Lessons from Centenarians: Immunity and Lifestyle Changes l Dr. Jeffrey Bland l Ep #422 Transcript

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Introduction and episode overview

Welcome back, folks. I'm Natalie Nidam, your host. Let me ask you a question. What if the single biggest predictor of your longevity isn't your heart, hormones, or your genetics, but it's the actual age of the immune system?

Today, Dr. Jeffrey Bland, a total pioneer in the world of functional medicine, explains why immune resilience beats immune boosting. How your immune system turns over every few months and how your diet is constantly retraining it for better or for worse.

Now at the end of this episode, we do talk about Himalayan Tartary Buckwheat. It's an amazing food-based supplement. And if you're interested in trying it out, we have a very special offer for the listeners of the show.

All you have to do is head over to bigboldhealth.com forward slash Nat and enter code Nat15 to say 15% off your order. Now this will be in the Show Notes as well.

This episode is brought to you by Quantum Upgrade, Primadine, and Puri, all with special offers just for you. Just check out the Shownotes below for details and enjoy the Jeffrey blend.

Welcome to the podcast. It is really an honor to have you here today. Thank you. Well, it's my honor. Truly, Natalie. And I think what we're going to be discussing is right at the forefront, kind of a lot of the the dimensions of change that are going on right now and how it'll influence people's lives going forward.

this month having my 80th birthday, it's all about, you know, pass forward the next generations coming up. What's on the horizon that's really going to make a difference in the quality of our lives.

So this is a great conversation. Yeah. Well, happy birthday. You don't look a day over 60. Thank you. That's very kind. How do you feel? I feel like there's a lot more work to be done and I hope I have the time to do it.

Well, I'm sure you will. So let's go back in time a little bit. And then what was that moment when you first realized that the conventional medicine model just couldn't possibly explain what you were seeing?

Well you know, without being overly dramatic about this, it was with me for a very long time because my mother, if she were still living, would say that she remembers me back even in grade school with a very strong interest in why people got sick and what was the reason that people get sick.

Jeffrey Blandu2019s early curiosity and medical training

It was a driving force for me, obviously, all the way through high school. I learned about infectious disease and I recognized that, okay, that's one really good explanation about bugs.

But then there was this other area of non-bug related illness, chronic disease that couldn't be described easily by infection. And so where did that come from and why does that happen?

And then the logic at the time, and now I'm going back to the 60s, was that it's because of genes, that your genes carry this information. So if you have a family with heart disease, you get heart diseases or cancer or dementia or whatever it might be.

But when I started looking at the data, it wasn't so clear to me that these were inherited diseases. They didn't appear. There might be some kind of a association.

But it wasn't so simple cause and effect. You say, if your father had this, then you're going to have it for sure. And so I started to really be a little bit of a skeptic as I got into college.

I went to medical school because I thought in medical this is going be the place we'll all be able to find an answer to that question. for probably a variety of reasons, one of which I was probably very young to go into medical school because I graduated from high school when I 16. So I, you know, was, so I really in a, in fairly young age by the time I got into Medical school, uh, I don't think maybe I mature enough to really handle the nature of that environment.

And so, like the constant questioner guy, and I always asking questions and the environment is really not set up. to for a lot of questioning. It's like you just learn this stuff, you memorize it and you recite it on demand and keep quiet and have a chance to ask questions later.

That was the model. And that didn't really work for me. So finally, at the end of my second year of medical school, My advisor, who I had a great amount of respect for, said, so Jeff, you're a smart guy.

You're doing fine. But it doesn't seem like this is really jibing with your philosophy. And you are kind of a pain in the ass, actually, really, because you were asking a lot of questions and you interrupting class.

It's not really the standard of operations that we would like. you know, maybe you ought to consider going over to a PhD program in the medical school where you can ask as many questions as you want.

Now this was before the development of what are now robust MD PhD programs. If I think I was a student today, I probably would have just gone into an MD-PhD program.

But I decided then, okay, you go across the hall and I start doing research and get in a Ph. D. program, which turned out at the time this would be, let's see, what would that be?

That would was the right timing for me. And so that allowed me to have free-reigning opportunity to explore. Eventually, that led me into an academic position.

It was at that point where I think I had a personal life epiphany, which I would not recommend to any other human on the planet. In fact, if I could help anybody to avoid it, I'd do all I can to make that happen.

My wife and I had our second son as I finished my PhD degree and was then heading on to my academic position for the first real job I would have. And we got to the place and just sat down, didn't really even know the area yet, was supposed to start in my faculty training the next Monday, this was a Wednesday, and our infant son dies.

Oh my God. I'm so sorry. Yeah. It was, I mean, it could go on and on, but let me just say that it was an epiphany for us. And it changed everything about the way I saw my career.

Really just starting at that point. But I came to recognize that if I could do anything to help anybody to avoid this happening in their lives, that would be a life well served.

I think it opened me up to all questions. Again, I was already a questioner, but now I said, hey, i'm going to be open to. All sorts of ideas, because you can't just find ideas where they maybe are conveniently located.

You've got to look elsewhere in the corners and be opening discussions that at first sound all that strange. I never heard about that before, so I. Think it was very good for me as my as I started this.

Started 1970 as a professor and this was, you know, the beginning of Earth year and I as a joint professor in biochemistry and environmental science to start an environmental Science program.

So it gave me a perfect launching pad to be an explorer. Hey folks, I just wanted to throw a little message in here for those of you who are sending me all these incredible questions on social media or through YouTube or even on

Spotify, wherever you're listening to the podcast.

I wish I could get back to each one of your personally, but unfortunately I can't and because I cannot, I created, about a couple of years ago now, I've created a membership community where I get to hang out with people just like you.

I do live weekly Q&As, almost weekly anyway. We also do have podcast guests come in to answer everybody's questions and do presentations you get to interact live with those podcast guests we will sometimes do challenges with some of the partners like in twenty twenty six we have a mitochondrial enhancement challenge coming up where we're going to be testing mitochondria function We're gonna be testing people's deuterium levels.

If you haven't heard about deutereum, we've got podcasts coming down the pipes on that. And then people will be invited to follow a personalized protocol and then retest their mitochondria on the other side.

We offer that in the membership community and we do it at incredible discounts that you just can't find anywhere else.

Personal loss and the shift toward functional medicine

So if you're interested in hanging out with me and other like-minded people, which actually happen to include some pretty awesome practitioners and even some previous podcast guests who've come and joined the community, then I invite you to check it out on my website natnidam.com slash the dash longevity dash community or just go to natnadam dot com and look for the Longevity Community tab at the top of the page.

Click on that and see if this is right for you. I would love to see you there. And we could make 2026 our best year ever together. So once again, that's natnidam.com.

Just look for the Lungevity community tab, at top the of page, now let's get back to the show. By going into academia and teaching, It means that had you been a medical doctor, you might have practiced medicine completely differently than anybody else, which would have been wildly valuable to every life that you touched.

But by going into academia and teaching other people, I would imagine that you were inviting the questions, you are inviting those students to challenge, to think, which is not, as you aptly described, is, not the model.

It is the not model, and I can tell you that without going in to any detail, recently I've had a fairly complex medical condition come up. And when I challenged the doctor who was taking care of me, she fired me.

I would say that, you know, that undercurrent of this is what we know. This is how we do it. Don't ask any questions. still is a very powerful current in conventional medicine.

And what I don't want to do is throw doctors under the bus, because at the end of the day, I think there are people who are trying to help other people for a living.

Generally speaking, they're underpaid, overworked and stressed, and they worry about all the things everybody else worries about. The framework, both what they are taught in and what their being forced to work in, is essentially disabling their ability to be curious, to engage, like my analogy, treat every patient as a unique Rubik's Cube that needs to to work with.

We'll talk about functional medicine and how you moved into that space and created it. Really, you created this universe. how that in its best iteration is about inviting that conversation between even between the patient and the medical doctor, hopefully.

Yeah, I think you said it beautifully. And that that really was probably the the change in my whole focus of my career was I got an appointment in in the Medical School.

So and then later, with a colleague in 1980, we started our own medical school the best year University in Seattle, Washington, was started with Dr. Joe Pizzorno, Les Griffith, and Bill Mitchell and I.

And that then grew up to really open up the door to all sorts of interesting conversations with people around the world. And over my life now, I've traveled six million miles, more than six billion miles.

I don't think there are probably many people that have that much other than pilots, maybe. That much air time. But what that gave me the opportunity to do is to visit with so many different thought leaders in different areas that were way out of what I would normally have been exposed to.

So I think what happened to me is I became a mosaic. unique ideas I've come up with, but I think I have been imprinted by many, many different good thinkers that had allowed me to assemble then kind of a mosaic of all these ideas.

And then I, in 1981, was very fortunate to be asked to take a sabbatical two years actually with Linus Pauling, two-time Nobel Prize winner at Stanford.

So I became his a director of a research lab in his Institute of Science and Medicine in Palo Alto, California. And that was working with he and then his wife, Eva Helen, who was a powerhouse of her own right, changed my whole philosophy as to where I wanted to spend the rest of my career, how I want to pursue whatever my opportunities might be.

And it was that then that, actually, I don't want to bore people, but I think there's a little bit of an anecdote here that's interesting. So I was finishing, finished out my two years, was going back to my tenured faculty position.

And I really had a good position at the university by that time. The president liked me, and I could teach in other departments. I had the biggest research group.

It was voted two-years-in-a-row as the top professor. in the universe, in sciences. So I had a good thing going, a college education for my kids would ultimately be paid for.

And so I got my stuff packed up in my office at the Pauling Institute and Dr. Pauline came by and he said, Jeff, it's really nice to have you here. I hope we'll continue to collaborate.

The last question he asked me was, I just have one question to me and that is, do you think your classroom as you head back is big enough? And I got in the car and I thought I had a, you know, with my family there, we're driving 11 hundred miles back to our house in Washington state.

And all the time I'm thinking, what the heck was that? You know what? What was he really asking me? And then it then became fairly clear to me what he was asking.

So I know this sounds crazy, but it's actually true. I got home, my parents had been watching our house in the couple of years that we were gone. I had asked my dad to take early retirement from the aerospace industry.

And so they were living now up in Washington state rather than Southern California. So we're all excited to see one another, a lot of hugging and so forth.

I say to them, so I've been giving some very deep thought as to what I'm going to do. And I made a decision that I am giving up my tenured faculty position to start some kind of organization that's going teach doctors how to nutritional medicine in their practice.

Now, you could have heard any pin drop in that room. I can only imagine. Wow. an accountant by training and an engineer, he finally breaks the silence and he says, Jeff, do you realize you do have a family, like you have mortgage, you to have responsibilities?

And I said, yeah, I do recognize that, but I think my passion is such that I'll find a way to make this work. I'm just not sure yet. So my god, my loving father, after going through some angst, then says Well, if you're going to do this, I got to come out of retirement because you know nothing about business, at least I'm an accountant by training.

So he became my business manager for the few years as we got going. That was the transition for me in 1982. to a whole different regime. That's incredible.

So clearly, you spent decades translating complex science for clinicians. What's the most dangerous oversimplification that you've seen take off? I mean, the internet is rife with them right now.

But in what we're seeing right, now in a world where people are trying to grab sound bites, they're trying grab eyeballs and ears and say the more outrageous thing to get people's attention.

We're all attracted to shiny objects. Yeah. And we love new stuff and we loved stuff that really sounds glamorous and sounds that we can tell other people that were first to mark and that, we know about this and they don't know it.

It's kind of fun. In this field right now, I guess what's been coined biohacking, there's a huge amount of that. Shiny object stuff.

Questioning oversimplified health trends and supplement culture

Quite honestly, I don't think we yet know if any of this stuff is going to prove to be what it's purported to, and that is to people live to centerians and have no disease and, ultimately achieve their success.

Because the best lesson that we can take are from things like Dan Buettner's Blue Zone countries, where people are not biohackers, but other than the fact that they're living a life that has been somehow compatible with their genes and producing outcome of a century of good living.

in which they're still vital and active and loving and engaged. So my feeling is we got to be very sanguine about how we take on these new ideas and adopt them without fully understanding what the risk benefits are and whether they are going to return on the investment both time and money.

That's not to say I'm not encouraged also always by new things and new opportunities, but I think they have to vetted a little bit before we totally say, oh, this is the best thing since LifeBread.

Yeah. I agree with you. You know, I've often said that none of the centenarians alive today set out to be centenerians. Right? You have this whole wave of people who are like, I'm going to believe to be 180 or 200 or whatever the case may be, which is amazing.

You're a living lab. Great. But the challenge is, I think, that there's a trail of people behind them that's drinking the Kool-Aid. And I guess we won't know otherwise.

But it is but I feel like people need to understand this is in real time, ongoing experiment. And time will tell, as you said, which I think is so powerful.

Is there Are there any beliefs that you held very confidently maybe 15 or 20 years ago that You're like, Yeah, no, I had that so wrong. I want to qualify this by saying I don't think it was so wrong, but it somewhat wrong.

I think that I got into the view of the orthomolecular medicine group, and I was certainly a principal in that group for a number of years, that more is better of certain nutrients and that you could take super physiological doses and it would actually do things across all people that were beneficial.

And I want to be very cautious when I say this because there are certain examples, absolutely, where high levels of intake of nutrients are very beneficial for an individual.

But to generalize it and say that every person needs megadoses of vitamins and minerals is really an exaggeration because what we're actually finding out now is that it appears our body likes it best to be pulsed.

It likes these kind of hormetic exposures where if you look historically at people, they went through periods of fasting and then they would be through period of gorging.

And so our body kind of has this thing built into it that it likes the synchrony of big and then small or a lot and in a little. And and so just staying on regimes where we're just taking fistfuls of supplements to me.

is it's not intelligent and there's really no data to say that that is beneficial. I've felt that for a long time and even the pulsing of different nutrients at different times, right?

I mean, as a nutritionist, I was taught at school, you cycle through things, You don't do the same thing. You want to maintain your vitamin D3K2 levels?

Yes, like there are certain foundational elements that if they're missing, all these processes in the body don't happen. But especially when, and I find, especially in whole longevity anti-aging space, we tend to find a button and start to push it.

And I'm like, You know, you're going to tick somebody off in your body at some point. It's a little bit like constantly nattering at a child. They eventually might tune you out, where if you give that signal and then step away and allow things to unfold and come back again, I think over and over again to your point, we see that this is how our bodies work anyway, so why not feed into that rhythm and let it do what it's going Yeah, I absolutely agree with you.

And if you think of the way we've eaten historically, it's seasonally. We didn't have all the things all year long. So the body has these genes that have these circadian temporal rhythms built into them.

I'm kind of now getting more and more into the, what can we learn from history type of philosophy here? If we go back anthropologically and look at what people have consumed, how they consumed them, where did it come from?

In what season was it consumed? And what level was it consumed? So I'm certainly not an anti-virus. supplement person, so I want to make that very clear.

But I think it's prudent use of the tools that we have that are individualized to the need of a person. That's the secret sauce. And I've been speaking about personalization of nutrition for 40 years, and I have been criticized fairly heavily for that, I guess for two reasons.

One of which people said, well, there's no evidence to say that you need to do anything other than treat people with the standard daily dose of these things and everyone's going to be fine.

And then secondly, people have said, if you were to personalize, it would be impractical because we wouldn't have the resources to be able to personalized.

We need to do things in groups. And I think that that's changing dramatically with the new technologies we have now that are helping us to understand our bodies.

I, I thinking of myself, you know, have these wearable devices that I'm I'm wearing that give me real-time information about my body were never accessible to any other group before us.

And that helps me to understand some of the things like if those of us that have worn continuous glucose monitoring to see what happens in our daily lives, you find, oh my word, my blood sugar went way wacky and I wasn't even eating.

I just had a stressful conversation or I didn't get a good night's sleep or just used alcohol Beyond that which I

should have and look at what happened to my blood sugar.

So these are real-time Perspectives that give us an opportunity to personalize and say well what's good for you may not be the best for me And I think that's kind of where I believe the this the the payoff is for what we're learning and to tune ourselves up based on who we are uniquely.

I think that the continuous glucose monitor is one of the most powerful tools we can put in someone's hand who's been educated and understands how to use it.

It's even better than our rings. It is because it's more actionable, it is more immediate, and it gives you such powerful feedback on whether what you're doing is working or not.

I want to move over to the immune system because this is what we really want Anyway, it's particularly near and dear to my heart right now. So when people say I want a stronger immune system, why are they missing the mark here?

And we see it in the supplement space.

Immune resilience, aging, and why boosting can backfire

Boost your immune systems. Power up your system. Make your systems stronger. What are the missing? Yeah, I think that's a really, really great question.

Before I answer that, let me just give a real preparatory thought. If we were to look at what's known about longevity right now, and this is certainly not all that we're going to learn about it, but from what we know right, now and you were asked the question, what would be the single most important thing that would help you understand your potential for longevity?

It would the age of your immune system. That is the single most important determinant of how long you live, based on what we know today. Now, that begs the question, how do you determine the age of your immune system?

And fortunately, there are new tools that are available that allow us to measure with a blood spot or a Bloodscreen age for our immune systems. So if that's true, what I just said, and I believe it to be true.

Then the questions is, How do get the immune that is associated with in longevity. And you get one that's the most resilient immune system. It's not the boosted immune systems, it's most resilience.

We learned something about boosting during SARS-CoV-2 and COVID-19 and that was people who died, often died because their immune was so boost that it killed them.

Their immune is in hyper function and they had these what are called cytokine storms, which was a system gone wild and they drown in their own fluids, basically.

And so that's the extreme example of an immune system overboosted. What you want is a regulated immune that has the intelligence to know when to turn on and when turn off and what cell types to actually get engaged and cell type to maintain quiet.

That particular story is whole different story than has been told, I believe. about immunity, coupled with the concept that our immune system is much more than just the defense against infectious organisms.

It does a lot more then just virus and bacterial defense. it is rebuilding tissues, it's surveilling 24-7. There are only two systems in the body that are sensing the outside world 24 7 365. One is the nervous system and the other is immune system.

And they're telling the whole rest of the body how to behave. So if we have a resilient immune systems, one that

has all the capabilities of knowing friend from foe and knowing when to turn on and when turn off and what cell type out of hundreds of different cell types in the immune to activate and which ones to deactivate, that intelligence in the immune system is associated with people that are 100 years of age and still healthy.

In fact, there was just a paper published of an Italian gentleman, 122 years age in which they, in fact he just passed away. But when they measured his immune age using these molecular tools, when he was 118, he had an immune system at the age of a 65-year-old.

That's incredible. If you want to talk about longevity, that's where some of the secret sauce lies. When I think of how you then maintain resilience and the ability of immune systems to have this intelligence to do the right thing at right time, whether it's allergy or arthritis or chronic pain or fatigue or cognitive dysfunction, which are all associated with immune imbalance, then you want to find ways to speak to the immune system at a fundamental upstream level.

And you say, okay, where is that? Who is the teacher that instructs the system how to behave? And it turns out, and I didn't know this until the last few years when I really started digging deep into this field, that 40 to 60% of the immune information that targets our immune system comes from our diet.

40% to 50%. That's a pretty remarkable figure, isn't it, when you think about it? And the thing that I think most people don't probably understand about the system is that our cells are immune systems that we have right now, as we sit here and have this conversation.

will be different than the cells in our immune system that we'll have four months from now. Our immune systems turns over about every four month. And therefore, it has a chance to learn.

It can learn bad things, and it can't learn good things. If, for instance, either one of us was to have a very severe viral infection in the next week or so, our system would learn from that viral that information that that infection produced.

And it would, for that generation of immune cells, respond and have that memory. If we ate junk food, if we did the Supersize Me study on our own body, and we eat, say for a month, just ultra-processed foods, our immune system would remember that.

It would imprint those cells that would stick around for as long as we continue to eat that diet. We would have a different immune Now, maybe at the end of the four months, we say, oh, I've had enough of that as Morgan Spurlock did when he said, okay, now I have degenerated my health.

Now I need to regenerate it by getting off the Supersize Me diet, which was the McDonald's three meals a day. And when all of his blood parameters returned to normal.

But the blood perimeters returned in normal were surrogates for what was going at the immune system. Yeah. I mean, that's both frightening and exciting, right?

Because it means that whatever you're doing today, if it's not optimal, you can change it. You can use your powers for good or not good. And I think that that's one of the things that sometimes scares people, not in our space, whether we want to call it the biohacking or longevity space.

But regular folks walking around on the street, they don't want that responsibility. because it's a little bit overwhelming. It's on you. But I think it is so empowering to know that you can mess it up and then you get a do-over.

I mean, it isn't always that simple, obviously. The inherent resilience in the human body that is built in can be forgiving under the right circumstances.

Look, there are plenty of people dealing with crazy immune system dysregulation, and maybe we can talk about

that a little bit. So, you know, like, can you think of it?

I mean, I'm sure you can. Like, what would be a real-life case where a person's symptoms look like they have a weak immune system, but actually the real issue is the dysregation at a much deeper level?

Well, that's a really great question. Um, so I think we have a stigma, maybe stigma is not the proper word, but some kind of a bias that women have weak immune systems, weaker than men.

I think we have stronger immune system. You do, you do. But the reason I say that is that 80% of patients that have autoimmune diseases, one of the 80 different types of autoimmune diseases from thyroiditis to multiple sclerosis to rheumatoid arthritis or to systemic lupus.

80% of them are women. And so there has been this view that somehow women must have weak or damaged immune systems, which actually is not true. I could go through a whole narrative why that's not, but let's just say no.

What you just said, Natalie, is actually correct. Women have stronger, they have more robust immune system. For one reason is their immune systems have to accommodate a foreigner living in their body for nine months.

That may even be the opposite sex from them. And I mean, just think of that, that's an immune system that got tremendous plasticity to accompany a foe and friend in different ways.

So I think that the constructs that we carry about the immune sometimes lead us into a self-fulfilling prophecy that woe is me. I just got stuck with this bad immune.

If we look at the number of, and I'm now talking from experience of the last more than probably 30 years, of individuals who complain with what we'd be called preclinical autoimmunity of these different forms like chronic fatigue syndrome related conditions or fibromyalgia related syndrome conditions.

These, or thyroiditis, I mean I could go on and on, but I have seen countless, and we have published actually numbers of papers on this, intervention with diet and lifestyle, how these things resolve, because we retrain their immune system.

Now there is a point where your immune systems becomes so trained and so ensconced with the experiencing trauma, that it's very, very hard to get it back.

Even post-traumatic stress syndrome is an immunologically-oriented problem. And it is hard undo some of those trauma-induced changes that occurred. I always say the harder they were to put on, the hard they are to take off.

So if you've been really traumatized, it harder to them off This may be actually where some of these hallucinogenic drugs and psychedelics are working because they're hard hitting and they are changing epigenetically the immune system.

It requires that degree of leverage to do that.

Autoimmunity, immune retraining, and the role of inflammation

But I think a lot, most of us, much more simple things can relate to the resurrection or the rejuvenation, as I would call it, of the And the number of symptoms that improve from that, it's always amazing to me when this occurs with a patient because they'll say, I came in wanting something like my shoulder to be improved.

But now I'm sleeping better, I wake stronger, and I feel like I have more energy. My mind is more clear. How did that happen? Well, they're all interconnected, right?

Our body is a network of web of things that tie together. So I think that this immune rejuvenation concept, which is

what I am spending all of our group's time trying to understand, we have now names for different immune cells.

You've probably heard zombie cells, That's a really interesting name. Cells that are still sitting there in our body carrying on functions that kind of like fugitive cells, but they're kind not up to par as it relates to the cells that should be doing the work that they are designed to do.

And so you carry this these cells around as baggage that are sending bad messages to your body. And if you get enough of them, now you really feel pretty bad.

It creates these diseases and it's associated with aging. I'm reminded there is a cell type, I am going to use a long-winded term here, this is not to try to impress people, just to show how this field is evolving.

These cells are called members of the clonal hematopoiesis of indeterminate potential family. Cool. If I use the acronym, clonal hematopoiesis of indeterminate potential, CHIP.

So these are chip cells. So they sit in there as chips, and they are clinkers. And it turns out that because they're hemopoietic, what means they were in the bone marrow.

They're the starting point from which all the other white and blood cells are formed. So if they already are carrying bad messages, it creates a lot of hazards or chaos in everything that's going on.

It turns that it is known, well known. that over age, age of birthdays, that people collect these chip cells. What has more recently now been found is that the number of chip sales you collect is not totally connected to your birthdays.

People can be young, they have a lot of chips cells, or they can old in birthdays and have few chip cell. And it turns out that factors that create chip-cells are part of our diet, lifestyle, and environment that create mutations in the hemopoietic stem cells that make them into these kind of clonal nefarious cells, that don't do the jobs that they're supposed to do.

They're doing other things and they stimulate inflammation, the process of inflammation connected to aging. And so now we're really asking, how do we get the bone marrow to be healthier?

These cells have come out of the bones marrow. So there are now a lot of work going on to look at how diet and lifestyle and other interventions can resurrect these primordial stem cells that are in the bone marrow.

So I think this is where this field is all going. It's a much more precise way of describing the immune system than we previously had. You know, what's amazing about this is it comes full circle, right?

I mean, on the one hand, as I said to you before we started recording, I interviewed a researcher yesterday who is working on mitochondrial transplants.

And they're working actually transplanting mitochondria into stem cells, which will, to your point, it could potentially rejuvenate the immune system to a degree, But how fascinating that our diet and our lifestyle and nutrition, that pure nutrition going back to the foundations can also play a role.

And I believe that these two are not exclusive, like both need to happen. You can implant as many mitochondria as you want. If you're supersizing every freaking day, going to fundamentally disable that.

If you're living in a state of chronic stress that you are unable to control or mitigate the effects of on your body, that too will fundamentally affect your immune system's ability to respond.

I just want to say that I'm so happy that you said that about the immune system in aging, because I said to someone recently and they said, no, well, you know, there's a cardiovascular system, and I'm sitting there going, but it's the system that decides.

Everything that's going sideways and all those other systems is really coming from that immune balance function, whatever the case may be, in some way, shape or form.

I asked the question when I'm talking to docs, and I've been amazed actually, quite honestly, maybe a little bit disillusioned when asked this question.

They say, so where does the immune system reside? And most people immediately say well, it's in the bloodstream. That's true. The white blood cells floating around about 10% of your blood is white cells.

But I say actually The immune system is in every organ of your body. What other organ do you know is every other other? Is the heart in the lungs? The kidney in your pancreas?

Why is the immune in all your organs? It's in fat, it's your brain, your thyroid, and your gut. It is everywhere because it is a universal messenger. Sidebar question.

Before autoimmunity comes an overactive immune system, how does that show up in people? And fundamentally, auto immunity is an interactive immune that's hitting the…

It's like a gun that has been pointed in the wrong direction kind of thing. How does show that up for people, are there signs before the auto-immunity hits that the immune systems kind have gone offline or is over-active that people are missing?

Yeah. I think first of all, I the term autoimmune is a misnomer. Now, I want to qualify this by saying I'm a heretic here. That's okay, you're allowed to be.

You've earned the right, sir. Okay, well, thank you. I don't think everybody will necessarily agree with me, but the reason that I say that is that autoimmunity by a term suggests that you wake up some morning and your body doesn't, your immune system doesn' like you anymore.

Hmm. It had been you all these years and then suddenly your system that's been with you says, now hold on just a minute. I don't like something about you and I'm going to attack you.

The most pivotal thing that we share, which is you, I am now going make you an enemy. It's not only an entity, but it's so specific, that I will actually attack your DNA, your book of life.

I'll produce a response and do war against your own DNA. Now, when I ask that question kind of rhetorically, does that sound like a logical way for the body to design itself that suddenly it wakes up and says, you're an enemy of me and I'm going to attack you?

Or was there something that precipitated that situation where your immune system starts attacking what appears to be you. So now you dig deeper with that question, which I've spent decades now digging deeper.

And what you find out is that, no, normally it's not the immune system attacking you. It's something that changed in you, some molecule or some protein or something, that used to be you got changed.

Let me use an example. We all know about glycohemoglobin, A1C. as an association with diabetes. What is A1C? A 1 C is when glucose, the sugar in our body and our blood, attaches itself to the major protein in red blood cells, hemoglobin.

So now when there's a chemical attachment of glucose to hemaglobin, it forms a new kind of hemoglobulin, this protein hemglobilin called glycosylated hemigloban.

Now, is that hemuglobal a natural U? or not. The hemoglobin was a natural U, the sugar maybe was an natural, but you put them together, that's something foreigner.

And what does the immune system do when it sees a foreigner? Yeah, exactly. It says, oh, I have a job to do. I got to get rid of foreigners. Now, what do we know about the correlation between autoimmune disease and diabetes?

They're very correlated. Why? Because mechanistically, they share the same common theme that you form something that is not you, that your body now starts to attack.

And who will be the first person to do the attack? The ones with the most sensitive immune systems. But who do they happen to be? Women. So all this stuff, when you retell the story, doesn't sound like autoimmunity.

It sounds like something else that's going on. Now, let me use an example of thyroiditis, because we see a lot of autoimmune thyroidiasis, Hashimoto's disease, particularly in women.

And it's if suddenly their thyroid gland said to their body, you're not a friend anymore, the immune system is going to take care of you by reacting against you.

Well, actually, if you look at this more intelligently, you find out that these anti-thyroidal antibodies are being produced by your immune system against things where your thyroid tissue was changed.

And one of the things that causes to be changed is exposure to polynuclear aromatic hydrocarbons, organic pollutants. Organic pollutant bind with thyroidal tissue.

And that causes now the tissue to no longer be you. It's now transformed tissue and your immune system says, well, we don't want that here. That's bad.

We better get rid of it. And it attacks and the innocent bystander is you, so what do we do? Well, detoxify because things turn over. Cells don' stay around.

I mean, even even the neurological cells in the brain have been found to have a turnover. They're much more slow than the immune So the whole concept is reconstruct your body.

That's, you know, this term, I'm writing this book now around this concept of rejuvenation. When we look at rejuvenation as a cell biological phenomena, we've now discovered how that actually occurs.

Processes of apoptosis and mitogenesis and so forth are processes of re-juvination. The body has it. And the problem is that we have overloaded the damage beyond the scope of our ability to reJuvenate.

So we collect more and more junk. That's right, exactly. Stop fasting, right? We have to remove the inputs for the body to turn inwards to do the work.

Which goes back to our initial concept of eating cyclically, eating circatingly, nutrients in different levels and different seasons. This is all part of a natural rhythm.

Yeah. So if someone's sitting there saying, okay, well, how do I know that I have balanced, resilient immunity? What does that look like? How do they measure that?

Can they tell? Yeah, so we're doing a study right now that I'm quite excited about. You're the first person I've had the chance to share this with. It's a clinical observational trial.

So I don't want to call it a double-line placebo control trial, but we are looking at a marker that's very simple marker for immune resilience that most people have overlooked as a tool.

And that is, it's $6.20 test. Sign us up. We don't even need a discount code for that. Exactly. Everybody that's ever had a blood test from their doctor has had this test done.

It just wasn't read in the way that I'm going to describe. This test is called the complete blood count with differential,

the CBC with Differential. The differential is to type the different types of blood cells in your blood screen.

So you get lymphocytes and you'll get monocites and macrophages and eosinophils. And you've got a list of the different characters that are making up your blood cell population.

It turns out that the ratio of those characters in your body personality, blood-cell personality tells you some things about your immune system. This is kind of a name.

this use of this algorithm. It's called the Systemic Inflammatory Index, or SII. And the SIII is just a mathematical way of using the data that comes from a blood test to see what the status of your immune system is.

And what we have found is that you can change your SII to make it more resilient by dietary and lifestyle intervention. So it's an easy marking tool. And I want to emphasize that this is a surrogate marker.

Gut dysbiosis, mitochondria, and the 4R gut repair framework

It's a blunt tool, it is not specific to the level that if you did cytology and you do very detailed immunological work, you get better information. But for a general first level pass for $6, its a pretty good way to infer information.

Are those values available anywhere of the ratios that people are aiming for? Yeah, they are. It's just training docs now how to use this. They just have to do a mathematical calculation they can do on a calculator very simply.

You don't need a computer. Is it something we can share with the audience or maybe put a link somewhere? We can certainly, there are many, I was going to say hundreds, But let's say 100 or more clinical studies on the SII, more than 100. Okay.

So basically we want to look for what are the values we're looking for in the, in, the SI that established it, that gives us an idea that our, we've got immune balance.

That's right. Immune balance, which is immune resilience, right? Which is a immune intelligence. So this is the biomarker that's going to matter when we're looking for immune aging, immune activation, and immune competence.

These ratios are going tell us where we are at. I believe that in our space and in good medicine, what we want to look for is the hints that things are starting to slide off, right?

And sometimes the ratio is not off by a lot, but it might be off a little. And you're not going to run around like Chicken Little that first day. But when you repeat those labs, and maybe you'll repeat them in three months instead of in six months if things were starting slide, either they'll have come back or they've gone a bit further.

I think you said it very well, because three months is good. It's 90 days. That's the time it takes for the immune system to start turning over. And so we have, I'm very proud to say, what I am going to is true.

We have the largest clinical trial, double-blind placebo-controlled trial in humans ever done on a single food intervention over 90-days looking at immune resilience using molecular analysis of epigenetic sites of the immune system.

It's 850 people in a double-blind randomized control in which the food we're using is, as far as we are concerned, the most immune-active food that we've ever been able to see, which is this tartary buckwheat that fell onto, that has a- I have some downstairs.

Yeah, 2,500 year history. The highest level of these immune active nutrients polyphenols and flavonoids. And so we have a clinical trial. We've fully recruited now the clinicaltrials.gov and we will have data by May and I think it's going to be revolutionary.

Will have terabytes of data. Were doing molecular analysis using gene chip analysis plus promise questionnaires from the NIH to look at the effect on brain health, energy, sleep and all sorts of parameters.

The only intervention is that they're consuming the tartary buckwheat. Yeah, 30 grams a day. They're doing everything else ad lib. Their normal life, whatever it was.

It's not a metabolic ward study. Now, the reason that we think that were going to have data that is meaningful is it we did a pilot trial that was published in November on 50 people over 90 days.

in which it was not a placebo-controlled trial. We just wanted to see if there was any evidence that if we did a bigger study, it would be worth the effort.

And we were amazed to that without any diet control, with no placebo, that individuals who were on the Tartary Buckwheat for 90 days, some of their expressions of the immune system were changed 20-fold.

20 fold. So we think we are onto something here to be able to explain how diet plays such an important role. Well, it's also how a nutrient or the collection of the sweet of nutrients that is delivered by this food affects…

It's got to be affecting gene expression. To be that powerful, It actually has to going way up the chain. That's right. And we've actually can tell you the loci of their 1.2 million gene sites on our chip that we're measuring.

And we can tell you what genes are having the greatest performance as a consequence of eating that food for 90 days. What made you look at that? What got your attention?

I mean, I know there's a little man with a stand at the farmer's market in the summer here who's trying to get people to drink the tea, eat the noodles, buy the flour.

But what made I think it might have been the little man that you're talking about, actually, as part of our story. Sam Beer and his wife live in Angelica, New York.

Different man. He was a former ag research professor at Cornell that started growing this Himalayan Tartary buckwheat on his little farm with his, wife was, a nurse, just for fun, and started to see some really remarkable things when he was starting to share it with neighbors and so forth.

And then I happened to run into by a coincidence, if there are such things as coincidences, when I was invited to go to China to speak to 10,000 Chinese medical doctors.

My host there was a Chinese Medical Doc, but he had a PhD from John Hopkins. So he spoke very good English and we had a great time together. And I was asking him if he knew anything about Tartary Buckwheat, because I'd already was kind of introduced to this farmer, farmer researcher.

He looked at me and says, you got to be kidding me. I said, no, why do you say that? He said my research group in Wuhan are the leading researchers on Tardary buckwhein in all of China.

We've been looking for someone in the United States to collaborate with. So, we formed a collaboration agreement, and I came back and then was introduced to another investigator at Vanderbilt University that was measuring the effect on the immune system of one of the principles in tartaric buckwheat that's unique, called 2-hydroxybenzylamine.

And we ultimately formed a collaboration. Now I, believe it or not, have a consortium of Tartary Buckwheat Farms in upstate New York. We are regenerative ag approved, and we're the first people in the United States ever to grow it.

So that's been my last few years. Gosh. That's insane. It really kind of is what I think about it It is so not a coincidence. There is nothing coincidence about any of this.

Like it just is, I'm sorry people, you can think I am crazy. I don't care. This is energies and forces and whatever moving people to where they need to be at the right time in the place.

It's just, there's no coincidence. That's fascinating. All right, so I will come back to my original thread only because there is some kind of This was just so fascinating.

There's some basic questions that I think people are going to want to hear, kind of some answers that they can hang on to a little bit. But other than the fact that, you know, we all need to run around finding, getting our hands on some Himalayan tartaric buckwheat, like now.

I don't need see the results. And I'll just eat it. Yeah, I recommend the sprout powder. It's three times higher level of the immune active nutrients over the flour.

Sure. And so himalayan tartar, buckwheat, sprout powder, two teaspoons a day provides the level that we did in our clinical trial. Okay. You heard it here first and we'll put a link down below.

I mean, I don't know if you sell it. We'll just let people know where they can find it." There's this whole distinction between short-term inflammation signal that is adaptive, that we want, we need it to survive, and then chronic inflammation that's actually degenerative.

So how do we tell the difference between the two? Especially because the chronic one can be much more insidious. You're going to feel that adaptive inflammation, right?

So that again comes back to this SII because that's measuring more of the chronic states of, the pot is boiling kind of thing over time. As you know, Charles Sirhan at Harvard Mass General gave us a big gift about this inflammation that comes and goes when he discovered this class of substances in our immune system called specialized pro-resolving mediators or SPMs.

And these SPM's actually are the quenchers of inflammation. So your body needs to turn it on when you need inflammation to get rid of garbage and to recreate new tissue, but then it needs turn off so it doesn't become a long standing chronic problem.

These SPMS that the body makes in response, if you have a resilient immune are the things that turn the inflammation process off. And it turns out that those SPMs are derived from omega-3 fatty acids, icosapigenoic and docosahyxenoic.

So there are forms of these oils commercially that have higher levels of the pro-resolving mediators that get converted into SPM. Those are ones that are minimally processed oils.

That's why eating fish is different than eating a fish oil. We're studying these because they're all part of this immune resolution process and getting…

You want inflammation at the right time, at a right place, and at right level, then you want to get rid of it. You wanna resolve it, that's what these things do.

Yeah, well, otherwise you're basically on fire. Right. Okay, we have not mentioned the microbiome yet. We have mentioned mitochondria yet, so I'd love to kind of spend a few minutes talking about this microbiom-mitochondria connection and this fatigue that people…

So if you can help frame for the audience gut dysbiosis and how does that end up reducing mitochondrial energy output, which is how people just then they can't get up out of their chair.

They can get out their beds. You are so good. Wow. I'm just really impressed. That compressed a lot of stuff of importance in a few words. maybe pride in this area of discussion because my colleagues and I were the first people I think to use the term dysbiosis and leaky gut back when I did seminars in 1985 for doctors.

I must have thought you were insane. They did. It's unbelievable the number of criticisms that we sustained over those early years. But with that said, we now all recognize that 70% of the immune system is clustered around the gut.

You know, when people ask why, was it a cosmetic reason? The great designer of The Human Body said, I can't think of any other place to put the system, so I'll just throw it around.

But remember that in the course of living, a person will eat somewhere between 10 and 15 tons of foreign molecules in our diet. that our body has to decide what to do with.

And so it puts the immune system right there, close to the action, where that stuff's coming, has make a decision as to whether it's friend or foe. So the Immune System is taking messages from what's going on in the intestinal tract.

As we know, the Intestinal Tract has all sorts of a living organ that is not connected through the bloodstream. It's called the microbiome, literally hundreds of different species of living critters, both bacteria, viruses, and protists of different types.

And those organisms all have personalities and they have their own metabolic characteristics related to their genes because there are more genes in microbiome than there were genes of the human body.

So what they're doing is they are processing and creating outcome that our immune system has to determine whether that's friend or foe. Well, it turns out some of those bacteria members of gram-positive bacteria, excuse me, gram negative bacteria family have in their cell walls various construction elements that when they're released can activate our immune system in the inflammation.

These are called lipopolysaccharides. And so if we have dysbiosis, meaning imbalanced bacteria in our gut, they can, when they die, they liberate these things that made their bodies what they were, the cells what the were.

And our receptors of our immune system, so-called toll-like receptors, and particularly toll like receptor four, picks up this information and then it signals to the whole body that we have foreigners on board that need to fight against.

That becomes the chronic inflammation systemically. So that's the dysbiosis connection. And then you say, well, does it stop just at the gut? No, it doesn't, because the blood coming out of the gun, the first place it goes is to the liver.

The liver has 10% of its construction made up of immune cells called Kupfer cells. So the Kuppfer cell, which is the livers immune system, says, oh, there's a foreigner on board, I got to do something.

It sends out message that caused in fatty liver disease. And then that sends out messages into the blood that goes to the brain. And the brains has its immune system called the microglia.

The micro glia picks up that information and says, oh, geez, there's foreign on board. I better do fights. It fights back to become neuroinflammation.

Now we have dementia. So all these things are interwoven then as it relates to this immune relationship of the gut microbiome to way we eat and the things that are going on in our intestinal tract.

That's incredible. So I'm going to ask you, before I ask for your approach to sequencing interventions, because I do think when we're dealing with stuff like this, there's an order of operations that needs to be followed.

Food as information, epigenetics, and personalized nutrition

But before do that, what's a fatigue pattern that makes you suspect immune metabolic dysfunction rather than, oh, it's hormonal issue, or it just a sleep issue?

Are there a couple of hints that you're like, you know what, this sounds like it is coming out of the gut? Well, I think the first symptom I'd look at is POTS, postural orthostatic hypertension syndrome, where when a person who stands up and they get dizzy and can't accommodate the change, people would say that's an adrenal problem.

Yeah, it is related to the adrenal glands, but the adrenals glands are taking their message from this whole inflammatory cascade. And so that is kind of a whole body kind surrogate marker for something going on that's associated with chronic fatigue, post-viral fatigue syndrome, a post COVID long-haul syndrome.

All those share that in common. And it's also, if you study the mitochondrial function at the cellular level, which we've done using various types of new tests, you'll find that the mitochondria are energetically deficient.

They're not producing what they need and they're involved with reactive oxygen species. So you're now in free radical oxidative injury. All those things are fitting together.

To me, that symptom And then, you know, I can't go upstairs as effectively. I feel winded immediately and I don't have COPD, all those kind of things.

Or I get lightheaded and feel like am I confused? I cannot clear my thoughts. All those things fit together. Like it's a total energy drain. Exactly. Okay.

So what is your approach in sequencing interventions? Is it the gut first, the mitochondria, or the nervous system? Does that depend on the person? Or is there an order of operations that really you feel…

And we started off this conversation with talking about personalization, but in a situation like this, do you think that there's a first line of defense that has to be addressed before we move on to the next things?

Well, in 1991, we developed a program that now I have to say is probably, if I look back, been the most highly adopted thing that we've ever put out in the world.

We call it the 4R program. It's a sequenced program for… I learned that program, I was taught all in school. Yeah, so 4-R is our program we develop.

it was really the birthing of the Institute for Functional Medicine with that programme. And it's remove, replace, re-inoculate, repair. That's what the four R stand for.

And it's a sequence of tools, interventions that are easily applied, remove the foreigners and the allergic-producing substances and toxins, and then replace the acid and digestive enzymes if necessary, then re-inoculate with pre- and probiotics, repair the gut lining with the various nutrients and bioactive substances actually to better mucosal integrity.

That has probably been applied now to millions of people over the last… 40 years or 30 years. It's foundational. And it's easy to do and it works. When new practitioners come into the field and they say, where should I start with my practice?

They start to be comfortable with the 4R program because if you do that, you're going to get such positive feedback from your patients or clients that they'll think you are a magic maker and then you can expand your tools out into hepatic detoxification or mitochondrial resuscitation.

There are all sorts of other things you can do, but that's a great place to start. Yeah. And I think what's amazing about it is it's not singling out the gut, the mitochondria, or the nervous system.

What it doing is, it addressing the foundation of where the assault is coming, if you will, and all of those things will benefit from that approach. That's exactly right.

That's where we got root cause, you know, started to say, hey, what we're really trying to do is keep going

upstream to root causes. And this helps you get there.

Yeah. In a weirdly general way. Exactly. Do you want to talk a little bit about motility, circadian rhythm in this whole microbiome energy conservation space?

Well, I think the thing that I haven't, well there are probably many things we haven t talked about, but one that is very important because it cuts across a lot of therapeutic disciplines, is the lymphatic system and the important role that the Lymphatic System plays as a drainage system that gets things flowing in the right direction and doesn't have them sitting in their body.

And we all know about lymphostasis, particularly women who've had breast surgery often or chemotherapy for breast cancer. end up with a lymphatic injury that causes lymphostasis and then they get swelling and they could pain in that area where the toxins don't get eliminated.

Yeah, exactly. So the lymphatics system is interesting because it's a fluid flow system, a separate set of canals to that of the blood system but it doesn't have a pump whereas the system has the heart and so the only way you can pump lymph around the body is by mechanical force, by movement.

And so this brings in all the kind of traditional therapies that go way back in history with Ayurveda or traditional Chinese medicine or you name it. Every culture in Native American has had some physical method of moving things by massage or Well, all sorts of different physical methods.

Even movement, like physical movement. Exactly. Dance. I think this whole idea of being a human and moving as opposed to this new found animal that sits for eight hours a day.

Like we're doing right now. Yeah. So I'm on a meditation chair. Okay. Good for you. No, I've changed my position a few times. But truthfully, yes. To be fair.

The construct of when I talk about personalized lifestyle medicine, it really embodies all these tools. Some people say, well, those are kind of old things, right?

I like new stuff. Well, the old stuff is tried and proven for thousands of years and we shouldn't throw it out. And these things all get integrated together just like things that we learned historically about eating and eating the right kind minimal processed.

Mark Hyman has his new edition of his book, Just Out Food Fix. I read it. It's revolutionary in that it takes the whole food industry and the egg industry on frontal face, no prisoners, and says we have a We have an issue.

It's an existential crisis that we have to do something with, because it doesn't go away by just forming more GLP-1 drugs. We don't have make fundamental changes in the way we think about life and how we treat ourselves, starting with the we grow food.

People talk about epigenetics. The impact of all these different things on the expression of our genome. And one of the things that I think often doesn' get enough attention is food, and how foods can trigger those genes.

And I'd love to invite you to speak a little bit to how food does this through epigenetics, transcription factors, nuclear receptors, like the microbiome metabolites, all of this whole You know, this wealth of information, and I'm sure you've said it a million times, but food is not just calories and nutrition.

It's information to our system. And can I invite you to speak to that a little bit? Oh, boy. Yeah, you're right in my sweet spot for sure. So I've just finished up a book, actually, called The Nourish Gene.

Love it. That is going to be on this topic coming out in 27 with Harper. And I'm pretty excited about this book. I think it's revolutionary in the way that I am really talking about diet from a whole different perspective based upon the very model that you just described.

It was 23 years ago when I wrote a book called Genetic Nutritioneering, which I now look back and see it was probably the first book written for the consumer public on nutrigenomics and how genes and nutrition fit together.

We have come so far since then that it's truly remarkable, but it all maps against our observation. People don't have to be a molecular geneticist or a biologist to look historically at what people have eaten and it relates to their health.

And I think we all recognize that we've been involved in an uncontrolled study called the ultra-processed diet, in which we are participants in that study for the last 50 or 40 years, and the results of the study are coming out, they're not good.

People's health are being significantly adversely affected. Then we can say there's a kind of another observational study that's been going on, that is to go to regions in the world that are still eating their traditional diets that have come out of and look at their health patterns.

And I'm always amazed when I take like one example would be in Japan. If you look the Japanese people who stayed on a traditional Japanese diet, their level of cardiovascular disease, diabetes, arthritis was extraordinarily low.

One-tenth that we see in the United States in some examples. But when those Japanese people carrying their genes with them come to the United States and are exposed to our variation on the diet, suddenly they get the same frequency of these chronic diseases that the rest of the population does.

So it's not just the genes in themselves. It's something that is causing the jeans to behave differently. Aha. In the last 20 years with the revolution in understanding our book of life, our genome that's encoded in 23 chapters that represent our 23 pairs of chromosomes, half of which come from our mother and the other half from her father.

We've learned that those particular genes don't tell us exactly who we are. They tell what we might be. Now let me stop there. I think that is a very important point.

meaning there are many wheeze that are in our genes. It depends on the signals and the experience that our jeans are exposed to as to how they will express themselves to become what we are.

In our phenotype, how we look at and feel. And that model that I've just described which was pushed back to some extent by medicine because medicine is there to treat us once we're broken and they don't really spend a whole lot of time thinking about how we got there, the route to get to that point where we are broken.

But now it's an irrefutable fact. There are tens of thousands of studies across multiple disciplines that show that our genes in and of themselves are not the solution to how we look at and feel.

It's how express our jeans. And a reminder that when I think of the two twin brothers in our space project here in the United States, one of who went to space lab up in this satellite for a period of about six months, and his twin brother stayed on land.

And they measured all sorts of things in both the brothers. In fact, they're probably the most expensive twins ever in the history of science. Literally millions of dollars was spent measuring all these things, in them.

What they found, of course, was the twin brothers up in space, who had the same genes as his brother. They're identical twins. As he stayed in space, he became more and more different in the way that his body was working than his twin on land.

And when he came back down to Earth, it took more than a year for his physiology to re-correct itself to be more like his brother. So how did that happen?

Well, that happened because the signals that he was getting through what he's eating, what's he exposed to, the

environment of space. were signaling to his genes to express themselves in a different way.

And so now we look at countries where there is longevity and historically centenarians live and have productive lives. We ask, well, what are they doing?

What they're doing is they are eating and living a lifestyle that sends signals to their genes to what I call them express their bliss genes, their goodness genes.

Their celebration of life genes under a different set of circumstances where you feel continually under stress, under hostility, not love, no attribution, you're eating junk, your body is responding to that, it's trying to protect you against trying kill yourself and then so in that case it turns on all the genes that are there to protected against alarm and those are inflammatory genes and so now our major disorders in the western world are diseases of inflammation but what is inflammation?

It's the body's attempt to try to protect itself against hostility because our diet is hostile, our relationships are hostile. Our environment is also hostile so these things are really powerful shapeshifters of what the new medicine is going to be.

The old model, which is a very deterministic model that said whatever our genes were, that's who we're going be, and that was Mendelian genetics, is being replaced rapidly by this model of genetic plasticity.

And it changes all of medicine. It changes our whole, I mean, this is a seismic shift that we're undergoing right now. And then we ask, well, how long does it take for a Seismic Shift to be incorporated into policy?

And, you know, it's quicker today than it used to because of the internet and all the kind of communication mechanisms we have today. But it doesn't happen overnight.

There's a lot of people that hold on to old ideas, even if they're totally wrong. They'll hold onto them because they are comfortable with them or it's to their advantage or makes them look good or whatever it might be.

So I think we're in this revolution in which the whole nature of how our food and health system are constructed is flawed. It's built around a model that's not right.

And we will, as a society, somehow find how the truth is going to be enacted. and delivered to people who are not scientists. They don't study all this stuff like I do, but they can be the benefit, I think, of this information that can really change lives in a positive way.

A hundred percent. I mean, a podcast like this, this is a call out to each individual who's listening to the show right now.

Tartary buckwheat research and the immune resilience trial

You have the power to do this. You have the power to change the way that you feed your body, which is going to have power change your genes express. That is the foundation of food is medicine as a statement.

Let food be thy medicine is a foundational concept. It's old as time and it, you know, it just what's all this new and that wisdom will never go away.

So I wanted to ask you one sidebar question here because you mentioned the people in Japan and you there's the blue zones, there are all these people.

And it occurs to me that in this melting pot that is North America, How big a role do you think the loss of connection to our heritage, like what it takes for, I'm Mediterranean, somebody else will be Japanese, something else.

To me, for me to get to the full positive expression of my genome, going keto like an Inuit person or something

actually, and this shows up in me all the time, doesn't work.

I don't have those genes. But if I try to practice, or if even try and adopt an Okinawan diet, it's not going to deliver the information to my genome that it needs.

I think you're right on the nature of what we're learning. And as I said earlier in our discussion, I've been a proponent for more than 30 years of this concept of personalization.

When I worked with Linus Pauling, a two-time Nobel Prize winner, know, his whole concept about understanding the genomic uniqueness of individuals and then matching that with their nutritional need or nutrition intake was foundational.

And that's really what spurred me on, quite honestly, to start functional medicine as a concept. Yeah. So I think what you're saying is true. I mean, we look at, let's use one example.

This is probably not appropriate anymore to use this term, and that is Chinese restaurant syndrome. which is a kind of a response that people have to monosodium glutamate and they get reactions to it.

And it turns out that there are certain genotypes that are very sensitive to MSG and then there other genotype that's not sensitive MSGs at all. So to just make a blanket statement saying no one should ever have a meal with MSg may not be an accurate way of really defining it and we could go down the list.

We could talk about sulfites. I mean there's a long list of things that to a person's genetics that makes them either more or less responsive. And so I think that this intelligence that we're starting to get now about the personalization based upon our genetic heritage and then how we fit, knowing that not everyone is, but most of us are sandpile genotypes.

When we do our our generic evaluation, we find gee whiz, got interesting legacy components that Where did that come from? I don't know. Well, I found an interesting statistic actually that a fairly significant percentage in 23andMe of their database of the people that have had their genes analyzed are individuals that find out that they're members of families that didn't even know about because we had a lot of stuff going on that people were not talking about.

revelation or revolution, maybe is the best word that we're understanding more about our genetic heritage and our uniqueness. And therefore, the food one could become the poison of another is a very, very important part of this whole story that's emerging.

Yeah, for sure. All right, a couple more quick questions. What's an example of a compound in food that acts like information more than fuel? Well, I think that virtually every substance we put on our mouth can be considered an information contributor.

Some much more intelligent contribution, meaning very specific in how they communicate, and others more general. So if I was to use a general concept, I would say, what about sugar, glucose?

Glucose is an energy molecule, obviously. It's broken down into energy in our body. But it has a lot of impact on how it hits on receptor sites that then create signaling that releases hormones and gets engaged with very complex network biology.

It's uniquely different from person to person. Some people are very glucose intolerant in terms of their diet. Other people have the ability to manage it more effectively.

And then we can go into more specific examples, and we could say, well, there are members within the phytochemical field that may be very, very specific.

Let's use sulforaphane as an example from Brocklin. Sulfuraphane has this really remarkable effect on liver

expression of enzymes that are involved with detoxification, and depending upon your genes that regulate your detox enzymes in your liver, you may have a more or less response to sulfurophane.

Let me use another example. Dye into weomethane or dim. That's another interesting compound that's found in the cruciferous vegetables like broccoli and Brussels sprouts and cabbage.

And in some women, you will find that taking that particular phytochemical, a couple hundred milligrams a day, has a dramatic effect on influencing their estrogen metabolism.

And it really helps in clearing estrogen from their body. Then in other women, taking the same amount, we find that the influence is much less. That activates specific enzymes that are detoxifying estrogen, the in which we have a whole family of those.

So I think there's many examples of specificity of specifically nutrients. And then you mentioned earlier this emerging concept of epigenetics, and you know, we should give a lot of umbrage to Randy Jertle and Robert Waterland, who was his post-doc at Duke, that really made this discovery that's birthed in 2003 the field of nutritional epigeneetics.

That was the discovery in the agouti mouse that when you gave the pregnant, in this case, rodent, you give her high doses of the methylated nutrients, folate B12, B6, betaine, that the offspring were like they had never seen before.

The offspring had a different coat color. Whereas their parents got fat and diabetes and the females got breast cancer and they died young, the offspring lived 35% longer, they were lean, their coat color was different and didn't get diabetes.

The same genes, but just epigenetically modified differently by the addition of these nutrients early on in fetal development. And that just opened up the whole door saying, whoa, is that the case?

What are we feeding kids now? When we're feeding mothers that are going to have kids and how does that influence the development of children? And does it relate to things like autism or eczema or asthma or the things that we are seeing in children.

And so all these are new questions that have been legitimately raised based upon this understanding of this epigenetic remodeling of how our genes are expressed.

Love it. Yeah. Wow. I love it, love. This is so great. All right. Let's leave our audience with a little bit of a practical roadmap if we can. So if someone wants to eat for immune balance, which by now we should all be know, kind of gnashing our teeth going, what do I do?

How do i do it? What's the simplest structure for meals without turning this into some kind crazy obsession? Not that it would be the worst obsession, but let's just say what's a really simple framework we can offer people that they can start tomorrow?

Yeah, you know it's interesting to me. We've got a lot of controversy right now about plant foods. There's a pretty big movement that's anti-plant foods that somehow they're not healthy and they are damaging and cause arthritis and do bad things to our gut.

I think it depends a little bit on how we talk about plant foods. Plant foods are coming from highly processed things that are ending up as white flour and a bunch of devitalized corn and soy.

Those are plants, but it'd be like saying you're a vegetarian if you drink Coca-Cola and you eat Twinkies. Exactly. We're on the same page. Yes. So I think that this plant kingdom has so many messenger substances that speak to our bodies in ways that you don't get out of animal products.

Now there are certain advantages to animal product as it releases protein and amino acid levels and certain vitamins like vitamin B12 that's generally found in animal and vegetable products, but in terms of the overall health benefits if we were to weigh those, the plant foods, if you ate a diet that made sure it had a rich array of different plant foods that were minimally processed, you would be hitting a lot more success stories as it relates to how we know the body really works.

And this relationship that we have with plants that goes way back in evolutionary history, hundreds of millions of years, is a very intimate relationship that we are seemingly still debating, which I find kind of fascinating.

So then we say, well, what kind plant foods? And that's where I think I had mentioned this concept of eating the rainbow, where we eat foods that are naturally colored from the red-orange to the blue-green and yellow.

Those colors are all different families of phytochemicals, all of which have different effects epigenetically on how genes are expressed, and become the master regulators to a great extent of how our genes were expressed.

So we could say, oh, those foods are anti-inflammatory, or we can say they're antioxidants.

Practical immune-supportive eating and closing takeaways

Well, that's kind of a gross way of talking about them, but more specifically, they are actually interacting at a very specific level to turn on and turn off genes epigenetically and create a different outcome so our body feels more at home, more friendly and less in a hostile environment.

So that's kind of where I would start. You know, you give over the ultra processed stuff and you start introducing more of the eating by the rainbow by including vegetable products into your diet.

Yeah, I love that. And eating meat and chicken and fish. I think that over and over again, what we see is that we do really well as omnivores when we eat the right foods.

We have the luxury of being able to access the nutrient density from both camps. So that doesn't mean that every once in a while you don't have interventionally a reason to go one way or the other for a short period of time, maybe.

But, you know, there's a lot of wisdom in this. I just wanted to throw out the concept of inviting people to do an experiment like this on themselves, I mean, start with a week if you find 90 days overwhelming, but maybe you can speak a little bit to that.

There is a magic number at 90 Days. there's a Magic to 90-days impact on the human body of a certain intervention. I totally agree. And I think this is actually a major theme in my book.

food plan, and it's a 90-day food plant. And the reason for it is the immune system, as we mentioned earlier, turns over every three to four months. So if you want to really renew your immune information, you need to give it some time to do so.

Some cells have to leave the system and others have replace them that are imprinted with different information. Our immune systems is constantly learning, so we want send it new information to make it friendly.

And that takes 90 to 120 days. So you can't be impatient. It's not like taking the antibiotic for a bacterial infection you expect in three days that you get over the infection.

We're talking about restructuring the way the body actually is working. Love it. All right. A couple of rapid fire questions, Dr. Bland, to finish this off.

Oh, that's a good one. So I think gluten would be probably what I put as a quick, kind of when I go quickly into my head and think about this. Now what we're finding is that by the hybridization of grains that have occurred over

years with genetic inbreeding and crossing and so forth, we have produced a product that is not just gluten alone.

There are many other unique proteins that are in that, that the immune system has not seen before, the system of humans. So now it starts to look like a foreigner.

And people often say, you know, when I go to Italy, I don't seem to have any problem with gluten. But when i'm here in North America, i've got all sorts of problems.

Well, it's the same supposed product, but it is actually not genetically. The makeup of the proteins in the grain is different. So I think this is something that's very real, whether you call it gluten sensitivity or of carbohydrate intolerance, or we have the FODMAP diet that is used for a lot of people with these problems.

So that has been kind of one of my aha learnings over the last decade or so. Yeah. And I think what you said is so true. It's not the gluten molecule that we maybe were exposed to 50 or 60 or 70 years ago.

We've changed it, and it's changed. All right. A biomarker you think will be mainstream in five years. That is not today. Oh, that's a good one. So I'm going to throw out an esoteric one that probably most people are not yet familiar with, but I think it's the dark horse.

Its acronym is SUPAR, S-U-P-A-R, little s, u, capital P, A, R. It stands for Solvable Europlasminogen Activator Inhibitor. I like SUPAAR. And I thought you would.

Yes. that analyte, which you can measure in the blood fairly simply, is really, really powerfully indicative of chronic inflammatory states, more than any other marker that has been studied that's conveniently measured.

And it's not so easily changed by the immediate environment like is HSCRP, HS CRP a high-sensitivity C-reactive protein, it can move all over the map if you're sick or have a cold or something.

Whereas as SUPAR is really stable because it gives you a more consistent message as to what is your own inflammatory state. So that's my insight track.

And of course, I also talked earlier in our discussion about this very simple $6 test from your complete blood count, which is the SII and SIRI that comes from you differential.

That's a biomarker that simple and available to everybody today. So, that would be my choice. Cool. A food you personally keep coming back to for immune balance.

Salmon. The question you wish every patient would ask their doctor. What does their Doctor feel about the importance of diet and lifestyle play in health outcomes?

Thank you. And if someone only remembers one idea from this conversation, what would you want it to be? Each person is in charge of the orchestration of their health journey.

Love it. Dr. Bland, where can listeners learn more about your work and big, bold health and get their hands on that magical and other really powerful product?

Actually, the that's the artery buckwheat. Yeah. Yep. Yes. So I'm really in three different places that you can find me. Actually. I my family doesn't really think this is a good idea, but I'm giving it a whirl.

I have a virtual Jeff that is now codified. Oh, wow. My two terabytes of data that I've put into the world's literature of all my presentations, all of my publications were all put in to an AI program that was taught by me.

So you can speak to Jeff if you want to. You can either write or talk, and I will either talk to you or write back to your. And so that you could find me on my own website, jeffreybland.com.

I'm also, similarly with a virtual Jeff, on the personalized lifestyle medicine institute that I founded, which is PLMI, or if it's actually PLM, institute.org, but you can just look at PLMI if you do a Google.

And then lastly is the work that we've been doing on immune rejuvenation, immune health through Big Bold Health. So bigboldhealth.com, you'll find me and my colleagues, Dr.

Ross and Perlmutter and others that have been working the last eight years and trying to decipher how to treat our immune system with respect. So those are the three places you can find me.

Thank you. And, uh, guys check out the show notes because we may have a Lincoln code for you guys down there to, um, just as a listener of the podcast, Dr.

Bland, this has been a total honor and pleasure. Thanks you so much for taking the time. You're awesome. I think your listeners get a huge value proposition by, by following you and your, your very insightful, very sharp and also a lot of fun to be with.

So that's a pretty good mix.