This past episode is chock-full of tips and advice on how to manage your blood sugar properly — not only during the holiday season, but every day.

Dr. Drew Sinatra: In this episode, you'll learn about my father's experience growing up with a mother with Type 1 diabetes, and how this shaped his desire to become a doctor. We go over some alarming statistics about diabetes and blood sugar abnormalities. For example, did you know that 100 million plus Americans have pre-diabetes or diabetes? That's a big deal, and something we really need to address.

Dr. Drew Sinatra: Fortunately, throughout this episode we provide simple and practical tips to help lower blood sugar — including exercise or movement, specific foods that support healthy metabolism and blood sugar control, and herbal medicines, like berberines, that can lower blood sugar as good or better than pharmaceuticals. At the end, we review some blood tests you can ask your doctor to run to learn more about inflammation levels in the body, and how heart health and blood sugar are closely related. We hope you enjoy this throwback to, “Diabetes and Your Heart.”

Dr. Steve Sinatra: More than 10% of people in the United States have diabetes, and many of them don't even know it.

Dr. Drew Sinatra: Diabetes impacts people across all social, economic and ethnic backgrounds — and can be deadly, if not managed well.

Dr. Steve Sinatra: But there's another danger of diabetes we don't talk about enough, and that's to your heart.

Dr. Drew Sinatra: People with diabetes are two times more likely to have a heart attack or stroke than people without diabetes.

Dr. Steve Sinatra: So today, we're going to share some ways to manage diabetes, what to watch out for, and the best ways you can protect your health — and your heart.

Narrator: Welcome to **Be HEALTHistic**. The podcast that is more than just health and wellness information — it's here to help you explore your options across traditional and natural medicine, so that you can make informed decisions for you and your family. This podcast illuminates the whole story about holistic health by providing access to the expertise of Drs. Steve and Drew Sinatra, who together have decades of integrative health experience. **Be HEALTHistic** is powered by our friends at Healthy Directions. Now, let's join our hosts.

Dr. Drew Sinatra: Hi folks…if you like what you hear today and you want to listen to future conversations on all things integrative and holistic health, subscribe to our podcast on Apple podcasts, or wherever you download your favorite podcasts. Also, check out and subscribe to our YouTube channel, which will feature video versions of our episodes, plus video extras you won't want to miss. And finally, we have more with me, Dr. Drew Sinatra, my dad, Dr. Steve Sinatra, and other Healthy Directions experts over on the Healthy Directions site. So visit **HealthyDirections.com** to explore our database of well-researched content and information. And of course, you can always follow us on our social media channels.

Dr. Drew Sinatra: Welcome, everyone, to another episode of **Be HEALTHistic**. I'm Dr. Drew Sinatra, and I'm joined today with my father, Dr. Stephen Sinatra.

Dr. Steve Sinatra: It's good to be here, Drew.

Dr. Drew Sinatra: All right. Today, we're going to be talking about diabetes and the heart, and what are the connections between having blood sugar issues and heart conditions.

Dr. Drew Sinatra: So, Dad, I've never asked you this question before, but I'm very curious. I know your mom was a Type 1 diabetic. Was there any reason for you becoming a cardiologist, because of that?

Dr. Steve Sinatra: Oh, yeah…I've thought about this for years, and there's no doubt about it. I mean, when I was 10 years old, I'd come home from 4th grade elementary school, and I'd see my mother in diabetic shock, sweating, shaking. And she would say, "Give me sugar," and I used to give her sugar, or orange juice back then. Sometimes, she would go the other way. She would go into high blood sugars and become very sleepy, and develop coma. She even asked me to give her insulin shots.

Dr. Steve Sinatra: So, when I was growing up as a young boy, 10, 11 and 12, I lived with diabetes firsthand. I can remember being in 4th, 5th grade and I'd hear a siren go down the block, an ambulance — and I'm saying, "Uh oh, I hope it's not for my mom." I used to live in fear of that.

Dr. Steve Sinatra: Did diabetes in my family shape my introduction into a medical career? Of course it did, there's no doubt about it. As one thing led to another, I was lucky to get into college and medical school, and the universe has been very good to me, so to speak.

Dr. Drew Sinatra: That's a great story. I never really had all that information, so thanks for sharing that, Dad.

Dr. Drew Sinatra: Well, Dad, today we're talking about diabetes, and this is a major, major problem right now in America. In fact, we know now that there's over 34 million people that have diabetes. Also, they're saying around 100 million total people that have blood sugar issues, including pre-diabetes. So almost one-third of the population is having some sort of blood sugar issue right now, and that's a major concern.

Dr. Steve Sinatra: This is a problem. I mean, this is a major problem because remember, it's not just diabetes that's the issue — it's all the complications of diabetes that can end people's lives earlier. They get heart disease, they get high blood pressure, obesity can be a factor in Type 2. I mean, there's so many elements of diabetes that can really weaken the medical system going forward, because it puts a big stress on the medical system.

Dr. Steve Sinatra: Diabetes ages you quicker. There's no doubt about it. So if you age quicker — and now we know its age glycation, and that's a big factor in diabetes. For our listeners, what it means is, if your blood sugar is high, like in a diabetic, and if you have a lot of proteins circulating in the blood, like we normally do — the proteins combine with the blood sugar, and they form these age glycation byproducts, which accelerates the whole aging process. That's why diabetes is really crucial in the whole aging phenomena.

Dr. Drew Sinatra: Yeah, from my understanding, like you just said, I mean, diabetes is really helping speed up heart disease. We know that there's micro-vascular complaints, there's macro-vascular complaints and issues. There's inflammation, there's more oxidative stress, there's even hypercoagulability that exists with diabetes. And so, it makes sense that it is facilitating this speed up of heart disease.

Dr. Steve Sinatra: Absolutely. The big, crucial factor there is endothelial cell dysfunction, which is related to surges of insulin going up and down. That's what happens in a diabetic person — insulin goes up, insulin goes down, whether they inject it, whether you're a Type 2. It's just a standard fact that the diabetic person needs to really take control of their health. If you are diabetic and you do listen to this podcast, or you know somebody who is, or it's in your family, hopefully you can get some tips to really improve the whole situation. Because remember, our motto has been for years, what? Prevention is easier than cure, right?

Dr. Drew Sinatra: Than cure, exactly.

Dr. Steve Sinatra: Basically, that's what you want to really...one of the pivotal points our listeners need to get from us is that if I do have insulin resistance, if I do have higher blood sugar, if I am headed for diabetes, what can I do to prevent it — and prevent the complications of diabetes, which can be deadly and also shorten lifespan at the same time.

Dr. Drew Sinatra: Yeah, we're definitely going to jump into some of those things in the middle of this podcast here. First Dad, I wanted to get into...in your practice, when you saw someone with diabetes come in, what was your major concern? Let's talk about Type 2 diabetes, non-insulin dependent diabetes — what was your main concern regarding the heart, for them?

Dr. Steve Sinatra: It was classic, Drew, it's amazing. I would see patients come in the office with higher blood pressure, higher triglycerides, a little bit plump around the waist — a guy would be approaching 40 inches, a woman would be about 35 inches. They might have some borderline hypertension. And instead of reaching for two or three drugs or whatever, trying to treat the high triglycerides, the high blood pressure, maybe the borderline higher blood sugars, or the borderline hemoglobin A1C's — I would recognize offhand that, “Hey, wait a minute, you got insulin resistance!”

Dr. Drew Sinatra: Sounds like metabolic syndrome.

Dr. Steve Sinatra: Yeah, metabolic syndrome — and the people would say, “Well, what do you mean? What's that?” I would say look, your blood sugar is borderline, your hemoglobin A1C is going up. Which remember, hemoglobin A1C is a measure of a long blood sugar, like a 30-day blood sugar. It's a direct measurement of how your blood sugar has been over four, five or six weeks.

Dr. Steve Sinatra: These people were shocked, Drew. They would say, "Wait a minute, you're telling me I could have diabetes?" and I’d go, "Yes, yes." Sometimes they would come in with just borderline hypertension, or come in with hypertriglyceridemia, or come in with an increase in abdominal girth. But whatever, it was Type 2 diabetes — and I looked at this, oh my gosh. I would see this almost, I would say, every day in my practice. It's amazing how common it was, even back then — and it's getting more and more common now. When you think one in three…3.3 to 3.4 people can have this situation. I mean, it's serious, it’s serious.

Dr. Drew Sinatra: You know, Dad, I run a hemoglobin A1C on everyone that walks through the door. I also do fasting blood sugar, and maybe even a fasting insulin, if we're thinking about diabetes. You know what gets me, though, is sometimes people come in and they've had a hemoglobin A1C of...let's say someone in their 40s

and 50s have had a hemoglobin A1C of 5.8, 5.9 — so, they're technically pre-diabetes…

Dr. Steve Sinatra: Yep.

Dr. Drew Sinatra: …and their doctor hasn't talked to them about it. It's like they haven't really considered it a major concern. I do find that...that's a red flag, in my opinion, that we need to hit this pretty quickly to lower this blood sugar, or else we're going to lead to some of these complications with heart disease. So I do hope that, if there's any physicians listening to this, that you really do address pre-diabetes as something that is preventable. At least if someone has it, we can help reverse that pretty quickly back into the regular range, at least for hemoglobin A1C, wouldn't you agree?

Dr. Steve Sinatra: Oh yeah, with diet and exercise, you can reverse it immediately. And I got to tell you, Drew, when I had men and women come in the office with this abdominal girth situation — and I'll tell you, a mere five pound weight loss, just a five pound weight loss, could change these blood chemistries. As a heart specialist, I was looking at this continuously in my patients, because again, I practiced a lot of preventive cardiology in my earlier days.

Dr. Drew Sinatra: Well, that's such a key point you made there, Dad. It doesn't take that much in order to make a big change with blood sugar. For example, if someone comes in and they're not eating that good of foods, or they're not exercising, or they're smoking, or they're overweight, or they're not taking any supplements to help support blood sugar. If you get even one or two, maybe even three of those things on board, you can see drastic changes within a couple weeks, even a couple of months.

Dr. Steve Sinatra: Oh, absolutely, I mean a little walking program, replacing carbohydrates with healthier proteins and healthy fats — remember, people don't realize this, but when you take in protein and healthy fats, your insulin response is minimal compared to a high-carbohydrate diet. If you're on a high-carbohydrate diet, your insulin response is major…major. The secret to diabetic control or getting the right metabolic situation is really cutting back on carbohydrates, and burning up the sugar even more with a low-level walking program.

Dr. Steve Sinatra: Walking the dog, climbing steps…there's so many things. Parking your car at a parking space that's further than you'd like it to be. A lot of people want to park as close as they can to the building — I used to tell my patients, park the furthest away, and burn up blood sugar, burn up calories — because you'll be doing yourself a lot of good. Little tips like that. Even walking the dog…I have so

many patients walking the dog, because it's not only good for the dog, but it's good for you. So, it makes sense.

Dr. Drew Sinatra: Well, let's talk about exercise and movement and all that, because I think it's so important here. I also recommend that people, even if they're working at their desk, to stand up. Because even if they stand up, there's going to be minor contractions happening in their skeletal muscle, more utilization of that glucose into the tissues. Even doing a lunge or a stretch at work, or moving around — just get up from your desk and just move around. And then if you've had lunch, take a walk — because that's probably the best thing you can do after you've eaten a meal, is to go for a little bit of walk to help with that glucose utilization.

Dr. Steve Sinatra: One of the things I do, Drew, a lot is I'll have dinner, and I'll go for a beach walk. The reason being is when I'm walking on the beach, not only am I grounding, which reduces inflammation — but now, the walking alone, I'm burning up calories. It's just a great way to support the metabolic situation of the body. And remember, a walking program, you can lose a few pounds…you don't need to lose a lot of weight to make a difference. And I know we've said it on this broadcast, but I got to really emphasize that.

Dr. Steve Sinatra: Even the *New England Journal* study showed…that study on Metformin, remember that? Where Metformin and a walking program was as good as taking insulin, almost? I mean, that's amazing! How you can reverse Type 2 diabetes…and even, I had Type 1's in my office, I was able to get them off insulin. That's amazing…so, that's one of the greatest joys of being a physician, when you can do stuff like that.

Dr. Drew Sinatra: Yeah, the little things that make big changes, I love that. Now Dad, you talked about having or focusing more on a low-carb diet for diabetes. Is there any other dietary recommendations that you'd make, anything else that you think of?

Dr. Steve Sinatra: I like a lot of healthy fat and good quality proteins. Organic proteins, as much as possible, good healthy fats — because again, the insulin response is minimal. Now, there are certain foods that...I love avocados and diabetes, for example. It's monounsaturated fats, again, you don't get the insulin response. Avocados support glutathione production.

Dr. Steve Sinatra: If you take it with selenium and vitamin C, then you have glutathione peroxidase, which is the best natural antioxidant of the body to support immune function. When it comes to fruits and vegetables, I like lower glycemic fruits, certainly. I mean, I wouldn't want to tell a pre-diabetic to be eating a lot

of watermelon. Even though watermelon has a lot of lycopene, it's good for you — but again, it's a sugary fruit.

Dr. Steve Sinatra: So you want to reduce the sugary fruits, and give the lesser glycemic types of fruits and vegetables. So, that's what I aim for. Again, if you can reduce the carbs — the pastries, the cakes, the bagels, the cookies, the white semolina pastas. The higher protein pastas I endorse, I really like that because you don't get the insulin response. But anyway, just the carbohydrates in the diet…less carbohydrates is really key.

Dr. Drew Sinatra: I completely agree. And I know, Dad, you've talked about this 100 times before, but the sugary drinks, the sodas, the high fructose corn syrup — those are also important things to avoid, of course, because those can certainly cause issues with blood sugar regulation.

Dr. Steve Sinatra: Major, major insulin response. Remember, Drew, when we talk about these foods, we want to bring fiber into the equation. Remember this, the average American only takes in…there's different data on this, some researchers say 15 to 21 grams of fiber, when we should be taking in 35 to 45 grams of fiber. So it's really important for our listeners to realize the more fiber you take in, what happens is, not only are you getting more bowel cleansing, which is really good. But with the fiber, now you're absorbing the sugars slower into the gastrointestinal tract.

Dr. Steve Sinatra: So you're giving the body a longer time to respond to the carbohydrate, or the sugar surge. And that's important, so your peaks and valleys of insulin are less — they're dampened, so to speak. So a high fiber diet, I really, really like because again, it slows down the absorption and it prevents these rapid rises in insulin.

Dr. Drew Sinatra: Yeah, I'm glad you brought that up, that's really important.

Dr. Drew Sinatra: Dad, is there an alternative to sugar, white table sugar, that you recommend?

Dr. Steve Sinatra: My patients used to push back on this all the time, when I was seeing patients on a day-to-day basis. I love ribose, because ribose gives people a sweetener but it has a negative glycemic effect. In fact, giving ribose to Type 1 diabetics, I used to always have them save...if they drop the blood sugar too much, they would have to maybe take a little orange juice to overcompensate the drop in blood sugar. But ribose was good, because ribose would add a little sweetness.

Dr. Steve Sinatra: So if they needed something in their green tea, for example — which was very good because green tea has great polyphenols — I would suggest a little ribose

to it. Now, what are some other good sugars? I think honey is a good sugar, in small amounts — as is maple syrup. Maple syrup has some medicinal value. So, small amounts of maple syrup or honey. I'm not a big fan of some of the synthetic sugars, like the agave sweeteners…I just don't like them.

Dr. Steve Sinatra: Molasses…in small amounts, it could be okay. But like I said, you got to fit the sugar to your patient, because some patients may have preferences. But remember, when it comes to these sugars, less is more. Not two tablespoons of honey, maybe a half a teaspoon of honey…something like that.

Dr. Drew Sinatra: Yeah, great. What about other beverages, Dad — what about alcohol? Do you tell diabetics to generally avoid alcohol, or what's your take on that?

Dr. Steve Sinatra: Less. Less alcohol, absolutely, because alcohol is sugar.

Dr. Drew Sinatra: Exactly.

Dr. Steve Sinatra: Even wine, even wine…I would tell my diabetics to be really careful. And look at beer, for example. Beer has maltose in it — high, high glycemic situation. I had so many men with big bellies, Drew. Again, they were insulin resistant, they were beer drinkers, they didn't know it. Once I told them, and I said, "Look, beer is...this could make you diabetic, because of the maltose situation." They would get it, and they would say, "Well Doc, can I have a gin and tonic? Could I have a glass of wine?"

Dr. Steve Sinatra: I said, “Once you lose your belly, yes.” I would give them that reward. Because again, you can't restrict everything as a doctor.

Dr. Drew Sinatra: You got to choose your battles.

Dr. Steve Sinatra: You got to choose your battles. Good point, Drew, excellent.

Dr. Drew Sinatra: Did you ever have any of your patients wear a continuous glucose monitor? Do you ever have them do that?

Dr. Steve Sinatra: They were coming into vogue when I was going out of practice. Some of them were doing it, some of them were doing the insulin pumps at the time, it was new back then. I would suspect it's a lot better today, and a lot easier. I mean, even checking blood sugars. I had some patients who would check two or three blood sugars in a day, trying to correct it. But back then, they were doing the finger sticks which isn't...it's not comfortable, but it's not major uncomfortable, but they were doing it.

Dr. Drew Sinatra: I bring up the continuous glucose monitor because I've certainly known some patients that have used it, and they swear by it in terms of learning what foods or what beverages are causing a high glycemic response in their body, or high insulin response, for that matter. They've used it for exercise, to see how much exercise lowers their blood sugar, or even for stress, or an illness that may cause spikes in blood sugars.

Dr. Drew Sinatra: I feel like for a lot of people, if they really want to dive into this and learn more about their blood sugar, look into getting a continuous glucose monitor to really learn about how these factors in your life — the foods you're eating, the stress you're under, illness, etc., exercise — can all help regulate your blood sugar better.

Dr. Steve Sinatra: Drew, you said it so clear, I got the divine chill on that. You know why? Whenever you can teach your patients the phrase, “awareness is curative.” The more your patients are aware, and the more they can get directly involved in their self-care…just the way you said it. You have a monitor, you realize, “Oh that fruit is not good…oh, walking lowered my blood sugar level.” I mean, this is really cool, this is great stuff. So when patients get that immediate feedback, that awareness is so curative in itself, then their health begins to soar. Because then they get more and more motivated, and that's what you want — you want motivated patients to really carry the ball for you. Make your job less cumbersome and tedious.

Dr. Drew Sinatra: And once someone is motivated, they're going to see the changes, they’re going to start to feel better, they might lose some weight, they'll see more regulation with their blood sugar. And that's going to give them even more motivation to keep going.

Dr. Steve Sinatra: When the blood pressure goes down, and the waist size goes down, and the triglycerides go down. Drew, it's like nirvana — they get really excited.

Dr. Drew Sinatra: Exactly.

Dr. Steve Sinatra: It's a good point, good point.

Dr. Drew Sinatra: Now, moving over to some medications and some supplements to help support blood sugar here. I know Metformin is obviously really big in the anti-aging community, and a lot of Type 2 diabetics are on Metformin. What's your overall impression these days of Metformin — are you pro, against, in the middle?

Dr. Steve Sinatra: Being in the anti-aging movement for more than 25 years, a lot of my colleagues took Metformin, and it made sense. But right now, I think berberine would be a

better choice over Metformin. I just feel that even with this new data about berberine and activating AMPK — I mean, AMPK activity is relatively new in the medical world. Universally, at the conferences I'm going to and the journals that I'm reading is, whenever you can stimulate AMPK activity, you're driving your metabolic machinery in the right direction.

Dr. Steve Sinatra: In other words, you are supporting the body, and you're not wearing the body out or wearing the body down. And whenever you can activate this enzyme, it's driving the body into a healthier condition.

Dr. Drew Sinatra: Got it, thanks for that explanation, Dad. I think I'm on the same page with you on Metformin. I, too, like to more use something like berberine as an alternative to that, and I do find that berberines are pretty effective for not only helping with blood sugar, but they also can have an effect on lipids, as well. And that's going to have a positive effect on the heart.

Dr. Steve Sinatra: Correct, correct. And to my knowledge, I have not seen any downside or negative literature on berberine. It's amazing, that's one thing about medicine…you'll find so many papers for, and you'll occasionally find a paper against, but I have not found any negativity on berberine yet. Could it happen? It's possible, but I haven't seen it.

Dr. Drew Sinatra: Well, there was a 2008 pilot study in *The Journal of Metabolism* — this was done, I believe, in Japan. And they looked at berberine vs. Metformin, and what they found was that over a 13-week period, berberine was pretty much comparable to Metformin in terms of blood sugar — but it had an improvement in triglycerides and total cholesterol, which Metformin did not. And in that article, I didn't read anything about side effects and such from berberine. So, I've been using it for a long time.

Dr. Drew Sinatra: I've also used it for treating certain gut conditions, like someone who has dysbiosis in the intestines. Berberine's an amazing antimicrobial, as well. So it has all these sorts of functions to it that make it such a versatile herb to use in someone's practice. Now in addition to berberine, what other herbal medicines or even supplements do you think of for supporting blood sugar for people?

Dr. Steve Sinatra: Well, we used to think of chromium, for example. Chromium polynicotinate, and there are some exciting new forms of chromium. Crominex is one, for example, I'm really excited about, I saw the research on that. I think chromium, metabolically, again, does everything right, so I'm a big fan of chromium. There's certainly cinnamon — cinnamon can have an effect on the blood sugar lowering as an herb, it works. Gymnema sylvestre is one I used years ago that has a supporting impact on blood sugar.

Dr. Steve Sinatra: But again, Drew, I think the easiest thing is just avoid as much sugar in the diet as possible. Just reduce the carbs, and then you're giving your metabolic machinery a rest. And that's what you need to do, because we don't want to wear out our pancreas — we don't want to do that, and that's the problem. We're wearing it out because...I came across this statistic a few years ago, when I was writing my book with Jonny Bowden, *The Great Cholesterol Myth*, that the average American was eating, like, 150 pounds of sugar a year.

Dr. Steve Sinatra: Well, guess what, over the last five years, because we've just re-written the book — now it's up to 160, 165 pounds. I mean, that's insanity! Americans are eating too much sugar, and I hope with this broadcast, we can get into the heads of our listeners and say, "Look, stop the sugar." And you mentioned the sodas, which is a big one — but we just have to stop the sugar, as much as we can.

Dr. Drew Sinatra: Yeah, Dad, I couldn't agree more. As long as someone is motivated to make those changes, and change up their diet, and start moving more and doing other things like that, we see lowering of blood sugar. I'm finding, too, that people come in, though, and let's say they're at a 6.2 for hemoglobin A1C. It might just take longer to help lower that, just by using movement and diet. So therefore, I've been using lots of berberine, and I also use gymnema, and bitter melon, and chromium like you said, and cinnamon. And obviously, a really good multivitamin, as well. And I also like alpha-lipoic acid, as not only an antioxidant, but there is some insulin-regulating effects with that, as well, or at least insulin-sensitizing effects.

Dr. Drew Sinatra: So, I do find that if you really get on a really good exercise movement program, the low-carb diet, like you were saying, add on some of these nutraceuticals that we just talked about — I mean, people can literally go from being diabetic, to going to pre-diabetes, and then back to being normal blood sugar within two, three months.

Dr. Drew Sinatra: I should say, three months is probably the minimum. But I've seen people go from 7.9…I had a woman recently that went from 7.9 down to 6.4. Now she's at 5.4, and that was three and a half months later. We also did HCG diet with her, she also lost 45 pounds and radically changed everything in her life to really make that big of an effect. But it can happen, it can happen after two, three months of significantly lowering blood sugar.

Dr. Steve Sinatra: Well, that's what you're doing, Drew…you're involving the patient in your care. Whenever you empower a patient, where they can be their own self-physician, that empowerment is incredible. That's a great job, I mean, you really did a

remarkable job with that lady. I mean, getting that hemoglobin A1C down is just terrific. Well done.

Dr. Drew Sinatra: Well you know, Dad, and I've learned this from you, too, is that you got to tie in everything in the body. Since we're talking about diabetes today and its relationship to the heart — on all these patients, I'm generally running a lot of these cardiovascular inflammatory biomarkers that we've talked about in previous podcasts. Like homocysteine or fibrinogen, or LPa, or Lp-PLA2, CRP ESR, all those types of things I'm running on those people, because I do like to see changes in those markers, as well, over time. Because I'm always concerned about the risk of cardiovascular disease with blood sugar abnormalities.

Dr. Drew Sinatra: So, for our listeners out there, there's more than just hemoglobin A1C, fasting blood sugar, fasting insulin, if you're going to run that, as well, to really look into to monitor your progress and supporting your blood sugar and preventing heart disease.

Dr. Steve Sinatra: Yeah, Drew, and for our listeners, I should mention that you were the lead author on that article that was published in *Alternative Medicine,* on inflammatory mediators in cardiovascular disease. So yeah, you mentioned them, and they're important. Again, being a cardiologist, whenever you can reduce your inflammatory mediators — I mean, there's a lot of press on C reactive protein, for example. But even taking coenzyme Q10, you can lower C reactive protein. I mean, that's just amazing. So, even lower LPa with coenzyme Q10.

Dr. Steve Sinatra: So in other words, whenever you can lower these inflammatory mediators, again, you're optimizing the body, you're delaying the aging process, and you're feeling...in most cases, these people are feeling better at the same time. That's why that woman, that case study you had, is so crucial because she's participating in our own health, which is just fantastic.

Dr. Drew Sinatra: Well, and just to follow up with that, too, because she has been a remarkable role model for me to continue doing these things with people, because she comes in and she feels so good, Dad. That's the most important piece here — she comes in, and she has so much more energy, her sex drive is back, she's sleeping better. I mean, everything has improved in her life, and that's what gives her, like we talked about previously, the motivation to continue doing what she's doing and feeling so good.

Dr. Drew Sinatra: That to me, that's the best part about being a doctor is when you're not necessarily...at least we, the doctor, aren't making these major changes in

people. They're making the major changes and seeing the effects from that…that's what makes me just so happy about medicine.

Dr. Steve Sinatra: Yeah, and a dividend is you say to her, Drew, "I'll see you in a year."

Dr. Drew Sinatra: Right, you don't even need to come see me anymore, you know what to do.

Dr. Steve Sinatra: See me in a year. That's the greatest thing, you know? That's what works.

Dr. Drew Sinatra: Well, since we're talking today about diabetes and heart disease, I feel like we should talk about lipids. What's been your experience with treating lipid abnormalities in diabetics?

Dr. Steve Sinatra: Here's the problem, most diabetics have elevated triglycerides. I've always felt that elevated triglycerides were more inflammatory than elevated cholesterol. Now, here's a problem — a typical diabetic, whether you're Type 2 or Type 1, could have, let's say, triglycerides of 200, 300, 400 and an HDL of 30 or 35, which is low. So the triglyceride to HDL ratio gets high; you want that ratio less than two, to be ideal. I mean, ideal is around two or less.

Dr. Steve Sinatra: And unfortunately, I would see these diabetics, Drew, with ratios of seven, eight, nine and ten. I mean, think of it, if you have a triglycerides of 300, you have an HDL of 30, which is typical for a Type 2 diabetic, that ratio is 10. That ratio is not good when it comes to cardiovascular situations. I mean, I think that's one of the worst ratios to have, because it can precipitate cardio possible cardiovascular events. The tie-in here and the takeaway here is, whenever you can reduce your triglycerides and improve HDL, you're improving your cardiovascular risk profile. That's the takeaway, and that's where...I used to try to get my patients down to those lower ratios.

Dr. Drew Sinatra: And Dad, can you speak to the protective quality of HDL?

Dr. Steve Sinatra: Yeah…first of all, we used to think, in the old days — and the old days may be five years ago — that the higher the HDL, the better. So if we saw in our patients HDLs of 90 or 100 or 110, we would say, "Oh, wow, this is awesome." Now, in the last five years, we've determined that HDL can be dysfunctional in people, because there's different types of HDL. There's different varietals, like there are of LDL.

Dr. Steve Sinatra: We know there's small particle LDL, which is highly inflammatory — and a fluffier type of LDL, which is less inflammatory. Same thing is true of HDL. Now recently, we think — and I've scanned literature on this — that if you have HDLs in the range of let's say, 45 to 65, that seems to be the sweet spot, where

numerically now, numerically you have a really good HDL. Over 65, you could have some dysfunctional components. Under 45, we'd like to see the HDL higher — but under 45, again, the risk of the triglycerides, the ratio can go higher. So basically, I'm concerned about the possibility of dysfunctional HDL.

Dr. Drew Sinatra: Has there been anything that you've seen that has been very good at increasing HDL?

Dr. Steve Sinatra: Well, I think exercise is easy. I mean, weight reduction can increase HDL. Certainly things like niacin, fast-acting niacin can increase HDL. There are certainly little things people can do which can have a big impact on HDL. But I would say, weight reduction, exercise, and less carbohydrates, and healthier fats. Again, olive oil showed that in the PREDIMED study actually can increase HDL, that's just amazing.

Dr. Drew Sinatra: Got it, okay. Well Dad, let's talk about some takeaways then for this podcast today, and relating diabetes and the heart. From what I've gathered talking to you, I mean, little simple things can make a big difference. If that's just moving around the office a little bit more, going for a walk after dinner or lunch, stretching. Whatever it is you're doing to move your body more, that can have a significant impact on blood sugar.

Dr. Steve Sinatra: Absolutely. Movement is key.

Dr. Drew Sinatra: And then we talked about diet, as well. So generally speaking, a lower carb diet, a diet high in good fats and a moderate level of protein can be very beneficial for blood sugar. And you want to avoid all those drinks and beverages, like the sodas and the high fructose corn syrups and the sugar, particularly, that's going to lead to all sorts of dysfunction in blood glucose levels.

Dr. Steve Sinatra: Yeah, I've said this before and I'll say it again. We don't have white table sugar in our house, we don't buy it. Sugar is public enemy number one for coronary artery disease — not cholesterol and fat. It's sugar, hands down.

Dr. Drew Sinatra: Not to mention, too, but the addictive nature of sugar is so common in so many people. I feel like I had a sugar addiction growing up, I really did. Even though you didn't have it in your home, I'd go to my friends' houses and try to get as much sugar as I could.

Dr. Drew Sinatra: And Dad, as a final takeaway here, we also talked about certain supplements — like berberine, or bitter melon, or gymnema, or the mineral chromium, to help with blood sugar regulations. So there are other options out there besides

Metformin, if someone does want to lower their blood sugar a little bit more than would help with exercise and diet.

Dr. Steve Sinatra: Correct, and what I would say to that is, again, I think berberine is a good adjunctive supplement to take. Even just 500 milligrams a day.

Dr. Drew Sinatra: All right, is there anything you want to leave our listeners with in terms of this whole diabetes, heart disease connection…anything else?

Dr. Steve Sinatra: Yeah…I think the most important thing about our podcast today, Drew, is that people have control over their blood sugar. This is a situation where we have to empower our patients, where they can become their own doctor. So when it comes to high blood sugar issues, overweight status, insulin resistance — our patients can take control over their health, all we need to do is give them the right information.

Dr. Drew Sinatra: Well said, Dad, I love it.

Dr. Steve Sinatra: For today's **Wellness Wisdom** segment, I want to focus on another risk factor for heart disease that often gets underplayed or overlooked, despite the fact that it's truly at the root cause of most diseases — and that significant risk factor is inflammation. Now, as an integrative cardiologist, I've been talking about this for decades, but the prevailing wisdom in conventional medicine for a long time has been that cholesterol is the main risk factor for heart disease. Don't believe it, folks!

Dr. Steve Sinatra: Inflammation is the most significant lifestyle-driven risk factor for the development of coronary artery disease, plaque instability, and plaque rupture. So let's talk about inflammation a bit, and discuss some actionable steps that you can take now to keep it in check.

Dr. Steve Sinatra: It's important to note that inflammation is not always a bad thing. It's one of the body's natural defense mechanisms. If you sustained a one-time, acute injury like a banged-up knee, the inflammatory mediators in your body do their job, and your body quickly heals and returns to normal. However, problems arise when the inflammation in your body becomes chronic. At that point, it can begin to cause real damage. What are some common causes of chronic inflammation? Infections, high blood sugar, being overweight, and having sticky blood are a few causes — any of these mediators increases the chances that you'll develop arteriosclerosis.

Dr. Steve Sinatra: But perhaps one of the biggest and most avoidable causes of inflammation is dietary sugar. When you eat sugar, your body releases insulin, which is one of

the most endothelial-unfriendly hormones around — meaning it damages the lining of your arteries. Unlike that banged-up knee, damage to your arteries is chronic, creating a constant state of inflammation in your body and setting you up for heart disease.

Dr. Steve Sinatra: So, what can you do about this? Here are a few easy tips you can do to keep inflammation in check. Limiting, or better yet, eliminating sugar from your diet, since sugar fuels inflammation…it just makes sense. Reducing processed foods from your diet, and eating a heart-healthy diet like the Pan Asian Modified Mediterranean Diet. Maintaining a healthy weight, and getting moderate exercise. Limiting alcohol. Eating turmeric, or taking a turmeric supplement, which helps to quell the harmful free radicals that lead to inflammation. Reducing your exposure to pollution, including pesticides. Grounding or earthing — connecting to Mother Earth energy.

Dr. Steve Sinatra: Additionally, there are foods you can begin to incorporate into your daily diet that help promote a healthy inflammatory response. Ginger — not only is ginger flavorful, but science has shown that fresh ginger can help to support a healthy inflammatory response. I love cooking with ginger, I add it to stir fries and other dishes. Green tea — few foods have as many health benefits as green tea, because it contains powerful antioxidant flavonoids, which helps to reduce oxidative stress throughout the body and protect against free radical damage. Plus, green tea contains theobromine, which helps to relax the blood vessel walls to promote better circulation.

Dr. Steve Sinatra: Pomegranate — this delicious fruit is one of my top recommended heart-healthy super foods. That's because it's one of the richest sources of protective antioxidant flavonoids that support good health. Cocoa powder — I've long advocated eating dark chocolate, the darker the better, in moderation of course, due to the antioxidant benefit you get from cocoa. The flavonoids in cocoa powder are powerful antioxidants that promote good cardiovascular health and a healthy inflammatory response, benefiting your heart and entire body.

Dr. Steve Sinatra: So remember, not only will keeping inflammation in check help your heart, it will help to prevent other degenerative diseases — such as diabetes, Alzheimer's disease, and arthritis. So let's do everything we can to keep that inflammation low, and our bodies healthy.

Dr. Drew Sinatra: Remember, everyone, if you liked what you heard today and you want to be an active member of the **Be HEALTHistic** community, subscribe to our podcast on Apple podcasts, or wherever you download your favorites. And subscribe to the

Healthy Directions YouTube channel. You can also find more great content and information from us and the Healthy Directions team at **HealthyDirections.com**.

Dr. Drew Sinatra: I'm Dr. Drew Sinatra.

Dr. Steve Sinatra: And I'm Dr. Steve Sinatra.

Dr. Drew Sinatra: And this is **Be HEALTHistic**.

Narrator: Thanks for listening to **Be HEALTHistic**, powered by our friends at Healthy Directions, with Drs. Drew and Steve Sinatra. See you next time.