Episode 677: Why Mitochondria Are So Important, Why We Are Sick, and How to Get Better
With Dr. Robert Floyd
Child: Welcome to my Mommy’s podcast.

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This episode is sponsored by Hiya Health, which is my go-to source for multivitamins, especially for my younger kids, before they can swallow pills. Typical children's vitamins are basically candy in disguise, filled with unsavory ingredients and things you would not give to your children otherwise. Most brands on store shelves are filled with sugar, unhealthy chemicals and other gummy junk that growing kids, or frankly, anyone should never eat. And this is why I'm so glad I found Hiya Health. Hiya makes children's vitamins with zero sugar and zero gummy junk and unsavory ingredients. Yet they taste great, and they are perfect for picky eaters. They're also nostalgic and remind me of the children's vitamins I took as a kid, though I probably wouldn't love those ingredients. Hiya is unique because it fills the most common gaps in modern children's diets to provide full body nourishment for our kids, with a yummy taste that they will love and you will not have to fight them over. They manufacture in the USA with globally sourced ingredients that are each selected for optimal bioavailability and absorption. And the best part? They arrive straight to your door on a pediatrician recommended schedule, so you never have to worry about running out. Your first month comes with a reusable glass bottle that your kids can personalize with stickers. So in the case of my kids, with six of them, they never get them confused. And then every month after, Hiya sends a no plastic, eco-friendly refill pouch of fresh vitamins. Which means that Hiya isn't just good for your kids, it's also great for the environment as well. So you as a mom no longer have to worry about running out of vitamins, and they will automatically arrive when you need them. You can check them out and get them for your kids by going to Hiyahealth.com/wellnessmama. And you'll also save 50% on your first month.

Katie: Hello, and welcome to The Wellness Mama Podcast. I'm Katie from wellnessmama.com, and this episode goes deep on mitochondria, why they're so important, why we are sick, what's wrong with our food
supply, and how to get better. And I'm here with Dr. Robert Floyd, who is board certified by the American Academy of Family Physicians and the Institute for Functional Medicine. He's a member of the American Academy for Antiaging Medicine and the American College of Lifestyle Medicine. And he has extensive training in functional medicine, family medicine, emergency medicine, trauma surgery, and critical care, and has worked as an Integrative Physician, Hospitalist, and Emergency Medicine Physician over the last 15 years.

But having seen firsthand the devastation left behind by our current Western Medicine Model, he knew he had to do something different and has switched to his approach, which we talk in-depth about today. He's also an elite level athlete himself, and so he keenly understands how diet and lifestyle choices impact health and wellness. He is very much an outside the box thinker. He integrates biohacking tools, integrative and functional medicine, and much more.

And in this episode, we go deep on why over 90% of Americans are considered sick, clinically sick, and have at least a couple of symptoms of metabolic dysfunction. We talk about the early warning signs of this. He shares an interesting fact I did not know that we make our entire body weight worth of ATP every day. We talk about mitochondria and ATP and how important they are, how uric acid comes into play, about fatty liver disease, how to support our mitochondria, completely free biohacks that make a tremendous difference, the supplements he recommends, a lot about nutrition and lifestyle factors, and so much more. So let's join Dr. Floyd. Dr. Robert, welcome. Thank you so much for being here.

Robert: Thank you so much for having me. This is a pleasure. It's really fun to be spreading the word.

Katie: Well, I am excited to jump into topics like mitochondria and dissect some of the problems that we are hopefully aware of with our modern diet. But before we get into that, I have a note from your bio that your first books were written in fifth grade, and I would love to hear what sparked that and what they were.

Robert: Yeah, it was kind of weird. I'm 54, so back, that was about the time of I don't know if you remember the TV show Dallas. It was a pretty popular show way back when. I'm totally dating myself. But it was who killed Jr. It was a big episode, and for some reason, I actually wrote a couple of books. One of them was Rocky the Squirrel. It was kind of a story about a squirrel that became a rock star, and it was pretty funny. And then the other book was who killed Cr? Which was the name of the principal at my high school or at my elementary school at that time. I'd totally probably go to jail right now if I did that, right? Wrote a book of the title of that about who killed the principal. They'd be like, you're on a watch list. But I don't know how it worked. It's funny because I took cardboard and paper and stapled them and made a cover of these little books. I mean, they're tiny, thin paper books, and they're from fifth grade. But I don't know. I've always wanted to be a writer for a long time, and I've done a bunch of writing. I've written for magazines. So I just wrote those two books in fifth grade just for fun. I still have them on my bookshelf, actually. It's kind of cool.
Katie: I love that. And I would say that curiosity and creativity are core first principles in our house with the kids. And so I love that. It sounds like you were very much on that track, even from a young age, and that probably directed you into a lot of fascinating areas within your research and your career now.

And I'm excited to get to delve deep on some of these because I think you have a very thoughtful and unique approach to some of these topics, and I think a lot of people can benefit from your approach. So to start off broad, I think we have a similarity here in that I first got interested in health when I read, when my oldest child was a newborn, that for the first time in two centuries, the current generation of American children would have a shorter life expectancy than their parents. And since then, it seems like we're seeing those negative statistics continue to rise. And it's not a secret that all of these health conditions that affect humans are on the rise, especially in America, but in the developed world as a whole. And the interesting part I've noticed is in some cases when people go to Europe, they could eat many of the same foods or foods they wouldn't even normally eat and do better than they would in the US. And there's a lot of talk of the standard American diet, but I think you have a fascinating take on this. So let's start broad with why are Americans so sick? Why are we seeing a rise in all of these problems at such a drastic rate?

Robert: Yeah, that's an excellent question, and it's something that truly just tears my heart apart. The American College of Cardiology came out with a journal article last summer that said 93.2% of all Americans are sick. Metabolically ill, meaning they have one or two or three or all of metabolic symptoms, metabolic syndrome symptoms, high waist to hip ratio, high blood pressure, insulin resistance, Dyslipidemia, and so on. Basically, like you just said about how this is the first time when your children are not going to be living longer than their adult than their parents, this is the first time you can literally say every single adult person in America statistically is sick.

9.3 out of ten adults in America are sick. And the same goes with fatty liver disease. Fatty liver disease is a disease of overconsumption. It's basically fructose overdose, right? High fructose corn syrup has taken such a giant part of America's diet that when you eat high fructose corn syrup, it leads to fatty liver disease. And the scary statistic there is almost 100 million people in America have non-alcoholic fatty liver disease, and that includes 15% of all children. Right. And this is one of the reasons why you talk about your your kids are not going to be living longer than their adult than their parents, this is the first time you can literally say every single adult person in America statistically is sick.

So 15% of all children in America have non alcoholic fatty liver disease, and this is an adult disease. And they have diabetes. And two out of every three of us have either diabetes or prediabetes. 65% of us are obese. I chalk it up to of course, it's multifactorial, but the thing is, it's food, food, food, food, food, food. It's ultra processed food. It's sodas, sugary snacks, high fructose corn syrup, and so on. I mean, I could go on and on, but go ahead and interrupt me anytime you want to. Just stop, because I get on tangents and just start talking. So I'm trying to limit to a few sentences so that it's more back and forth.

Katie: Yeah. What I think the understanding metabolic dysfunction and why so many people have at least one symptom of this is such an important stepping stone and starting point, because we do know the links
between these symptoms of metabolic dysfunction and all of the more severe diseases that increase your risk of death from various causes. And I feel like this one is to a large degree ignored by conventional medicine for the most part. Often the approach is to wait till someone has one of these more serious conditions.

But I also come from the belief that symptoms are actually wonderful because they're giving us an insight into something. And if we're seeing symptoms of metabolic dysfunction, in a sense, it's an early warning sign from our body that something's not right. So I would love for you to maybe can you explain some of the symptoms of metabolic dysfunction and what people need to look for and be aware of if they're in the early stages of those?

Robert: Yeah, absolutely. Again, like I said, you could have if you have three of the five symptoms of metabolic syndrome, you have basically metabolic syndrome, and it's prediabetes. But the actual symptoms that people are feeling today is fatigue, malaise, skin issues, poor hair. We're talking like eczema, psoriasis, enlarged waist to hip ratio, abdominal belly fat, depression, anxiety. All of these are from metabolic syndrome. These are all metabolic symptoms that are basically a harbinger of, hey, something's going wrong with you. And so here I believe that the human body is absolutely genius. It's the most genius thing that we know of anything in the entire universe. It's better than any supercomputer or anything because it has so many systems of redundancy to keep us healthy.

I mean, think about it. We have 70 trillion cells in our body, and every 2nd 25 million of them are dying and repopulating new ones. And you can feed yourself garbage food. You can go to Taco Bell, Pizza Hut. Yada. Yada. You could smoke cigarettes and drink alcohol for years and years and years, and it doesn't catch up to you because your body's working so hard at getting back to homeostasis. But one day it just says, that's it, I've had enough. Here's your disease.

And it's really, truly disheartening for me because I've seen so many people sick and dying in the hospitals from basically these non communicable diseases, obesity, diabetes. I call them diabesity because they go so hand in hand. If you are obese, obesity is directly related to 16 different types of cancer. That right there should scare the heck out of everybody and say, I don't want to be obese because I don't want to be at risk of 16 more cancers. And so it all comes down to and if you look around America right now, everybody's pretty much kind of like that movie Fat, Sick, and Nearly Dead, and we're all walking around like zombies. And it's something that needs to be changed, like dramatically and instantaneously. And I want to be a part of that grassroots great reset of helping people realize, hey, this matters.

Katie: Yeah. And I feel like the really positive part of that message is that if it's about food and if it's about non-communicable diseases, these chronic diseases, we actually have a tremendous amount of power to affect those variables ourselves. And I say often at the end of the day, we are each our own primary health care provider because it's our daily choices and habits that make the difference. And thankfully, there are amazing practitioners like you who are willing to be people's partner in becoming their own health care provider and making better choices. But also to highlight something, I think that really stood out to me in what you just
said. And I think this gets lost in the message in America when it comes to food is we often think about the amount of food and there's a lot of talk of we're eating too much because we're all obese.

But when we actually dissect the data, it isn't necessarily the amount of food. And purely anecdotally, I eat much more now than I did at the beginning of my health journey. Now that I've really put an effort to heal my metabolism, I'm actually eating a lot more volume of food. But I think the quality of food is not talked about enough. And I think this is a big factor that we need to have a very deep, honest conversation about because touching on the Europe factor or other places in the world, I think the quality of food or even non-food food substances that we're eating is what's really making a difference, especially in the US. Can you talk about some of the big offenders in our food supply that are maybe contributing to these metabolic issues?

Robert: Absolutely. And that's a great question as well. And one of the biggest ones would be glyphosate. They spray, basically Roundup, and which has been deemed by the World Health Organization and the International Association on Cancer Research as carcinogenic to humans. Okay? In America, we have Roundup ready soy, Roundup ready corn, Roundup ready, all sorts of other crops that you can they can actually literally spray Roundup on them. And it doesn't kill the crop. It just kills the weeds on the ground.

And one of the things that we've learned recently is that what a lot of these farmers are doing is they're spraying Roundup on wheat a week or two before they cut it down. Because what it does, it helps make it die faster. It doesn't really kill it. It kills it, but it's also desiccant. It makes it dry out faster. And so it makes it easier for the machines to harvest the wheat, and it makes it faster for them to harvest, which equals more profits. I mean, God bless our farmers. I support our farmers as much as I can. Without them, we all die.

But one of the problems with Roundup, and I don't know if anyone on your podcast remembers, but two years ago in California, a gentleman sued and won $11 million because he got Lymphoma. He was a gardener, a maintenance guy spraying Roundup and the problem with Roundup is it is a toxin that kills bugs. It's not just an herbicide, it kills bugs as well. And when we eat Roundup, it kills our microbiome inside our guts and our microbiome. This is something we could talk about, which I find absolutely fascinating and just amazing. Our microbiome is so vital to good health that we're just starting to study it in the last 20, 25 years. We didn't even know it existed till now. But the problem with the Roundup is what it does is it kills the microbiome inside your gut and it throws your whole body into a disarray. And that's just one aspect. I could go on five or six more things about what else we eat and we can talk about that too, as well.

Katie: Absolutely. And this is one that is banned, from my understanding, in many other countries and used extensively in the US. Not to mention, I mean, I've seen the side by side comparisons of food labels between the US. and other countries and all the additives that are put in the same product here, but not in other places.

I also know that statistically, our consumption of seed oils is very high in the US. And this is something that did not even exist in our diet a couple of hundred years ago. But can you walk us through? Because this I feel like
it's a little bit of a controversial one. I've been talking about it for years and I still get some pushback. But why processed seed oils are so problematic in our diets?

Robert: I'll just come out and say it. They're absolutely 100% toxic to us. And they go by the name of vegetable oils. Well, they're not from vegetables. They're from grains and seeds. And one of the problems with seed oils is A) how they make them. They have to grind them, heat them, and then express the oil with chemical process. That is, these are harmful chemicals like acetone. And these are petroleum based chemicals that they're getting the oils out of the seeds and then there's that residue left over.

And one of the problems with seed oils is that when you heat the fat, because they're fatty acids, when you heat fat, it turns them into, it oxidizes them and then turns them into trans fats. So after they pulverize, squish, and then express the seed oil with the acetone or whatever petroleum chemical they use, they then have to wash them. And then it's a nasty brown color and it smells terrible. So they have to wash them with another chemical and then they have to deodorize them because when you oxidize fats, they smell really rancid. They smell terrible.

And so the actual biochemistry problem of seed oils with our human body is that they're super duper high in omega six fatty acids. Now, omega six’s we all need omega sixes. They are inflammatory. They're pro inflammatory. You get a cut on your body you need an inflammatory response for your immune system to go heal that cut. But it's very transient. It comes and it goes with an injury, it goes away.

The omega three fatty acids are anti-inflammatory. And so if you look at our ancestors, I'm a huge, huge fan of Loren Cordain, the Paleo diet guy. My whole program, it's all paleo. I live a paleo lifestyle. And I don't say diet because it's more than just a diet. It's way more than a diet. It's a lifestyle because, and I say this to my clients all the time, diets fail, but lifestyles don't. So you have to adapt. Adopt a health lifestyle and you will be healthy.

But if you look at our ancestors, the cavemen, cave women, back when they were foraging, their omega three to omega six ratio was one to one. Today, in the standard American diet, the omega six to omega three ratio is 19-20 to one. So we're having 19 or 20 times the amount of omega six fatty acids in our diet, which leads to chronic inflammation. So that's, I think, probably the worst thing about it is the chemicals and the chronic inflammation from the omega sixes.

Katie: Yeah, and I think that's the important thing to understand that ratio and that's often not talked about enough, and understanding that the body has to use whatever inputs we make available to it to build our literal tissue. That our existence. And so when we give it non optimal inputs in the wrong ratio, it's still going to use them. But I've seen at least some reports that that can lead to increased chance of mutations and different things in cells because we don't have the correct building blocks.
Another one I know you talk extensively about is high fructose corn syrup. And I would guess most people listening don't consider that a health food by any means. But I feel like you also do a really great job of explaining why it can be so problematic, even more so than we would think.

Robert: Yeah, it is really toxic. And I didn't used to think it was. I was guilty. Back in the day, I used to eat sweet stuff and sodas. I mean, I don't really drink a lot of sodas, but if you look at the biochemical pathway of how high fructose corn syrup is broken down, in your liver, only the liver can break down fructose. That's the only place in your whole body that fructose can be broken down. And if you actually look at a cell in the liver, the way it comes in, the way fructose is transported through the cell, you automatically become ATP depleted. It takes extra ATP, which is the energy currency of all of our cells. It's, without ATP, we all die within 1 second. And what's really crazy about ATP, this is a really neat fact. We make our entire body weight every day in ATP. And if you think about it. It's a microscopic molecule, and we make our whole body weight worth. So I'm making 155 pounds of ATP every day. Like I said, it's the energy currency of the cell.

When fructose gets into the liver cell, it automatically eats a couple of extra ATP just because of the transport that it has to go through. Then when one of the biochemical pathways, it kind of splits in a couple of different directions. Once it goes in the liver cell, one of them actually decreases the nitric oxide synthase available to the rest of the body. And that is really important, because I'm trying to think. Nitric oxide synthase is what it does, is it makes nitric oxide in your body, and that helps your body relax all the smooth blood vessels in your cardiovascular system and all your blood vessels. Right. So nitric oxide is responsible for so many things. It's such a wonderful molecule. And in fact, I think the gentleman who discovered it won the Nobel Prize for discovering nitric oxide because it's so important.

And so when you have a decreased amount of nitric oxide synthase, because what happens is it goes fructose, gets broken down into uric acid. And everybody's heard of uric acid. Well, not a lot of people heard of uric acid, and they associate that with gout. Okay? And what uric acid does, like I said, it decreases the nitric oxide synthase. That right there leads to high blood pressure. So just by eating high fructose corn syrup, large amounts of it, like, on a daily basis, I mean, there's people out there that drink 8, 10, 12 sodas a day, which is gobs and gobs of high fructose corn syrup. And so that alone can lead to increased uric acid, which can also give you gout, but it also decreases the nitric oxide synthase, leading to high blood pressure. It also leads to placing fat deposits in your liver. It gives you fatty liver disease. It also leads to dyslipidemia, which is you have good cholesterol, bad cholesterol. It raises the bad cholesterol. It also leads to central adiposity through the biochemical pathways that break it down. And this is all scientific fact.

This is all something I learned from Robert Lustig, who wrote the book Metabolical. And I've got a great cell picture, and I've used that for some of my clients, because I do sometimes for corporate trainings. And I've shown the clients this picture, and then you could just see the light bulbs going off over there, and they're like, oh, my God. Oh, my God, I get it. Yeah. So that's why high fructose corn syrup is bad for you in about six different ways, and we should all avoid it as much as possible.
Katie: Yeah. And I love that we've gotten to highlight some of the really big offenders, and I know that there are many more beyond that. And I've talked some about them before. I know you talk extensively about them as well.

But I would love to switch focus now and also talk about the flip side of this, which is understanding how much of our health is impacted by these factors that we're putting into our body. We have tremendous power to affect change in a positive direction. And I know you have even a whole program related to this, but I would love to go through some of the things that we can do to optimize our health in the right direction, to undo some of this damage for people who already have some of these symptoms showing up in their lives. So where do you start as a baseline approach with that?

Robert: The first and foremost is I want to give people hope that you can reverse chronic disease, you can get better, you can live healthier and happier. But it does take a little bit of effort on your part. You have to stop feeding your body terrible things. In my program, I remove and replace. It's a six hour program. Remove and replace, repair and rebalance, and then rejuvenate and reclaim your life, right?

So the first things first is you got to remove the offending agents. You have to get rid. In my program, I try to go gluten free, dairy free, sugar free, seed oil free, artificial sweetener free. And then I know it's tough for a lot of people, but again, like I said, people have to take agency. Like you were talking about how you've raised your kids to be really independent and really strong willed and to do things that they know they need to do, which I applaud you for that. That's so awesome. Thank you for raising awesome kids. We need more.

But it doesn't matter, like you mentioned earlier, about the quantity versus the quality of food, it doesn't matter how much you limit your caloric intake if you're eating really bad garbage, if you're eating gluten, dairy, soy, sugar, high fructose corn syrup, artificial sweeteners, you can eat all that and exercise until your legs fall off. You're not going to lose weight. It's because of the biochemical pathways in our bodies. Our bodies don't know what to do with a lot of this stuff.

And so a lot of times, especially like when you have a lot of added sugars and high fructose corn syrup and things like that, you have an insulin spike. And your insulin is like, hey, let's store this as fat. And so, I mean, no matter how hard you exercise, you're not going to be able to outrun your fork ever. That's all there is to it. So again, I want to go back circular back. My first thing is I want to give people hope because there's so much dismal, dreadful information out there today. But hope for me is making people, hope is a big driver of change. If you can get people that actually say, yes, I can do this, I can do this, there's hope for me, they're more likely to do the change. And so this is one of the problems I'm facing, is getting people to stop eating certain things. But then the next problem I'm facing and trying to address is by helping people learn how and what to eat.

Katie: Yeah, and I think that's huge. I mean, I've seen this play out for me in my own health and reversing things like hashimotos over the last ten years. And I think this is especially for the women listening. I feel like a
very encouraging message because that cycle you mentioned can feel very frustrating until you figure out your own puzzle pieces of what's going to help make the difference for you. And I especially remember the times when they seemed impossible to lose weight even after I had my diet dialed in to some degree.

But now, of the freedom I feel in understanding much better how to properly nourish my body, and I'm eating such a bigger volume of food, which translates to more energy I'm able to work out more effectively. So I feel like the great thing about this is we can either go in the direction of the negative feedback loop or the positive feedback loop. And the body, like you said, is so great at adapting and healing, and that's what it wants to do. And it seems like your approach is focused on giving people the steps and the tools to change that feedback loop and to move in a positive direction. So what are some of those core foods that you focus on and or what comes after that? Is it supplements? Is it lifestyle factors? What do you add after the nutrition piece?

Robert: When I get people to remove and replace, what I get them to replace with is Whole Foods. I'm a huge fan of grass fed, grass, finished, regenerative, raised meat. I have a small ten acre ranch where actually I raise sheep. It's pretty much organic sheep. And I harvest them, I slaughter them, and I sell them to my friends and family, and I try to eat only meat where I know where it comes from. Because factory farm meat, that's a whole other podcast we could talk about and regenerative farming. We need regenerative farming and factory farming needs to go away.

But grass fed meat, there's a lot of talk, there's a lot of BS out there about Oh, cows are responsible for the whole climate crisis, which is the biggest hoax and the biggest lie out there. And so animals, when you raise them properly and when you cycle them on the farm, they actually help heal the land and they help replace carbon in the soil. And so, like I said, we have 25 sheep out in my backyard right now. I have 15 chickens that I use for eggs. So I don't even buy eggs from the store. And in the summertime, we raise meat chickens. And so I don't buy chicken from the store ever either.

And so that well raised, hormone free, antibiotic free meats and grass fed are really good for you. There's been a lot of research over the last 5, 10 years that grass fed meats are so much better for you because you get the vitamins and minerals from the grasses that those animals are eating, and that's really important. And then phytonutrients, you need tons and tons of phytonutrients. When I say that, that's nutrients from plants. And I try to get my clients to eat the rainbow. Eat as many different colors food as you can. Reds, greens, yellows, whites, pale yellows, pale green, purple. And each one of those phytonutrients, each one of those colors represents a specific phytonutrient in there that can help you with your health.

Katie: Yeah, very much in alignment with you on that. I feel like adding in really high quality protein and getting more of it was a huge factor in my energy levels.

This episode is sponsored by BiOptimizers and specifically their Mag. Breakthrough product, which I am a huge fan of. I've talked so much in the past 15 years about the importance of magnesium and I really like their specific formula. We probably know that magnesium is one of the most important minerals for all aspects of...
health and that having low levels of magnesium can cause all kinds of issues. Magnesium is necessary in over 600 different biological reactions in your body. Yet over 80% of us don't get enough of the minimum amount of magnesium we need from diet alone. This is partially because our soil lacks magnesium. It's been depleted over the years. So we're simply not getting as much from food as we used to. And as I said, magnesium deficiency can increase risk of all kinds of diseases and keep you from performing optimally.

It can also really negatively affect sleep, which then has rollover into so many areas of health. BiOptimizers Magnesium Breakthrough is the only supplement on the market that offers a full spectrum of all seven types of magnesium, specifically formulated to reach every tissue in your body and provide maximum health benefits and reverse low-levels of magnesium, which might be causing issues for you. In their formula, you get all seven forms of magnesium, which can transform your stress and performance. I personally noticed that it seems to really reduce my stress level and I feel much more relaxed when I am getting magnesium regularly. This also has a beneficial impact on sleep, increasing both the rate at which we fall asleep and our level of deep sleep. Magnesium is necessary for a healthy functioning immune system and to maintain normal heart rhythm as well as to lower cortisol levels and keep stress hormones in check. Like I said, I'm a huge fan of magnesium. I think this form is one of the best on the market and you can save 10% on it by going to bioptimizers.com/wellnessmama and using the code WellnessMama to save 10%.

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And earlier on, you mentioned mitochondria. And I did not know that stat about how much ATP we make every day. I knew it was a lot, but I didn't know it was our body weight, which is incredible. Which brings the question, what are some ways that we can support our mitochondria and support the production of ATP and optimize that within our bodies?
Robert: Yeah, that's a good question, too. Mitochondria. A lot of people don't know what mitochondria are. They are basically the nuclear reactor energy producers in each one of our cells. And if you go back to 8th grade biology, we talk about you have the cell, you have the nucleus, you have the endoplasmic reticulum, you have the Golgi apparatus, you have the mitochondria. And I used to think there was only one mitochondria per cell, right? But that is completely wrong.

There are quadrillions of mitochondria in our body. Okay, so, same kind of concept about the ATP, how much we make. It's mind blowing. We have thousands of trillions of mitochondria in our body. And so depending on how metabolically active your cells are, like the tissue of your heart, it's beating all day, every day. It's very metabolically active. Your liver cells are very metabolically active. Your kidney cells are metabolically active. Your brain is incredibly metabolically reactive. So the more metabolically active these cells are, these tissues are, the more mitochondria you can have in each one of the cells. Like, one heart cell might have 10,000 mitochondria in it in order to make enough ATP for you.

And so the mitochondria, the way I look at it, is I kind of equate it as to like the engine in your car. It's what gives you energy, what propels you forward. But you have to feed it gasoline for your engine. And the engine also makes exhaust. And so for our mitochondria, you have to feed it really high quality food breakdown products. And it also does make exhaust in the form of reactive oxygen species, which can actually, if you get too much, this is what antioxidants take care of those reactive oxygen species. And so our body, again, genius, makes tons and tons and tons of naturally occurring antioxidants.

And so what can happen when you eat a calorically dense, nutrient deficient diet? Your mitochondria are not getting all of the substrates that they need. And so you asked about how you can improve the quality and energy from the mitochondria and how you can protect it. First and foremost is what I recommend to everybody is time optimized eating. I'm getting rid of the term in my program, time restricted feeding, or intermittent fasting, because nobody wants to fast. And feeding sounds like you're an animal at the trough. So I'm changing it to time optimized eating.

And so basically, I don't eat almost 16 hours every day. I mean, it's 12:00. I haven't eaten since yesterday at 8:30, and I do that every day. I fast at least 16 hours every day, and I recommend that to everybody. There's a neurologist, David Perlmutter, who is amazingly smart when it comes to Alzheimer's and neurocognitive health, and he said on the Hyman podcast, everybody needs to fast 12 hours a day, minimum. And here's a caveat, though, and I don't want to be telling people everybody has to fast because there's some people that should not fast. If you're pregnant, you shouldn't be fasting. If you're lactating and feeding a baby breastfeeding, you should not be fasting. If you have Cachexia, which is a very, very low BMI from, like, maybe chronic disease, you should not be fasting. If you have a previous history of an eating disorder, you should not be fasting unless it's under a doctor's supervision. But time optimized eating is one of the most absolutely wonderful things you can do to increase the number and the efficiency and effectiveness of your mitochondria.
Katie: Yeah, I love that, and I love your term for it, because you're right. I've always thought, like, time restricted feeding did feel like what we would do with animals or mice in a lab, not what humans would do, but to your point, two things that I've noticed a big difference personally from switching my mindset around were instead of focusing on calories or amount of food consumed, I just try to focus on nutrient density for the volume of food that I'm eating. So how can I maximize the nutrients and the micronutrients and all the things in the volume of food that I'm going to eat every day anyway, and then also switching to eating in a shorter window?

And I think to your point, this is a very individualized, personalized thing, and we each have to figure out what's going to work best with us within that. But for me personally, I noticed that switching my eating window to, like, earlier in the day as a female has been really helpful. So I'll try to eat protein in the morning. I'll try to get a lot of nutrients at breakfast, but I try to stop eating by sunset so that I have a few hours before bed to digest before I'm sleeping. And at least for me, that's made a difference in my sleep.

And I feel like I had Dr. Satchin Panda on this podcast as well, and he talked about it's not just eat less, which is the advice the American system gives. But if you eat in a restricted window, you can often get many of those same benefits without feeling like you're having to restrict your calories at any given meal. And I think when paired with optimizing for nutrient density, especially, women respond really well to that because with our hormones, we have a pretty high demand for micronutrients and for nutrients in general. And so those two have been really helpful for me personally.

Robert: Yeah, absolutely. I agree 100%. And actually, they've shown some studies have shown that time optimized eating, if you do early in the morning and like what you're doing, it's actually better for weight loss as well. But again, also, it's very important. I'm not going to tell someone, okay, start doing time optimized eating, but it's okay to go eat McDonald's and Taco Bell and yada yada, yada. You still have to really be conscientious about what you said, like, the nutrient density of foods, right? I mean, I'm I'm so blessed. My wife and I love to cook together, and we always make our own food. We always have one or two vegetables and a salad. And sometimes she likes it more than I do, and I'm like, oh, let's just eat this. I hunt. So I also eat elk and antelope and deer, and I could just power on meat a lot.

But it's also very important that when you are eating and when you're doing the time optimized eating, that you do have nutrient dense foods. And that is so, so important.

And then another point, I've had some of my clients be like, oh, I'm doing the time optimized eating, but I'm only eating one meal a day. I'm like, no, you cannot do that. That's not good for you. Because what that does, that puts your body into a scarcity mindset, and it starts hoarding food because it thinks you're in starvation mode. And so what I tell all my clients, and I make sure of this, eat all of your calories in that eight hour window or a six hour window, and it's very important that you eat all of your calories. Like, for me, I ride dirt bikes, I train jiu jitsu, I do yoga, I have my ranch. When I eat in that eight hour window, I'm powering down like 2000 plus calories every day. And so it's very important that you do that.
Katie: Yeah, that's such a great point. And I think for me, another helpful shift that probably lines up with your mindset based on what you just said, is I started learning to think like an athlete, which I had never thought of myself early in life as an athlete. And now I'm actually training for a Heptathlon. But I made that switch before I actually started doing anything related to exercise because I realized in working with elite athletes, they have this entirely different mindset of how they related to their bodies, and they focused on fueling optimally, recovering optimally, which is a huge blind spot. I feel like for a lot of people, their sleep, like all these things became foundationally important because it related to what is also their job. But I learned so much from them in how their mindset relates to those things.

And I think also this touches on the idea that I know all these new biohacks can get so enticing and everybody's interested in the next trendy thing, and I think there's very much time and a place for those and they can be very valuable tools. But the foundational things have to come first because then if you're going to add the biohacks, they work better anyway. So before someone spends a lot of money on a red light, make sunlight a regular part of your routine, or morning sunlight. Before you buy a sauna, make sure you are getting movement every day. Before you're buying some expensive devices, make sure your sleep is dialed in, and then all of those things are going to work better anyway. I know you also have a great approach to the biohacking side since that's such a trendy word right now. So I would love to hear some of maybe your favorites and how you integrate them or what you recommend to most of your patients.

Robert: Yeah, again, like you said, you got to get the foundational stuff dialed in first. I'm not going to go and buy some red lights and put them on my testicles like Ben Greenfield recommends. A lot of the biohacking stuff is kind of Bogus and BS stuff, but you want to biohack. The easiest biohack in the world is time optimized eating period. Okay.

Another one is high quality sleep. You got to have high quality sleep. And you asked about how we can support our Mitochondria. That's amazing for Mitochondria. High intensity interval training is a biohack, too. And you don't even have to train. You can train 15 minutes three times a week if you're doing it hard and well and get enough work out there. In medicine, we recommend 150 minutes a week of weights and aerobic exercise for the general public. I do far beyond that. I mean, like I said, I train jiu jitsu, and every day I go there, it's like 2 hours, probably like three or four times a week, sometimes five times a week.

Again, it goes back to what you talked about, too. You have to look at your body as an athlete, and you have to refuel. Like, I will definitely take in a load of carbs after working out because that's when you need the carbs, you need to replenish your muscle storage or your Glycogen stores. And other biohacks, one of the easiest another, besides time up, an amazing biohack is to when you wake up in the morning, absolutely 100% do not look at your phone first because the blue light screws up your pineal gland and your circadian rhythms. Go out to sunshine first thing in the morning. You have to get sunshine on your face. It's so, so important. If you're having trouble sleeping, let's say you had trouble sleeping last night, wake up this morning. First thing you do is go get sunshine. Go sit in the sun for at least five minutes. And what that'll do, that can help reset your
circadian rhythms. And that's free. Like you said, you don't need to go buy this or buy that or buy this. There's a lot of biohacks that you can do that are free.

Another biohack that I absolutely love is I was just on a breath work summit that's coming up. I love humming and meditating when I'm meditating and breathing sorry, my nose is super stuffed up right now, so I can't but humming actually activates your parasympathetic nervous system and it's just like the Gregorian monks who they chant when you feel that vibration through your body, it activates the parasympathetic nervous system and calms you down. If you're having some anxiety or if you're having trouble sleeping at night, you can actually lay in bed and hum yourself to sleep.

And then another biohack, which I absolutely love as well, is breathing through your nose. When you do that, it activates nitric oxide in your body, again lowering your blood pressure. And when you breathe through your nose, activate the nitric oxide and hum together. You get it like 160 fold increase in nitric oxide in your body. And again, nitric oxide is so, so very important that the guy who who discovered it won a Nobel Prize in medicine for it. So, I mean, that's just that those are the free, simple, easy biohacks.

One of the biggest things for me that's been helping a lot is meditation and yoga. And you have to take time out of your busy life because we're all so darn busy, that you have to take self time. You have to reflect inward. You can't find happiness and peace and joy outside until you can reflect inward and find it there.

Katie: Yeah, such a good point on going inward because what is it saying? Wherever you go, there you are. I’m learning and starting to be comfortable inside. But I love that you highlighted for biohacks, the ones that truly are free, that anybody can do, regardless of where you live or whatever your lifestyle is, these are all things we can integrate. And I have done a whole solo podcast, even on the importance of morning sunlight and how profound that is. I think often the simple things get underestimated because they're simple, but that one doesn't cost anything, and it can make a tremendous difference on your hormones. I've seen that play out for me, not just on your cortisol, but also on thyroid hormone, on your sleep, your melatonin production at night.

Same thing with humming. I was fascinated when someone recommended that to me because, like you said, it stimulates nitric oxide production, helps you get into parasympathetic. But for anyone like me who in the past had thyroid issues, it also can help stimulate the thyroid gland and the vagus nerve. And when I started taking voice lessons, ironically, my thyroid numbers started improving. So purely anecdotal. But I wondered if it was some of that actual movement stimulation of my vocal cords on the thyroid itself.

Also, just to highlight a couple of other things you said, I love that you mentioned high impact activity. That was such a freeing thing for me to realize in a world where often cardio is recommended for women, like long distance cardio, was that when you look at the statistics, things like, I love sprinting now because it does not take very much time. Your actual time doing max effort is not that much. And the results are phenomenal. Like, I know there's incredible stats about the increased production of human growth hormone, of even things
like testosterone, which both men and women are low in these days. And like you said, it can be done in 15 minutes a couple of times a week. It's not a huge time investment, but the payoff is tremendous.

I know we also know that muscle is they call it the organ of longevity. And that statistically, the more muscle you have, the less chance of death by all cause mortality. And so building muscle as I get older is a focus for me. And so I love that you brought up the things that are either inexpensive or free and easy to integrate. And I absolutely agree, as a starting point, that's where we begin or anything else we do, we can't out supplement a bad diet, we can't out supplement poor sleep. That said, if someone does get those factors dialed in, are there any more advanced strategies that you think can be helpful in case specific scenarios?

Robert: Meaning in what way?

Katie: Like any supplements that you often recommend or any kind of tools beyond once people get their nutrition and their sleep and their basic factors dialed in?

Robert: Yeah, I definitely recommend I eat handfuls of supplements. I used to believe that handfuls of supplements just made really expensive urine. But the more we look at it and the more labs I see in my functional medicine practice, everybody's deficient in magnesium, everybody's low in vitamin D, everybody's low in zinc, everybody's low in all of these cofactors that we need to live a healthy, optimal life. Everybody should be taking magnesium every day. You can't really overdose on it. If you do, it'll be a little bit of diarrhea. We give pregnant women with preeclampsia 2 grams of magnesium IV. We have to monitor them because you can overdose them on that. You get, like, pulmonary edema, yada yada yada. But if you're taking, like, three magnesium pills, supplement pills a night, you're not going to overdose on it.

My foundational medicines or supplements are magnesium, vitamin D, K2-D3. If you're taking vitamin D, you have to have K2 with it. And again, I'll explain why. Because, like I said, everybody's nutrient deficient, and it's multifactorial. It's because our guts are so jacked up that a lot of people can't absorb nutrients. But it's also because of the factory farming. They're using nitrogen fertilizers, which actually bind the minerals and other things in the plants to the plants. When you eat them, you can't assimilate them. The plant material doesn't want to let them go.

Most everybody's probably deficient in vitamin K2. And what's really, really important if you're taking vitamin D3, like, if you can't get enough sunlight, you should be supplementing with vitamin D3. Everybody should have the vitamin D3 level in America is 30 to 100. Okay? That's a very broad range. So I like to get my patients at about 70. And so if you divide subtract 100 -30, it's 70 divide, that in half, that's 35. So I add that to the low number. So 30 plus 35 gets about 65. Everybody should have a vitamin D level somewhere in that range. And vitamin D level is so important for so many different metabolic processes in our body -your immune system, your cognition, your skin, your hair, your nails. It's a cofactor in so many different enzymatic reactions.
But the problem is that people could take just straight up vitamin D3. What happens is that mobilizes calcium in your body, and then if you don't have enough vitamin K2 in your body, that calcium will get deposited wherever your body sees fit. And that could be in your kidneys or that could be in your arterial, your blood vessels. I have seen X rays of older people with their aorta. It looks like a lead pipe right, running down their belly because it's totally calcified.

And so what vitamin K2 does it activates osteoclass, octo, calcium, and says, hey, body, put this calcium where it's supposed to go in your bones and your teeth. And so if you're taking a bunch of vitamin D3 without K2, you're actually at a risk of having kidney stones and coronary calcification. And so that's really important.

Another thing I really like supplement wise for my clients is cordyceps mushrooms. Really helps with lots of different reactions in the body, but it really supplements and supports the mitochondria and gives you energy. I also am a huge fan of lions mane mushrooms for cognition. If someone's got peripheral neuropathy, lions mane mushrooms, you can take really high doses of it, and that can help with peripheral neuropathy. I'm trying to think of what else? Yeah, I can walk in and look at my closet or my cupboard. I have a lot of stuff.

One of the biggest things sorry, I know you're about to talk, is gut health. In my program, I have a supplement. It's a powder. It's full of glutamine and licorice and marshmallow to heal the gut. And when I say the gut, I don't mean your stomach. I mean your small intestine. You got to heal the small intestine. So that, like I said before, our gut health. If you have poor gut health, you're not going to assimilate and absorb nutrients like you're supposed to. So one of my big pushes in my program is to remove the things that are offending your guts and actually heal your gut health. Once you heal your gut health, you can have a better nutrient profile. Your inflammation goes down. I mean, it drops tremendously. Your risk of autoimmune disease drops tremendously. Because I could go on and on and on.

Katie: Yeah, such a great point. I feel like the more we learn, the more we know know gut health affects truly everything. And I feel like you have so many more suggestions than we can cover in a 1 hour podcast. So I'll make sure I put lots of links to your work in the show, notes for you guys listening. That will be at wellnessmama.fm. But a couple of questions I love to ask toward the end of interviews. The first being if there's a book or number of books that have profoundly impacted you personally, and if so, what they are and why.

Robert: One of the biggest impacts of books in my life was Robb Wolf's The Paleo Solution. It kind of opened my eyes to the seriousness of gut health. And then it was just the first domino. And then I just kept going and going and going down that path. And so it's crazy.

And another great book is I got two great books right here. One Is Sickening by John Abramson. He's a Harvard professor and talks about how bad the pharmaceutical industry is. And then this one, which you raise your eyebrows when you heard Metabolical. This is an amazing book. It's really information dense, so it took me a long time to read it. And I'm a doctor, so if someone buys it and you start reading it, just keep reading it. Just
keep going, keep going, keep going. I'm trying to think about other books, but those are a couple of my biggest books that have influenced my life.

Katie: I will include links to those as well. I second what you said about metabolical. Fascinating book. Not an easy read, but lots of amazing information in it, so it's a pretty dense one. Lastly, where can people find you if they want to keep learning from you? I know you have a program. Where can they find you online?

Robert: www.empowermentmd.com. That's my website. On Facebook, Empowerment MD. On Instagram. Empowerment MD. And on YouTube, Empowerment MD. And I'm going to be coming out with a book here, hopefully before Christmas, and I'd love to get back on the podcast, talk about that, and then I'm rebranding. So I'm going to have an ebook for sale here real quick. I've got a couple of ebooks I've just written and it'll all be available on Empowerment MD.

Katie: Sounds great. Well, thank you so much for the time today and for all the work that you do. This has been a really fun conversation. I know there's much more to learn from you. So, like I said, I will have links to all of that in the show notes. If you guys are listening on the go, that's all at wellnessmama.fm. But Dr. Robert, thank you so much for being here.

Robert: My pleasure. Thank you so much for having me. This is really fun and I can't wait to do it again.

Katie: And thanks as always to all of you for listening and sharing your most valuable resources, your time, your energy and your attention with us today. We're both so grateful that you did and I hope that will join me again on the next episode of the Wellness Mama podcast.

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