Dr. Mark Hyman
Well, Gary, it's so great to have you on the podcast. It's been a long time coming.
Gary Brecka
Yeah. It's been a long time coming. I think I've been chasing you longer than you've been chasing me now. Maybe.
Dr. Mark Hyman
But you're here. I have a Miami in your studio in your house.
Gary Brecka
Yeah. This is good.
Dr. Mark Hyman
It's awesome. And we just took this extraordinary tour through your house, which has me seething with jealousy about all the tools and gizmos and gadgets you have to upgrade your health. We're gonna get into all that. I'm just so excited about this.
Gary Brecka
I just learned this song. I I I always say, like, we we end up running a podcast before the podcast.
Dr. Mark Hyman
That's right. We saw your hydrogen machines, your ozone sauna, the your whole biocaching suite, the red light therapy. It's quite interesting. But, you know, most maybe people know or don't know about you, but the the the thing that I find interesting is you came at this through the lens of sort of understanding why people die. Mhmm.
Not through the lens of longevity, which is sort of like you're trying to, like, help companies save money by understanding what was causing death and mortality and trying to help them navigate that. So can you tell us about your background, how you got, like, the insights about the nature of our chronic disease epidemic, what's going on, why these insurance companies have all this data, what they've learned, and and why it matters to us?
Gary Brecka
Yeah. Well, so so for the the better part of my career, I was a mortality expert, which which essentially means that, you know, we studied mortality, the the variable basic tables, not not just putting people on an actuarial curve. Right? I mean, we're all on one. Right?
If you're a 54 year old male, you have a life expectancy of x. If you're a 34 year old female, you have a life expectancy of y. You're lumped into a massive pool of of mortality. But when a life insurance company is getting ready to put 25,000,000 or $50,000,000 worth of risk on your life or an annuity company is getting ready to issue you a SPEA, what's called a single premium immediate annuity, where you give them a lump sum of cash and they guarantee you an income stream for life. Or you're getting ready to do what's called a reverse mortgage, which means you get to live in your house, but you sell it while you're still alive.
Yeah. All of these are based on mortality. The only thing that matters in those financial services instruments is how many more months does this person have left to work?
Dr. Mark Hyman
Yeah. Right.
Gary Brecka
So they don't really care where you are on an actuarial curve. Right? They wanna know your adjust

Dr. Mark Hyman
the prices to match when you're gonna die
Gary Brecka
so they don't lose money. And and insurance is priced like that. You have super preferred, preferred, standard, then you have what's called table ratings.
Dr. Mark Hyman
So what did you get learned as you sort of started looking at the data and the lab data for people who are Yes. In their pool? Because because these companies actually get your blood.
Gary Brecka
Like, they Oh, yeah. Oh, they they get your blood. They can take genes. They get all of your medical records. They have all your demographic data.
They know, I mean, it's a it's a proctology exam. I mean, if you've ever tried for
Dr. Mark Hyman
Maybe a full colonoscope.
Gary Brecka
Yeah. I'm sorry. It's I don't think you get as much information from a colonoscope as you do a full blown life insurance application. No. I'm not talking about term life insurance.
I'm talking about real whole whole life, you know, permanent universal life insurance where people are putting 10,000,000, 20 5 million, 50 million of risk on a single life. Yeah. What happens in those cases is they take not only a deep dive into your demographic data, but, I mean, they get everything, your divorce decrees, your trust accounts, your bank statements, your brokerage statements, your, you know, your your work history, and all of your medical records. Yeah. And then before they actually issue the policy, they will essentially send nurse to your house, and they will pull whatever bud biomarker they want.
Dr. Mark Hyman
So you got to, like, have an inside view of what that is?
Gary Brecka
Real inside view. You know, my I'm I'm first of all, I'm not a physician. I'm a I'm a human biologist. My undergraduate degrees are in biology. My postgraduate degrees are in human biology.
And so I spent the eight years in formal education just studying human physiology, and they wanted someone like that on the team with the with the rest of, you know, the MDs and then actuarial scientists because, we were trying to really build a model that was very accurate, probabilistic model that was accurate. And what really emerged from this big data, I always say that if this database could see the light of day, it would permanently change the face of humanity.
Dr. Mark Hyman
Yeah. It it would Spill the beans, Gary.
Gary Brecka
Yeah. Let's go. Well, I I wish I had, like, secretly downloaded it, you know, like, one of those government conspiracies, and I had it on a flash drive. You know? Because trust me, I would put it in the public domain.
Probably go to prison for the rest of my life, but I would I would get it out there. So I do I do my best to get it out there with what I've got in my head. But, the very unpopular information that emerged from this Yeah. Or I would shouldn't say unpopular. I should say anti mainstream Mhmm.

Was that, the reason why, the majority of people are not living healthier, happier, longer, more fulfilling lives were because of what we called modifiable risk factors.
Dr. Mark Hyman
Yeah.
Gary Brecka
Right? There were the non modifiable factors, and then there were the mod modifiable factors. You could have restricted range of motion from a massive injury or surgical procedure. That's not modifiable. You know, spinal rods in your in your back.
Those are not modifiable risk factors. Modifiable risk factors were diet, lifestyle, supplementation, exercise, mobility. And and in my case, I would add to that significant changes in your blood biomarkers. Yeah. And so what we noticed was that the reason why we were table rating a lot of these and the reason why we were shortening the life expectancy was because of the intervention of chemicals, synthetics, and pharmaceuticals.
And the more pharmaceuticals you were on, the easier it was for us to predict your life expectancy.
Dr. Mark Hyman
The more you were on, the more likely you were to die sooner?
Gary Brecka
The more you're on, the more likely you were to die sooner and more predictable. Yeah. Because not only could we predict the onset of other conditions, but we could predict the severity of and how quickly you would succumb to them. And so we we really
Dr. Mark Hyman
tell them most of the month when someone's gonna die based on the data?
Gary Brecka
To to the month. Right. Yeah. And it was it's and it's a very accurate model. And I I get a lot of flack for that because people say, well, if you could predict life expectancy to the month, which I don't do anymore, and that, you know, you would be Jesus or you would have won a Nobel Prize.
And I never won a Nobel Prize, and I'm not Jesus. So I believe in Jesus. But and the reason why, you know, they say that is because they don't realize how accurate the science is. Yeah. But if you but if you wanna know how accurate life insurance companies are, annuity companies are at predicting death, just look at what happened during the two thousand eight, two thousand nine financial services crisis. We had 364 banks fail. You didn't have a single life insurance company fail.
Dr. Mark Hyman
Yeah.
Gary Brecka
In fact, some of the largest institutions, AIG, whose credit derivatives division was taking the company under were bailed out by the life insurance. Yeah. They are some of the most solvent institutions on the planet. Yeah. They're some of the highest rated financial institutions on the planet.
Dr. Mark Hyman
They know shit.
Gary Brecka
They know shit. They're really
Dr. Mark Hyman
They're not a Good. Manage the risk because they understand the biology. Yeah. So

the things that came up were modifiable things, and they were things you could see on blood work, you could see by their
Gary Brecka
You could absolutely see it on blood work. So so things like What were you
Dr. Mark Hyman
looking at?
Gary Brecka
I'll go, so we we looked at three main areas. And when we would look through your blood work, we would look at glycemic control, how well you controlled your blood sugar over lifetime because we saw that hyperinsulinemia, elevated hemoglobin a one c, and poor glycemic control was a a risk factor, was what we call the comorbidity.
Dr. Mark Hyman
So were the insurance companies measuring insulin?
Gary Brecka
They were measuring insulin, glucose, and hemoglobin a one c.
Dr. Mark Hyman
That's amazing. Because, Gary, less than one percent of all lab tests in America done by physicians include an insulin level, which is probably one of the most important biomarkers for longevity and risk. No question. And it's something we use as core part of function health in our offerings, company I cofounded to help people understand their own lab data because it's so critical. And it's amazing to me that the the people who know how to manage risk are actually measuring it
Speaker 3
Yes.
Dr. Mark Hyman
And not doctors.
Gary Brecka
We you would what's interesting is you would get fifteen, eighteen, or twenty years of medical records on someone, and you would see the atherosclerotic, the atherosclerotic issues. You would see the cardiovascular disease. You'd see the, very, very, very low levels of statin controlled LDL cholesterol, but you would see extreme proliferation in cardiovascular disease. You would see early mortality in these groups, because of what they called noncorrelated events, hormonal events, what our scientific team drew back to cell wall, cell membrane dysfunction, early onset, not just early onset dementia or Alzheimer's, but all forms of cognitive decline. You know, we knew, for example, that LDL cholesterol, for example, was was not a risk factor for cardiovascular disease, an independent risk factor for cardiovascular disease.
Dr. Mark Hyman
That's a big statement.
Gary Brecka
Yeah. And and that is a material fact, by the way.
Dr. Mark Hyman
Because because the the insurance companies are not selling statins. So No. They're not actually No. They're actually looking at what data is the most relevant. And LDL is a factor, but it's not by itself a factor.
It's really metabolic health, which you measure by looking at insulin and blood sugar and Exactly. C and

Gary Brecka
I think we wanted
Speaker 3
to we
Dr. Mark Hyman
wanted to see,
Gary Brecka
you know, what was the chance that this person would have LDL cholesterol called called to the arterial wall, not in what was the presence of LDL cholesterol. You know, if they were hyperinsulinemic, then they had significantly higher incidence of blacking, scarring, narrowing, and and and other forms of cardiovascular disease. But the the centenarians, you know, not once in my entire career, and I don't know that this I'm not saying this is a blanket statement, but in my career, we processed death claims too. And, we didn't see a single death claim on a centenarian, someone that lived to age 100. At that time, many of the policies would would do what they call endow at age 100.
So at age 100, the policy would just pay out. It would pay the death claim. So if you're lucky enough to live to a hundred, you could screw your kids. I mean, like, I just got my $20,000,000 life insurance policy.
Dr. Mark Hyman
The the person who's still alive gets his life insurance.
Speaker 3
The
Gary Brecka
person that's still alive is it.
Dr. Mark Hyman
Pretty cool.
Gary Brecka
Yeah. And there are other things called accelerated death claims, you know, where they would actually accelerate the payout while the person was alive if they had a if they had a, terminal illness. Yeah. But but what was really interesting is I didn't process a single death claim on a centenarian, not one, who lived at over age 100 that did not have clinically elevated levels of LDL cholesterol at the time of their death. So because very often, we had we had, blood work on these people.
They they they'd be in Syscare living facilities or other kind of facilities, and we would actually have the the the data. And and due to that for things like, you know, we we we followed trends in calcium supplementation in the elderly and really in the fact that they weren't really impacting, you know, they weren't impacting, bone bone density. And and so osteopenic patients that were put on high doses of calcium still became osteoporosis. And
Dr. Mark Hyman
and and It's the vitamin d.
Gary Brecka
Yeah. The vitamin d and k two. Like, I mean, that was another one. You know, we we it it was 26 nutrient
Dr. Mark Hyman
levels in these populations?
Gary Brecka
We didn't measure nutrient levels. And and, you know, if I had known then what I know now, I think we probably would have measured nutrient levels. But you could

you could surmise from the data because you could see their diet, their lifestyle, alcohol consumption, the medications that they were on, and you could actually follow certain clinical deficiencies. Like, vitamin d three was a big one for us. And, you know, we would see clinical deficiencies in vitamin d three.
And I'm talking, like, single digit, low double digit d three. Not not not That's bad. Oh, yeah. Yeah. And you would be
Dr. Mark Hyman
It's common.
Gary Brecka
Surprised how many people have that level of deficiency I
Dr. Mark Hyman
see it.
Gary Brecka
In in in d three. So they would have these long running clinical deficiencies in vitamin d three. Let's say, nanogram per deciliter between seven and, 25, you know, even below the lowest threshold for most labs, which would be thirty to hundred.
Speaker 3
And
Gary Brecka
I still think thirty is clinically deficient. Definitely. Yeah. But, you would see these these very low levels of vitamin d three for years and years and years in the medical record. And then eventually, the the the patient would present to a primary care physician with rheumatoid arthritis like symptoms.
Mhmm. And and I make sure that I say that correctly because they didn't have rheumatoid arthritis. But, you know, very often we know that, you know, medical error is the third leading cause of death. There's a great study, 2016 study done by Harvard. I think it was actually repeated by Hopkins and got worse in 2019 if you wanna look up the study.
But,
Dr. Mark Hyman
Yeah. There was a National Academy of Science report on that too.
Gary Brecka
Yeah. I mean, looking at all the ICD nine, ICD ten, eleven codes, you know, that that medical error was the third leading cause of death. And we saw this repeatedly in our in our, insurance actuarial underwriting because so take this patient that had clinical deficiency in vitamin d three, three, and they present to their primary care and they start describing the symptoms. You know, my my soles of my feet are sore and achy. When I get out of bed in the morning to walk to the bathroom and take my first pee, my ankles just ache.
It takes me forty five minutes to get the motor going. You know, in over the last few years, it's moved from my knees now to my hips and low back. I'm really stiff across the shoulders and and and and and and lately, it's, you know, been hard for me to make a a a fist, like a tight fist. You would be shocked how many primary cares would just say, you know, Mark, you've got rheumatoid arthritis.
Dr. Mark Hyman
Take this $50,000 year drug.
Gary Brecka
Yep. No arthritis. No set rates. No no diagnostic work
Dr. Mark Hyman
to do that. Seronegative rheumatoid arthritis.

Gary Brecka
Yeah. That's what they call it. Seronegative. I'm adopting that saying no.
Dr. Mark Hyman
No. It's a it's a it's actually a well known
Gary Brecka
It's an actually thing? Yeah. Okay. So, so we Check it out. We knew about it.
We just didn't know the name of it then. And, and so they would they would say, you know, we're just the good news for you is we're gonna put you on something called a corticosteroid. You're gonna take this oral steroid, and everything's gonna be fine. And, so methotrexate, whatever the corticosteroid was. And what we realized in the record, because we were looking at, hundreds of thousands of patient records, was that if you started a corticosteroid, you had six years and one day until you were having a joint replacement.
Because initially, they they they
Dr. Mark Hyman
Exteriors definitely are not good. They cause osteoporosis. They, you know, degrade your bones. They can cause they have actually necrosis of the hip. I mean, they they they're pretty bad.
Gary Brecka
Yeah. And avascular necrosis of the hip is what's leading to the hip fractures, the femoral head fractures.
Dr. Mark Hyman
Basically basically means the blood just flow stops to the hip and then hip.
Gary Brecka
Yeah. That artery that that that goes in the femoral head is is compromised, and and now you get no blood flow, and then you get that osteoporotic condition in in one of the highest load areas of the body. And and and, you know, most people think that grandma fell and broke her hip, but her hip broke and then she fell.
Speaker 3
Yeah. It's
Gary Brecka
an important distinction. Right?
Dr. Mark Hyman
Maybe that's what can happen.
Gary Brecka
For sure. The fracture causing the fall rather than the fall causing the fracture. Yeah. And that was one of the reason we called that the triad of death, and I know you're really familiar with that hip fractures and their propensity to accelerate mortality. But it's it wasn't the hip fracture that accelerated.
Dr. Mark Hyman
So all this amazing stuff you did with this, sort of learning about how the insurance companies look at death, mortality, risk factors, it taught you a lot about what to think about in terms of how we create a healthy human. The opposite.
Speaker 3
Yeah. Yeah.
Dr. Mark Hyman
So you went from, like, managing death to managing life.
Gary Brecka
Yeah. Because Can

Dr. Mark Hyman
you talk about, like, what now kind of you switched to in terms of your thinking and how how it kinda started your journey and what you're doing? Because what you're doing is really extraordinary. You're you're basically kinda synthesizing and collating and putting together a lot of different modalities and strategies to help upgrade people's biology. No doubt. It's something we never learned in medical school, which is how do you create a healthy human?
Like, it's just not a course, and it doesn't get taught and there's no understanding of what is health. Right. It's not just the absence of disease.
Gary Brecka
Most would say it's the absence
Speaker 3
of disease.
Dr. Mark Hyman
It's not. It's something else. And when you have it, you know it. You feel awesome. Your brain's clear.
You have energy. You sleep great. You can do whatever you wanna do. You know, you could basically be free from the burdens of a lot of the suffering that many people struggle with, even if it's not a disease. I I I joke and I say there's this really terrible thing that most Americans suffer from called FLC syndrome.
It's when you feel like crap.
Gary Brecka
You know? Yeah. There's a lot of FLC going around.
Dr. Mark Hyman
It's so bad. I mean, we we just launched a ten day detox program, which I wrote a book about ten years ago. And we in ten days, you know, people have us up to a seventy percent reduction in all symptoms from all diseases by just a simple set of lifestyle changes in a week. Believable.
Gary Brecka
I I I I've wholly believed that and subscribed to that because, you know, in these modifiable risk factors, you know, first of all, I was I was prohibited by law from contact having any contact with the patient or the treating physician. So even if I saw a life threatening drug interaction, I couldn't pick up the phone and warn the physician. Oh. And sometimes the MIB wouldn't catch these, right, these these thrombolytic combinations of of different pharmaceuticals, and and you'd want to contact the physician because it wasn't done on purpose. It was Mhmm.
By error. And the system's very good at catching things like narcotics surfers and things like that, but it's not very good at catching, contraindications. And and just to finish the d three example, so here's a nutrient deficiency, clinical deficiency in this. Now now they're now they're on a corticosteroid. It was so accurate that I would advance your age artificially advance your age six years and one day, and I would schedule the joint replacement for you.
And then as soon as I scheduled the joint replacement, I would begin to reduce your at that age, I would begin to reduce your ambulatory profile, how how well you ambulate. And as you reduced ambulation, what we realized was as you reduced mobility, you would bring in all of the diseases that begin
Dr. Mark Hyman
to exercise. More disease. Yeah.
Gary Brecka
It's an it's a direct correlation. And, I

Dr. Mark Hyman
always say if you don't move, you won't.
Speaker 3
That's a
Gary Brecka
good one. I say aging is the aggressive pursuit of comfort. But That's right. You know, the more more aggressively we pursue comfort, the faster we age. Yeah. And so Yeah. You know, even even as a
Dr. Mark Hyman
These things are pretty comfortable, Gary. I don't know.
Gary Brecka
Yeah. But we're not gonna stay here, brother. We're not gonna stay here. We're gonna put on a weight invest and go do some pull ups after this. Okay.
And you're getting in the hydrogen bath because I'm I'm I'm excited to hear how that works out.
Dr. Mark Hyman
See how I look without my shirt on. I know what's
Gary Brecka
in stock. That's that's going all over the Internet, guys. Go to www.ultimatehuman.com to see more time with the shirt off. But, so so now that you have this clinical deficiency in d three, they've been put on a corticosteroid. I've advanced their age artificially six years in one day.
I've reduced their ambulatory profile, and now I bring in the the you know, our algorithm would start to bring in all the diseases that exacerbate with reduced mobility. And then what you would see is, we could predict not only the onset of, but the severity of and how quickly you would succumb to a condition. Yeah.
Speaker 3
So
Gary Brecka
when you start to rewind that back, this person died early of a disease that they never should have had Mhmm. Because of mobility that was reduced because of an operation that wasn't was not necessary because of medication that wasn't required because of a condition that didn't exist. Yeah. Had they taken five or nine thousand IUs, ten thousand IUs, and vitamin d three daily with little k two, and applied a load to their bones, that trajectory would have been completely different. Something as simple as that.
Dr. Mark Hyman
That's true. I mean, I'm just thinking we had vaccine mandates. I think we should have vitamin d mandates.
Gary Brecka
I totally agree.
Dr. Mark Hyman
I think, you know, we can I totally agree? Because I I actually shared this data with some people during the, administration around how serious it was for COVID if you had low vitamin d. You would
Gary Brecka
get Second leading cause of morbidity in COVID.
Dr. Mark Hyman
Yeah. You would get Second leading cause. More likely to end up in the hospital and die if you had low vitamin d. And from the Israeli data, if your vitamin d was over 50

and the reference range is 20 to 30 depending on the lab, if it was over 50, there was nobody who died.
Gary Brecka
I I was actually just gonna say that because I was looking at big data, you know, reporting during that time frame too. And but in functional ranges of 60 to 80 nanograms, there was not a single death.
Dr. Mark Hyman
Yeah. That's that's extraordinary. Because vaccines don't even do that. Right?
Gary Brecka
No. They don't prevent the infection or the spread. I mean, that's a that's a whole another issue. But Oh, yeah. You know, and if and if you wanna really see the impact of vaccines, just just follow the life insurance companies.
Dr. Mark Hyman
Yep.
Gary Brecka
Right? So people tell me all the time, oh, well, you know, they don't they don't factor in whether or not you've been vaccinated. I go, you don't think that they factor in whether or not you've been vaccinated? Why do you why do you not think that? And they said, well, well, they don't ask the question on the application.
Like, they don't have to ask the question.
Dr. Mark Hyman
They can see from your blood.
Gary Brecka
They get it from your medical record. Yeah. It's just like if you told if you answered on the, you know, on your application, I'm I'm a nonsmoker. Have you ever smoked? No.
You know, have have you ever, you know, vaped or,
Dr. Mark Hyman
you know check your urine your blood for Yeah.
Gary Brecka
But if you if you show up with nicotine in your blood, I'm gonna table rate you as a smoker. Yeah. You know, it's just like if you tell you know, the the there's that section on alcohol. How many drinks a week? One to two, two to five, five to seven.
We never believed what they said. If you had liver cirrhosis, we we Yeah. We table ratings as an alcoholic.
Dr. Mark Hyman
They, underestimate how much, they they eat and overestimate how much they exercise when you ask them.
Gary Brecka
Yeah. It's very true. So we just went off the data.
Dr. Mark Hyman
The other day and that and that led you kinda thinking about how to create a a different approach to helping people gain health. Right? And that's where you sort of led to your path. And, you know, you're kind of known as this sort of this biohacking genius, and I I think most people may not even know what biohacking is. When I first kinda heard the term, like, what is that?
And I don't quite get it, and I was thinking about it. And and really, as I as I sort of come to understand what it is Mhmm. It's really the application of tools and technologies and approaches to life that that actually create health, that are not

disease treatments per se, but that work by activating the body's own healing reparative mechanisms.
Gary Brecka
No question.
Dr. Mark Hyman
And and so in a sense, that's what functional medicine is for me. It's the ability to understand how we deviate from hell and how to create health by removing the best of putting in the good stuff. And a lot of the technology and tools we looked at as we toured your, department was basically tools that help upregulate different biological systems, whether it's your mitochondria, reducing oxidation, detoxification. These are all things that are fundamental to creating health that we don't learn about in medical school that we don't know how to apply. But you you've actually come up with an approach that includes all these modalities.
So I'd like you to sort of talk about, you know, how do you think of biohacking? What is it? Yeah. Who's what are the most important aspects of it that we should be focused on? Because because there's a million things out there.
Right? There's every
Speaker 3
single A million
Dr. Mark Hyman
things out there. And you probably have 95% of them.
Gary Brecka
Yeah. Yeah. I do.
Dr. Mark Hyman
Or maybe 98. I don't know. So, you know, how do you separate the wheat from the chaff?
Gary Brecka
You know, here's here's my, you know, my big first line rule is that the best biohacking devices, best biohacking modalities, you know, equipment, what have you, mimic what we get from mother nature. And so, for example, you know, we get three things from mother nature mainly. We get oxygen from the air. We get light from the sun. We get magnetism from the earth.
And the further we get away from those basics, you know, the sicker we become. And the truth is that we are so disconnected from nature now. We're disconnected from each other too. I mean, deep meaningful relationships, sense of purpose, sense of community. You know, there were a lot of mortality factors that we would study that actually when when an elderly person lost their sense of community, they lost a spouse, lost a family, or became isolated, which is the fastest way to accelerate all cause mortality is to put a human in.
Dr. Mark Hyman
Is like smoking two packs of cigarettes a day in terms of its mortality risk.
Gary Brecka
I I I don't know that that's true, but it that I would totally agree with that off the cuff because we saw it in the data. You know? We we, we call it broken heart syndrome.
Dr. Mark Hyman
Yeah.
Gary Brecka
You know, essentially, you know, spouses that were and and it wasn't so much the loss of the spouse. It was being thrust into immediate isolation. Mhmm. Right? Because, you know, mom and dad live, you you know, five states away, and the kids

are busy, and they're raising kids, and they see them on Christmas and Easter and New Years, like most families.
And and, and then one spouse falls ill and passes, and now the other spouse is totally isolated. Mhmm. And that isolation, we know that in all forms of animal species and human beings' isolation, it, you know, reduces your, your lifespan.
Dr. Mark Hyman
So biohacking is having a friend?
Gary Brecka
So so so back to biohacking, I would say the best devices
Dr. Mark Hyman
that I've seen actually.
Gary Brecka
That mimic mother nature. Right? So, so things like mineral salts, amino acids, nutrients that you would find in nutrient dense soils. You know, you wouldn't believe the physiologic impact you can have on people just by putting in them on a complex of b vitamins, vitamin b twelve, some methylfolate Yeah. Which are which are basic core nutrients required for the process of methylation.
And when they're deficient, they become like the hub of the wheel. They they they have all of these spokes. And people think that they have an autoimmune disease, and they have a mental illness, and they have a, weight gain issue, and they have sleep disruption, and they have anxiety, and they have ADD or ADHD. And the truth is they very often have nutrient deficiencies. Mhmm.
And so if I was to to say, you know, what are the best biohacking devices? Those are the devices that mimic mother nature. Mhmm. And so if you didn't have the budget to spend on those, you should be able to duplicate those by committing time, you know, in in nature, exposing your skin to sunlight, getting first light in the morning, learning to do, basic breath work, touching the surface of the earth, grounding, earthing, which is a very real thing.
Dr. Mark Hyman
They're all super expensive things
Speaker 3
to do. Right? Yeah. Yeah. They're awesome.
That's exactly
Gary Brecka
I think I in fact, this morning, I I just as a, you know, as as sort of a a a joke, I I I I I said, you know, I'm taking my morning antidepressant. And, you know, and I was out on the balcony getting sunlight and just doing some breath work. And I and I listed the side effects of enhanced mood and increased focus and concentration. And then I said, you know, don't don't don't, you know, forget your your mood enhancer, the, you know, the best neurotropic. And I just did a round of breath work, Yeah.
And gotten a cold punch. And and so, you know, now we have these devices, cold plunges, which is essentially mimic being the hormetic stresses that we might have, you know, found just in our normal temperature.
Dr. Mark Hyman
Have a thermostat in our houses, in our Exactly. In our in our teepees or
Gary Brecka
Yeah.
Dr. Mark Hyman
Or at all.

Gary Brecka
And and our bodies react very well to certain stresses. You know? We gotta stop thinking about stress as a as a negative. You know? Very often, it can it can be what makes you resilient.
The body Yeah. Very often strengthens, in response to stress. I know I know that you know this. But Yeah. So when when we talk about biohacking devices, you know, my favorite would be, you know, PEMF mats, pulse electromagnetic field. These mimic the low Gauss current of the earth. So if you don't have time to earth or ground, come in contact with mother earth, you can use a PMF mat. My probably my favorite device is a is a red light therapy bed, full body red light therapy. And, red light therapy, I mean, the science is in on red light therapy. It's very hard to overdose on it if you dose it ten to twenty minutes a day.
Mhmm. Even if you're using very powerful nanometer, I mean, milliwatts of irradiance and you're using the right nanometer wavelengths of therapeutic light because you emit the portions of the light spectrum that are damaging, and you concentrate the portions of the light spectrum that you would get from the sun, that are very healthy. And we're very photovoltaic beings.
Dr. Mark Hyman
Mhmm.
Gary Brecka
I mean, light is a very important component to health.
Dr. Mark Hyman
It really regulates our mitochondria inflammation. Quite a bit.
Gary Brecka
I mean, certain wavelengths of light, for example, in the mitochondria will actually, in in in in in the Krebs cycle, you'll see that cytochrome c oxidase will will will bind with a gas called mitochondrial nitric oxide. And when it's bound to mitochondrial nitric oxide, it's it's it's sort of like a one armed man. It can either shake hands with nitric oxide or it can shake hands with oxygen. Mhmm. But it can't do both.
So in order to in order to bind oxygen and upstage the mitochondria, you know, to to have this aerobic cycle, which is roughly 16 times more efficient than the anaerobic cycle, to to it has to let go of mitochondrial nitric oxide. And one way to do this is to pass red light through the skin and through the wall of the mitochondria. It will literally kick nitric oxide out of the mitochondria. You can measure this in the serum of the blood. You can actually do nitric oxide testing pre and post red light therapy and measure the impact of this release of mitochondrial nitric oxide, which will cause a temporary vasodilation.
And then it will force oxygen to dock. Well, now if you're forcing oxygen into the mitochondria, I mean, that's arguably that's that's the fuel. That's the tip of the root. Right? That's as deep as you get in the soil.
Everything improves from there. Yeah. Literally, everything.
Dr. Mark Hyman
Well, that's that's what your mitochondria do. They take oxygen and food, and they combust them and run them down an assembly line to create energy. Yeah. And energy is the key to health and life and everything else.
Gary Brecka
So Yeah. And I think a lot of times, we we gloss over that a little bit. You know? Like, well, the cell has a lot of energy. But what happens when a cell has energy?

Well, it can eliminate waste. It can repair. It can detoxify. It can regenerate. And so I would make a bold enough statement and, you know, and I'll make it in front of you so you take issue this if if you feel it's inaccurate.
But nearly every form of pathology and disease known to mankind is a shift in metabolism. It's a it's a shift in the metabolism, basically, in the mitochondria. Mhmm. The the sicker the mitochondria become, the sicker the host will become. And the and the more fertile you are for all forms of pathology and disease.
These are not things that are happening to us. They are things that are happening within us. And so if I was to say what's, you know, what's your favorite, you know, biohacking device, it'd be a red light therapy, bed. And then, and then you can add things like exercise with oxygen therapy, you know, Ewatt. I mean, we know that athletes that would train at altitude would have a perform better.
Yeah. Perform better. Why? Because you get, you know, you know, enhance mitochondria. Your Erythropoiesis, but you essentially are upgrading the mitochondria.
Dr. Mark Hyman
Yeah.
Gary Brecka
And you you're adding red blood cells to the bloodstream, so you have more taxis to shuttle oxygen. But, and and so these are the kinds of devices. You know, I have an EMF tent around my bed, and people were like, well, you're getting crazy about EMS. Well, you know, ancestrally, we didn't really come in contact
Speaker 3
with a lot of EMS, and I think that the jury
Gary Brecka
is is still out on the implications of five g and what's
Dr. Mark Hyman
wrong. Safe than sorry. Kinda Yeah. You have a tent over your bed. We we think it's not actually helpful, for your body to have this exposure constantly to EMS and Wi Fi and five g.
But by putting the scent over your bed, you block it at night and then improves your sleep and
Gary Brecka
Mhmm.
Dr. Mark Hyman
Feel different?
Gary Brecka
Yeah. And if you look at things as they occur naturally in nature, like, if you if you were to take a cup and scoop it out of a running stream and you were to analyze what's in that water, you would find high mineral content, first of all, and not just potassium and magnesium and sodium, the big ones that are in most electrolyte supplements. You would find all of the other trace minerals, boron, zinc, selenium, manganese, molybdenum. You find all of these that that that they're not that sort of headline minerals that most people think about. But if you if you back that up and you and you say, well, what if you become mineral deficient?
Well, you you need 12 essential minerals to to build bone. You know, you don't just need calcium. Calcium combines with, phosphorus to form hydroxyapatite, which really makes our bones dense. But in order for that to occur, you need these 12 minerals. And so if you're not getting the 12 minerals, you need to biohack that.

You need to take, you know, add a mineral salt to your your morning routine. Maybe it's Celtic salt, maybe it's a Baja gold sea salt, which is my favorite. But, just adding the right raw materials back to the human body, it is astounding what you you see happen in human beings when you give their body the raw material it needs to do its job. And then, you know, my other favorite device would probably be, hydrogen water, and certainly filtering your water. I mean, I I mean, I think people should get tap water permanently out of their life.
We know that it's, you know, it's got neurotoxins in it like, floor
Dr. Mark Hyman
So many contaminants. It's incredible. Yeah.
Gary Brecka
It it it really is. I mean, it is mind numbing. I actually just did a post of of backwashing the filter, the four stage RO filter in my house into my bathtub. Mhmm. And and man Miami is considered, you know, really healthy water.
The municipal water supply is, like, is it generally accepted as safe, the grass. You know? Yeah. Yeah. Yeah.
Yeah. And, but it's very high in, PFAs and and and polyalkyls. Those are the Phenols.
Dr. Mark Hyman
Yeah. The forever chemicals.
Gary Brecka
Yeah. Forever chemicals. And so it's it's not, voodoo science, you know, to to start biohacking yourself. It doesn't even need you don't even need a big budget. You know, I tell people they're starting out with cold plunging just to to take ice, put it in a top I mean, take water, put it in a tupperware, and stack it in your your freezer
Speaker 3
and
Gary Brecka
throw the big cubes of ice in. And when you wake up in the morning, dust it in there, and thirty minutes later, you get the cold
Dr. Mark Hyman
plunge. Yeah.
Gary Brecka
Yeah. Expose your body to these hormetic stresses. You know, mineralize the body, hydrate the body. I mean, I you know, before we got on here, I was showing you the oxidative reduction potential of hydrogen water. I think if you have a choice between drinking regular water or hydrogen water, you should be drinking hydrogen water.
If you have a choice between drinking tap water or filtered water, there's you should be filtering your your water supply. So I think biohacking is is a way of getting us back to the basics. If you're not getting sunlight, you need to be supplementing with, you know, vitamin d three. Yeah. Such a probably the most pandemic deficiency in the world.
Dr. Mark Hyman
It is. So so, basically, what you're talking about are these things that have been used by humans forever, such as, you know, being on the earth, walking on the dirt with your feet, being in sunlight.
Gary Brecka
Yeah. Yeah. I mean, it's Getting
Dr. Mark Hyman
clean getting water from the river that's full of minerals. I mean, these are really sort

of simple things. And then breath work, you know, sunlight and exercise. These are all biohacking techniques. So I think the the biohacking people get confused.
I think it's to me, it's really just what is the science of creating health? Yes. And functional medicine is sort of the medical version of that. Yes. But there's so much that we can do on our own to upgrade our biology and to actually activate these healing systems in our body that that are why we get these chronic illnesses.
Gary Brecka
No question. And And and we saw these, and then and then we would have these you know, in in the mortality space, we'd have these things called comorbidities. Right? So,
Dr. Mark Hyman
I don't believe in that. You don't? No. Because because they're not comorbidities because they're all connected underlying by the same mechanism. So hypertension, heart failure, diabetes, high heart disease, you know, these are things Yeah.
Gary Brecka
They're not independent.
Dr. Mark Hyman
No. Kidney failure, fatty liver. These are all comorbidities. Yeah. But they're all have the same root cause.
You fix the cause and everything gets better. I could not agree more with you. Then I was like random events. Oh, this person having to get five different chronic diseases. No.
They're all the same problem. They're just called different things at their end stage, but they're caused by insulin resistance most of the time.
Gary Brecka
No. Absolutely no question. I need to shut
Speaker 3
this off. I don't know why this thing
Gary Brecka
is still on. But, I I first of all, I would I would wholly agree with you. We would see things, like, insulin resistance being the worst. You know? We looked at glycemic control, hormone balance.
Even though even though, hormones weren't being therapeutically tested or measured, we we would look at hormone balance, and then we would look at certain nutrient deficiencies, vitamin d three, b twelve, you know, major nutrients in the body.
Dr. Mark Hyman
As part of the insurance screening?
Gary Brecka
As part of the insurance screening for the underlying. Because one of the things we wanted to do was assess the chance that this person would correct their behavior. And because the last thing you wanted to do was issue a policy at one level, and then they correct it.
Dr. Mark Hyman
And Well, interesting. Like, I'm working with John Hancock, and they're all in on helping their policyholders improve their health. And they have a whole vitality program. They're offering wellness services. They're offering even cancer screening with a multi cancer detection test gallery.
Gary Brecka
Do you know why?

Dr. Mark Hyman
Because it makes saves them money.
Gary Brecka
Yes. Because if I issue a policy now and then I can improve your health and you live longer, I collect more premium.
Dr. Mark Hyman
That's right.
Gary Brecka
You will notice that the annuity companies don't do that because the annuity companies, their risk is that you live too long.
Dr. Mark Hyman
Yeah.
Gary Brecka
Not that you die early. Yeah. Insurance a life insurance company doesn't want you to die too soon because they wanna collect You
Dr. Mark Hyman
wanna be aligned with the life insurance
Gary Brecka
in terms of incentives. With the annuity companies. They're probably gonna get But it's fascinating
Dr. Mark Hyman
it's fascinating that they that, you know, this is a a financial incentive for them to actually get people healthier because it saves them money.
Gary Brecka
Yes. And it's and it's done after the policy is issued. Because if I can issue you a standard policy and that can turn you into a super preferred Yep. Then that's that's a win. Because I issue the policy with a twenty six year life expectancy.
And if I can get your life expectancy to thirty seven years more, then that's a major win. On the other hand, if you're an annuity company and I take a payment from you Mhmm. And I'm going to guarantee you an income stream for life, The shorter your life, the larger my return. Yeah. And so, in fact, there there was a lot of arbitrage, financial services instruments during my day that have been outlawed since where people would buy life insurance and annuities and pair the two because one was the risk of early death, one was the risk of late death.
And but but so, you know, back to to what we were saying, we you know, there would be underlying issues, like, much to what you're saying, we would see people that were clinically deficient in in testosterone, for example, men and women. Yeah. And so this erythropoietic pressure on the bone marrow to create new red blood cells would go down, and they would be borderline anemic for decades. Yeah. Right? They would just they would just they didn't have classic anemia. Right? But their RBC count would be very, very low. Their hemoglobin would be very, very low.
Dr. Mark Hyman
Yeah.
Gary Brecka
Their their their mean corpuscular volumes and mean corpuscular hemoglobin concentrations would be very, very low. The red cell distribution width would be very high. So what would happen is they their their their bodies were carrying oxygen very poorly. They were essentially suffocating to death. Yeah.
And in almost all of these cases, we would see this progression of events. So the the the hormone levels would decline. As the hormone levels would decline, the blood

counts would decline. As the blood counts would decline, they would become increasingly more hypoxic. As they became more hypoxic, they were more, their their blood would become more acidic.
As it became more acidic, they were more fertile to other forms of
Dr. Mark Hyman
That's right.
Gary Brecka
Pathology and disease. And along this way, almost all of these patients would become, sleep deprive you know, they would they they would have major sleep disruption. Because when you become really hypoxic, you know, the brain wakes you up by Yeah.
Dr. Mark Hyman
Yeah. When you go to altitude, you can't sleep well.
Gary Brecka
Right. People,
Dr. Mark Hyman
like, fly to Aspen and whatever. They because you're hypoxic.
Gary Brecka
So it doesn't let you get into deep or REM sleep. And you start once you hit the sleep cycle, that's the end of the road. You know? I mean, we I think sleep is our human superpower.
Dr. Mark Hyman
And I was I was in Bolivia this year, and we went to, like, 16,000 feet to this.
Gary Brecka
16,000 miles.
Speaker 3
Or maybe
Dr. Mark Hyman
it was 14. It was really high.
Gary Brecka
14 or 16 is high.
Dr. Mark Hyman
It was really high. I mean, this you land in in La Paz, and it's the airport's at 13,000 feet. Yeah. And you, like, get off the plane and you're like, woah. Yeah.
But we got up to this hotel in the middle of nowhere because we're going to the cell flats and we're crossing over to, I think, Chile. And I got really hypoxic. Like, I checked my my O2 SATs and they were, like, in the sixties. Wow. Not
Gary Brecka
your pulse ox, your O2 SATs?
Speaker 3
No. No.
Dr. Mark Hyman
No. My oxygen saturation, which usually as a doctor, you're, like, intubated in the ICU at that level. Yeah. Yeah. I said to my wife, I said, hey, can you go tell the guy that I need the ash shit tank?
They brought it in and I put it on and, he's like, we'll just take it back in a few minutes. I'm like, no. And you're gonna leave with me and somebody else needs it, you can go get it in the middle of the night, but
Gary Brecka
oh, come on.

Dr. Mark Hyman
And I I I was pretty frightening, and my wife stayed up the whole night watching me because she was worried I was gonna die. Yeah. But but, you know, yeah, hypoxia is a real thing. But it it's it's also a a hormetic stress in the right dose. Right?
So it's really not the dose. Right? If you stay up at altitude too long, you're gonna die. But if you do it for short bursts, it actually activates your healing system. So a lot of the technologies that, you know, are involved that are bio hacking,
Gary Brecka
for example, EWAT, exercise with oxygen therapy is mimicking that hyperoxic hypoxic state and and actually And there's a lot
Dr. Mark Hyman
of gizmos in equipment, and people can buy those things too. But I think the basics are also biohacking. Eating well is biohacking. No question. Phytohormesis, which is taking a lot of these plant compounds that up regulate these various longevity pathways Yeah.
Is biohacking. Having your nutrient status optimized is biohacking. Yes. Exercise, breath works.
Gary Brecka
Eating whole
Dr. Mark Hyman
foods, getting
Gary Brecka
into your routine.
Dr. Mark Hyman
Like relationships, having your nutrients that up upregulate all the biochemical reactions in your body. All that, I'd say, is mostly free and is available to all of us. And, you know, even hot and cold therapies, you know, you can take a hot bath and a cold bath. I mean, it's just like Yeah.
Gary Brecka
And, most of us don't wanna do that. That's why I say aging is the aggressive pursuit of comfort. We would see the more the the more aggressively people's pursuit comfort, the faster they age. Right? We gotta just stop telling grandma not to go outside.
Dr. Mark Hyman
It's too hot. It's like my mother is too cold. Mark, every time I get the urge to exercise, I lie down till it goes away.
Gary Brecka
I get
Dr. Mark Hyman
But my mother Okay.
Gary Brecka
Yeah. That's not a good plan.
Dr. Mark Hyman
No. But it would be interesting. She, you know, she came back from the hospital once. My my sister had died and her husband, my stepfather died. And, you know, she lived near me, but she couldn't really live on her own.
So I moved her into my house after she had a episode of heart failure and, you know, she was just overweight. She didn't really eat great. She didn't obviously didn't listen to me. Yeah. I mean No

Gary Brecka
one wants to listen to it.
Speaker 3
I'm sorry.
Dr. Mark Hyman
I even brought
Speaker 3
my, like,
Dr. Mark Hyman
the best
Gary Brecka
functional medicine doc on the planet.
Dr. Mark Hyman
I didn't
Gary Brecka
even buy
Dr. Mark Hyman
her meals for, like, you know, three weeks to just get her started. She didn't eat anything. And I took her in my house. I literally locked her up. Like, I she had no car. There was no Uber. There was no delivery where we live in the Massachusetts. So she had to eat what I fed her.
Speaker 3
Mhmm.
Dr. Mark Hyman
I made her get on an exercise bike with oxygen because she was hypoxic. Mhmm. I got her nutrient status up, made her take her vitamins. I did basically just treated her
Speaker 3
Mhmm.
Dr. Mark Hyman
Because I had her captive.
Gary Brecka
Mhmm.
Dr. Mark Hyman
And she got off the oxygen. She was able to live alone again. She was able to recover from her heart failure. It was it was quite amazing to see how quickly she lost a ton of weight. Yeah.
And, you know, I had her I had her locked up in a kind of a Heimann prison.
Gary Brecka
You you know, there was a Nobel Oregon prize winner, for for multistep oxygen therapy. Yeah. It was Otto Warburg's wasn't Otto Warburg. He also won a Nobel Prize, but Otto Warburg's cohort that actually did the majority of this work on on multistep oxygen therapy. And it's just fascinating.
You know, even taking deconditioned elderly, patients, they really can't exercise and even exposing them to heat to to elevate their blood, I mean, to elevate their heart rate a little bit, and then and then running a nasal cannulus of oxygen, and looking at how fast the mitochondria begin to come back. Covering. Yeah. They sputter and they it's like, you know, starting an old motorcycle, and it fires and backfires, and then all of a sudden, you see these things come back.
Dr. Mark Hyman
Yeah. So so we kind of understand the basic foundations of creating health, which is

something we all kind of agree on. But all these new technologies, I think there's some just sort of curiosity I have about red light therapy and hydrogen water and some of these tools. Can we dive a little bit more into the light therapy? Because I think as people talk about it, there's always red light devices, everybody's using them.
But I don't think most people understand the science behind it Mhmm. And the biology of what it does. You mentioned briefly how it affects, you know, an extra oxide in the cells and gets rid of it and allows oxygen to come in and activate the mitochondria. But can you talk about, you know, one, what is the science behind how this works? Mhmm.
Two, you know, what what does it do in terms of improving health and and and why should people be using it?
Gary Brecka
So so basic, you know, basic overview of light, first of all, is is, light can be damaging and light can be therapeutic. And we have visible light and we have invisible light. So light sort of follow doesn't sort of it follows this spectrum. You have x-ray, which is a light, right, which is a can be very damaging. Then you have ultraviolet, the neck and these are non visible spectrums.
You have ultraviolet, UVA, UVB, which are the, you know, rays from the sun that cause skin cancer and burn your skin. These are also non visible. And then you have a very narrow sliver of light, which is the visible spectrum, the red, orange, green, blue, yellow, indigo, violet. You have this very narrow spectrum of light, and within that is the red light spectrum. And I'll come back to that in a second.
And then above that, you have infrared and your infrared, and and not all infrared and your infrared are are the same. As you get higher in the wavelengths, you excite different chromophores in the body. So for
Dr. Mark Hyman
What's a chromophore?
Gary Brecka
So, like, water's a chromophore. And so an infrared sauna. If you lay in in an infrared light bed, you don't get hot and you don't sweat. Why is that? That's because that's a lower wavelength of light, so it's not actually causing the water chromophore to vibrate, create friction, which creates heat and causes you to sweat.
So in an infrared sauna, which is a very high wavelength, usually over 1,100 nanometers or higher, you're going to create heat and you're gonna sweat. Below that, you're still in the infrared spectrum, but you're not, creating wavelengths that cause friction and create heat. So something very special happens in the red light and near infrared and infrared spectrum. This slice of light is very therapeutic to human beings. We know, for example, that it improves the formation of collagen, of elastin.
We we know that it improves, collagen, elastin, fibrin. We also know that
Dr. Mark Hyman
That's all your connective tissue.
Gary Brecka
That's your connective tissue.
Dr. Mark Hyman
Which is often very inflamed and that causes pain or dysfunction.
Gary Brecka
Yes. I mean, it's not just how our skin appears. Right? I mean, we all want our skin to look better and, you know, red light even have some, FDA authorizations for for skin.

I mean, we know that it can, it depending on the severity of hair loss, it's it's very good for hair follicles.
It can restore some hair growth. It's very good for your skin for for the appearance of fine lines and wrinkles. I mean, there's lots of, studies on the proliferation of collagen, elastin, and fibrin, and also of this process of angiogenesis, which is this new capillary, formation, new arterial formation that, causes arteries to branch and sprout and actually can, you know, supply more oxygen to tissues, namely the skin. So the the red light, the visible red light is a very shallow light. Right?
It doesn't penetrate very deeply. And so there are lots of red light devices out there, masks, you know, little masks you can wear, devices you can wear on your wrist, mats that you can lay on. But to get into the infrared and near infrared and the real therapeutic spectrums, this takes a lot of power to mimic this spectrum. And by power, I mean, specifically something called milliwatts of a radiance. So you light's measured a couple of different ways.
You have the nanometer wavelengths, which is what is the wavelength of this light? Is it 640? Is it 810? Is it, you know, 1,100? And light essentially does the same thing, just at different depths.
So if you use red light, you're just getting very superficial effects. You might have some pleasing effects on the skin like, you know, improved collagen, elastin, fibrin in the surface of your skin. You might have some reduction of fine lines and wrinkles. You could wear one of those hair devices and get some mild improvement in hair density. But if you really want the therapeutic wavelengths, you need power to drive these.
So in my opinion, if you're looking at a red light device, especially a red light bed, if it plugs into a regular one ten outlet, it's not powerful enough to create the therapeutic wavelengths that you want. I would wait until you can afford one that that actually plugs into, like, a two twenty. It uses real power. It's drawing down real power. You'll see that as you lower the milliwatts of a radiance, you decrease the penetration of that light, and you essentially decrease its effectiveness.
The sun is very powerful. Right? If we're gonna mimic the beneficial wavelengths of the sun, we actually need to draw a lot of power, and then we need to force it through as as as as many diodes as possible that are as close together as they possibly can be. We want light
Dr. Mark Hyman
you're seeing those red light beds, all those little
Speaker 3
Yeah.
Gary Brecka
You see very small diodes. Generally, the larger the bulb, the less therapeutic it is, the more superficial. The smaller the bulb, the more therapeutic and the and the the deeper the penetration. And you also shouldn't look for, red light devices that have a high amount of visible red light. That's the least effective spectrum.
You want red light devices that actually have a high percentage of non visible light because that is the therapeutic spectrum. So, for example, if you look at the red light bed that I have, when you turn it on, it looks like most of the, rows of lights are burned out. That's because they're infrared or near infrared. Those are the real therapeutic wavelengths. Interesting.
Dr. Mark Hyman
Yeah. I noticed that. It was like those red and there was all this here's where I was like, oh, is it does does need to be turned on? Or

Gary Brecka
Yeah. Yeah. That's what everybody says. Feel like I paid all this money and only half the lights work.
Dr. Mark Hyman
I mean,
Gary Brecka
that's exactly what you want. But manufacturers will get, you know, build these red light walls and then all of the bulbs are visible.
Speaker 3
Mhmm.
Gary Brecka
Already, you know that's non therapeutic. K? You're just you're just seeing the red light. Mhmm. And to the consumer, they're like, well, there's more red lights on on this one and fewer on this one.
The one that probably looks like some of the lights are off is probably the best device Yeah. Because you're in the invisible spectrum. And and so now And what
Dr. Mark Hyman
do those do biologically?
Gary Brecka
So the the the main thing well, so first of all, they they're very good for vasomotor circulation. And a lot of a lot of folks are unaware that about 70% of our circulatory system circulation throughout our body is actually not done by the heart. I mean, none of us has a heart that's strong enough to pump blood from our chest to the tip of our toes, through all of the arteries and capillaries in our brain to the back of the eye and through our liver, lungs, pancreas, and our kidneys. The the you know, we're about 14% arteries. We're about 11 and a half percent veins.
The majority of our circulation is microvascular. Mhmm. Small blood vessels. Yeah. Small blood vessels and capillaries.
That's about 70% of our circulatory system. That's actually not powered by the heart. It's powered by an activity called vasomotor. It's, it's similar to a snake swallowing a mouse. So almost
Speaker 3
like a
Gary Brecka
peristaltic activity. Little smooth muscle fibers
Dr. Mark Hyman
and some blood vessels that sort of move the blood along.
Gary Brecka
Exactly. I mean, you you know, arteries are are smooth muscle. Right? The the the there's three types of muscle in the body. We have the cardiac, which is confined to the heart, and you have skeletal, which is the muscle everybody knows about, and then you have the smooth muscle.
Mhmm. It's sort of this, differentiating, overlapping, layers of muscle that when they contract, they create a wave like motion, again, like a like a snake swallowing a mouse. Mhmm. Right? So arteries can dilate.
They can constrict. But the most important thing that they do is this vasomotor
Dr. Mark Hyman
activity. Helps that?
Gary Brecka
And the red light is tremendous for vasomotor activity. Like, when people start using

red light therapy, they'll report things like they stop wearing readers. Like, I'm 54 years old. I don't wear readers. Perfect eyesight.
And and and the reason why eyesight begins to degrade in your fifties is not because of,
Speaker 3
you
Gary Brecka
know, something happening to the rods, the cones, the macula. It's not a degenerate degenerate process. It's it's a lack of microvascular circulation. Mhmm. So if you restore the vasomotor to the back of the eye, you restore the eyesight.
Yeah. You know? So like Joe Rogan, I was on his podcast a few months ago. He bought a red light bed while he was on the podcast, and he text me five weeks later. And he's like, holy shit, bro.
I'm not I'm not wearing readers anymore. Like, literally amazing. My eyesight's improved. Everybody notices the improvement in their skin. But when you start to improve vasomotor activity, now you're talking about microvascular circulation.
So the so think about all of the compromised areas in the body that receive microvascular circulation. This is all of our joints, our ligaments, our tendons, our muscular tendinous insertions, and this is the this is the, inside the erector spinae group in the in the spine, all the microvascular circulation in the brain. These are all enhanced by red light. And so if we can restore vasomotor activity, if we can kick out mitochondrial nitric oxide, the gas that is binding to cytochrome c oxidase that's competing for oxygen, right, because, and and keeping that cycle anaerobic, rather than the, aerobic, and we can put oxygen into that cycle. Now you're talking about one device that upstages the mitochondria, that improves collagen, elastin, and fibrin in the skin, that improves angiogenesis, the formation of new blood vessels beneath the skin and other areas of the body, It improves microvascular circulation.
So all these compromised areas of the body like our knees, hips, shoulders, rotator cuff, low back, these all get the benefit of improved microvascular circulation, and all of a sudden people's back pain goes away Mhmm. Or their knee pain goes away. Now, yeah, but deformity or cartilaginous erosion or some other kind of osteotic condition going on in the joint, it's not going to improve. Mhmm. Mhmm.
But you so you see reduction in pain, improvement in energy levels, balancing of mood, increased circulation, and all of the benefits that come from that. Just like what you were talking about, you know, where people don't have all of these conditions. They generally have one condition, or one state that's causing all of these folks I
Speaker 3
mean, I
Gary Brecka
agree with you. You know, when
Dr. Mark Hyman
you look at mitochondria and the importance of mitochondria and the fact that red light actually works primarily through its effect on mitochondria Yes. You understand how it has its broad effects. Because when you look at all the chronic disease we have, whether it's heart disease, diabetes, cancer, dementia
Speaker 3
Mhmm.
Dr. Mark Hyman
Obesity, you know, mental illness, these are all mitochondrial diseases.

Gary Brecka
They're all mitochondrial diseases. They're all shifts in metabolism. The mental
Dr. Mark Hyman
health changes. Not just just kind of a wacky, like, crazy kind of alternative concept. I mean, you know, leading scientists like Suzanne Gove who had on the podcast, Harvard trained London, you know, you know, trained at Oxford. I mean, just brilliant physician. Pediatric neurologist, you know, studied the mitochondrial function of autistic kids and saw that their brains had super low energy levels.
Gary Brecka
Yeah. And very high levels of nitric oxide, by the way.
Dr. Mark Hyman
Yeah. And so mitochondrial therapies actually help these kids.
Speaker 3
Mhmm.
Dr. Mark Hyman
And she treats them using mitochondrial cofactors of nutrients. So, like, this is not just a fringe idea, but it's central whether, you know, it's Parkinson's or Alzheimer's. And and the impact you can have on by treating mitochondria is so important. And it's one of those hallmarks of aging that we talk about. I wrote wrote about my book, Young Forever, that is actually central to so much of what goes wrong.
If your mitochondria are messed up, you're you're in bad shape. Yes. Right. And it causes long COVID, fatigue, chronic fatigue syndrome.
Gary Brecka
Mhmm. You know,
Dr. Mark Hyman
all the all these sort of chronic illnesses that we're suffering from are primarily mitochondrial. So it's kinda cool to see that there's tools
Speaker 3
Mhmm. In
Dr. Mark Hyman
addition to exercise and supplementation that can actually start to help regenerate and renew and optimize mitochondria.
Gary Brecka
No doubt. I mean, I think, you know, red light therapy, in my opinion, is probably the most has the most single as a single device prolific impact on mitochondrial function.
Dr. Mark Hyman
So you're, like, doubling down on red light therapy.
Gary Brecka
I really am. I mean, I I And
Dr. Mark Hyman
you have to spend a million dollars
Gary Brecka
I'm trying to sell red light, but I'm just saying
Dr. Mark Hyman
can you do it for a reasonable cost? Because some of these things are really expensive
Gary Brecka
to house. You can do it for a reasonable cost. So lots lots of clinics that allow people to go into memberships to the really powerful beds. But, there are lots of, walls. The the the, you know, that you can hang on the back of a door, you can sit in front of.

Proximity to the panels really matters.
Dr. Mark Hyman
To be close to it now.
Gary Brecka
You wanna be very close to it. Right? You want the light to spread in the skin. You don't want the light to spread before it hits the skin. Right?
Because the skin is actually a barrier too. If you actually looked at red light passing through the skin, it doesn't just penetrate it like a laser. It hits it and spreads. Mhmm. So the closer you are to the diode of light, the more likely that light is to spread inside of the tissue.
If you look at cadaver studies, where they bury light meters in in cadavers and they look at penetration of depths, you know, proximity to the light matters. So if you have one of those red light devices, the ones for the, you know, the mask for the face are great for collagen and and elastin in your skin, fiber in your skin. But if you really want therapeutic wavelengths, you should use a, you know, red light panel that has, some some density. And look for wavelengths between, six eighty and nine ten. In that in that range, you're gonna capture most of the real therapeutic wavelengths. And then if you do wanna step up and get a red light bed, make sure it's a red light bed that actually has a commercial outlet. You know, you usually have to have, you know, two twenty outlet. Like you
Dr. Mark Hyman
need for your washing machine. Washer, dryer. Yeah. Yeah.
Gary Brecka
Yeah. I mean, you wanna if you're gonna spend that kind of money, get get get the power.
Speaker 3
That's
Dr. Mark Hyman
gonna need the power there.
Gary Brecka
So, you know, those are the kinds of, biohacking devices. But, you know, truthfully, people that actually get regular, micro doses of sun exposure,
Speaker 3
it's
Gary Brecka
the same benefit.
Dr. Mark Hyman
Yeah.
Gary Brecka
You know, so I really encourage people to
Dr. Mark Hyman
get in nature, get outside.
Gary Brecka
Forty five minutes of the day during first light. Well, there isn't any UVA or UVB rays. Right? So you don't have a lot of the damaging rays in the first forty five minutes. So that's why
Dr. Mark Hyman
Sunrise.

Gary Brecka
Yeah. Sunrise. First light is so important. I was out there I mean, I flew. I spent thirty two hours on a plane and thirty eight hours on the ground in the last four days.
I left
Dr. Mark Hyman
That's crazy.
Gary Brecka
I left Thursday and came home Sunday to Dubai. Right? So it was fifteen and a half hours over there. I think it was, like, seventeen hours back. So it was, like, thirty two hours in the air.
And all I did was just tap into some of the, quote, biohacking mechanisms that I can I just posted my sleep score to that 99% sleep score? My I was I was showing you
Dr. Mark Hyman
Yeah.
Gary Brecka
Deep and and and REM. And, I didn't drug myself to sleep. I just bookended my sleep. I made sure that I do the same routine every single night. I have the same sleep hygiene routine, every night.
I have the same sleep hygiene routine every morning. My body knows that if we're doing it,
Dr. Mark Hyman
so surface sleep is, again, the ultimate biohacking tool. I think if you can get your sleep sorted, it corrects so much. Right?
Gary Brecka
Yeah.
Dr. Mark Hyman
And then so many millions seventy million Americans have sleep issues.
Gary Brecka
It's it's it's terrible. And and, you know, and and when we talk about these, you know, these people that have, you know, following this sort of stage of consequences that we would see in the medical record, and I'll come come back to my sleep routine in a second, because you just reminded me of something. You know, we would see these people that had, especially in their fifties, sixties, seventies, as their hormonal levels would plummet, especially the hormone testosterone.
Dr. Mark Hyman
Testosterone. Yeah.
Gary Brecka
Because it's it's one of the main hormones that's putting pressure on the bone marrow to to make Make
Dr. Mark Hyman
red blood. So then to build bone and to build muscle and everything else.
Gary Brecka
Yeah. It does so many things. It's an
Dr. Mark Hyman
anabolic hormone, meaning it helps to build Yeah.
Gary Brecka
And I think, sadly, we think of it as a male hormone. You know? So we think you know, women think of testosterone a lot of women. I'm not saying all women, but women will think of testosterone as a as a very, you know, deep voice aggression, facial hair, muscles. Yeah.

But that's actually really not true.
Dr. Mark Hyman
That's important for women too, especially for sex drive and libido. And
Gary Brecka
Yeah. I mean, you show me a a woman with a testosterone level, you know, less than 3.2, point three on free testosterone. There's no sex drive there, and their libido's out the window. And then, you know, of course, when libido leaves a marriage, you know, the the opposite spouse will think that love and attraction has left the marriage. They're very different things.
Libido is in motion, love and you
Dr. Mark Hyman
know, you
Gary Brecka
you can love your spouse and be very attracted to them and have no sex drive.
Dr. Mark Hyman
Right.
Gary Brecka
And as soon as you put the sex drive back, you know, all the magic starts again. But, you know, when we we would see these, patients applying for policies and you would see this just long, hypoxia just hiding in plain sight, you know, this low red blood cell count, low hemoglobin levels. Yeah. And and inevitably, all of them would be on sleep medication. Because and and and this is an interesting
Dr. Mark Hyman
makes sense. Right? Because if you go to altitude, you have low oxygen, you don't sleep so great. Right?
Gary Brecka
Yeah. You don't sleep great.
Dr. Mark Hyman
You're kind of at low you're at you're at, like, high altitude at sea level because you have low blood cell count.
Gary Brecka
But it's a really enormous sword because if you ask most physicians, why do people that are the most exhausted sleep the worst? Their face will go blank. They'll go, well, if you're the most exhausted, it's probably the only thing you do well is sleep. But it's actually the opposite because you're exhausted because you're hypoxic. Yeah.
But you're also not sleeping because you're hypoxic. So people that are the most exhausted actually sleep the worst. And then what happens is they go to their doctor and they say, look, doc. I mean, I'm tired all the time. I don't and I and I just can't sleep.
And so then they do the worst thing. They put them on some kind of tranquilitic, sleep medication. Yeah. And what this does is this actually prevents your brain from waking you up. Right?
So your brain is actually trying to save you when it when it keeps you in from going into deep, sleep when you're hypoxic because your respiratory rate gets so shallow that you become severely hypoxic. These people will actually gasp at night. If you're sleeping next to them, you'll hear them. You know, you'll you'll you'll actually hear them gasp at night. It's severe hypoxia.
And so what happens is, you know, trazodone and and zolapidem nitrate, diazepam, a lot of these will actually block the brain's view of blood oxygen, essentially shut off

the monitoring system. And then it allows them to get into a deep sleep, but they're not actually sleeping. They're suffocating. And so what happens is these people, will wake up in the morning and go, god, man. I really hate taking Tylenol PM because it makes me so drowsy the next day.
Dr. Mark Hyman
That's right.
Gary Brecka
That medication's been out of your system for hours. You're not feeling the effects of the Tylenol PM. You're feeling the effects of having suffocated for six hours. Yeah. And so you take a hypoxic person, put them on sleep medication, and force them into severe hypoxia, and that's when the real magic begins.
Now you start to see all cause mortality begin begin to rise.
Dr. Mark Hyman
So so I'm just trying to the hormone would have. The dots. So you're saying hormone therapy can help people increase their oxygenation by increasing their red cell count, which helps their sleep?
Gary Brecka
Question.
Dr. Mark Hyman
But doesn't mean everybody should be on testosterone therapy.
Gary Brecka
Doesn't mean that everybody should
Dr. Mark Hyman
be on testosterone. Testosterone with a lot of different approaches.
Gary Brecka
Yeah. Yeah. And and and I'll be the first one to tell you that seventy percent of the clients that I see that qualify for hormone therapy are not on hormones. So when I say qualify for hormone therapy based on their levels, you know, you see a male come in at two sixty two or three fifteen on testosterone, and the free testosterone is between four and a half and seven. You know, really low levels of free testosterone. It doesn't necessarily mean, that their they their testicular production of testosterone has stopped. It could mean a whole host of things. You know, very often the signaling hormones are low. Luteinizing hormone, follicle stinging hormone. Those are e easy pathways to mimic.
Very often, they're deficient in the raw material that's used to make testosterone. Cholesterol. Yeah. I was just gonna say, and the there's the big bell
Dr. Mark Hyman
you have. Fat is amazing. It jacks up cholesterol.
Gary Brecka
Right.
Dr. Mark Hyman
And it I mean, it jacks up your testosterone.
Gary Brecka
But no one I will tell you right now, when I started preaching about this ten years ago, people thought it was a complete charlatan for saying the people that are on statins that get their that that are on heavy statins that that took their LDL cholesterol from one eighty, which they put them on a statin for, down to 57, we would see this every oh, not I wanna say every single time, but the majority of time in the medical records, they they collapse in their hormone function. And as soon as their hormones collapse, now they're hypoxic, they're exhausted, they don't sleep well, the erectile

dysfunction, the memory loss, the confusion, the short term recall issues, the all kinds of cognitive impairments. And and if you look at the number of cognitive impairments, you know, Alzheimer's, dementia, you know, the the, you know, memory loss, all of the all of the cognitive impairments that start earlier than they should, in almost every case, what we saw was because they had clinically deficient, in my opinion, levels of test I mean, of of of LDL cholesterol. So you restore the cholesterol. You can restore the hormones.
Very often, you restore the DHEA level. You restore the hormones. Very often, you get sex hormone binding protein out of the way by taking a mineral called boron.
Speaker 3
Mhmm.
Gary Brecka
And you just you you you get the, you get the sex hormone binding proteins that are actually lowering your free testosterone. You get these things out of the blood or back into normal range.
Dr. Mark Hyman
Taking boron?
Gary Brecka
I take boron is a great if you have low SHBG, boron is arguably
Dr. Mark Hyman
high or low?
Gary Brecka
If you have sorry. If you have high SHBG
Speaker 3
Yeah.
Gary Brecka
And you wanna lower sex hormone binding globulin, boron is
Dr. Mark Hyman
Which basically binds all the the testosterone, then let's summon free in the blood to do the work. But if you have too much of it, it basically doesn't allow you to have enough free hormone Mhmm. To do the actual work.
Gary Brecka
Right? So people have low hormonal levels, and they immediately go on hormone therapy. When you know, if we look at the cause of the majority of low hormone
Dr. Mark Hyman
levels really important question. There are
Gary Brecka
really three main causes that that we have seen. Number one is, clinically low levels of LDL cholesterol. And the second one are what I would put in the nutrient deficiency categories, vitamin d three, and high SHBG or low DHEA. Those three are are critical to having, healthy levels of testosterone. So if you see somebody that has low double digit levels of DHEA Mhmm.
Right, and high insulin
Dr. Mark Hyman
is actually usually caused by stress. Right?
Gary Brecka
Yeah. It's very often caused by stress. It's an easy supplement to take. You you supplement them with DHEA, and then all of a sudden the hormone production starts again. Or you see low signaling from the pituitary, the the luteinizing and follicle

stimulating, hormones, which are essentially your your volume knob, right, for turning up or turning down, testosterone.
They do they do other things. But, so very often, we're deficient in the level of the hormone because the signal has been turned down. Yeah. Right? I mean, when we can't hear the music walking into a room, we don't mess with the speakers.
Dr. Mark Hyman
Reason you didn't mention that causes testosterone plummet is sugar.
Gary Brecka
Well, yeah.
Dr. Mark Hyman
When you get insulin resistance and you get belly fat, you get low testosterone. Very true. Especially if you're a guy.
Speaker 3
If you're
Dr. Mark Hyman
a woman, it's a little different, but Mhmm. It really is a big factor. So you can almost kind of inversely relate your size your belly with your testosterone level a lot. Bigger your belly, the lower your testosterone.
Gary Brecka
And and your estrogen levels get to
Dr. Mark Hyman
And your estrogen level goes up, which you, you know, causes feminization.
Gary Brecka
Water retention and feminization. Yeah. So I I mean, I think you and I are very aligned philosophically that very often we are even even the hormone therapy clinics are just treating the hormone that we have. We always ask why is this low.
Dr. Mark Hyman
Yeah. Right? That's right.
Gary Brecka
I mean, there is true testicular hypo function, but that's very rare. Yeah. You know, primary hypogonadism is pretty pretty rare, but we treat all low hormones as primary hypogonadism, and we just put people on hormones. Yeah. And and it doesn't make them it temporarily makes them feel better, but they're still bathing their cellular biology in the toxic soup, and so they end up going right back to where they were.
Dr. Mark Hyman
Well, that's the other problem. You mentioned toxic soup, but a lot of the environmental toxins are estrogenic, and they do actually affect hormone function. And I think it's a big role in a lot of what's going on in our society with hormone dysregulation, change in fertility rates, change in, you know, birth rates between men and women. I mean, there's a whole bunch of things that are happening that are quite frightening that have to do with environmental chemicals, which which is partly why you filter your water.
Gary Brecka
Yeah. I I I filter everything. I filter my water. I filter my air. When when we're done the podcast, I'll take you out and show you my air filtration.
So this is surgically clean air in this house. So it goes through
Dr. Mark Hyman
It feels like it.
Gary Brecka
Yeah. It it you know, people that come in here say the air feels different in here, and

it is different, because, you know, I filter it through a HEPA filter then through a carbon filter, and then, essentially, it goes into a chamber and, goes through a u high dose UVA UVB, and and blue and infrared light, and then it gets sucked up into the into the chamber in the house. So that's how you, you know, you avoid the mold and the mycotoxins and all the all the other nonsense that's coming through our ventilation systems because we're in the mold capital of the world here in Miami. Definitely. Yeah.
We won we won we won the mold lottery. But just to bring the the the hormone thing full full circle, there's there's also a, genetic predisposition that women need to watch out for called COMPT, c o m t. Yep. If you've ever actually seen a Dutch test, a female hormone test, which is, in my opinion, probably the most accurate way to measure, especially cycling in in in women because a blood test will only take a snapshot in time, but it but a Dutch test will will actually show you the cycling. And then to make sure that they're monophasic, so they're moving from follicular to ovulation to luteal,
Dr. Mark Hyman
you know If you're menstruating woman. Yeah.
Gary Brecka
Yeah. I mean, if you're menstruating woman. And and, you know, postmenopausal women still have a cycle. It's just the amplitude is very, very low. Right?
But they still have somewhat upcycle. But there is if you look at a just a Dutch test, and this just flies by a lot of OBGYNs, you will see an area you will actually see this gene mutation, catechol O methyltransferase COMT. It's right on the Dutch test. And, essentially, what this is doing is in the elimination pathway of estrogen, sending it down the e two pathway. So actually getting estrogen out of the bloodstream and putting it into a form where it can actually be eliminated from the blood and not build up in the blood.
Yeah. You know, this gene mutation is It's
Dr. Mark Hyman
a variation.
Gary Brecka
Right? Gene variation. Yeah. It's it's essentially responsible for the breakdown of catecholamines,
Speaker 3
the
Gary Brecka
the norepinephrine, the epinephrine, the, dopamine, adrenaline.
Dr. Mark Hyman
Surprise. Surprise. It needs nutrients to operate.
Gary Brecka
And it needs nutrients to operate. And that's what's so exciting is, like, all this stuff can go wrong, and all you need are nutrients to fix it. Yeah.
Speaker 3
I mean,
Dr. Mark Hyman
I don't
Gary Brecka
know if
Dr. Mark Hyman
you know this, Gary, but, you know, the the original sort of, hypothesis around

nutrient therapy k and functional medicine came from this guy, Abram Hoffer, who was a psychiatrist in Canada who was treating his Well,
Gary Brecka
I love him.
Dr. Mark Hyman
I want to read
Gary Brecka
his book.
Dr. Mark Hyman
No. He he is studying schizophrenics and using high dose of niacin and zinc and magnesium and b vitamins and b six to actually help treat these patients. And he became friends with Linus Pauling, and Linus Pauling wrote an article in Science Magazine 1969 called Orthomolecular Psychiatry. Ortho means to straighten. Mhmm.
Molecular means to straighten molecules. And it essentially talked about using nutrients and high doses to push enzymatic reactions, which were stuck, basically,
Speaker 3
which
Dr. Mark Hyman
is making kinda greasing the the wheels of your biochemical pathways. And, you know, what what's really even more amazing is the discovery of our how so many of our genes code for enzymes. And Bruce Ames wrote a beautiful paper. He just died. He's one of the I mean, you you've you've learned about mitochondria.
You can't miss Bruce Ames' work. No. Medigiant and mitochondrial therapy as you get older as a way of sort of mitigating the effects of aging. And he he just died sadly, but he was oops. No.
He he just died sadly. He was very old, but he he was an amazing guy who basically wrote this paper, I think it was the American Journal of Clinical Nutrition that said that one third of our entire DNA codes for enzymes. And every enzyme That's so true. Requires cofactors. And what are the cofactors?
They're nutrients. They're vitamins and minerals. So all and and each mineral and vitamin doesn't just affect one pathway. It can affect hundreds and hundreds of pathways.
Gary Brecka
Oh my gosh. It's
Dr. Mark Hyman
so And so that's why nutrition is so important. And and, you know, you were mentioning earlier, seeing nutrient deficiencies in these populations. And I think that that there is so much subclinical nutritional deficiencies that people just are not aware of. And I and I was just at an event where I had a chance to talk to Bill Gates about this, and I was talking about the work he was doing with putting bullion cubes and with vitamins into the food supply in the developing world to help with really significant vitamin deficiencies like zinc and vitamin a. And I mean, they have real deficiencies there.
And I said, there's a lot of deficiencies in The US. He's like, oh, there is not. There's no way. We're all eating healthy, and we eat plenty of protein and food, and there's no nutrient deficiencies. But he's wrong because first, the NHANES data, which is our National Health and Nutrition Examination Survey, has documented that, yes, when you check blood on Americans, they're deficient.

But in function health, we now have had over 10,000,000, probably 15,000,000 biomarkers we've checked.
Gary Brecka
Wow.
Dr. Mark Hyman
We have a hundred thousand members. We see the and this is a health forward population, and and we see at the reference ranges from the lab, not what you and I would think would be optimal. Right? Like vitamin D over 50, like vitamin D thirty or less. Sixty seven percent of people we test are deficient in one or more nutrients at this minimum level.
Elevated homocysteine, methylmalonic acid, which is b vitamins, which is very important for these pathways, like CMT, vitamin d, iron. And zinc. I mean, it's just it's staggering
Gary Brecka
Yeah. How,
Dr. Mark Hyman
these are so common, and and and and they're affecting so much of our biology that makes us eventually have what, Robert Heaney, who was an incredible vitamin d scientist, called long latency deficiency diseases. So if you're vitamin d deficient and it's cute, you'll get rickets.
Speaker 3
Mhmm. But if
Dr. Mark Hyman
you get vitamin d deficiency over a long period of time or insufficiency, you'll get osteoporosis, you'll get heart disease, you'll get dementia, you'll get depression. Right?
Gary Brecka
So singing my tune. And what what is amazing too is the profound change that happens when you just give the body the raw material it needs to do its job. You know, one of the most common
Dr. Mark Hyman
light or water or oxygen or air or sleep or
Speaker 3
Yeah.
Dr. Mark Hyman
Exercise or nutrients. So it's like we're we're not
Gary Brecka
as diseased or as pathological or as sick as we think we are. We're nutrient deficient. I mean, we should always start there.
Speaker 3
We
Gary Brecka
should we should ask ourselves, what's missing from this biome that could be causing this to happen?
Dr. Mark Hyman
So what are the in your experiences, you've said done all this work and treated so many people and had all this experience with the data. What are the the most important nutrients that we're missing, and what are the supplements that we should be taking? Okay. So in this experience.

Gary Brecka
So, you you know, when you call something essential, that means it's necessary for life. Right? So if you we we have two essential fatty acids. You know, if you don't get these fatty acids, they're they're essential for life. Omega threes.
Yeah. Omega threes. Omega three fatty acids, EPAs, DHAs. They're eight essential amino acids. You would be shocked how many people are amino acid deficient. People think that amino acids are proteins. They're not. They're the building blocks of proteins. And so if you're deficient in the building blocks of proteins, then you can't assemble proteins, which is not just skeletal muscle. I mean, this is our natural killer cells, collagen, elastin, fibrin in our skin.
A lot of marketing gimmicks have allowed us to think that we can target direct protein, like we can eat collagen and it shows up as collagen in our skin. You know? It's like, it's just patently false. I mean, collagen's I I don't have anything against collagen, but it's an incomplete protein. You can't feel muscle from it.
But but, you know, we don't we don't eat our nails to grow our nails, and we don't eat our hair to grow our hair.
Dr. Mark Hyman
Although we do eat muscle to grow muscle.
Gary Brecka
We think well, we think we can eat collagen to grow collagen. Right. Yeah. You can eat muscle, but you the reason why you eat muscle is to get to the amino acids Yes. To build the muscle.
That's right. It's not to, you know, that protein is useless until it's
Dr. Mark Hyman
broken into amino acids. Just get, like, a steak and that steak becomes your muscle, and then it gets broken down. Right. Right.
Gary Brecka
Yeah. So so all protein, you know, as if we oversimplify it for a second, just becomes the same thing. Right? It becomes amino acids, and then those amino acids go out and build whatever structure is necessary. We can build muscle, certainly, and we can also build, natural killer cells, and we can build collagen in our skin, and we can build connective tissue and all kinds of things.
So so I think the three
Dr. Mark Hyman
Fatty acids, amino acids.
Gary Brecka
Acids, amino acids, and, minerals. So
Dr. Mark Hyman
By the way, just so people know, we're talking about fat and protein. There are no essential carbohydrates. There's no such thing.
Gary Brecka
So we can eat them.
Dr. Mark Hyman
We can process them. We use them. We use them for fuel. But there if you never had a carbohydrate in your life, you would be fine.
Gary Brecka
You would be fine. Yeah. Which is why we should be the most judicious with our carbohydrate choices. Yeah. Right?
It's not

Dr. Mark Hyman
too But I but I also say the carbohydrates are the most important thing for your longevity because what when you eat broccoli, that's a carbohydrate. Mhmm.
Gary Brecka
Yeah. And
Dr. Mark Hyman
you have a vegetable. Sweet potato. With the phytochemicals, those are carbohydrates. So those are low calorie, nutrient dense, phytochemically rich, condition I would say conditionally essential nutrients that we need to optimize around.
Gary Brecka
So I
Dr. Mark Hyman
I kinda make a joke about it. I would
Gary Brecka
agree with that. Yeah.
Dr. Mark Hyman
I make a joke about it because people, like, you know, they all eat a low carb diet. But, you know, you wanna eat actually by volume, a very high carb diet, which is like a lot of colorful plant foods. And those I'm not plant based. I don't think that's
Gary Brecka
good for
Dr. Mark Hyman
our health. Yeah. But I but I but I do think that including a lot of the phytochemically rich, molecules in your diet is critical. And and I think, you know, we talk about these essential amino acids, essential fatty acids, essential minerals, but I I think there's also a whole class of compounds that I call conditionally essential
Speaker 3
Mhmm.
Dr. Mark Hyman
That they're you know, you won't get a deficiency disease Mhmm. But you might get a chronic disease. Oh, no. No. No doubt.
If you don't have enough sulforaphane or glucosinolates or, you know, phytochemicals that upregulate various pathways, like, urolithin a or other things that we're we're we're finding out now have such powerful impact in our biology, like, you're gonna get sick and die faster.
Gary Brecka
Yeah. You know, I I I don't even think that we have chronic disease in this country. I think that we have a, a chronic expression of nutrient deficiency.
Dr. Mark Hyman
So amino acids, fatty acids, minerals.
Gary Brecka
An essential amino acid. I take one called perfect aminos. It's all the eight essential amino acids. It's noncaloric. Won't even break a fast.
It has all eight of the essential amino acids. Because remember, as soon as you get deficient in one of those eight amino acids, there's a high likelihood that that's converting to fat or into into sugar. Yeah. Right? So it's incomplete protein.
So I take something called perfect amino. I take a mineral salt every morning. I take one called Baja Gold sea salt, but a mineral salt like

Dr. Mark Hyman
a Celtic salt or a Baja salt. Electrolytes. Is that kind of what
Speaker 3
it is?
Gary Brecka
I use that as my electrolyte. And then I take a, I take a black seed oil. I prefer the black seed oil, the the omega three version, from black seed, but you can also get it from fish sources on omega three fatty acid. And then I think You mean black cumin?
Dr. Mark Hyman
Or do
Gary Brecka
you Black cumin. Yeah. I think that's a great source.
Dr. Mark Hyman
Which, by the way, has incredible antiviral, properties and had some evidence that it might even help for COVID as a sort of support to help prevent
Gary Brecka
COVID. Know that. But now now now it's even
Dr. Mark Hyman
Yeah. I know. Yeah. Better.
Gary Brecka
So I take that every morning, and I also take a methylated multivitamin. And the reason why I say methylated multivitamin is because it's the it is the vitamins in their already methylated form. So instead of taking folic acid, which forty four percent of the population can't even process, and is contrary to popular belief, not a natural nutrient. We make it in a laboratory. It doesn't exist anywhere on the surface of the earth.
You can't find folic acid anywhere naturally in nature. It doesn't exist. Folate exists naturally in nature. But folate and folic acid follow the exact same, physiologic pathway. There are about 10 enzymatic reductions that need to happen before, that folic acid or folate can be converted by the gene MTHFR into the active form called methylfolate.
Mhmm. And there's some really interesting research about methylfolate deficiency and whether or not it can be fixed by taking folic acid and folate, and the and the truth is that it can't. Mhmm. And so when we started spraying our entire grain supply, all all flour, all grains, all rice, all all pasta in The United States are sprayed with the chemical folic acid. Right?
They're they're we call this fortified or enriched. I would
Dr. Mark Hyman
say, why do we have to enrich food? It's because we've impoverished it in the first place by how we process it. Yeah.
Gary Brecka
It's like, you know, I I think I heard Max Lugavere say the other day, if your if your grocery store has a health food section, what does that tell you about the rest of the story?
Dr. Mark Hyman
There's a set of similarities. I said, if there's a health claim on the label, don't eat it.
Gary Brecka
Yeah. Exactly. Low fat,

Dr. Mark Hyman
high fiber, low sugar. It's usually something bad. It's it's masking something bad. I mean, the the methyledon doesn't have a a label on it, and the broccoli doesn't have a Exactly. Ingredient list.
Right?
Gary Brecka
Yeah. Exactly. So I take a methylated multivitamin. I mean, people see profound and immediate effects when they start taking methylated nutrients. You know, the methyl form of cobalamin, I mean, of b twelve.
B twelve, b six, b nine.
Dr. Mark Hyman
And by the way, Carrie, those are the things we're finding deficiencies in at significant rates in the cohort of function, which Yeah. Soda was surprising to me. So it's the hyperhomocystinemia. And what's interesting is the homocysteine level that the lab uses is not where I would say would be optimal.
Gary Brecka
Not at all.
Dr. Mark Hyman
I would say six to eight is optimal, and they're, like, you know, thirteen, fourteen. And even at that level Yeah.
Gary Brecka
14.9 is the highest.
Dr. Mark Hyman
We're seeing significant deficiencies. And we know that, for example, if your level of homocysteine, which is a a blood test that is better than just checking your folate
Speaker 3
in
Dr. Mark Hyman
your blood, is if your folate's over 14, you're you increase your risk of dementia by fifty percent. Yeah. So these are just simple things you can do to actually So true. Yeah.
Gary Brecka
And if you have if you have hyperhomocystinemia, you know, we we've, and I'm I'm I'm preparing to publish this data. So we have about a hundred and fifty thousand patients that have that we've done, blood work on, seventy seventy, four biomarkers, and then also done a methylated genetic test looking at the main markers of methylation, COMT, MTRR, MTR, AHCY, and and MTHFR. In contrary to popular belief, if you have MTHFR, you need to avoid folic acid like the plague, and you have to supplement with methylfolate, five methylfolate. And the the the the proof in what's called s phase arrest, which is essentially when the DNA is replicating, and and copying itself or even when it's making a transcription, an mRNA message, something called s phase arrest, which is designed to stop the passing of genetic mutations. When when this when the cell goes into s phase arrest because it's sufficient in methylfolate, there are there's significant clinical evidence, and I'll give you the link to the to the study that you can actually restart.
You can arrest as phase arrest and actually restart the replicatory process, by adding methylfolate.
Dr. Mark Hyman
Yeah. And methylfolate is such a key Oh. Hub of our biochemistry for people don't know what that is. It's like if you took a big metabolic chart with all the thousands and

thousands of biochemical reactions that happen in the body, at the center is this process of methylation and sulfation, which are totally, like, tied together that regulate everything from your DNA, and and how your DNA is is run and prescribed your epigenome, mood chemicals, mitochondrial function, detoxification. I mean, just you name it, fertility, everything Yeah.
Is regulated by these core pathways. And what we're seeing is pretty significant deficiencies because 60% of our diet is ultra processed food, and it doesn't have any of that in there.
Gary Brecka
Yep.
Dr. Mark Hyman
And it has maybe some of the wrong forms in there if they fortify it.
Gary Brecka
Yes. Yeah. And so you you have a you have an excess of folic acid and a deficiency of methylfolate.
Dr. Mark Hyman
So if
Gary Brecka
you get the folic acid out of the diet and you supplement with methylfolate, magic happens. You see peristaltic activity restored to the gut. You see the the normal pace of the gut restore, which which in my opinion is one of the most overlooked things in all of modern medicine because
Dr. Mark Hyman
Pooping regularly?
Gary Brecka
Yeah. Pooping regular. Right? Just being being regular. You know?
Dr. Mark Hyman
I had a patient. I said, so how can I go to the bathroom? She says, I'm pretty regular. I said, how often do you go? She says, like, once a week.
I said, that's not regular. She says, regular for me. I go every week.
Gary Brecka
I go, I'm like, no.
Dr. Mark Hyman
You need to go drive there.
Gary Brecka
Within twenty minutes of waking up. I mean, I I need to be on commode. But, so, you know, and and that, you know, methylfolate of all of the single and I don't like to say, you know, it all comes down to one nutrient. But if it came down to one or two nutrients, d three and k two would be up there, methylfolate would be right at the absolute top of the chart
Dr. Mark Hyman
for me.
Gary Brecka
Because if you look at the number of, physiologic pathways and enzymatic pathways that methylfolate is is directly responsible for, it's downstream from homocysteine regulation. And hyperhomocystinemia, we know now, is it can lead to idiopathic hypertension because of the vasospasm that occurs. It leads to all kinds of other issues. I agree with you. It should
Dr. Mark Hyman
be Cancer. Heart disease. Dementia, depression, and

Gary Brecka
And why would it
Dr. Mark Hyman
ADD. I mean, you name it.
Gary Brecka
Why would it lead to cancer or heart disease, dementia? You know, I've never really fully gotten to express this, but, you know, when you start to affect vasomotor activity, microvascular circulation, the amount of organ systems that this impacts. Right? You affect vasomotor activity to the back of the eye, your eyesight dementia. You affect vasomotor activity in the brain, microcirculation in the brain.
This is the definition of poor short term recall and cognitive decline. And this hyperhomocystinemia, I mean, eighty five percent of all of the essential hypertension diagnoses in America are idiopathic. They're of unknown origin.
Dr. Mark Hyman
They call it essential hypertension because essentially, we have no idea what it is.
Gary Brecka
Essentially, it's not there. And and and again But
Dr. Mark Hyman
we do. We do. If we actually took it to science, it's insulin resistance, sleep apnea, it's nutrient deficiencies, it's lead, heavy metals, toxins. We we actually can identify what these things are and get rid of them.
Gary Brecka
I can tell you the best way to lower homocysteine, is five hundred milligrams daily in a capsule form of trimethylglycine, TMG. Yep. Lots of great manufacturers that make it out there. I make one. Symbiotic makes a Thorne Pure Encapsulations.
It's not an expensive nutrient. Yep. If you have hyperhomocystinemia, that's a that's a must have Yeah. Supplement. The majority of us will benefit from methylated multivitamins.
So methylated multivitamins, on omega fatty acid, minerals in the morning And amino acids. Amino acid. And that that will cover your basis because if you are missing the basics, and then I would add probably to that a vitamin d three or k two. Yeah. I'm familiar
Dr. Mark Hyman
with you on that.
Gary Brecka
If you're if you're missing the basics, then nothing else matters. It's like if you're not sleeping, nothing else matters. If I can't fix your sleep, I really can't help you become metabolically healthy.
Dr. Mark Hyman
And people don't understand that every single biochemical reaction in your body requires these nutrients. And if you don't have them, things just don't work.
Gary Brecka
Yeah. And then what happens is we start chasing the expression of disease. You know? Right. You know, when you start blaming organs for crimes they're not committing, you know, when you blame cholesterol, which is like a fireman for showing up to put the fire out, and you come up with the hypothesis that if we had less firemen, we'd have fewer fires.
You know, you're just going down the wrong path.
Dr. Mark Hyman
Mhmm.

Gary Brecka
You know, when you realize that the majority of our thyroid hormones that are actually responsible for thyroid diagnosis, like low t three being diagnosed as hypothyroid, the majority of that's not even made by the thyroid. It's deiodonized in the liver, and it's it's in the periphery and in the gut. Yeah. And so very often, we're blaming you know, you wanna talk about a pandemic.
Dr. Mark Hyman
Selenium and
Gary Brecka
Selenium thiamine, and and, you know, to to help this this this outer ring deiodinized in in in the liver, which is where two thirds of it comes from, and it balances in the gut and a little bit in the periphery. But the point is that a nutrient deficiency can lead to a hormone deficiency that gets diagnosed as a as organ malfunction. And now we're now we're pounding a perfectly healthy organ for a crime it didn't come in.
Dr. Mark Hyman
Right. Right.
Gary Brecka
You know, when when at best, it's only gonna change your level by 20%. Yeah.
Dr. Mark Hyman
And
Gary Brecka
we do this with with we we do this with the heart. We do it with the liver, with the lungs, with the pancreas, with the kidneys, with the thyroid, with all kinds of conditions. And if we would just take a step back and say, you know, I wish I wish we we would force physicians to study the expression of nutrient deficiency. Right? Like a like a botanist or an arborist studies soil, nutrients.
You know? If you if you have a leaf rotting in a palm tree and you call a true arborist, a true botanist out to your house, they don't touch the leaf. They cortest the soil.
Dr. Mark Hyman
Soil. Right.
Speaker 3
And
Gary Brecka
they clean up the top of
Speaker 3
the tree. What functional
Dr. Mark Hyman
medicine is. It's treating the soil, not the plant. Yeah.
Speaker 3
And I
Gary Brecka
you know? Nitrogen in the soil, Mark. And you add nitrogen in the soil, and then boom, the leaf heals. And you go, wow. How did that happen?
Dr. Mark Hyman
Right.
Gary Brecka
You know, we wanna cut the leaf, spray poison on it, trim it, skin it. Yeah. It's exactly Replace it.

Dr. Mark Hyman
Exactly. Traditional medicine, sort of like industrial agriculture, we we spray chemicals and do all kinds of stuff. Yeah.
Gary Brecka
And now we're like, well, now the bark's falling off. Well well, and put some more poison on the bark, and now now the roots are rotting. And and so, I I think, you know, your message, my message is is a message of hope because it's a message that we are not as sick or disease or as pathological.
Dr. Mark Hyman
Have to suffer like they they need they they do. There's so much that they can do, simple things that people can do for themselves at home. I mean, what you're talking about is pretty basic. I mean, yeah, maybe your bed light bed is expensive or a nose and machine or those those are kind of fun things. Right.
But most of the basic things are either free or basically what you're doing already or maybe a little extra, and they make profound differences. And you and I have seen this with, you know, thousands of patients, and and it's for I know I know I'm frustrated. I imagine you're frustrated that, you know, Americans just don't know about this. They're not hearing about it, and your work's so important because you're start you're sort of getting out there and sharing about this, and you're providing resources and tools and programs. I think it's very cool.
I mean, I I Thank you. I'd like I feel like, you know, this is part one. You have to come to Austin because we have to do part two.
Gary Brecka
Yeah. I wanna do that.
Dr. Mark Hyman
I feel like we barely scratched the surface. I wanna go into hydrogen water. I wanna go into all these other
Speaker 3
Yeah.
Dr. Mark Hyman
Tools and and gizmos you got. But I I think, you know, for for someone like you who's sort of looked at, you know, the data around why we get sick and what's happening in the insurance industry. It's so fascinating because you're right. They they kinda have the secret code of what to know to make a lot of money based on our health. They do.
And so they gotta know. It's it's it's it's it hits them in the wallet. So that that's kind of revealed a lot of things that you've understood, and and you've able to translate those things into tools and techniques and approaches that really help uplevel people's health and create the ultimate human. So it's pretty awesome, Gary. You're I can't wait to kinda spend more time with you, kinda do a lot of the gizmos you got here.
Same. I wanna kinda get your advice on what I should bring to my house in Austin that I built. But this is this is really awesome.
Gary Brecka
I'm putting you in the hydrogen bath before you leave.
Dr. Mark Hyman
Okay. I'm doing I'm gonna down.
Speaker 3
I'm

Dr. Mark Hyman
down. So thanks so much, Gary, for being on the podcast. You can everybody can check out your work. Tell them where they can find more about you and what you're doing and what they want.
Gary Brecka
I mean, you can find me on social media. Just my first and last name at Gary Bresca, b r e c k a. I also run a podcast called The Ultimate Human, which is in the health and wellness space.
Dr. Mark Hyman
Which I'm coming on soon.
Gary Brecka
You're you're gonna be on there in a few minutes. The Ultimate Human. It's a media platform that I use to just try to message without the expectation of receipt, you know, about things that are working in my life and then, you know, great thought leaders like your yourself, who are my heroes, and I just try to help get their message out. So you can find that at the ultimate human.
Dr. Mark Hyman
Amazing. Well, thanks, Gary. Thanks for all you do to
Speaker 3
make
Dr. Mark Hyman
the world a better place.