What a Gut Surgeon Wants You to Know About Colon Cancer Transcript

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Summit Introduction and Colon Cancer Overview

Welcome everyone to the Gut Health and Longevity Summit. I am so glad you're here. And today we're going where some conversations about health never go right inside the colon, seeing through the eyes of a surgeon and, well, myself as a pathologist.

So first of all, I want to talk about colorectal cancer. It is now the leading cause of cancer death in America in adults under age 50. And most of the cancers begin as small polyps that grow quietly for years.

That gives us a very long window to find it and really room to lower the odds of it forming at all. And as a pathologist, I see the story from the microscope side, and today I get to hear it from the operating room side, along with what fiber does and the rest of the food on your plate has to do with it.

So my next guest, Doctor Karen Rajan, has spent nearly a decade as a surgeon operating on the human gut. He has seen up close what years of eating and waiting to do in the colon.

Then his own blood work surprised him, and he started applying what he learned in surgery in his own plate. He is a graduate of the Imperial College London, and spent over a decade as a doctor and surgeon in the NHS, and he has also taught as an honorary clinical lecturer at the University of Sutherland.

Since 2020, he has become one of the most trusted voices in health education online, with more than 12 million followers. That's a lot of people. And he has held ambassador roles with the UN and the W. H. O., and has advocated for a smoke free generation and improvements in the NHS.

He's the best selling author of this book May Save Your Life and this is vital information. And he is known for taking health myths people pick up online and replacing them with what the evidence really says.

So welcome so much. Between your operating room table and my microscope, I think we're going to give people a view on the colon that they maybe never had.

So my first question for you is you've spent years with your hands inside of people's abdomens. What did surgery teach you about the colon that you wish every person listening to new?

And when did that lesson become personal for you? Yeah, I mean, as you know and as I know, the colon is very complex. It has so many different layers to it, and the different layers perform different functions, you know, and most people don't see inside their colon like the inner lining.

We think about it, the average person will think about their colon as this garbage shoot this disposal unit. But actually when you see it, it is so filled with blood.

It's like I've got a very rich blood supply, so many different layers. It hosts this entire ecosystem, the microbiome, the actual colon lining, where often a lot of these cancers develop.

Why the Colon Matters and Personal Path to Gut Surgery

It's very delicate. It's very thin. So actually it's a very dynamic, important environment which has so many different functions from obviously disposing waste as like a, you know, a conduit.

But more importantly, it's a very dynamic interface with the human body, allows for nutrient absorption, water absorption. You know, this sort of immune system overlap is parts of the colon which, you know, are key to immune regulation.

So really, from how I see it, you know, it's the center of so many diseases, chronic diseases and acute it's, you know, has a key role to play in nutrition, in immune regulation, you know, just quality of life.

And I think most people don't realize how important it is until there's a problem with it. Yeah, absolutely. And before we get into some of the problems that develop, let's talk about where did this become personal for you.

Was it a certain case in surgery you saw, or was it your own health journey. Like where where did this really become like, okay, this is the conversation I have to have because as a surgeon, I mean, you can be a colorectal surgeon.

You can be, you know, those neurosurgeons that call me way too early in the morning for for a brain biopsy. You can be in search. You could be all kinds.

But where did this really come from? Yeah, for me, gut surgery was very important. It came from, you know, my childhood experiences where, you know, I was, you know, just playing with my cousin.

And he was suddenly just kind of collapsed to the ground as though he was struck down by something invisible. And, you know, turned out once he was rushed to the hospital, he had a ruptured appendix.

And, you know, I was maybe 7 or 8 years old at the time, didn't quite understand what an appendix was, what had been happening. But then later, I knew, I found out that he was very close to losing his life with the ruptured appendix.

And that kind of began my journey of trying to understand more about the human body. My mom's a doctor. She's a hematologist. So, you know, I would continue to be fascinated by science.

And then just once I was a doctor and then decided to choose surgical training. I was just completely blown away by the breadth of organs that you could operate on, and that you dealt with as a general surgeon and a GI surgeon, and how all these different organ systems are weirdly interconnected.

You can operate on the liver, and the liver can have an impact on the colon and the small intestine, and the gallbladder can have an impact on the colon, and the pancreas can have an impact, you know, on the liver and on the small intestine.

And just all of you know, we talk about gut health and gut health is an umbrella term which covers dozens of organs and dozens of metabolic, well, hundreds of metabolic pathways and enzymes and hormones.

And so that's what attracted me towards, you know, gut surgery. Yeah, absolutely. And for somebody like myself who's well held way too many colons in my hand after receiving them from somebody like you as a surgeon.

And I'm like, wow, I literally look at the person's colon. I'm like, there's so much of a life story in this individual, and I know we're going to get into some like, case examples because I think this is important because we've been talking plenty about everybody knows we need to eat more foods, you know, like rainbow colors and all that.

But I think this is where we really get into like, all right, this is disease here. So let's talk about one of the ones that is becoming more prevalent than ever.

Like in the past, cancer was seen as a disease of the elderly. Now we are seeing colorectal cancer start much earlier. In fact, I actually have a colleague of mine who really find developed colon cancer within a year.

Stage three had to get colorectal surgery, chemotherapy, all of that. And I asked him, I'm like, what did you do in this past year? And not saying that this is the cause of it because the cancer is multifactorial.

How Colorectal Cancer Develops Over Time

But he did tell me that during that previous year, he totally changed his diet to a very heavy carnivore diet prior to the diagnosis. And like I said, I want to make it very clear to the people listening that cancer is multifactorial.

But we do know that there is some changes that happen in the body. So can you walk people through, like when people think of a tumor appearing, they think it comes out of nowhere.

But because colorectal cancer and the biologic events that are happening start years earlier, can we talk a little bit about that? Because I'm sure you work with a gastroenterologist where they're sending you polyps, or maybe you're looking at the polyps.

I don't know how it works in the UK, but in the US it's a GI doctor will go in and scope and then take out whatever polyps, and then the pathologist like me will tell them if it's a tubular adenoma to pull up a hyperplastic polyp or invasive adenocarcinoma, and then the surgeon goes and takes it out.

So I don't know if that works differently in the UK, but can you walk us through the actual physiology, the biology of what's going on in the body, and then what kind of time span are we looking at?

Yeah, I mean to some degree depends on the type of tumor. They can be super aggressive ones which develop and turn malignant over a very short time frame.

Especially, you know, some of these hereditary syndromes, you can get rapid growth of polyps, you know, within the time span of several months to, you know, just under a few years, just a couple of years.

But typically, you know, these polyps which are then precancerous and then turn malignant, it's a several year long process, ten years, 15 years even.

And in the very early instances of those types of things, developing the symptom can be no symptoms or at least vague symptoms that are very nebulous.

And you don't quite know whether it's just down to stress and the rigors of life. And there's not the obvious stuff like changes in bowel habit, dramatic weight loss, or bleeding.

Those things are often slightly later signs, or at least intermediate signs in many cases. So, you know, we still kind of subscribe to the two hit hypothesis of, you know, like tumor growth, where someone may have an increased predisposition towards developing a cancer.

And then the second hit may be something lifestyle related directory smoking exposures, environmental changes, age, all those things and some of which are, you know, non modifiable factors.

But you know certainly why we have screening to screening asymptomatic population. So we can pick things up before they happen and hopefully stop the cancer before it happens.

So it really is like a very indolent process in most cases where it is going to take several years, over a decade, maybe in some cases, and it can be anyone.

So it doesn't even have to be someone with a bad lifestyle. You can have. You can be the healthiest person in the world, eat 100g of fiber a day and not smoke and do everything right and still get it just because, you know, like you said, it's so multifactorial.

But we know that lifestyle factors have such a huge impact. We even know this from the data. You know, there was a meta analysis in the BMJ in 2010. And whilst it was a relative risk, not absolute risk reduction, we know from that like an increase of ten grams of fiber, reduce your colon cancer risk by 10%.

You know, even taking into account the caveat, that's relative risk, that's still a huge improvement in your cancer risk just from eating like ten grams of fiber.

Yeah, absolutely. I mean, I kind of see it from the perspective of when many people think of cancer, they think, oh, it's genetics. When we know that nine and 95% is not genetics, but that's very different than mutations.

And those mutations are what we see over our lifetime. So whether they are from those environmental exposures, certain carcinogens can damage the DNA, chronic inflammation.

I mean, we are living in a very chronically inflamed environment with so much kind of cellular oxidative stress on our DNA and, you know, even some microbial.

And we'll get into get into those microbial toxins. So some of the bacteria. Right. So I know I'm thinking of this from the fact that every colon cancer that I diagnose now gets a Kras mutation testing to see, but only 40% of them have the mutation.

And the purpose of that is one see the mutation to have the treatment for it.

Symptoms, Risk Factors, and the Role of Fiber

But let's bring this into why are young people getting diagnosed later and sicker? What is some of the symptoms that, like you said, people might be thinking these things are normal.

What are some of the symptoms that people should start thinking about and be aware of that goes, oh, maybe I need to like look at what's going on. Yeah.

I think, you know, the very obvious ones. I mean, there's like a long laundry list of symptoms you could potentially look out for, but I think the obvious ones would be chronic changes to your bowel habits over several weeks.

For six weeks, something like that. You're getting more constipated, more diarrhea, or there's some sort of significant change from your baseline. Any rectal bleeding is something that you should see, and the rectal bleeding is not just red blood, but anything that's abnormal, you know, like this dark change, blood bright red maroon, the full spectrum of like red to black.

You should be aware of any significant weight loss. That's, you know, unintentional is something that you should bear in mind. And, you know, we often ask people, you know, like, especially the elderly who may not be weighing themselves in a regular basis, you know, if their clothes are getting looser.

So for me, those things would be, you know, like really important to keep an eye on. But there's some associated symptoms as well, like bloating. It's quite a major one.

And we often think bloating is just physiological. Or for a meal you feel bloated and it absolutely can be. But if you have chronic bloating, which is pervasive in your life, that it's impacting your quality of life and not going away, that is something to be taken seriously.

Absolutely. And one of the things might I add is anemia. That that is sometimes where I see it often come up is like the person just is not complaining of any symptoms.

But their blood work shows anemia. And it's like okay, well what's the underlying cause of you not having enough blood cells? Okay. So let's talk about fiber okay.

So what does fiber, a plant rich diet actually do for colon cancer risk. And where is the evidence the strongest versus it's still kind of unsettled. Yeah we know that fiber has multiple roles in you know, a health promotion specifically colon cancer.

We know from large data sets, epidemiological data sets, meta analysis that the more fiber you consume, you see a pretty significant, you know, drop off in your colorectal cancer risk.

And, you know, some of the largest meta analysis. Reynolds at our 2019. I believe it was where actually, you know, most people recommend the 30 gram fiber a day is great.

You get most of the benefits of colon cancer reduction at 30g a day. But if you look at the dose response curves in that study, you get increasing reductions in colorectal cancer risk.

Beyond consuming 30g a day, you get reductions at 4045g a day. So I would argue based on the lack of evidence, we actually don't know what the upper limit of fiber is in terms of seeing benefit in ongoing reductions in colon cancer risk.

We just don't have large data sets because people are not eating that much fiber, right? We know that people are eating around 30g of fiber, and we have enough data to suggest that that does do some benefit.

Whilst it's not linear, there is some significant association there that is obviously epidemiological data. If we look at the mechanistic data, there's actually a couple of fantastic preclinical studies which came in nature in the last 18 months.

And those one study and this was done in rodents. But I think it's great to show the mechanism still of how fiber could help. Now we all have whether you're healthy or unhealthy, we will have, you know, certain types of E.coli, different strains of E.coli, living as part of our gut flora.

Certain types of E.coli produce a toxin called coli bacteria, and coli backed in has a oncogenic effect on the gut lining of the colonists. The cells lining the colon, which means they can cause direct mutational impacts.

And interestingly, when there is increased fiber consumption, that eventually reduces the amount of food available for E coli. Because other bacteria are propagate, they grow.

There's less food for E.coli. So then there's less and less coli bacteria. So there's less of that oncogenic burden because of that that toxin that comes from that bacteria.

Correct. Yeah. And so we can see from those studies directly that high fiber means less E.coli and less of that genotypes in that actin, which means you'd have mechanistically a reduced risk of colorectal cancer mutations, which means hopefully less correct or cancer.

So you tie that mechanistic study or those mechanistic studies with the epidemiological data. We have direct cause and effect that fiber is good as a preventative strategy for colon cancer okay.

And so we don't have an upper limit. But what is the minimum. You should you would say like what is an appropriate high fiber diet that an individual who, you know, not just for colon cancer but overall health, like where do you kind of place that amount of fiber and what does that look like in a day?

For me, I would actually raise it from 30 to 40 because again, I'm looking at one of the largest data sets we have that Reynolds meta analysis. And it's very clear for type two diabetes, cardiovascular health, all cause mortality and colorectal cancer, which was studied in that meta analysis.

At 40g a day, we see like the largest decreases in, you know, like risk for all those four things.

Diet, Microbiome Changes, and Screening

You know, you have a lower risk of dying, lower risk of developing types of diabetes, heart disease and colon cancer at 40g. So I would say your baseline should be moved up from 30 to 40.

Okay. There was a study I believe, that came out of your own medical school where African Americans and rural South Africans swapped diets for about two weeks.

Can you share with us a little bit more about the study, like what happened inside their colons, and why does that study stick with people? Yeah, it was actually a colleague of mine, James Kinross, who did that study.

And it was really interesting because, you know, people in America have like, you know, the standard American diet, it's higher in fats, processed foods, fiber deplete.

And, you know, certain African populations will have a lower fat diet with higher fiber. And what actually happens and what they saw is one of those changes in the colon.

If you significantly consume more fat in your diet and the dietary patterns we see where fat consumption is highest is typically like an omnivorous or carnivorous dyer, where there's a lot of saturated fats.

Okay, so it's not really the the fat in this dyer came from animal sources, not from plant sources like olive oil or things like that. And actually you get an increased production of secondary bile acids.

These are by which are digested by the colon, by the microbiome. Secondary bile acids are actually oncogenic. There are pro-inflammatory substance. And, you know, they drive inflammation.

And chronic low grade inflammation can also be, you know, toxic to the lining of the colon and increased risk of DNA mutations. So that's basically what happened.

They saw that you get increased production of secondary bile acids. When those African populations suddenly started eating an American diet just within a short time frame as two weeks.

Yeah. So basically with eating the standard American diet or the Western diet, the South Africans have, correct me if I'm wrong, they actually even had rise in the markers.

But did they also have polyps then. I can't remember. Off the top of my head, I only sort of know the sort of top line microbiome changes. And so definitely a more inflammatory profile, which, you know, has been established.

And yet still people will eat the standard American diet. So let's get practical. And at this point, I don't even know if we call it the standard American diet, because I will say that, you know, it's ultra processed food because when I see it in the UK or I see it in other parts of Europe, but, you know, when people are eating that, that entire microbiome shift will happen in individuals.

Let's talk about screening. When should people start and what are the options and where do you see people make mistakes? I know for me is like when I read the report and I'm like, poor prep.

And then I get these polyps that aren't actually polyps, you know, to look at. So where does screening play a role? What can people do to have better screening?

Where does testing like colorguard really come in? Like if this was a family member, this was your brother or sister, what would you tell them to do? Yeah, we obviously have a slightly different screening process in the UK versus the US.

You know, in the UK there's like a national screening program where you hit the age of 50, you get sent what is the equivalent of a color guard in the US.

But you know, the fit test basically where it's like, you know, a slide where, you know, you send your poop sample back to the lab. The lab analyzes for microscopic amounts of blood, hemoglobin in the poop sample.

And if there is significant amounts of microscopic blood, you'll be put forward, maybe for a colonoscopy or maybe even a CT scan if you're not fit for a colonoscopy.

And that's kind of like the procedure once you hit the age of 50. And, you know, often, you know, people also get

like a one off flexible sigmoid copy, which is like a, you know, like a third of a colonoscopy, you could call it.

And that's screening at like from 50 onwards in the US. Obviously the screening is like 45, which I actually think is better. I think more countries should move towards 45 and maybe even sooner.

There's, you know, some emerging research suggesting that there may be a for screening from the age of 40, get a higher pick up rate as well. And we might capture some of those false negatives.

Anyway. I think where people go wrong is that in the UK there was actually a pilot study when the Fit testing first came out, two thirds of people who were sent the at home poop test didn't send back the poop tests.

Right? So if you don't send back the test, we can't see what's going on. So it's useless. Okay. And we saw and when this fit testing was actually first rolled out in Spain, in the Basque Country, there was a 50% reduction in colon cancer deaths from starting a national surveillance program for fit testing, or at least the regional Basque region fit testing.

So it's a significant reduction in colon cancer deaths from picking them up earlier. But I think when people go wrong is not giving it back and not going to an appointment.

If you're called for a colonoscopy and not adhering to the protocol that you're advised to do before a colonoscopy, you know, obviously you have to take laxatives before you've got an Oscar, be so that you're fully washed out and cleaned out.

So whoever the endoscopy is is getting a crystal clear view of your code on doesn't work in all cases. But sometimes that's because people can't tolerate the bowel prep or the laxatives, and it is difficult.

But going through that pain and that difficulty allows you the best possible chance of having a high quality ten out of ten procedure where even the smallest of potential polyps can be seen by the experience endoscopy.

So it really is in your favor to swallow that horrible, you know, liquid, to make sure that you have the best outcome. And just to give people an idea of what An is looking at.

I mean, literally when we get little samples, it's a millimeter. It's like the little pen cap. These are very small. So if that colon is full of food, the endoscopy is not going to be able to see it in order to biopsy.

And it's sometimes when those polyps are taking out you're taking out the tubular adenoma which is a low grade dysplasia precancerous. So that's a great way to catch it.

So yes colonoscopies have never been anybody's favorite thing to do in the world. It's not like we do Friday night events and drink our blocks, but it is very important.

So I think this is where, you know, there's a lot of and is now done with an AI integration on the screen. It's very novel. It's not in every sensor, but I think that could be advantageous to pick up those small things.

Yeah, absolutely. And we're doing that also in pathology where we have like prostate core biopsies.

Meat, Processed Foods, and Diverticulitis Myths

And it picks up one single gland. So yeah, this is where AI can actually be useful. So if fiber sits on the protective side of the plate what's on the other side.

What does the evidence actually say about processed meat red meat alcohol when it comes to the colon. Yeah. And listen, I think there will always be people who can never be convinced to stop eating meat or whatever.

And, you know, that's their wish. But I think there's like pretty clear evidence now that there's also a spectrum of

types of meat. You mentioned cold cuts, deli meats, processed meats are obviously worse on the scale than, you know, just not natural meats or like whole cuts of meat and, you know, that are sort of organic, if you will, and not cured high salt and, you know, processed in any way.

But even then, I think when it comes to meet even beyond the processing, there's also a difference between red meat and then white meats, you know, in terms of gut health and metabolic health and, you know, general impacts on the body.

Red meat is going to have a bigger negative impact than white meat or fish, for example. We know that, you know, Mediterranean diet, you know, those people in certain regions still eat meat, but it's a very minimal amount of meat.

And it usually leans towards fish and dairy products rather than, you know, like a huge amounts of red meat. And typically I think the the guidance and the research narrows down to a number that, you know, people even eating meat should limit their red meat consumption to under 50g a day.

Yeah, right. And you know, again, I don't want to fear monger people, but for example, there's been studies suggesting that eating more than 50g of process red meat per day and more than 50g is like more than two slices of bacon.

And I know that a lot of people eat more than it's literally a hot dog. Yeah, correct. And that can have, again, a relative risk increase, but a relative risk increase of 12% of your code on cancer risk.

And if we look at what that means, that means one extra case per 100. You know, your risk goes up from four and 100 to 5 and 100, which is not huge, but it's not insignificant.

So, you know, I'm always of the belief that you should do everything you can to stack the odds in your favor. And, you know, if it's protein you want, there's other ways you can get protein.

And the other thing I'll say on this is that we just know that, you know, from a metabolic profile as well, you know, it comes with other trade offs, like the meat is not just meat and protein. It comes with high saturated fat, sometimes high salt, and obviously low in fiber.

And really, I, I care about the unholy trinity of gut health, which is high salt, high fat and low fiber, you know, and I'm going to add one more for you advanced glycation end products.

So ages. Yeah. That's like especially because the way meat is cooked because it's not like you're going to eat like most people are not eating boiled meat or like they're eating grilled meat or whatever.

Exactly. Yeah. So, you know, like so, you know, there's a very clear research we have on those things. So the more you can limit those things, it's going to be better for your cancer risk reduction, your gut health, your microbiome health as well.

Yeah. All right. So let's switch over from colon cancer into something that maybe is a little I'm not going to say more common. But another thing you would see in the operating room which is diverticulitis okay.

So for years people have been told stay away from nuts, seed popcorn. So what does a surgeon say about seeing the inside of a colon? Really tell people now about these foods.

Like when we think about diverticulitis or diverticulitis even, which is essentially the same, except the idea is the inflammation part of it. Yeah, I mean, I it's always been a big bugbear for me when I've heard people online, even patients come to me being like, yeah, I've been told that I can't have nuts and seeds, and I totally get it.

It's a very plausible mechanism, like, hey, I've got these small herniation and these small sacks in my bowel. It makes sense that I can't digest seeds and they'll get stuck in the colon.

It makes sense, like a lock and a key. But that's not what happens, you know. And really the reason the underlying principle and pathology behind or the etiology behind diabetic genesis is because probably you've gone chronically without fiber for a long time.

You've been straining and it's like a hernia. You've been straining so much that your bowel develops hernias and weaknesses in the bowel. Obviously there's a genetic component that as well, but it's usually because driven by chronic constipation and low fiber.

And actually you need those nuts and seeds or you at least need more fiber. You can't be avoiding those foods. The only caveat I will say, if you have diabetic and then you get diabetic colitis like a flare up an infection whilst you're undergoing the active inflammation, you probably should dial back your fiber.

Because insoluble fibers can be abrasive to the lining of the colon. And if you have a high fiber diet whilst you're in an active flare up or an infection, that could worsen your pain.

So that's the only thing. So we usually recommend a low residue diet while someone is in flare up mode. Yeah. So that would be just for the audience listening.

So diverticulitis is you basically have like if this is the colon and it should be a nice kind of straight lining in a way it's the mucosa and muscle that out pouches.

And now you've got these kind of curves. And this is kind of where not just nuts and seeds food kind of gets stuck in here. And when food gets stuck in here, it can cause inflammation and eventually sometimes even rupture.

So what Doctor Karen is saying is that at that time, if you have the inflammation part of it and you're going through a treatment for that, that's when you want to be really cautious of the amount of fiber and nuts and seeds.

Practical Steps to Protect Colon Health

But I do believe there is a way that like that they can reintroduce it after some point without having the bloating and do it safely. What would be your recommendation then?

Yeah, it's as soon as the inflammation is settling and signs that the inflammation is settling is obviously the pain is getting better. Your bowels are normalizing because there's necessary information and there's less loose stool.

Maybe the bleeding is stopped. Then you start reintroducing gentle fibers, soluble fibers, which are maybe low Fodmap and more gentle on the guard. Try to minimize a lot of these, you know, cellulose and plant cell wall fibers, which are insoluble and focus more on the soluble fibers, which are maybe viscous and more gentle.

And then once you're kind of back to normal, you go to a normal diet. Yeah. So the more soluble fibers would be things like oats or peeled and cooked vegetables, bananas, potatoes like the softer ones rather than the like the dark leafy greens or the Pacific.

So the slower fermenting ones. Okay, perfect. So now last question for you. And I want to be very concrete for the audience. Somebody listening wants to protect their colon.

Like today. They just listened to your talk and they're like, I, I'm all about like making my colo sites, my intro sites actually as strong as possible.

What are three things they should do starting today or this week? And I really I want you to be specific. Yeah, I would simplify it and just focus on the three P's prebiotic fiber which you can get from, you know, beans, nuts, seeds, oats, you know, like there's a wonderful range of foods you can get your prebiotic fiber from.

The second P is your polyphenols. These are antioxidant compounds which are found in plant foods. You can also find them in spices and olive oil. So polyphenols you can find in coffee, olive oil, spices in berries.

I think that berries are fantastic. It's a way to get your polyphenols and your prebiotic fibers. And then the last P is probiotic rich foods. So fermented foods your kimchi is your NATO's your miso soups your yogurt.

Even if you don't want to go too fancy and which will help to kind of, you know, continue to inject low amounts of just, you know, live microbes into your food.

But just make sure that if you're buying those probiotic rich foods, check the back of the label to say that it says live and active cultures, that it's not salted or pickled in any way that kills the bacteria.

So prebiotics, probiotics, and polyphenols do those three things very easily. And you could literally do it today by having a yogurt bowl with raspberries and some nuts that will have all three.

And you get your fiber, you get your protein and you're helping your code on. Perfect. All right. Is there anything I missed that you want to talk about?

Did we cover did we cover it pretty good? Yeah, I think we did. All right, doctor Rajan, thank you so much. Hearing the operating room side of a story I usually see on a slide has been a real gift. I think, for the audience.

Most colon cancers give us years of warning, and the food on our plate really shapes the colon and the polyps that grow from it. That's what I wanted everyone to carry away from them.

You can find Doctor Rajan on Instagram, at Doctor Karan Rajan and on TikTok, and I encourage you to look up his books as well. Here's the key takeaway for you guys.

Most colon cancer take years to form. Use those years, get screened on time, and don't ignore any of the warning signs and feed your colon plants every day.

So thank you so much! Stay tuned for another episode in one of our sessions.