Introduction: Does Cholesterol Matter?

Hello, everybody. This is Joel Kahn, a medical doctor, triple board certified cardiologist, and your host here in 2026 of Reversing Heart Disease Summit 4.0, I wanted to give you a lecture about a topic that comes up all the time.

Does cholesterol matter? And I think this is so important since we're focused on reversing heart disease. And of course all doesn't matter. Let's move on to the next topic.

Obviously, in the world of social media, if you are spending time on Instagram, TikTok and other sites, you will be very confused by people that use the word doctor.

And I'm warning you, many of them are not medical doctors. They haven't received medical training. There's a lot of people that can use the term doctor.

Some of them are doctors, and I've just gone what I would call on to the dark side. So let me bring a presentation that I think you can see on your screen called Does Cause Field Matter in 2026.

Okay. So this is the beauty of a normal coronary angiogram. I'm not boasting that that's what mine looks like. You can ask me about that later perhaps.

But that is what the goal is. And particularly I'm in my mid to late 60s. It's a good thing to know that. But the problem is humans are particularly prone to atherosclerosis throughout the body.

But particularly in these small I heart arteries that cannot accommodate plaque because they are so small and they're so crucial and there's no really no backup redundant duplicate system.

Why LDL Drives Atherosclerosis

So you can see here where it says blood space, that's the only place where blood is going to get to the heart muscle. Everything else has been replaced by cells, by calcium, by crystals and by cholesterol deposits in the artery.

And this is just a uniform form finding in people who are screened, or people who have symptoms or people present to the emergency room. But in the world of root cause medicine, what I practice in my clinic, why do we cause arteries?

Why is probably the most important question is cholesterol part of the why are should we just disregard cholesterol and run your cholesterol 405 under?

Who cares? There are people that argue that and some of them have MDS from prominent universities and they say it just doesn't matter. We've been sold a bill of goods.

So the important point to start with is that cholesterol is a risk factor. The emphasis is on the word A. It's that the risk factor is that the only one, which is the reason you can hear about somebody with a cholesterol is high and not have a heart attack.

And you can hear about somebody that appears to have a low cholesterol and has our attack because there's so many factors involved, that doesn't mean cholesterol is not a risk factor.

I love this picture. It could be updated with about ten more items, but, things like access insulin, things like excess homocysteine, which can be genetic, things like elevated C-reactive protein, inflammation.

We're going to talk about some of these. There's many reasons arteries get clogged. But to argue that cholesterol has nothing to do with it is not consistent with the literature.

So we can't really turn off the faucet and stop the injury and stop the damage and stop the plaque. If we don't understand the why. And the topic today is cholesterol, is that part of the why or not?

Can we disregard it or do we need to address it and bring it under control? So we started to learn about this from many sources. But in 1948, our government invested dollars to ask the question, why did people have heart attacks?

And they took this small town outside of Boston a little over 6000 people that agreed to allow a research team to settle in. And 1948, there's still there.

What is that? Almost 80 years later. And they're studying people that live there. They studied their children. Now they're starting their grandchildren, and they're looking at all kinds of features.

And the development of heart disease. So in 1948, the study began, the term risk factor is cholesterol. A risk factor was introduced in 1961. Then they began studying the offspring.

And the third generation. So does cause don't matter. And we're mainly going to focus on LDL cholesterol low density lipoprotein cholesterol. It's so-called bad cholesterol.

It's bad in some people in excess. And this is going to get a little sciency. So hold on here. I just I'm going to assume you're really interested in understanding heart disease.

Reversal of heart disease. So you've probably heard of something called Gregor Mendel. If you ever did a biology course or genetics course, Gregor Mendel 300 or so years ago, Canada white peas and green peas and was able to track down genetic inheritance of certain traits.

Now, we're not peas, but we have genes, and we inherited traits from our parents, some of which favor our freedom from our disease, some of which promote our development of our disease.

And we took the name Gregor Mendel to a type of analysis called a Mendelian randomization, basically a natural experiment of people who have lower cholesterol.

Genetics and Lifelong LDL Exposure

People have higher close talk from birth and what happens to them over time. So in a paper, I'm very proud to have been an author on, it's now a paper 14 years old, but is still is quoted widely.

The effect of long term exposure to lower LDL cholesterol beginning early in life, and the risk of coronary heart disease. A Mendelian randomization analysis.

The first author, Brian Ference, is now at Oxford University. I was working with him in Detroit at the time, and you can see the name Kim Williams. A very famous plant based cardiologist now in Louisville, Kentucky.

And maybe, you know, some of the others perhaps. So it turns out this is a science that certain people inherit a variation in their genetic material called a snip.

Single nucleotide polymorphism. You can see on this page if you look carefully SNP and this paper looked at one, two, three 4 or 5 six snips that if you inherited a certain version from birth, your LDL cholesterol is lower than average, some of them more powerful than others.

If you look, if they were at the zero line, they'd have no influence on your cholesterol. But they're all over where they have the potential to drop your cluster from birth by about 10%, up to almost 50% if you just get one of them,

and some people get a combination of them, they're very low cholesterol their whole life. Is that good? Is it bad?

Does it make the case for anything we're discussing? Most academic cardiologists think it makes the case, and what they found is that when you have lower LDL cholesterol for life and you can look at it unadjusted or adjusted, are there implications for your risk of developing clogged arteries?

Do you want a low cholesterol for life? Again, the power of time is emphasized that if you, have low cholesterol when you're eight and 18 and 28 and 38, it's better than getting a low cholesterol when you're 68 because you start a prescription drug or a major lifestyle change.

So when this was looked at and this is a very important paper and slide lower LDL cholesterol and your risk reduction, the most powerful snips are genetic variations that really bring the LDL cholesterol down.

Beginning early in life. And for all of the life we're associated with, lower and lower and lower, risk of heart disease is coronary heart disease. So your risk of a heart attack, a stent, a bypass, dropping dead go down and it goes down proportionate.

Look at that line. It's, you know, really unusual in science to see such a line of unity, their line of identity. But if you're LDL is very low your whole life, you really have a very low coronary heart disease risk.

What about statins? Well, statins are in the brown box. And these genetic variations in this Mendelian randomization study or steps are in the blue boxes.

And statins lower risk of coronary heart disease. But generally statins are started in your 40s 50s or 60s, whereas these genetic variations start the day you're born.

And the power of reducing coronary heart disease risk is much greater if you get the genetic variation. So if your cholesterol is 80 from birth or your cholesterol, Rossini, because you're taking medication beginning in age 55, it's not the same risk reduction.

You're better off having an LDL cholesterol of 80 from birth, and then you have it all through your whole life, showing without harm that lower LDL is better.

Now, this is a busy study, but I want you to look at the top line. It says genetically lower Ldl-c, LDL cholesterol than the second line. Lower than that is pharmacologically lower LDL c LDL cholesterol.

And this is looking at a variety of studies and the Snip study. And what is showing if you look over on the left, proportional risk reduction, it's much more powerful to have a low cholesterol in your whole life.

Then just get a low class trial in midlife because you started drugs.

2026 Guidelines and LDL Targets

Now, of course, we could get children and teenagers and young adults to eat well and follow the lifestyle programs of Doctor Ornish, nag Esselstyn and Doctor Furman and all the other great.

So we teach about and are part of this summit. That'd be wonderful. But we don't penetrate that many people. But when you get this advantage from birth, genetically it's powerful.

So it makes the case how important it is to control your cholesterol as early in life as possible. That's what a Mendelian randomization study does. So what are we doing in cardiology in 2026?

Well it turns out there was a big shift in 2019. The European Society of Cardiology, the ESC and the European Atherosclerosis decided each year came out with new guidelines.

And they basically looked at this very important study in 2017 by, again, Brian Ference, my coauthor in that previous study. This was updated and he was now already at Oxford, and he remains at Oxford.

And it looked at those, if you look at the blue letters, Mendelian randomization studies involving almost 200,000 people with data for 52 years of follow up or various other lifestyle and drug related studies, all the studies were available at the time.

And what they showed, no matter whether your LDL cholesterol was low because of genetic good luck. Whether your LDL cholesterol is low because of certain lifestyle features, or whether your LDL cholesterol is low because of drugs, the lower your LDL cholesterol, the more you lowered your risk of coronary heart disease.

So the conclusion, very importantly was LDL isn't just a marker, but LDL cholesterol is a cause of atherosclerosis. Go tell that to some of the noisy people on social media, please.

LDL is causal. If you really want to find it, you can see in the bottom left. European Heart Journal 2017 Brian Ference. All right. What about the type of intervention to lower LDL?

Does it matter? Is there something special about one drug or another drug, or even. There has been a very large study using surgery to lower cholesterol, actual surgery on the intestines.

And if you look at this information that's been put together, it doesn't matter whether you're injecting cholesterol lowering drug that's called Pcsk9 inhibitors.

Way to the right. Whether you have surgery to lower cholesterol. That was called ileal bypass, where you take some old fashioned drugs called bile acid.

So questions or you take statins or use diet or use niacin and others as you bring your cholesterol down, you bring your coronary heart disease risk down.

It doesn't matter how it comes down, but it comes down. The risk of heart attacks goes down with the lower LDL cholesterol. It's great. So what did the European Society of Cardiology say?

They said, let's bring the cholesterol way down with drugs. If we don't get you at age 18 with lifestyle, let's use drugs and lifestyle at whatever age.

And they recommended all the way to an LDL down to 40.

Lipoprotein(a) and Other Risk Factors

If you look way to the left it says Ldl-c goal and you can see the very bottom box and a maroon color. For people, a very high risk might need to bring that LDL cholesterol down to 40.

We used to say 100 or 70 or 55. Now we're talking about if you're at high risk because of, heart attacks, bypass and strokes, peripheral vascular disease, erectile dysfunction, calcium scores, coronaries the end graphs LDL and 40th May win the day.

Now, if you're lucky enough that you're elderly, 40 from birth because Mendelian randomization snip advantages and you're probably not going to develop coronary heart disease anyways.

Remember cholesterol measured as LDL C or apolipoprotein B is a definite risk factor, but it's a risk factor on top of many other measurements. So for sure in your family, your friends, your coworkers, check your cluster early and often in life, it matters.

It's causal. Let's talk for a minute about another reason classical matters, but it's a different cholesterol. As you can see here, we often fall into the trap of calling HDL high density lipoprotein cholesterol.

The good one, the LDL cholesterol, the low density lipoprotein, the bad one. But what's the genetic one? And there are genetic examples of LDL cholesterol.

But lipoprotein, little AA or LP little A is a genetic cholesterol that you should know about. And there is this website test LPA, dot org and others that are worth searching.

So what does light bulb protein little a a very hard word to pronounce or LP little a it's a triple threat simply to say it causes inflammation, clotting and atherosclerosis.

What does it look like? Well, on the left is LDL cholesterol. Everybody's heard of LDL cholesterol on the right. If you look at it, it looks like a very similar molecule in the blood, except for that semicircle full of colors that is called the apolipoprotein A.

It's a bizarre arm that can attach to LDL cholesterol and make it a whole different molecule. It's no longer LDL cholesterol. It's lipoprotein little A or LP little eight.

And about 20 to 25% of people can manufacture lipoprotein little. A 100% of people manufacture LDL cholesterol, but 25% of people manufacture both. That's a lot of people.

A couple billion people in the world from birth have an ability genetically to make two cholesterol. You might not want to make two cholesterol. Why? Because it's a VIP.

It's a very important cholesterol particle lipoprotein that it causes heart disease. We know that for sure. 1 in 14 heart attacks. It's estimated 1 in 7 cases of aortic valve stenosis are due to the fact that your parents, one or both of them, gave you the ability to make light bulb protein, little light.

It's a blood test. It was discovered in 1963, and the blood tests been available for several decades. Rather uniquely, light bulb protein literally doesn't just clog up arteries in the heart and the brain and the legs and sexual organs, and it's associated with abdominal aortic aneurysms and the rest.

But it clogs up one of the four heart valves called the aortic valve. And it causes a condition called aortic stenosis. So, I wish every cardiologist had heard a murmur.

What order? A light bulb protein. Little way, but it just doesn't happen. In fact, what you really want to do is get your blood checked when you're 18 or 20.

Everybody, 100% of people and find out if you inherited lipoprotein liver light. We'll talk more about lipoprotein level A in another lecture. I have had a long interest.

This is one of the books I've written.

Inflammation, CRP, and Diet

And the topic was light bulb protein little. It's available with great recipes, but also, I hope, good information. It is now easy to get the blood test covered through insurance, because there is a billing code that was introduced a couple of years ago.

Good thing there's at least a little data. And I'm going to tell you a little data that eating a whole food plant based diet may bring down lipoprotein a little bit, maybe not enough to make a big difference, but why not add in a whole food plant based diet?

It also brings down, as this graph shows, your low density cholesterol, your LDL cholesterol. So remember that class is a risk factor. It's causal. It's proven that if you have a low class gal from birth, you have a great advantage in life for the number one killer men and women.

But there are these other factors, including a very important lipoprotein, a cholesterol. So real quickly, if cholesterol is a risk factor, what are some of the others?

I can't go through the dozens and dozens and dozens right now. But let's talk for a minute about inflammation. The middle word is flame, fire, burn, injury and inflammation.

Has two, buckets. We put it in acute inflammation, like a frostbite or a cut or an allergic reaction. Things swell up, get red. They hurt their warm. But what about chronic inflammation?

What about if every day your immune system is saying, I don't like what's going on in this person's mouth or gut or skin or a diet or autoimmune condition.

And chronic inflammation can lead to cardiovascular disease, autism, Roman drivers, right? Is autoimmune disease, depression, neurologic disease, Alzheimer's and cancer pretty much all the big ones.

Well, how long have we known about this? How about 150 years? When Doctor Virchow identified, pathology studies that there was inflammation in the wall, the arteries that were involved with atherosclerosis.

And we know for sure with all kinds of studies, that part of the disease that clogs arteries is, an active inflammation process and an active, cellular component of the immune system, low grade inflammation.

For many years precedes things like heart attack strokes. Bypass instance. If you look at this paper, in 1997, New England Journal of Medicine, looking at the role of aspirin in preventing events in men.

But a blood test in the lower left called C-reactive protein, developed and patented at Harvard School of Medicine, was very powerful. Your elevated inflammation, measured in the blood by C-reactive protein, greatly predicted your risk of a cardiac event.

You want that blood test. So do you have inflammation? Can we reduce inflammation? I'm going to just show you very quickly. Harvard School of Medicine did a very large, very expensive study with 10,000 patients with a drug attempt to pronounce can I can Mab I did not bad there in the Cantos trial.

And this was a drug that lowered inflammation through a very well known pathway called IL six. And what they showed was if you got the drug, which was the blue line, or the placebo injection, which was a gray line, over about four years, you had a lower risk of cardiac events like death and stroke and heart attack and bypass hospitalization if you got the drug with lower inflammation.

But the drug was insanely expensive and had serious side effects when the trial was done. Therefore, this drug was never produced. But it proved the point that in addition to cholesterol, a risk factor for atherosclerosis, inflammation is a risk factor for atherosclerosis.

Well, if we can't use the $200,000 year drug, what are we going to do to lower inflammation? How about we eat broccoli and arugula and pomegranates and apples and oranges?

In this paper that was published in two out from a university in New York, they took 100 patients with heart disease for eight weeks.

Conclusion: Lower LDL, Lower Risk

They put them on American Heart Association, basically a mediterranean diet. And for eight weeks, another group went on a vegan diet. All wholefood plant based.

And the main point of the study was to see if a whole food plant based vegan diet lowered inflammation. Dietary adherence was higher in the vegan group than the American Heart Association group. That's shocking.

And the vegan diet significantly reduced inflammation, as evidenced by the high sensitivity C-reactive protein. You can see here the vegan diet group the plant based diet group.

Their C-reactive protein fell significantly in 28% just in eight weeks. Wonderful data. And we know that's true. Many inflammatory diseases will improve with a whole food, plant based, colorful diet.

So we can reduce inflammation using diet to avoid disease. Practical tip number two check your high sensitivity C-reactive protein, a blood test early and often in life, and eat a lot of plants right there.

Does that look delicious to me? So just in conclusion, the lower the LDL cholesterol early in life and sustaining through life, the lower are going to be events like heart attack strokes, a bypass.

Because cholesterol is a risk factor, it does matter. In 2026, it remains as an important focus of cardiovascular care and preventive, disease. Get your cholesterol checked early.

Get your inflammation checked early. If you want to know more about all those other daggers, please come see me in my clinic. Thank you.