Introduction to Dr. Gundry and the summit

Welcome to this episode of the Reverse Alzheimer's Summit. I am absolutely thrilled to be introducing you to Dr. Steven Gundry. You've probably already heard of him because he is a New York Times bestselling author, founder of Gundry M. D, and also one of the world's top cardiothoracic surgeons.

He is a mentor of mine. I certainly look to his books to get information. And I've I've had the privilege of interviewing him once before and learned so much from just that one hour that we got to spend together.

And I am absolutely thrilled that we're going to get to dove into some of the nuances around Alzheimer's as he's at the forefront of some of the research around Ebola and the risk factors associated with genetics.

And he's also written a ton of books, The Longevity Paradox, the plant paradox, the energy paradox. And so there are tons of resources that you can tap into because I know you're going to be excited about all that Dr.

Country has to share today and want to learn more. Dr. Ganji, welcome. Well, thanks for having me. It's great to see you again. You as well. So I want to if you don't mind, let's just go straight into this apoe e for kind of conundrum here.

There's so much research out there. Well well, actually, maybe I shouldn't say that. There's some research out there. I don't know if you're familiar with Becca Levy's work where she showed that you can actually reduce the risk associated with Ebola and Alzheimer's just through mindset.

And yet there are other risks in terms of lipid metabolism that we will we want to take very seriously. So dove into kind of your journey and expertize in that.

Well, yeah. You know, I my previous life, I guess I was a world famous heart surgeon and I was fascinated as a heart surgeon that a lot of my patients carry the apple.

We for gene, the single mutation or the or double mutation. And I thought it was curious that, you know, why this would be a risk factor for them. There are certainly other genetic risk factors like carrying the gene to make life or protein little AA, but that's in a way another story actually is not another story.

A great number of people who carry the apple we forging carry apple the gene to make quite big protein. I was just going to say, those are the people where I see help a little elevated as in those APOE4 carriers.

APOE4, lipids, and early misconceptions

Yeah, it's not necessarily linked, but clearly we see I see a lot of people that have both and they in a way act in different ways. But I think to quote or to channel Dale Bredeson, who's become a friend of mine through the years, there may be very good reasons for having apoe e mutation and having making LP luai.

So maybe we'll go into that. So I got interested in why these people had this, and back in those dark ages there was a lot of talk that lipid metabolism was somehow abnormal in people who carry the Apple mutation for mutation.

And so I approached my were looking from a cardiovascular standpoint, okay what is it about these guys and handling lipids that's so detrimental to them?

Lo and behold, little did I know or way back when that my now friend Dr. Dale Bredeson was approaching believe for from a neurologic standpoint and looking at Alzheimer's.

And now a number of years ago we were introduced at a conference where we were both speaking and, you know, both of us simultaneously. Oh, my gosh, you know, I'm a big fan of yours.

You know, it's amazing what you've done. And, you know, and what we know. And so we've we've actually shared thoughts all along. And he and I have slightly different opinions.

And my opinions have actually changed through the years. The longer I've been looking at this and one of the things that I was absolutely, positively convinced of 25 years ago when I started looking at this, was that saturated fats were really mischievous to we for mutation folks.

And I looked at that from a standpoint that, okay, if cholesterol, transport, moving cholesterol in and out of cells is somehow wonky in people with epilepsy for mutations, and there's some good evidence that that's true, then maybe one of the best ways to mitigate against these lipids moving the wrong way is to not have very many particles of LDL, particularly small, dense particles we all deal and there's some interesting research that suggests that's pretty good idea.

And so I spent a great deal of time looking to get these particles of LDL down in many people. It was clear from bloodwork that I do every three months of people that saturated fats, particularly cheeses, were mischievous to this profile, particularly in these people.

And I would spend a great deal admonishment of my patients to please get saturated fats out of your diet. And that cheese was really kind of mischievous to you.

And I kind of left it at that and spent many, many years saying saturated fat was the evil empire, particularly coconut oil was. It was a real. Yeah, this is exactly what I want to talk about.

Yeah. Coconut oil was one of the best ways I found to have people elevate their LDL and actually even small particles of LDL. And believe it or not, I still think that.

However, when I started to look into M. S. tea oil, which are medium chain triglycerides and one of the things maybe from the start, so coconut oil, yes.

Has a lot of medium chain triglycerides. And most medium chain triglycerides are derived from coconut oil. The problem is that the major medium chain triglyceride in coconut oil is C12.

And C12 has absolutely no ketogenic effect. And maybe we'll get into that in a little bit. And so if you actually look at the active C6, C8 and C10 in coconut oil, maybe only about 10% of coconut oil has the active ketogenic M. S..

KS So coconut oil continue. Sales is not way up there.

Medium-chain triglycerides and ketones

On my list of fine foods for the treatment of Alzheimer's or the prevention of tumors. But M. S. TS are another study. I wrote my last book, Unlocking the Keto Code, about how M. S.

TS were not how everybody thinks they were. But that's okay. Well, then let's get at that misconception. How do they work? All right, so M. S. TS are unlike any other fat.

They are absorbed directly through the wall of our gut. All other fats, even olive oil or even coconut oil, whatever, have to be absorbed on carriers called kilo microns.

And kilo microns literally are moving. Bands that pass through the gut wall and then don't enter the bloodstream. They enter the lymphatic system and the lymphatic system carries them up in the back of your chest and dumps them into the superior vena cava where they then mix with blood.

So as our really roundabout process, M. S. TS, on the other hand, are so tiny that they go right through the wall and they go to the liver where they are converted in general into ketone bodies, ketones.

And it's kind of a do not pass go, do not collect $200. You pretty much have to convert mcts into ketones. Now that's where it gets kind of interesting and I, I've been a big fan of the ketogenic diet actually since I started writing books and even my ketogenic version of the plant paradox used AMC t oil as really the foundation of it.

But when you, when you kind of start looking at the literature, you go, Oh, your ketones are the world's greatest fuel. The brain loves ketones. The brain has to have ketones.

Well, sadly, that's a bunch of hogwash and it really is. And you can look at regions where you can look at other folks were from Harvard and show that even at full ketosis in human volunteers, the body only gets 30% of its energy needs met by burning ketones.

The vast majority energy needs matter for you. Fatty acids and some glucose free. Fatty acids, unfortunately, are too big to make it through the blood brain barrier.

The brain would be perfectly happy burning free fatty acids, and there's evidence that in fact it would be very happy. Burning free fatty acids just they can't get there faster than ketones, on the other hand, can get through the blood brain barrier and they can be burned as a fuel.

Unfortunately, even at full ketosis, only about 60 to 70% of the brain's needs are met by ketones. And you still got to have 30 to 40% glucose as a fuel.

Well, what about all those studies that show the brain lights up and everything and the PET scans and all this stuff? Well, it turns out that that's not evidence that the brain is using these as a fuel.

What to that evidence is and the argument I made in unlocking the keto code is that guess what, mitochondria are being uncoupled by ketones. That's a signaling molecule and it's telling mitochondria to literally waste fuel and in the process of wasting fuel, they go through more fuel and it looks like they're using the fuel.

They're not well. But what does happen? It turns out when you uncouple mitochondria, you make heat and neurons are really heat sensitive. They love heat.

In fact, there's some evidence that they really want to be much hotter to work properly than any other cell in her body. Do we wear a hat or get in a sauna?

Well, it may be that actually that's one of the benefits of sauna. Sauna also on couples, mitochondria. We can get into that. So if so, anyhow, yeah, ketones are a great a great thing, but not for the reason people think they're a great thing.

It's to uncouple mitochondria and quite frankly, if Alzheimer's or any neurologic dementia is fundamentally a problem with mitochondrial function, then getting your mitochondria to repair themselves to make more mitochondria, which is quite a genesis to have damaged mitochondria self eat mitophagy and ketones can do that too.

Then ketones are probably a really good idea as a part of a strategy. So when I went and when I was writing the energy paradox, I was trying to explain how important ketones were in my poor knowledge of them.

And the more I tried to explain it, the more I realized, Boy, everything that you know, we in the ketogenic world think is right and wrong and that, you know, really smart people had already proved this wrong.

We just didn't want to look at the look at the evidence. So that's when I really got into okay. Uncoupling mitochondria is probably. This is a discussion of the mechanism and certainly from a clinical perspective and also from a personal perspective, I my brain turns on when I'm in ketosis and watching my patients, they, their brains

turn on, they, they improve their cognitive functioning ketosis.

So the how is maybe what we're reconsidering, but do you are you questioning whether or not ketosis is the right diet and not forever?

Mitochondrial uncoupling and heat generation

Like, I don't I'm not a proponent of having people in ketosis forever, but for going in and out of ketosis is something that I recommend based on my clinical experience and the research we did in my clinic.

Are you reconsidering that? No. We're supposed to go in and out of ketosis every 24 hours. And if we did this the way our ancestors did it, normally it takes us if we have metabolic flexibility and let's just define the terms we should.

Any mitochondria should flip on a dime between between using glucose as a fuel or we're using free fatty acids or ketones as a fuel. And we should be able to make that just like hybrid car switches.

Unfortunately, we now know that 50% of normal weight people have no metabolic and have no metabolic flexibility. 88% of overweight people have no metabolic flexibility and 99% of obese people have no metabolic flexibility.

Normally, if we had metabolic flexibility about 8 hours after we stop eating after our last meal, we we should begin making ketones. We should begin releasing free fatty acids from our fat cells.

They should go to the liver, they should be converted to ketones. Ketones should then go to the brain and be a fuel source until the next morning or until break fast to be a substrate for fuel.

But what's really interesting and that's that's what should happen what's really interesting is ketones rather than being a fuel source, are actually a signaling molecule for mitochondria to repair themselves to make more of themselves.

And that should happen during nighttime. And the longer you can keep that ketones signaling up to a point, the longer that repair process goes on. So that's why I think, you know, people think now that time restricted eating, particularly delaying break fast towards lunchtime and compressing your totally eating window to 6 to 8 hours is a pretty doggone good idea not to bathe your brain in ketones, but to bathe your brain in ketones telling your mitochondria to repair themselves and make more of themselves.

This is a concept. Here is the hermetic effect, right? No. We thought it was harm. Misuse. There's no such thing as horror. Me Since then, I've written about horror movies and so many times I'm embarrassed.

That which makes me strong. That's which doesn't kill me. Makes me stronger. That's why we thought polyphenols work. That's how we thought resveratrol work.

Unfortunately, that's incorrect. All these hard medical substances work by uncoupling mitochondria. And once you realize that all of these things that we thought were hermetic.

Hello? Are you back again? Actually work through the same process and. Oh, well, yeah. And it's actually just one thing that all these substances do and that's they uncouple mitochondria.

Are fascinating and what about the you mentioned that there was a you're also getting rid of the old mitochondria that don't work as well. Right and so that stress on the system this is kind of what I was thinking is that hermetic effect in this example.

But no, that's not what's going on. No, it's not stress on the system. This is actually so ketones as well as polyphenols are signaling molecules to do mitochondria.

And the crazy thing is there's a professor, Dr. Brand in 2000 wrote a very obscure little paper called Uncoupling to Survive. And he proposed that if you were starving to death, then and we know ketosis on a couple's mitochondria, if you're starving to death, then you're the last thing you have to preserve your mitochondria at all costs.

Because if the mitochondria go, who cares? Yeah, who cares about your muscles? Who cares about your hair falling out? Okay, who cares about anything else?

Your mitochondria have to survive. And he proposed that under conditions of starvation, mitochondria would waste energy rather than actually rev themselves up and get every last little out of ATP, out of every little molecule in the body.

Mm hmm. And that sounds crazy. Wait a year. If you're starving to death, why would conserve? Yeah, why wouldn't you? Well, he showed that, in fact, during starvation, mitochondria uncouple aggressively.

I like to use the example. I using it in the next book, but I've done it on Barca, so I'll tell you now. So let's suppose we have a dog sled and we have one dog and the dog can pull the dog sled, and you're not going to go very fast and you're not going to go very far until the dog tires out.

Imagine if we took five more dogs and hooked it to the dog sled. Each dog now would have to do a six of the work of that individual dog, and you'd go a lot faster and you go a lot farther.

Only one problem you now have to feed six dogs instead of one dog, so you need more food. And so what he showed was the process of stimulation of ketones makes your mitochondria aggressively uncouple, but and that means waste fuel but it aggressively makes them number one kill any mitochondria.

It looks funny to eat itself mitophagy and recycle itself and two simultaneous easily make more mitochondria, add more dogs to the dog sled. And the really cool thing about mitochondria, as you know, is they have their own DNA.

Right? And so they can divide separate from the cell divide. So you can easily add I mean, they're quite frankly, they're sometimes thousands of mitochondria in a cell.

So you can easily add five more dogs to the dogs lab so that each mitochondria has to do far, much less work protect itself. So making ATP is really damaging to mitochondria reactive oxygen species, etc., etc..

And so he said this is actually what should happen now. He went on to show that if you look at long lived people, they have the most uncoupled mitochondria of anybody.

Can I double click on this uncoupled mitochondria? Because what I'm imagining is two mitochondria stuck together and then they're coming apart. So tell me what uncover my mitochondria.

All right. So I wrote a book about this, and unfortunately, I hate the word mitochondrial uncoupling that a lot of people think. When I'm saying uncouple, it's what stars do when they get divorced.

Right. And not divorce. Well, so the object of the game in making ATP and we want more of your listeners is we want to couple protons with oxygen. And when a proton is coupled with oxygen in the electron transport chain in the inner mitochondria, that coupled by oxygen and ATP leave through a turnstile atpase and generate ATP.

And so you the electron transport chain is designed to energize electrons to produce enough energy, motive, force to pull protons into the inner mitochondria or membrane, have it meet up with an oxygen, and then Marianne go through the only way out through the electron transport chain, which is a one way door to turnstile electrons can also couple with with oxygen and we know that electrons coupling with oxygen are bad, bad actors.

Those are the reactive oxygen species. Those are why we have antioxidants in mitochondria and not to get too technical, there's only two antioxidants in the mitochondria glutathione ion and get this melatonin.

This going to I thought you were going to say coke you ten. No no coke you ten is a co carrier in the process of the electron transport chain coke ten is is kind of like a second baseman in in a double play in baseball.

The shortstop grabs the ball, throws it to the second baseman, the second baseman Coke down, steps on the bag and throws to the first baseman for the second out.

Cheese, dairy, and APOE4 diet strategy

So Coke you ten is an essential CO enzyme to make the electron transport chain work so and fun fact almost all adults do not make enough coenzyme Q10.

Oh, and I want to talk to you about statins. Oh yeah. And sets prevent you from making coke. You okay. So anyhow, back to coupling it's nasty work generating ATP and there's lots of damage so and there's I, I call it the Midas Club in my book it's the hottest place to be and everybody's trying to couple and people are coupling with the wrong people.

And a lot of times it gets hot, noisy and beers are being thrown around. So there ought to be some emergency exits, too, when the heat gets overwhelming, when these reactive oxygen species are happening, there ought to be a way to slow down the process, almost like a nuclear reactor and rods coming in.

Well, it turns out that back in 1978, it was discovered that there were emergency exits in this electron transport chain, and they were controlled by uncoupling proteins, and they're five of them.

And what they do is they release protons that normally would be trying to make ATP with oxygen out these back doors so that they never couple with oxygen.

So oxidative phosphorylation is on coupling oxygen and making ATP. So that's an uncoupled mitochondria. Now you go, well, that's a stupid idea. Well, not so fast.

It turns that you and I sitting here right now, 30% of everything that goes into our mitochondria to make ATP is uncoupled from the respiratory chain.

We waste 30% of our energy just at baseline. And you go, Boy, I had a really dumb design. Well, not so fast. It turns out that when we uncouple protons and oxygen, we make heat.

It generates heat. In fact, brown fat is brown because it has so many mitochondria that it looks brown under the microscope. And those are the most uncoupled mitochondria in us.

And when you eat a thermogenic compound or eat a thermogenic diet, little did I know or you know that you're actually eating compounds that uncouple mitochondria and produce more heat.

Getting back to the brain. If we uncouple the mitochondria and neurons, more heat is generated and our neurons work more efficient even though they're making per mitochondria less energy.

But we've recruited lots more mitochondria. And there is this the connection between Brown fat and cold exposure. Yeah. So they all work the same way.

Okay. All work the exact same way. It's all uncoupling mitochondria. Yeah, I was, I was a big researcher in heat shock proteins and heart rate. And so we, we learned this trick that we could cut off the flow of blood in an artery for about 5 minutes in heart surgery, and then literally give it a little baby heart attack.

And then we'd release it and let it rip perfused for about 10 minutes. And if we did that and we found that we could then cut off the flow of blood to that area for an hour and the heart would be great.

And it was discovered that there were these heat shock proteins that did it. Well, guess what? Heat shot proteins

uncouple mitochondria. And that's how Asano works.

Sorry, folks. So it's that army since it's not that which makes me weaker, makes me stronger. It's all this uncoupling process. Now, let me give you the let me give you the best example, which, you know, my new PBS special will be out March 1st called Just one thing birds.

There is a theory which works quite well of longevity, basically the cost of living hypothesis, and that basically says the faster your metabolic rate, the higher your metabolic rate, the faster you're burning calories, the shorter you live and the slower your metabolic rate in general, the longer you live.

And that works for most things. You know, a mouse small and doesn't live very long and a human or an elephant is big and lives a long time. And it's true we have a lower metabolic rate compared to a mouse.

Makes sense. The problem is birds. Birds are little and birds live an incredibly long time. A hummingbird in captivity can live 11 to 12 years and that thing has its heartbeat is 1200 beats per minute and has one of the highest metabolic rates there is.

A parrot can live 80 to 100 years. And when you look at birds, mitochondria, they have the most uncoupled mitochondria of any species. Fascinating. So since this is an Alzheimer's talk, what you really want to do with all of what you do is you want to uncouple your mitochondria.

All right. So how do we do it? Oh. Let's get back to cheese. Showing cheese. I'm scared of what you're about to tell me because I love cheese. Good. And this was one of the things, like it or not, if I find out something new and that goes against what I preach and I think I teach rather than preach, I like to tell people I was wrong and tell them why I was wrong.

Thank you. And good new information. And you're willing to change your mind? Yeah. I'm a teacher, you know? I mean, I've spent my career as an academic teacher.

All right, so let's find other compounds that might have medium chain triglycerides. Now, that medium chain triglyceride does seem to be a really good way of making ketones in your liver.

And he don't seem to be a very useful way of uncoupling. Mitochondria. Okay. All right. It just so happens, you know, where the names for the various mukti carbons came from.

So the number of them. Right. Well, yeah, well, so there's a prolific acid. Rate. There's Caprica. Acid Capra. Where have we heard that before? Well, it's the Latin word for goat and C six carbon six actually smells very good.

And so it turns out that goat in sheep milk or 30% m c t oil is interesting not cows milk and buffalo mozzarella. Buffalo milk has the same thing. Fun fact source camel milk.

You know, plain old everyday milk doesn't. So you then look at long lived societies and it turns out that the vast majority of these societies are goats and sheep herders, and they drink goat and sheep.

He figures. They eat goat and sheep. Yogurt or hot sheep. Cheese is just one example. Because it's like blues. Owens for example, like longer lives. Don't get me started on blue zones, okay?

They're they're not blue zones at all. If anything, they're white zones. So four of the five blue zones that Dan Butner described, actually the main component of their diet that makes them different from all their other surrounding communities is that they're all goats and sheep herders.

Oh, fascinating. Just one quick example, Sardinia is one of the blue zones. Turns out that only part of Sardinia has longevity, and that's actually the mountainous region that the folks who live down by the ocean have no additional benefit.

Right. Why is there a difference? And they all eat the same food except one thing. The mountain people eat goat cheese. They're herders. The folks down by the water.

Don't let me give you another shocking example that probably Dr. Bredeson and I will have to shake our heads. There was a recent study out of Norway that actually made the news, and they looked at people with stable angina.

Stable angina means you got coronary artery disease. And when you exercise enough, you begin to get chest pain. And if you stop, it goes away and you get pretty smart.

You go, Yeah, you know, I probably don't want to walk that fast air, but it never really changes, never really worsens. And it's called stable angina.

So they took a bunch of people with stable angina and they look at either their milk consumption, their butter consumption or their cheese consumption.

And they looked over the passage of time whose angina got worse or whose engineer got. And the big part of the paper was that dairy is really bad for coronaries is because the more dairy you drink, the more butter you eat, the worse your engineer gets.

And it's very striking. You can watch the graphs re fun. And then down at the bottom of this little abstract and it says, the only thing that's odd is cheese doesn't seem to have that effect.

And then you go, Well, that's interesting. So you dig up the paper and it's not only cheese, doesn't seem to have that effect. What the paper shows is the more milk you drink, the worse your engineer gets, the more butter you eat, the worse your energy get.

Gut health, gluten, and the blood-brain barrier

But get this, the more cheese you eat, your angina goes down dramatically. Oh, sweet relief. Go and. Perfect. So I actually to get back to how we started, I actually have my app for folks eat goat and sheep products virtually on a daily basis.

Fascinating. Okay. So this was my million dollar question for this interview. When I set up my clinical trial, it was in 2019. And I think Dr. Bateson and I both had kind of questions around ketosis and how into ketosis you need to get and how restricted you need to be on dairy and meat products and other things that we consider inflammatory potentially if you're eating them all the time.

And I went hard keto I just said everybody keto regardless of belief or status let's just in our trial we're going to say go for it and I'm not going to restrict it's only six months.

We'll watch the lipid levels, we'll, we'll get all the data and it's a clinical trial. We'll see what happens. And sure enough, what we saw is that people with APOE E4 four or three, four are positive. We didn't have any two four as I think that's super rare.

Isaiah ten But do you the two cause the two cancels out before. Oh great. So they're they're good. I didn't have any of those in the clinical trial. Yeah.

But everyone who got into ketosis who had EPO e4 four or three, four positive, they all got better, they all had measurably. Now there were lots of other components, right?

We did hormone replacement, we did diet and lifestyle stuff. That organic ketogenic diet was primarily what we did for diet, but we increased exercise and we got them on supplements that many of which I'm sure you're familiar with.

So we did much more than just the diet, right? But that ketone level, anecdotally, the higher that ketone level, the

bigger the delta in that measurable cognitive change.

And so I I've been dying to ask you a question like I'm a I want people in ketosis because if they're brain health is my primary objective, then I want to get them there and I don't want to be too restrictive.

So what you're is I can add we can certainly add the goat and sheep cheeses and maybe kefir and those kinds of things. And what we should be backing off of is the coconut and not and maybe saying restrict coconut oils.

Yeah, absolutely. And there's and butter grass fed butter as well. Throw it away. Okay. Yeah. And again, this study was very dramatic. That butter is just a disaster.

Even grass fed. Even grass fed. Okay. It just it has it has no benefit. There's there's a little bit of butyrate and butter, but it's so infinitesimal.

It's it's a waste of time for all the other mischievous things that butter causes. No offense. The other thing that's really exciting and I talk about it in the new book as you know, the ketogenic diet was popularized as a seizure behavior in kids right.

And that's where it came from. And what's really exciting now, and I think I haven't talked to Dale about this, but what's really exciting is this some new information.

It's animal studies. But the effect of the ketogenic diet in preventing seizures or lessening seizures probably has nothing to do with ketones. It actually has to do with a change in the gut microbiome.

And it's the gut microbiome hosted by addicts that are actually decreasing the seizures in in kids. So I have a question. Sorry, one I want to understand.

Do you think it's possible that all of these things that are happening, that it's not it's not just using ketones for fuel, it's not just uncoupling of mitochondria, it's not just changing the gut microbiome, but it's all of them working together to enhance cell function.

I don't know if your readers can see this. This was painted for me. The road to health is paved with good intestine. I love it. And you know, Hippocrates, 2500 years ago said all disease begins in the gut.

The guy was right. Well, and the gut starts in the mouth. So exactly like a dental root. That's the gut. When you and I and Dale would agree with that.

Yeah, the gut starts here. And so the longer I've been at this, the more I realize then that is all comes from the gut, amyloid comes from the gut, the signals for the brain to bite back on.

The dendritic processes come from sensing lapses and other living bacteria that are escaping the gut wall and the brain takes appropriate measures. The other thing that is exciting to me, now that we can measure leaky gut, we can measure leaky brain.

We now know that the gut has a layer of mucus that protects against all this. It turns out blood vessels have a layer of mucus called the glycol. Calyx and son and son of a gun.

The blood brain barrier has a glycol, Calyx. And the things that are exciting to me, starting as a as a heart surgeon is this glycol, Calyx is basically what has to be maintained in all of these systems.

And it just one fun thing for your listeners. You can light up gut like, okay, Alex in any of these. In a good way. In a bad way. In a bad way. With wheat germ, a gluten.

Right. And wheat germ gluten. And for those of you who care is in whole wheat products and wheat germ gluten, it is a lectern that is so tiny that it can actually pass through the wall of the gut with our leaky gut.

And it just so happens it's a splinter and it attracts white blood cells to attack the glycol. Okay, so blood vessels, it attacks the glycol, Calyx, of the blood brain barrier.

And another fun fact is that it actually binds to the same sugar molecules in joints and causes arthritis apocalypse, which right all disease begins in the gut.

So do you recommend a gluten free diet regardless of whether or not you're in ketosis? So gluten, believe it or not, gluten is probably the least mischievous of of all of these compounds.

And that may explain why most diets that use wheat take the whole off of wheat and get rid of it, because that's where wheat, German gluten is. Most people who eat rice as a staple take the whole off of rice because there is a wheat, German gluten and like molecule in rice.

Traditional cultures that use corn always treat corn with lye to make it into hominy because it was removing that gluten like molecule of wheat, German gluten, the molecule.

And you start looking at traditional diets and you go, son of a gun. These guys were pretty doggone smart. They didn't know why they were doing it, except they probably felt a lot better.

There is a lot of wisdom. Yeah. Oh, it's amazing. Dr. Gandhi, this is a fascinating stuff. I want to make sure everyone knows how to find out more about you.

I know you've got a podcast, of course, your books. And believe it or not, you still see patients, right? I know we share we share patients because we're both in Southern California.

Yeah, six days a week. I see patients so impressive. It's I mean, it's nuts. Why do I do it? Because this is the practice of medicine, how we learn it's.

Yeah, and, you know, my patients have taught me so much by being the guinea pigs. Thank you, everybody. Bye. Hey, let's. Let's do this. Let's, you know, take these supplements.

You can get them at Costco or you can get them on Amazon or or you can buy them from me at Gundry, M. D. But nobody I don't even have any Gundry, M. D. products. My offices. Right.

That's not my object of the game. But let's see what happens to you. Let's see what happens to your blood work. Let you know and we can track this stuff.

Where to find Dr. Gundry and closing remarks

And I'm the original guy who sat supplements, made expensive urine. I firmly believe that. And you know, when I watch the guy who changed my life big had to clean out his coronary arteries by changing his diet and taking some help from supplements from a health food store.

I went, Holy cow, you know how the guy do that? You know, I'm going to find out. And that's what changed my life. Well, you're the conventional medicine doctor who paid attention when somebody came in and said or showed you right.

You saw the difference in their labs and in their health in a measurable way. And you said, wait, I want to understand how you did this instead of kind of pooh poohing it, which is a lot of the patients experienced that their dementia reversed and their neurologist says, oh, no, they must have gotten the test wrong.

Right. It they're they're often made to feel it just dismissed. And so thank you thank you for being the doctor that changed your life and your career and dedicated it to to wellness and really serving well.

Okay. You know, I see this all the time and they go, well, why and why does my doctor know see this? Why didn't

they understand this? And you can't see unless your eyes are open.

And and luckily, I guess probably because I was a researcher, you know my eyes were open when I watched Big Ed Clean I was corner area and I go, well, that's not that's not a placebo effect.

You know, it's like we we reversed one of our old dogs, inoperable bladder cancer with with supplements. And that wasn't a placebo effect. Just here, let me put these things in your kibble and can you p now.

Oh, you're starting to pee and you know, it's like, oh, now it's gone. Oh, oh. Wow. That's mean. Yeah, there's no question it works on kids and animals.

That's right. That's right. Yeah. Yeah. Fake it. So is it Doctor Gundry, M. D. dot com. So it's Gundry, M. D. dot com is the Gundry supplement. Okay. Dr.

Gundry the dot com is my website. We're just rolling out gundry health dot com, which is going to be our telemedicine portal for people who can actually now, particularly for autoimmune disease, leaky gut.

We can measure this at home with the blood test that people ship in. And we'll have people that I've trained now help people. Excellent. And you've got a podcast as well.

Oh yeah. The Dr. Gundry podcast or wherever you get your and. But I have offices in Palm Springs, in Santa Barbara, and I just opened an office this week in Beverly Hills. So.

Wow, wow. So I see patients literally six days a week on the seventh day. I don't rest. I go to Country M. D.. That is a testament in and of itself that this medicine works because you live it and you have the energy to do all of these things and just take on superhuman tasks and a patient load.

Right? Yeah. And again, I can't resist it because I just, you know, every day a bad, bad choice of words. But I'm a kid in a candy store because, you know, I really get to see miracles.

What I would have thought were miracles. But I just get to see the workings of, you know, of apocalypse teaching. I mean, the guy knew this. And, you know, I was talking to David Perlmutter a while ago and, you know, he and I were kind of talking.

So it isn't hilarious that a neurologist like you or Dale Bredeson, a cardiologist and Heart surgeon like me, would all meet in the gut someplace that we really probably care less about in medical school.

Yeah, that's really pretty funny. All we talk about is the gut now. Yeah. It's wild how transformative it is to see people get better and then follow like what?

What makes them better and it's happened. Yeah. What happened? And how do we replicate that? How do we scale that? And I'm just so grateful that you're doing the work that you're doing spreading spreading this word about how how to create good gut health and what that means for the brain, for the heart, for everything that matters.

And thank you so, so much for your time today. It is a it's just sincere privilege to have some of it and to share it with our listeners. And I know that they're going to learn so much.

Well, sorry to blow your mind with uncoupling mitochondria. I love. It. It's yeah it's it's really amazing how this is actually probably underpinning most of the good things that have happened to us.

And the the current book, Unlocking the Keto Code is actually a step by step. Okay, here's what to do. If you want to uncouple your mitochondria and here's why you.

I'm going to order that right now because it hasn't come out yet. No, it's out. Oh, it's out. Okay. I don't know how I missed it. Well, I will read your copy right now and try it.

You'll like it. No, I will. Yeah. All right, Dr. Gandhi, thank you so much. Have a wonderful weekend. And again, I couldn't be more grateful to have you here today.

Well, thanks for having me. I appreciate it.