Interview with Kim A. Williams, Sr., MD, President of the American College of Cardiology

(INTERVIEW HIGHLIGHTS ABOVE; SCROLL DOWN FOR EXTENDED INTERVIEW AND TRANSCRIPT)

Kim A. Williams, Sr., M.D. is the Chief of Cardiology at Rush University Medical Center and the current President of the American College of Cardiology. He has been vegan since 2003, and discusses the benefits of avoiding animal foods and adopting a plant-based diet. Our co-founder, Sofia Pineda Ochoa, M.D. interviewed him on August 25, 2015 at his office in Chicago.

In addition to being a prominent mainstream cardiologist who recommends plant-based vegan diets, Dr. Williams is also very friendly, humble and passionate about his practice and how to make cardiology more "prevention" (rather than "event") oriented. Here is a link to a nice article that Dr. Williams wrote about prevention and why he's vegan.

A short excerpt of the interview is above at the top of this post, and the extended version (about 35 minutes) can be viewed below.

- Interview Transcript

DR. PINEDA OCHOA: Thank you so much, Dr. Williams, for giving us this interview. And can you tell us a little bit about yourself, and your background, and what your current work is about?

DR. WILLIAMS: So I have a lot of background. So the question is, where would you like me to start? I'm from Chicago, grew up on the South Side of Chicago. I was stimulated to go into medicine, because there really wasn't a lot of good medical care access, and I thought I could fix it by being a Southside of Chicago pediatrician.

As it turns out, you go to get a little older and find out that you have sort of propensities and things that you enjoy, and for me that was cardiology. And so I thought, that, perhaps, I could be a Southside inner-city cardiologist and turns out, I was able to do that in the academic center for the 30 years I was at University of Chicago. So college medical school, most of my training was there.

DR. PINEDA OCHOA: And so you were trained in – I see a slew of degrees here on the back wall. Can you tell us a little about your training too?

DR. WILLIAMS: So, yes, I did the internal medicine as a pathway to get to cardiology. Once I was in cardiology, I gravitated toward noninvasive imaging. And nuclear cardiology was in the early stages of development back then.

I really adopted it, and it adopted me, sort of sucked me up in a vacuum. And I sort of developed the laboratory at University of Chicago for nuclear cardiology. And I ran that for, I think, about 28 years before I became chief of cardiology at Wayne State and then, after four years, came over here to Rush [University Medical Center].

DR. PINEDA OCHOA: Okay, fantastic. And you are right now the current president of the American College of Cardiology. What is that position about? What is that –

DR. WILLIAMS: So the American College of Cardiology is a really dynamic organization. The college has almost 50,000 members. There are many international members. We actually have local chapters in each of the states, as well as Puerto

Rico, but we also have 34 international chapters, as well.

Our mission really is to improve heart health and transform cardiovascular care. So in the past, folks sort of thought of the American College of Cardiologists as sort of a trade organization for improving practice or income, and nothing could be further from the truth. We deal with those issues when they come up, but really not so much from the lens of the practitioner as much as the lens of the cardiovascular patient.

And so we get involved with the advocacy, teaching, research. Education is a major issue for us. We have the top cardiovascular journal in the world. That's the Journal of the American College of Cardiology with the impact factor, which is better than all the rest of them.

We have the registries, which are a major initiative started about 10 years ago by the ACC, where we really set out to try to measure quality and to, thereby, improve quality. And so the National Cardiovascular Data Registry (or NCDR) has multiple arms, outpatient, cath lab, peripheral artery disease. We have so many different ways of evaluating practitioners and giving them feedback on how they're doing, and it's good to know.

If you're in a practice and your charts get reviewed and 50% of your patients who have a high LDL cholesterol or an indication for a statin aren't getting it, but the rest of your practice is worse than you, it would be good to know that, right? And so we have a way of making sure that people get the information that they need to know.

DR. PINEDA OCHOA: Oh, Okay. Fantastic, very, very good. And so I've heard that you've made national headlines with being a vegan in cardiologist.

DR. WILLIAMS: I did.

DR. PINEDA OCHOA: Can you talk a little bit about that? So you're vegan. How long have you been vegan, and what led you following this diet?

DR. WILLIAMS: So it actually goes back to an ACC meeting, where back in the early 2000s, we actually use to get our cholesterol tested. And it was mostly the statin companies that would –

DR. PINEDA OCHOA: At meetings, they would test your cholesterol?

DR. WILLIAMS: They would actually test your cholesterol, and I had done it. Maybe, I had skipped a year or two, but I've done a pretty much regularly. And the biggest change in my life was that I was no longer coaching a nationally ranked tennis player. So I wasn't playing tennis twice a day every day.

DR. PINEDA OCHOA: Oh, wow, I can't believe you were playing tennis twice a day at some point.

DR. WILLIAMS: I was.

DR. PINEDA OCHOA: That's fantastic.

DR. WILLIAMS: So with that change in exercise level, and a little bit of aging, and maybe skipping a year or two, I actually found out that my LDL cholesterol had gone up from not the best level, about 110 to 170. Now all that time I was eating what was considered a heart healthy diet, chicken, fish, no red meat, no fried food, not much in the way of dairy. But little did I know, that I was one of those hyper-responders.

And if you look at the amount of cholesterol, not fat, but the cholesterol in a chicken breast, no skin, not fried, it's actually substantially more than a pork chop. And if you look at fish, it completely varies by species. And so you might have a small amount of cholesterol in an anchovy, but I was

eating a lot of salmon. Salmons very high in cholesterol per serving.

And so having had a little bit of information about the Dean Ornish diet, mostly because I'm a nuclear cardiologist, and I had seen those publications on the improvement in blood flow with a vegetarian diet, and I assume that there was going to be some relation to the cholesterol and removal of plaque, because that pretty much had been published, in that same month in March of 2003 there was a portfolio diet that came out in the Journal of American Medical Association talking about a plant-based diet that was equal to a statin in lowering LDL cholesterol and C-reactive protein. And so I adopted that pretty much that same day. Six weeks later my LDL gone down from 170 to 90.

DR. PINEDA OCHOA: That's amazing.

DR. WILLIAMS: So I haven't knowingly eaten a milligram cholesterol since then.

DR. PINEDA OCHOA: Good for you. I found that myself didn't – I was not really aware that the lean meats and fish actually contain a large amount of cholestrol in many of them. Do you find that that's a common misperception among the public, in general, and amongst other medical professionals?

DR. WILLIAMS: There really is a lot of misconception. Folks are thinking of heart healthy when they're talking about obesity. It is important. It is important, there's no question. Well, I'm sorry, I started to say there's no question about it.

There is a question about. There is the so-called obesity paradox, if you look at it. There are certain conditions were obese people actually do better. It's counter-intuitive for cardiologists to think that way, but it's sort of emphasizes the difference between cholesterol management and risk affiliated with cholesterol management and weight, they are

two separate conversations.

Then you have to have the diabetic conversation and then the hypertension conversation, and they are really very – they're similar, but the similarity is that they can all be improved by plant-based nutrition. Let me bring you up to the new things. I have to make a brief list for you of reasons that animal-based diets have difficulties. Probably one of the more interesting one is the TMAO. I'm not sure you heard of that one.

DR. PINEDA OCHOA: I have heard of it. I'm not too familiar with it.

DR. WILLIAMS: Trimethylamine oxide. So it turns out that there's a compound you can measure the bloodstream that if you divide people based on the level of this in their blood into four groups: (1) low, (2) medium low, (3) medium high, and (4) high. Those four groups do completely differently in both heart failure and the category of heart attack, stroke, and death, cardiac death. And they're separate publications on this issue.

DR. PINEDA OCHOA: It's a good predictor?

DR. WILLIAMS: It's a really good predictor, because it's more than just a risk factor. It actually is causative, that is it does blood vessel damage, creates plaque, makes it more likely that the plaque is going to rupture. Then you clot on top of that plaque and create an event, whether it's a stroke, heart attack, or amputation, and typically in a diabetic.

DR. PINEDA OCHOA: It's like an inflammatory marker?

DR. WILLIAMS: It's actually a damaging vasculopathic chemical.

DR. PINEDA OCHOA: Okay.

DR. WILLIAMS: Okay. So trimethylamine oxide, so where's it come from? It comes from the liver, when the liver is

presented with trimethylamine. Where does trimethylamine come from? It comes from the GI tract when bacteria convert phosphatidylcholine mostly into the trimethylamine.

Well, it turns out, that if you have species of bacteria that are slow converters, you do better, if you wipe out – and they've done this at Cleveland Clinic in an animal model – you wipe out the bacteria that produce them and put in bacteria that don't produce a lot of trimethylamine, you actually do better. However– or in terms of lowering the trimethylamine oxide level, the other way is to be genetically gifted with a liver that very slowly converts trimethylamine to trimethylamine oxide. But if you're a person who converts a lot of it, you're going to get a high level.

Well, the other way to go about this, of course, to lower the level would be to not eat the things that result in the phosphatidylcholine, which basically the carnitine and the choline, and that comes from the diet. And so–

DR. PINEDA OCHOA: Mainly what? Mainly animal product, meat?

DR. WILLIAMS: Meat, eggs, cheese, milk.

DR. PINEDA OCHOA: So any animals and any animal by-products, okay.

DR. WILLIAMS: Exactly. So if you avoid them, you probably could start by the not worrying about taking a probiotic, or antibiotic, or changing your liver enzymes, or anything like that. And so that's pretty strong evidence that we could use to try to convince people that plant-based nutrition – but on the basis of just one compound, unfortunately, there's loads of other compounds. And we could talk about cholesterol and oxidized LDL cholesterol, but that's sort of older stuff. The newer stuff, how about phosphorus?

DR. PINEDA OCHOA: Phosphorus?

DR. WILLIAMS: Phosphorus. If we all –

DR. PINEDA OCHOA: It's high in animal products.

DR. WILLIAMS: Absolutely.

DR. WILLIAMS: High in animal products, low in vegetable products. If you measure phosphorus in a group of people who weren't on dialysis, they're all about the same. It doesn't matter how much you eat, you get about the same level.

Why do you get the same level? Because you have a regulatory hormone called FGF23, Fibroblast Growth Factor 23. It turns out that FGF23, it will go up if you eat a lot of phosphorus. It'll go down if you don't eat much, and it will keep you perfectly regulated in your phosphorus level.

The problem is FGF23 is vascular-toxic, and so you end up with this hormone that creates hypertrophy of the ventricle and is associated with heart attacks, and sudden death, and heart failure. It's similar to TMAO.

DR. PINEDA OCHOA: Okay, a little problematic this compound?

DR. WILLIAMS: Right, so how would you lower that? Just lower the phosphorus in the diet, …tremendous. Now –

DR. PINEDA OCHOA: And that would be decreasing animal products or avoiding animal products –

DR. WILLIAMS: That's right.

DR. PINEDA OCHOA: – meat diary, eggs, fish?

DR. WILLIAMS: More fruits and vegetables, high fiber, should lower your phosphorus levels.

DR. PINEDA OCHOA: Okay.

DR. WILLIAMS: So anyway, we could look at it from several biochemical points of view. The fact of the matter is, it may

be that vegetables aren't really good for you, but animals are terrible for you.

DR. PINEDA OCHOA: Okay.

DR. WILLIAMS: Okay, that's what it is. And then so when people talk about the F and V, the Fruits and Vegetable Campaign that I know the White House is taking up, it really does make a difference. And there probably are some really good things about the vegetables and fruits in terms of—

DR. PINEDA OCHOA: Some them which we don't even know about.

DR. WILLIAMS: Correct. It's antioxidants, and it's vitamins, and its nutrients, and fiber. That may be all well and good, but it might just be that animals are so bad for you that anything else that could nutrify you without eating an animal is probably going to show up better. So you know, not the biggest fan of being a pescetarian based on the Seventh Day Adventist data, which says it's the sort of an intermediate outcome between the Standard American Diet and a vegan diet. But if you could lower your heart attack rate just by eating fish twice a week and getting away from red meat, that sort of tells you how toxic it is. And so—

DR. PINEDA OCHOA: But the the optimum diet that you would recommend – given the prevalence of mercury, and given the prevalence of cholesterol within the fishes as well. Or even if it was a fish that had no mercury, a completely clean fish with no DDT or mercury, the optimum diet that you think would provide optimum nutrition and health would be a diet with a –

DR. WILLIAMS: Sure. So there are good reasons that a pescetarian diet is better than an omnivore diet.

DR. PINEDA OCHOA: So pescetarian is better than omnivore?

DR. WILLIAMS: But a vegetarian diet is better than pescetarian, because you're not getting – with fish you

mentioned mercury, but it's also PCBs. There's saturated fat. There's cholesterol. And there's –

DR. PINEDA OCHOA: So vegetarian you would classify better than pescetarian?

DR. WILLIAMS: By far.

DR. PINEDA OCHOA: But still a diet, a vegan diet, a plant-based vegan diet, which would not include any dairy or eggs, would be kind of a gold standard if somebody was willing to do it?

DR. WILLIAMS: That's very, very well said. That's been published from the Seventh Day Adventist [study], where they categorize their population into five categories, the standard American, the semi-vegetarian, where they eat everything, they just lower the amount of meat and increase the amount of vegetables. You can see about 15% to 20% decrease in hypertension and diabetes just by doing that.

And then if you go pescetarian, you get another 15% to 20% decrease. And then if you go lacto-ovo-vegetarian, you get another 15% to 20%. And then if you go vegan, you're really talking about an 75% to 80% decrease in hypertension, diabetes.

DR. PINEDA OCHOA: Fantastic.

DR. WILLIAMS: Indeed.

DR. PINEDA OCHOA: And I read that Dr. David Spence in Canada, he and two other academics– I don't remember, Dr. Jenkins I think was the other one– they were advocating for a limit of cholesterol of 200 milligrams daily. And they were saying that a single egg, I guess a large egg would contain more than 200 milligrams of cholesterol.

DR. WILLIAMS: It's about 240.

DR. PINEDA OCHOA: 240. And so they were advocating, and they were saying that eggs should be eaten only for people – the way that they frame it was only for people with terminal illness. Of course, that did not go over easy with…but….

What they were making a point is that everybody's at risk for cardiovascular disease. We are all of risk. And so right now, the limits say that 200 milligrams is what people who are at risk for cardiovascular disease should be sticking to.

And they say, well, we're all at risk for it, so we should all not eat eggs and keep our cholesterol limit low. So I guess that's our kind of a battleground, right now, I'm sure with the cholesterol intake and what we need to keep it under. I'm sure it must be, right now, difficult.

DR. WILLIAMS: That's interesting. I would say congratulations to them. I do worry about the 200, because we do know that there's an inverse relationship between the absorption and the amount that you're eating. So when you get to the lower levels, you're probably going to hyper-absorb more. So that's one thing.

The other thing is that I talked about TMAO, and phosphorus, and cholesterol. I didn't talk about IGF-1. Insulin-like Growth Factor-1. And so, I am a little concerned about eating the animal protein.

DR. PINEDA OCHOA: In general?

DR. WILLIAMS: In general.

DR. PINEDA OCHOA: Be eggs, fish –

DR. WILLIAMS: Exactly.

DR. PINEDA OCHOA: – skinless chicken, anything.

DR. WILLIAMS: Right, because of the IGF-1 levels that have been associated with cancer growth. And so if your terminal, I

guess that's why – if people say, well, I have cancer so it's okay – that probably isn't the right thing to do.

DR. PINEDA OCHOA: You're right.

DR. WILLIAMS: There's loads of anecdotes – I would love to see a randomized trial – but enough powerful anecdotes that of people I've known personally and people I've known where it happened to a family member there that somebody gets to the cancer patient and tells them, oh, you've got to go vegan, it's going to help you. They lose weight. They have what appears to be stabilization of their disease. And the oncologist will see the weight loss and say, you have to eat more, eat some steaks and stuff like that, and then the disease runs rampant.

So I was always worried about not getting the animal protein until the movie Forks Over Knives came out, I wasn't absolutely vegan. I was eating zero cholesterol, which meant that I was eating egg whites. And once I saw that data, I kind of stopped and said, let's –

DR. PINEDA OCHOA: It's pretty compelling data, that he has done.

DR. WILLIAMS: It was. It was.

DR. PINEDA OCHOA: He kind of can make cancer growth go up and down depending on the animal protein that they feed them.

DR. WILLIAMS: Exactly, and it turns out that that was subsequently published in Cell Metabolism in 2013. If it's truly peer-reviewed evidence, I'm not going to eat it.

DR. PINEDA OCHOA: Okay, so best to stay away from –

DR. WILLIAMS: I think so.

DR. PINEDA OCHOA: – animal products and eat plant-based vegan. Can you speak to us a little bit about– we have very little

time – about the ubiquitousness of cardiovascular disease? I read some studies that they did autopsies on soldiers, American soldiers who were in a battlefield in Korea, and some studies here in the US, people who died from non-medical – I mean – yeah, from like accidents, or suicide, or homicide, non-medical related causes, and it seems like atherosclerosis is pretty ubiquitous in our Western culture with animal products. Can you tell us a little bit about that, just in general?

DR. WILLIAMS: So this has been, as you mentioned, a well-known phenomenon. The distressing feature, you know, we knew this about Korea. And those are 18-year olds dying on the battlefield where they were able to see fatty streaks in the aorta, early plaque development, yeah, on a Western diet. I've heard reports that in more modern studies, that it goes down to the age of three where folks have actually seen plaque developing.

DR. PINEDA OCHOA: Wow.

DR. WILLIAMS: My concern, of course, is that we have so much plaque. And it isn't necessarily recognized. The best sort of reconciliation of that was actually done about, whoa, 20 years ago, 1995, by Steve Nissen at Cleveland Clinic, doing intravascular ultrasound on the arteries of people who had donated their hearts for transplant, motor vehicle accidents, people like you said.

And in order to donate your heart, you have to have an angiogram that shows no atherosclerosis, no plaque. And so the coronary angiograms were completely normal on these people. But Steve actually did intracoronary ultrasound, OK, intravascular ultrasound inside the coronary arteries and showed an increasing relationship between the amount of plaque that's not seen by the angiogram, which was considered, until then, to be the gold standard. Not seen by the angiogram and related to age and smoking and gender.

And so that was published in circulation. I think it should have affected most of us because we had actually heard about this, the so-called Glagov phenomenon. Seymour Glagov was my pathology instructor at University of Chicago.

DR. PINEDA OCHOA: OK.

DR. WILLIAMS: And in 1987, he published an article in the New England Journal of Medicine describing how you start off with a normal artery. And then, over time, with the Western diet, you develop plaque. The artery on the inside does not change. But you develop plaque in the wall.

And the artery expands to accept that plaque so that the lumen does not change. That happens. When you get to the moderate level, you could have a massive amount of plaque out here, OK, in the wall, external remodeling.

The Glagov remodeling hypothesis is – as he called it, but it's not a hypothesis anymore, it's been very well proven – is that you will accumulate plaque in the wall and remodel the artery outward until you overcome the ability of the artery to dilate up and take more plaque. And then, and only then, you start to get a narrowing.

So the problem that we've had, as Steve Nissen pointed out eight years later, is that we under-recognize plaque with – the plaque burden – using angiograms. And so we need some other way of going about it. Now it turns out that noninvasive imaging with CT doesn't require, you know, like an angiogram like one would do with intracoronary ultrasound. And one can look at soft plaque in the wall with a technique such as like that– such as that.

The real implication though is about our every day patient who is told, "Oh, you had a narrowing in one of your arteries. It's mild, 30% narrowing. You're okay."

DR. PINEDA OCHOA: Mm-hmm.

DR. WILLIAMS: Well, they're not okay.

DR. PINEDA OCHOA: No.

DR. WILLIAMS: They have a massive amount of plaque burden, which has overcome the ability to the artery to remodel outward.

DR. PINEDA OCHOA: And if they have it there, they probably have problems all over their body.

DR. WILLIAMS: Correct. And so not only in that one location, I mean, there is some variability in the amount of plaque that happens in each location. The aorta, for example, up around the aortic arch tends to have a lot of plaque in one spot. We see that all the time on CT. The abdominal aorta tends to have a lot. There are a couple arteries that rarely, if ever, get plaque. Radial arteries and internal thoracic arteries. That's the reason that the bypass surgery is usually done with those arteries. Because they just don't develop plaque. But everything else –

DR. PINEDA OCHOA: Tends to develop –

DR. WILLIAMS: Exactly. And so when you see that coronary narrowing of 30%, the message has to be you're not okay. You have a massive plaque burden. I don't need to put a stent over this little piece of it right now, but we need to change all the dynamics that got that plaque to be there. That's diet, exercise, high dose statin. We need to be concerned.

I always tell my patients with the little 10% to 20% narrowings, and they think they're okay. I'm telling them, are you left handed or right handed? Most people are right handed. And I say as far as I'm concerned, the most important artery is not the one we're looking at. It's the left carotid.

DR. PINEDA OCHOA: The left carotid.

DR. WILLIAMS: Because if you have a stroke, that really

changes your life completely. And so why worry about one little tiny piece of plaque when it's really a global phenomenon that has to be dealt with in a global fashion.

DR. PINEDA OCHOA: Okay. Definitely. Definitely. And just, I know that we're coming close to the end. But you have an upcoming talk that's going to be called "Nutrition: the Future of Cardiology" or something to that effect. Do you feel like this would be a very effective intervention and to unburden the health care system to transition to a plant-based vegan diet?

DR. WILLIAMS: So I've made a few controversial statements during my presidency.

DR. PINEDA OCHOA: Okay.

DR. WILLIAMS: And before, one of them was that wouldn't it be nice within a couple of generations to eliminate our specialty? You can say that half jokingly, but we could make some strides. And I really applaud my colleagues at the American College of Cardiology, particularly the prevention committee and the population health committee for working on ways of trying to make the health of the population better.

I've also – I also have the patients who say that they're not going to take statins. You know? I have the ones who say they're not going to do diet. The ones who say, you know, they say I'm not going to take statins because the side effect profile is just so terrible. It's going to do terrible things.

And I say, you know, the biggest side effects of statins is ruining the Medicare budget because people aren't dead, okay? But they're not well either, okay. And so that's a economic problem that's not sustainable. So we have to get into the prevention. We have to become better at turning off the faucet rather than mopping up the floor.

And so diet and exercise and weight control, having people

understand what their blood pressure is, what their cholesterol is, and actively keeping that front of brain and work on health issues has to become very – a foremost function of what we do in medicine. Much more prevention so that we don't have to do as much treatment in the future.

DR. PINEDA OCHOA: I completely agree. Let me just get your thoughts. So Kaiser Permanente published in their medical journal. "More research is needed to find ways to make plant-based diets the new normal for our patients and employees."

DR. WILLIAMS: Okay. You know, it's interesting. I fundamentally agree with that. But it comes off as if there isn't a good database already. There actually is a pretty solid literature foundation.

But what I'm looking for and what they're looking for are randomized trials that are come to the level of evidence that all of the guideline committees would say, "Okay, it's self evident. This is something that we all need to do." And we haven't quite gotten there yet.

DR. PINEDA OCHOA: That's so hard to do though, like a randomized trial when it comes to diet.

DR. WILLIAMS: Mm-hmm.

DR. PINEDA OCHOA: Because –

DR. WILLIAMS: The problem is –

DR. PINEDA OCHOA: People are – you know, I think that when it comes to nutrition, we don't really do those trials, right? Because it's not like we have a matrix where you have people or we feed them every day for long periods of time. And we know exactly what they took and what they did.

DR. WILLIAMS: What you just said is how do you do credible research on diet on free-living populations? Well, one is to not let them live free. But that's not going to happen in this

country.

DR. PINEDA OCHOA: That's not going to happen.

DR. WILLIAMS: There actually was one person who did this, the Kempner [Walter] – Kempner diet back in the '30s and '40s. And I think his institute stayed open for a long time. And there was one unfortunate accusation that he had abused a patient to make sure that they stayed on the rice diet. But that's not something that's – that we do.

DR. PINEDA OCHOA: Feasible.

DR. WILLIAMS: That's not something that we would want to do.

And so what we have to do is trials such as people who are willing to do it, which may be a selection bias right there. And do similar to the PREDIMED trial where you've got randomization between a Mediterranean diet and a standard American diet. It actually did show an improvement, even though it contained fish and lean – small amounts of lean meat.

We think we can do better than the residual risk that we saw in the PREDIMED trials. But you have to be able to conduct those kind of trials. We do have where you randomize people or self-randomize them. That's sort of what happened with Dean Ornish. They'll recruit people.

And you have the one third of the group that does exactly everything you say, one third of the group that does it halfway, and the other group that doesn't do it. And so we divide them into three groups based on their compliance.

And those are very convincing, but they're not exactly randomized. And so the trialists end up throwing them out. So it is a challenge. And I know there are some – we're making some headway in small populations here and there where folks are able to do these things for relatively short periods of

time.

But, yeah. I understand. It's not the easiest thing to do.

DR. PINEDA OCHOA: It's not a – but put in context with all the information that we have, I think that we have substantial information to recommend, as physicians, that the best diet for optimum health and nutrition.

DR. WILLIAMS: I think that's a good summary statement. Is it enough to get into the guidelines? And we normally do very guideline-driven practice.

DR. PINEDA OCHOA: Oh, yes, with the guidelines.

DR. WILLIAMS: I think most people would agree that the sum of the literature would be that as far as you're capable of going, that's where you should go towards plant-based nutrition, particularly if you have cardiovascular disease, a variety of cardiovascular diseases and a lot of non-cardiac diseases.

There may be some portion of the population, the cholesterol non-responders, the people who have mutations, non-function mutations of the PCSK9 gene, they come to mind. They could probably eat whatever they want and have an LDL cholesterol of seven or 14. And so there are people –

DR. PINEDA OCHOA: That's a minority.

DR. WILLIAMS: Yeah. There are some people who probably could get away with eating. That's not a good business model if you're – you know, at a barbecue chain is to depend on the people who will not be harmed by it. That's not the best situation.

But I understand that it's difficult to change people's diets. They hold – their dietary beliefs are as deep as religious beliefs. And sometimes it takes a major –

DR. PINEDA OCHOA: Scare.

DR. WILLIAMS: – scare or illness to convince people that they should change any of their habits, including diet.

DR. PINEDA OCHOA: Dr. William C. Roberts. You're familiar with him, another prominent cardiologist and cardiovascular pathologist, wrote the following. And I just want to get your thoughts on it. Here it is:

"Although most of us conduct our lives as omnivores in that we eat flesh as well as vegetables and fruits, human beings have characteristics of herbivores, not carnivores. The appendages of carnivores are claws. Those of herbivores are hands or hooves.

The teeth of carnivores are sharp. Those of herbivores are mainly flat for grinding. The intestinal tract of carnivores is short. That of herbivores is long. Body cooling of carnivores is done by panting, herbivores by sweating.

Carnivores drink fluids by lapping, herbivores by sipping. Carnivores produce their own vitamin C, whereas herbivores obtain it from their diet. Thus, humans have characteristics of herbivores, not carnivores."

And he also writes, "atherosclerosis affects only herbivores. Dogs, cats, tigers, and lions can be saturated with fat and cholesterol and atherosclerotic plaques do not develop." Have any thoughts on –

DR. WILLIAMS: Agree completely.

DR. PINEDA OCHOA: – on that? Agree?

DR. WILLIAMS: Yeah because Bill Roberts, I consider him a friend. I got to hear him speak, I think, last weekend before we were on a program together. He has some amazing comparative biology insights. I, of course, you know, that the comparative biology sort of implies sort of evolution, which some people

reject.

So for those folks, I actually have biblical references to what the original diet is in Genesis. It's basically what he's saying. It's completely herbivore.

DR. PINEDA OCHOA: Basic plant-based vegan.

DR. WILLIAMS: Exactly, plant-based vegan. So whatever side you fall on on creation versus evolution, there's good evidence that plant-based nutrition is the best for you.

DR. PINEDA OCHOA: And what we're kind of more suited to digest and to –

DR. WILLIAMS: Chew.

DR. PINEDA OCHOA: Okay.

DR. WILLIAMS: That's right. That's a good point about the teeth.

DR. PINEDA OCHOA: Excellent. Well, thank you so much, Dr. Williams.

DR. WILLIAMS: My pleasure.

This transcript is an approximation of the audio in above video. To hear the audio, please play the video.