How to Anti-age Through Your Immune System Transcript

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Longevity vs Healthspan

to condition specific protocols. I've seen firsthand the difference Neutrodyne makes in my patient's health and in practice. Hey everybody, Dr. Rob here, Proven Health Alternatives.

We have Dr Austin Perlmutter here and we are going to light the world on fire or hopefully light your brain on the fire. So before we dig in, let me just say hi, it's my pleasure.

Yeah, I'm excited to be back. Excited to have the conversation. Always great to converse with you. You always illuminate me with some of your leading edge responses and thoughts.

And let's just dig in. We want to talk about longevity. So what does longevity mean to you? And what is the current movement of focus on longevity get right and wrong?

Longevity basically means duration of lifespan. So longevity means having a long life. Now there are certain things that are within that conversation which relate to what specifically that long-life represents.

There has been an absolute explosion in recent years of brands and conversation around longevity and I've never seen anything like this in terms of the amount of public interest in a topic and how many brands are emerging in multi-billion dollar valuations that are focused on this idea of prolonging lifespan, so promoting longevity.

I love the idea being interested in health in any way shape and form. The reality of it is right now in the United States, 60 plus percent of people have one chronic disease and 40 plus have two or more.

We have rampant levels of metabolic dysfunction, immune dysfunction. And so much of this is preventable. But in order for us to prevent this, it's not just changing the infrastructure of the American healthcare system.

It's also empowering people to be excited about doing something to promote their health. So longevity is part of that. I see so many people who have never really before cared about their healthcare saying, hey, I've been hearing about longevity.

And that is wonderful. I love that aspect of it. But the flip side of this is there is a tendency to go towards things that either are not super science based or are.

Not all that helpful because the reality of is that I don't know about you, but I. Don't want to live to 100 to 120 if my health sucks. It's not just about living a long life, it's about having a healthy life a quality life.

So instead of just longevity, I'm focused on health span. And the second thing I'll just say here, which I am sure we'll get into, is when we look at what we actually know we can do, there's very little data showing that we could prolong lifespan in humans with most of the interventions that are very popular right now.

But what we can do is actually slow the rate of aging within ourselves, within our organs, and in doing so, dramatically prolong and extend health span for those organs and for our overall quality of life.

So I've been particularly focused on health span for the brain, not just how long we live, but the quality of those years for The Brain, because I think that is what drives the actual thing we care about most, which is enjoying the lives that we have for, the most that, we can with the time that We have allocated.

So longevity, wonderful as an opener to get people interested in health. But there's so much more when you start to go underneath the iceberg as it relates to both what is science based and what we can do about it.

Outstanding. I wholeheartedly agree with you. Longevity, lifespan versus health span. We both want to push it up and parallel them together. A little bit more about vitality, but that really speaks to what you're talking about.

Vitality and brain. Really exciting topic. Most people look at the brain and they, you know, if you will, they take it for granted. Interestingly enough, the way you're looking at it, healthspan and brain, most people look at like you started with the chronic disease.

Brain Aging and Lifestyle

The average American lives to about 77.5 years. They have pretty good health span until about 66.1. So if you do the math, it's the last 18%. Not a good thing.

Alzheimer's comes to mind, six leading cause of death. It really begs the question, Austin. House band, brain, where are we going to go with this? I want to highlight that because the reality of it is we are living decades longer than our ancestors 100 years ago.

In the Paleolithic age, people lived to around 30, 33 years old. I mean, largely because they had different threats than what we have now. But you're right.

People are leaving now into their 70s, 80s. Some of them into the 90s But statistically speaking, if you get to these higher ages, your risk for having these problems in your health that are preventable go up exponentially.

And what we're seeing is kind of a progression downwards of many of these conditions happening at younger and younger ages. But let's just say you live to age 65, which I hope all of us do your risk for having diabetes is 29% and risk.

For pre-diabetes is 49%. If you lived to you age 55 or above your lifetime risk, for developing dementia is 42%. And just from kind of a functional perspective, if you live to age 75, your risk for having arthritis, which obviously can be debilitating in terms of being able to move around, is over 50%. So my goal here is to say, look, the body changes as we go on in years, and some of this is preventable, some it is not, but we can do so much to protect and enhance the health of the parts of our body that we know we're able intervene on.

And so as it relates to the brain, you know, the Brain does change over time. There's there's no getting around this. Some of this is for the better. We want to learn.

What you see is though that the brain undergoes this spectrum of change over the lifespan. So in the prenatal period and through kind of early childhood, we see a transition from neurogenesis, which is the creation of lots of neurons through to something called neuronal pruning.

So basically we make a lot of neurons and then we create a lotta connections between those neurons, and we start pruning the connections to create the brains that are going to sustain us into adulthood.

What you see across the adult stages of brain function is that some data suggests peak cognitive performance is actually in young adulthood, And then by the time we get to around middle adulthood, we have a peaking in crystallized intelligence, but we may have decline in certain cognitive functions.

And most importantly, what we see later in life is a general decline and our total brain volume. So this would be brain atrophy. We see impairments in neuroplasticity.

We see changes in the brain's immune system, we see change in brain metabolic state, and all of this correlates with impaired brain function. One of the most powerful correlations here is that impairments in immune state and impairment in metabolic states correlate with risk for dementia and age-related cognitive decline.

So what I'm talking about here is the full continuum of our brains over our lifespans. And while certainly we want to worry about dementia, we don't want develop dementia.

Obviously if we can prevent it, I am talking the overall state of brain longevity, specifically brain health span or brain span. Because it's not just about avoiding Alzheimer's, which yes, i love to avoid Alzheimer.

I've had two grandparents with Alzheimer disease. But it's also about how your mind works and not just can you remember things but how's your mental health how do you feel when you wake up in the day these are reflections of brain state and so the brain becomes this microcosm of everything we're learning about longevity research.

when you consider how the microbiome influences the brain, the vagus nerve influences, how stress, air pollution all impacts the Brain. My principal goal is to help people protect their brain function over their lifespan and the great news here is because the Conscious of and sensitive of all of these different variables around us because the brain is made up of eighty billion neurons and eighty million glial cells and because those cells are incredibly responsive to the environment.

We always have an opportunity. to enhance and protect our brains this isn't something where we get to a certain part of our lives and there's nothing that can be done the exact opposite is true every moment of every day is an opportunity to vote for a healthier brain now and for the rest of your life And the most important things that you can do to protect your brain and to enhance your Brain function are not pharmaceutical and they're not procedural when you think about the long-term benefits.

It's all about lifestyle. And it's about all the choices we make right now. That was excellent. I got to tell you, you're really talking about microglial cells.

when you're talking about the immune function in the brain. So I'm jumping the gun a little for you, but you really highlighted the idea of lifestyle, how it affects brain health.

Everybody's going to ask me because this is what my followers want. Okay, I want my brain to function well. What lifestyle hacks or lifestyle changes do I need to make to keep my brains functioning optimally?

Yeah, well, what we're learning from the research is that, like any other part of your body, your brain ages in response to environmental programming.

And one of the pathways that seems to be most at play is the aging of neurons and the ageing of glial cells. Now, you alluded to one those glia cells called a microglial cell.

It's the brain's immune cell, makes up roughly 15 to 20 billion cells in your brains. So a huge percentage of total brain cells And we know that lifestyle has a dramatic effect on these microglial cells.

And, we that know lifestyle that has dramatic effects on our overall brain state. So, there are many things that can be done.

Nutrition for Brain Health

We can go into each of those in detail. But, I kind of bucket the interventions from a lifestyle perspective as those things interact on your brain's immune state, those that interact with your brains metabolic state and those thing that interacts with neuroplasticity, the brains ability to rewire itself.

And so some of the top variables, some top levers that you can pull to slow your rate of brain aging and to protect your brain will be dietary, will sleep, specifically the air pollution, we'll talk about that in a moment, but the things that we inhale will be psychological stress mitigation.

Another is trauma, so I'm not talking here necessarily about psychological trauma even though we know that's also something that has an impact, but physical trauma meaning banging up your skull and in doing so damaging your brain is a massive preventable lifestyle variable that is correlated with worse brain health and brain aging.

um physical activity of course and then we're learning about some other variables that may have a role to play in terms of helping to mitigate the effects of brain aging but most of these things are lifestyle modifications that people are aware of uh what makes this interesting to me is that the data are now very clear as to how different lifestyles uh different lifestyle variables influence different pathways within the brain Sleep, for example, seems to program the brain's immune system towards a state of balance and promote neuroplasticity and help form new memories and helps to improve what's called glymphatic flux, so this waste system within our brains.

Exercise, which we've historically thought about as important because it's a cardiovascular intervention, turns out to be key in production of molecules called myokines.

These are signals produced by our muscles that when They enter into the brain. They can actually help to regulate inflammation, enhance neuroplasticity, and boost metabolic balance.

So there's a lot to be said in terms of saying, well, we know exercise is good for the body. What do we do for brain? It turns out it's maybe far more nuanced than we once believed.

But the outcomes from that become very practical for most people. So we can talk a little bit more about the specifics, but I'd say those are the big buckets of lifestyle interventions that have been studied to act on pathways related to brain aging.

Excellent. I have to wholeheartedly agree with you. And I got real excited when you talked about concussion, I am going to table that because I want to do a Little rapid fire with You again, people are looking for these tangible takeaways.

So I'm going ask you for the brain, what do you prefer fat or carbohydrates? Yeah, I'm not going to answer that with an absolute. The reality of it is that fats and carbohydrates are too large of classes of nutrients to differentiate into

good or bad.

I think there's a popular misconception in diet that carbs are bad, there is a misconception that fat are either good of bad and there are differences.

So if I said you should eat more fats but didn't tell you about trans fats, you could have a really bad time. If I say carbs were great for you and that included eating a bunch of, I guess, processed sugar, you could have a bad time.

So I would say, unfortunately, this isn't a yes or no, carbs or fats, it's certain types of carbs and certain type of fats. Favorite type carbohydrate?

Fiber, dietary fiber. Why is that the case? It's linked to better brain health, its linked a longer lifespan. Yes, eating more fiber is linked living a long life, which means eating of a certain carbohydrate is a good thing.

When it comes to eating the healthiest fats, I'd say what we're landing on is omega-3 fats pretty consistently studied to be beneficial to overall and to brain health.

We could talk about specific subtypes of omega 3 fats but the bottom line here is it is not this gross avoidance of this macronutrient which is fat because we know For a number of reasons, but that the brain is mostly by dry weight made of fat and that it has an overabundance of omega three fats in particular DHA, docosahexaenoic acid, which is found in cell membranes within the Brain and helps with neuroplasticity.

So no, we don't want to be avoiding those fats. Those are good things from our diets, To come back to your answer here, it's not fats, not carbs. It's questioning how we looked at nutrition in terms of absolutes, binaries, fad diets and moving towards a state of not necessarily an explicit diet that you're going to do for a couple of days and then fall off, which is the typical way people use diet, but rather a lifestyle that incorporates healthy eating habits which in this case would be rich in healthy fats, omega-3 is polyunsaturated fats and lower in unhealthy fats specifically trans fats with some correlation here depending on who you are and your kind of fat metabolism abilities with saturated fat.

I love the answer, I really do because everybody asks for those absolutes and you really explain the difference. They're all macronutrients, they all have their place.

N equals 1 as we both like to discuss. You mentioned exercise, you mentioned cardio. So I kind of know your answer already, but is it better to do cardio?

Or is it better to do weight training for your brain? When it comes to protecting your and improving your brains, largely this translation of the cardiovascular research over to the brain.

You know, it was only somewhat recently that researchers found in military conscripts that people who tend to be more aerobic exercise attended to have better health.

And so we said, oh, well, Maybe people need to do more aerobic exercise or cardio exercise, basically rhythmic activity. Think about jogging, for example, because it seems to be good for our bodies.

It maybe improves our vascular function. And it helps to suppress inflammation. All that stuff is true. It is certainly the case that cardio is good for your brain, and I would definitely not recommend against that.

But what I WOULD recommend is that we don't downplay or forget about the role of resistance or weight training. And in some ways, resistance, or wait training may be more beneficial to brain health than aerobic conditioning and the specific reason why that's the cased.

is that when you lift weights when, you put resistance on your muscles this is when your, muscles are most activated and when. Your muscles, are, most, activated it does a couple of things first it pulls glucose out of your circulation a exercising muscle or when Your, muscle are all exercising it can actually pull 80% of Your total

glucose into muscles in terms of the availability of that glucose in your bloodstream it doesn't mean you're going to be hypoglycemic but they can actually use up a ton of that glucose.

Why that's a good thing is for most people, they have at least some degree of metabolic dysfunction. This can help to improve circulating glucose levels.

It's also linked to improved insulin sensitivity, which is a great thing. The other half of this equation, though, and perhaps even more notable, is that when you exercise your muscles, especially your large skeletal muscles—so we're talking about leg exercises, weighted leg exercise, resistance leg exercices—you produce molecules called myokines.

Myokine is a large group of many, many different types of molecules like irisin, cathepsin B. These molecules, some of them can cross the blood-brain barrier, impact the brain's metabolic, immune, and neuroplastic pathways.

And what we're seeing here is this may be one of the most powerful ways that we can protect our brains. One of most popular myokines that have been discussed for a while is brain-derived neurotrophic factor, or BDNF, often described as a miracle grow, something that can boost brain function.

So that's great, but that is just one example of the fact that when you do resistance training, especially with your skeletal lower extremity muscles, because that where your biggest skeletals muscles are, that you're going to be boosting these molecules that can subsequently enhance your brain function.

So long story short here is when it comes to exercise for the brain, the answer is always yes. But don't forget about resistance, training weight training by itself may also be a powerful way to support good brain health.

So to recap, good brain health for longevity and strengthen your immune system in your brain, which is your microglials. Number one, a good quality diet with a mix of quality macronutrients, real foods, no ultra-processed foods.

Clean air, which I know you're gonna piggyback on in a moment, because I really wanna hear your feeling on that.

Exercise, Air Quality, and Immune Balance

Exercise, a combination of weight resistance for both men and women. It doesn't necessarily have to be an overhead Olympic lifting. You'll take regular resistance training, good quality cardiovascular.

Well, I we're going to get into gut health, but I want to talk to you about the air because 80% of our immune cells are in our gut. And the reason that they're in the gut is because Number one, food is the biggest carnage, but we forget about part of our first line of defense in our immune system, which is our nose.

Yeah, absolutely. I just want to say one last thing on this. So again, for people who are concerned about glucose regulation here, skeletal muscle can uptake up to 80% of postprandial glucose, Which is an amazing thing as we're looking at this connection between blood sugar and muscle.

And then the other thing I Just wanted to highlight here that you just mentioned It's not about doing overhead Olympic lifts when we're talking about muscle training, what we are trying to do here is create sustainability.

So you can do some leg presses, you could do body weight exercises, use some bands and there should certainly not be some sort of an unrealistic criteria where women are not supposed to be doing weight training.

I think that's been incredibly detrimental because we know that women having much higher rate of developing brain issues and so why would we not want women to have access to this powerful tool to improve these mild kinds to help protect their brains moving to the southern part of the equation which is the air component so I think there's a tendency in wellness culture to over index towards the sensational and the exciting.

And most of the time, what that means is talking a lot about nutrition, talking about this supplement, that nutritional intervention, the newest diet.

People love to talk about food and people love the talk, about superfoods and individual nutrients that are going to solve all of their problems. This does not mean that food is insignificant.

It is the exact opposite. Food matters a lot. But what it does mean is we tend to miss some of the more significant variables that can be major adjuncts to a healthy diet, or in some ways, maybe even more powerful than certain dietary interventions.

And the biggest missed opportunity we have to improve our wellness and protect our brains is looking at the quality of the air that we breathe. That's because we breath on average 20,000 times a day, and when we look at their research on brain health outcomes and air quality, there's no debate that the quantity of air we breathing is a massive driver of our risk, not just for dementia, but we're now understanding for depression for anxiety as well as for aggressive and violent behavior for worse test taking for children's neurodevelopmental outcomes and that's just the tip of the iceberg as it relates to what air does to our brains and again we've majorly miss this but the publications coming out in journals like the journal the american medical association and the lancet basically the top tier medical journals on earth are very explicit about this showing that.

When we consume when we inhale polluted air it messes with every aspect of our health and we've seen this for decades as it relates to pulmonary health.

It's pretty clear that people who smoke cigarettes have worse health outcomes, specifically that they have higher risk for lung issues like lung cancer, COPD, and also heart issues, heart attacks, Heart failure, the whole spectrum of cardiovascular diseases.

Well, it turns out that when we breathe polluted air, we're actually being exposed to those same types of molecules and there is a reason why. Breathing more polluted air correlates with shortened lifespan with higher rates of metabolic diseases, with high rates immunologic diseases with microbiome dysbiosis, which we can get into a moment.

And there's also a reason why you see these high rate of brain issues with air pollution. So that's kind of the overview as to why we should care. The thing that got me most interested in air pollutions in particular is that I learned that in the United States, the majority of the air pollution that a person's being exposed to, this is actually true around the world, but in United states in particular, is happening inside of our homes because we spend 90 plus percent of day in our cars, in homes, our offices, and about half of air pollutions that we inhale in these places has nothing to do with whether we have, you know, Outdoor air pollution but rather it's because we are producing it in our homes and not just through the things that you know you might expect like if you're Char broiling a steak on the oven but Rather through things many people perceive as healthy like burning incense using scented candles spraying air fresheners and so The opportunity here is tremendous because these are things that we can opt out of that.

We can make healthier choices around and long term we know that these things have a massive positive benefit on our brain health when we start making some of these small changes.

You know, just to recap what you said about air pollution, number one, what's invisible is typically ignored because if people can't see it, it doesn't exist.

Not true. Number two, really to highlight what'd you say, air pollutions occurs mostly indoors. It's kind of like the idea that we're most commonly going to have an accent within five miles of our house.

And many wellness products increase indoor air-pollution. People think they're doing something well and they are not. But there's a specific particle size.

that you've made a major point on that I'd really like you to take into some detail so everybody knows about it.

Absolutely. Air pollution is made up of several different components.

So there can be toxic gases like nitrogen oxide, sulfur dioxide, carbon monoxide, ozone gas. There are volatile organic compounds, things that are found in scented products.

They are polycyclic aromatic hydrocarbons. But the best studied air pollutant that relates to worse health outcomes and in particular worse brain health is particulate matter, or PMs.

And particulated matter is so problematic because these are tiny particles produced by things that we may not be worried about whatsoever. When I say tiny particle, a human hair is about 70 microns in size.

These tiny articles can be at the order of nanometers. So we're talking about these incredibly small particles. Generally speaking, when we think about particulate matter, again, the best studied air pollutant that relates to worst health outcomes, you can categorize it based on whether it's 10 microns or larger, so PM10s are larger or 2.5 microns or smaller.

Why that matters is not just because you get to talk about microns and talk these tiny measurements, but because the larger particles, PM 10s or actually can get stuck in your mucociliary tree and your respiratory tree so you're able to clear them they don't necessarily get deep into your body you know they may get.

In your lungs but you are able too keep them from getting deep in to your system with one correlate here being that when you kick these things up in you mico ciliary treat and then you clear your throat or you cough and you swallow that you actually Inoculating your microbiome with air pollution, which helps to explain why microbiomes of people exposed to higher levels of air.

Pollution are different than people. Exposed to lower levels. Of air, pollution the gut microbiom in particular, because we wind up actually swallowing many of these particles.

But the more concerning particles as it relates to especially brain health is the PM 2.5 or below and the reason for this is these molecules or these particles are small enough that they can penetrate through our alveoli which are respiratory cells get into the bloodstream.

and induce these effects throughout the body. Specifically, what they do is they increase oxidative stress and they amp up inflammatory pathways. And so the smaller the particles, the more concerning they are.

Anything under 2.5 microns is most concerning as it relates to what is creating higher rates of brain health problems. But we breathe it in. It can get to our gut, 80% of our immune cells are in our got, it can damage our go, which communicates in a millisecond with our brain.

BDNF, brain-derived neurotrophic factors, as you mentioned, come from our god. It's a protein enzyme that go to a brain that provide that idea of miracle grow, your brain neurogenesis, and neuroplasticity.

So people have to understand that the body is all interconnected and the immune system rules. That said, I have said that key to longevity is turning on health switches.

The master switch is having a robust, resilient immune systems. How do you correlate the system with longevity going forward? All right, we're going to draw some lines between things here.

First is to say air pollution is a potent activator of the immune system, in particular inflammation. And they've actually done studies where they look at the macrophages or the macro pages in various parts of body.

So in the lungs, they're activated by air, pollution in, the brain microglial cells. Again, They have shown looking at dogs looking humans people living in places with higher levels of air pollution have more activated microglial cells so that's a problem that air pollutions increases inflammation within the brain and in the body.

then let's transition that into how does that relate to longevity and what do we do about all of this right because it's one thing to talk about everything going wrong we should also be focused on what we can do to make things go right so briefly as it relates to the longevity inflammation correlation obviously i would recommend your book on this topic you did a great job with this but The drivers of aging throughout the body, one of the principal drivers is something called inflammation or immunosin essence.

Basically the aging of immune system and the programming of system towards the state of chronic inflammation seems to more rapidly age both the tissue in which the immune cell is located and systemically age the So our goal is to decrease exposure within our bodies to chronic inflammation and in doing so to help shield the body against the effects on longevity and health span.

Now, in thinking about this a lot, I would look at inflammation within the body within, the brain, not so much as this, you know, negative thing that the, body does randomly, but as a response to a danger signal, inflammation is really the.

Body responding to, a perceived danger, signal. And it makes total sense from an adaptive perspective. If our body is being posed with a threat, whether that's a bacterium or an air pollutant, which by the way, air pollution can include molecules like lipopolysaccharide, a potent bacterial immune stimuli.

But when our bodies are being faced with any sort of a potential danger signal and again the air we breathe, the food that we eat, dysbiosis in our gut, stressful content coming in through our eyes and our ears, it activates inflammation because inflammation helps to rally the body's defense system to kill off whatever that threat may be.

And so there are a lot of people focusing on, okay, so inflammation's happening in the body. We just need to go after the inflammation and suppress it.

That's what most conventional medicines to this end would do. I'm a fan of, you know, at certain times taking a non-steroidal anti-inflammatory over the counter.

that's great. It helps to decrease inflammation. Doesn't necessarily tell us anything about why inflammation is happening and why our body is perceiving that danger signal.

So if we were to take this a step back and say what can we do by looking at the most important drivers of inflammation in our bodies and in particular within our brains to decrease our body's exposure to this danger signal so that we're not always programming ourselves towards inflammation while simultaneously bringing in anti-inflammatory signals we can go across the spectrum of all of these different interventions that I spoke to you about are all the different drivers of kind of brain aging and inflammation and make some pretty significant head roads into or inroads into finding solutions.

So let's just go through these very quickly. I know we won't be able to cover all these in depth, but I want to talk about diet. We'll talk a little bit about air.

Will talk little about some of the other variables. When it comes to diet, everyone has their own perspective on what is ideal, what a person should do for brain health, for heart health.

As it relates to brain longevity, I'll just kind of run through my top tips. One, prioritize a minimally processed diet similar to a Mediterranean pattern diet or a mind patterned diet.

You can look these up. They're generally just a minimally processed diet with some healthy fats high in fiber But some of the correlates to those diet One would be prioritization of polyphenol rich foods poly phenols are nutrients found in plants Generally speaking I think shooting for around 200 or sorry 2,000 milligrams of Polyphenols a day in our foods is a reasonable goal.

I Reduction of ultra-processed food, especially anything with added sugar, should be a top goal for everyone. For Omega-3s… A gram a day of EPA and DHA seem like they're best studied to be valuable for protecting brain

longevity.

And then there are certain nutrients like choline, lutein, zeaxanthin found in foods like egg yolks that I think are worthy of additional consideration.

Leafy greens, kale, spinach, collard greens all have been studied, to beneficial to brain aging. Then dietary fiber, as I mentioned before, correlated with better brain health, better longevity, The goal would be around 34 grams a day, a little bit less if you're a woman usually because they base recommendations on how many calories you are consuming.

Most people consume roughly half of the goal dietary fiber content per day. One other thing that I've been talking about a lot, and I know that you've talked about as well, is creatine, specifically creatinine monohydrate.

As it stands right now, we're in 2025, the research may change. Some people are pushing for a 10 gram a day dose for brain health based on some brain bioavailability data.

The majority of the data suggests that it's five grams, but usually what we're talking about here is actual creatine monohydrate supplementation and not just taking it in the context of eating a healthy diet.

And this may be especially helpful if a person is a vegan or otherwise not getting much creatinine from their diet because it is an animal based, usually an animals based source that people would get it from.

And then last kind of tip on this front for supplementation or for diet. I do think magnesium is is very important. So there are different types, but usually what you're shooting for is at least three hundred and fifty milligrams a day.

And there is some data showing that magnesium specifically from a dietary perspective is correlated with better brain health outcomes. That's my really quick take on some of the dietary considerations.

Does that all make sense or do you think there's some things that aren't quite in line with what I think they all make sense, and I should be specific.

A lot of the polyphenols that we're both nodding our head about come from tartarary buckwheat. You wrote an article that was published in 2024 in Frontiers.

Congrats. Great periodical that spoke about poly phenols and how polyfenols imbue your immune system to reach new levels. So if you could give a little overview on that, I mean, that's a breakthrough.

It's food. It's gluten-free, it's great protein. Yeah, so let's talk about that briefly. Polyphenols are a subset of nutrients. Technically, they're non-caloric, So they are not exactly nutrients, but they have plant chemicals found in plants that provide plants with immune benefits.

And when we consume polyphenol, They actually influence our own immune system and they program our microbiome towards a generally more healthy state. We wanted to do a test on specifically what do polyphenols from a plant called Himalayan Tartary Buckwheat do to humans immune systems.

And so we published this, as you alluded to last year, looking at a dose of poly phenols that included rutin, quercetin, luteolin and asperidin. It's kind of a subset of flavonols, that are linked to improve longevity.

And so these molecules we found in humans consuming these for 90 days was correlated with dramatic changes in longevity related pathways. And we actually saw for the first time that for people who are aging more rapidly, there was a 47% slower rate of aging.

using some of these age clock algorithms that you probably won't get into in too much detail right now, but that are able to decipher from a person's blood set their speed of aging using complex algorithms.

So polyphenols really interesting. We could talk about for a while, But this is a set of nutrients that have been our plant chemicals that had been historically consumed at much higher levels, in favor of things like white bread and white rice and so our goal here is to help people to understand why it's reasonable and important for us to start reintroducing them into the diet and why we need to get over some of these concerns we've had about every food needing to be sweet or otherwise flavorless as opposed to the way that real food tastes which sometimes is a little bit bitter has these different flavors that actually comes from polyphenols in our diet.

So poly phenols are fascinating. And I do think generally speaking, consuming more polypenols, especially those that have been more correlated with longevity is a great bet.

I'm going to piggyback on what you said and give a small litany on polyfenols. A wrote a list for you. They improved heart health, blood sugar metabolism, high antioxidants.

This is specifically from tartar area buckwheat. Great for gut health as you as said. They're great for immune function. They also help there because they're so nutrient-rich.

I think that we're eating so many foods that are nutrient poor, that ultra-process idea. Gluten-free, good for weight management and anti-inflammatory effects because didn't you say that inflammation may be the look behind the curtain for the problem with longevity?

Isn't that the key for the people who are living to be centenarians? That they have a specific strength in their immune system. They have the ability and I'm setting you up on a beautiful tee here.

So here comes the softball for immune rejuvenation. i.e. immunocompetency. Right, and I know that you've written about this research as well, but when you look at the immune systems of people who live to 100 years old, what you find is that these are people with more resilient immune system.

And conversely, when we look alterations in the system that correlate with dying early and having more health related issues, What you find is that the immune system becomes programmed towards a state of relative inflammation.

And so this has been a fundamental area of research that we're looking at at Big Bold Health, trying to help people to understand what they can do to reverse this immune aging process that underlies so much of what is going wrong right now.

And so polyphenols are a key part of this because what we're seeing here is that these nutrients can actually help to program the immune system towards a state of relative balance.

And, so, this is research published by several different groups around the world and we've been able to start contributing to that with our publication last year.

We're doing more research on this topic right now with a large study that We're very excited about, but it all kind of stems from this idea that if you look at the Blue Zones, if look people who live long, healthy lives, what are they doing?

Well, they're eating real food, making movement part of their day, in community with other people, living in places where healthy behaviors are the norm.

And while it's easy to go to a place of saying I want to maintain my western society view of working insanely hard each day and watching a ton of tv and basically doing all these things that we take for granted as as normal and then you know.

do a quick fix intervention that's supposed to keep us alive longer. The reality is the closer we can get to what our ancestors did, the better. And so our goal here is to we're working with several foods, but primarily with this Himalayan Tartary Buckwheat.

We're trying to find ways to make the wisdom of this, you know, multi thousand year old historically consumed plant for medicinal reasons, making that available to people.

both through the peer-reviewed research and also through products that allow them to consume these nutrients and make it a part of their day, whether it's a food or the one that I use more of, which is a sprouted food.

It's basically we take the seeds from this plant, we sprout them, to enhance their polyphenol content, and then it is just really easy to add to whatever else you're eating.

But it still remains a functional food that's very high in poly phenols, finding those ways to connect the dots. So it isn't saying you have to change every part of your life, but you are able to get close to, or closer to what our ancestors have historically done for health.

I think that's a good thing. Spoiler alert, I use the Tartarary Buckwheat for pancakes. i have that recipe in my book. In addition, i speak all the time about, and i love it, immune rejuvenation, the breakdown of old immune cells, you know, using lifestyle to enrich and make new immune cell, to allow them to be immune-resilient, You know, I kind of I'm a basketball guy, so that means the defensive guy has that flexibility to variance.

And I really love the concept of immunocompetency because it's the ability of the organ's immune system to effectively recognize and respond to foreign antigens.

Lastly, really a real big takeaway that you had, and I think you just fumbled over it, but I mean highlight, put it on the movie screen, was the balance of immune systems.

It's not immune-system dysfunction. It's immune system in balance. Yeah, that's 100% right. One of the most popular myths that I see right now is this idea of saying you can just tweak something, fix your immune and everything's good to go.

And it's like saying the immune is an elevator and it either goes up or down. But the reality is it is a three dimensional system, I guess four dimensional if you think about it through time.

My goal or our goal should not be to boost the immune system overnight with some vitamin C and call it a day as though now we're going to have a defense against the cold and we should be good to go.

The reality is that your immune System is a principle system that allows you to interact with the world and maintain resilience against all the things that life throws at you.

And so the immune system in the brain helps you to maintain resilience against mental health issues and Alzheimer's disease. Immune system and the gut is key to whether you develop metabolic diseases, immune to some in your fat cells helps determine whether your fact is going to number one, grow and become unhealthy, but also whether fat is gonna be linked to disease or if it's going be relatively just a storage space in case you need some of that extra fuel.

Our goal is to teach the Immun system how to exist in a state of balance, where it's able to fend off problems that come up, but also to protect and sustain health along our lifespan.

And so what do you do about that? Well, you teach the immune system how become more resilient, how do become balance. You do that through a couple of key ways, right?

You eat foods that program your microbiome towards the state-of-health. Microbiome talks to the system in the gut perpetually. You're going to be consuming content that helps to keep your immune system in a state of balance.

If you think you can watch the news at 10 p.m. and watch something crazy happening across the world that's super stressful and it doesn't change your system, you're wrong.

And so we've got to think about what we consume through our eyes, through ears that is teaching our immune systems to balance or out of whack. And then also, as I mentioned here, you know, we have these other surfaces.

So I'm very focused on the air because the Air can come in and influence our immune system locally in our lungs and then systemically through these tiny particles that get into our bloodstream and change our brains.

But we also have to think about our skin, right? Our skin this massive surface with what we put on it influencing our Immune system, locally at the level of the skin and potentially systemic Lee.

not to take people to a place of saying, oh my gosh, I'm going to panic. It's very straightforward to make some simple changes to keep your immune system in balance.

What does that mean? Think about what you consume, what your consuming through your eyes and your ears. Is it inflammatory stressful content? Use the idea of becoming informed or educated, but at some point it becomes less education and just getting upset.

That is an immune stimuli that we want to try to avoid. Similarly, are we consuming foods that program our immune system towards a state of balance, minimally processed foods, healthy fats, polyphenols, omega threes, or are consuming junk that is teaching our system to take on a stage of inflammation because it's saying this is a threat, I need to fend off this threat.

And then when it comes to our air, are we breathing in molecules that support our health or we're breathing and polluted air that is going to rev up our immune system?

And just very briefly, incense in the home, scented candles in, the air fresheners in and certainly if you're cooking anything that's generating smoke, these are major inflammatory threats.

Be careful with that. Specifically, if you see smoke in your house, whether that's coming from somebody's cigarette or from your stovetop or your incense or candle, that is a direct inflammatory threat to your body and your brain.

So it doesn't mean you can't ever have a candle in you home again, but I think just like you would probably not eat donuts three times a day, you've got to realize that these are things that in moderation may be okay.

but you want to try to mitigate the long-term effects on your immune system. Would you call what you described immune programming or immune reprogramming?

Absolutely. Alright, so to recap, muscle is important. It's the longevity organ. Dr. Gabrielle Lyon said that. Mark Hyman calls it the currency of longevity.

Air quality, that is without question something that you made quite important. Chronic infections, chronic stress, inflammation, Time Magazine put inflammation on the cover 20 years ago and now they're talking about inflammation.

We want to manage and modulate inflammation microbiome changes, genetic, epigenetic alterations, and maybe mitochondrial dysfunction. so you like all that all the things but it all comes down to what can you do about it right now and so i'd say if any of the options here sounded interesting to a person pick one right you don't have to change everything about your life overnight and i really hate it when it's saying oh you know if you dont do everything then you shouldn't even try Go for a walk lift some weights go out into nature where you breathe some healthy air or maybe just don't burn that incense today make a healthy meal cut back on your instagram content these are all amazing ways to start that that.

basically feed forward cycle. And the one that we didn't really get into in very much detail, but is also accurate is the sleep because sleep helps to program your immune system within your body and your brain.

So these are all great scenarios where you can start to make inroads towards getting your. Brain and body on your

side towards a state of immune balance and rejuvenation.

It doesn't have to be a, you know, if you don't eat this many grams of protein, You shouldn't even try what we're talking about here are simple, sustainable steps towards health.

You know, I'm always end by asking, can you give the one thing? I have my friends, he's an Oxford grad, He's in Geneva and he says, Rob, have the particular guest, give me one that I can chew on, land the plane.

And I don't know if I am going to get the 1 thing, but I will push it a little bit just for him. If there is one think that is going be revolutionary in terms of people using it to support their health, it is stop generating brain damaging pollutants inside of your health or inside your house.

We can all get on board with the idea that if you eat junk food you know you're making a mistake or that you don't exercise you realize it's not the best thing for your help.

But if are purposely spraying air fresheners or using incense in your home under the guise of something wellness related recognize that you are doing the exact opposite of what you think as it relates to your health.

And the research here is compelling. You can see long-term cognitive impairments, we can short- term cognitive impairment, risk for a host of issues. By the way, obesity, metabolic dysfunction is related to these air pollutants.

So I would say The thing that I would recommend people consider here is, especially if you're already doing good stuff for your food, you already exercising, pay attention to your sleep, look at what you are putting into your indoor air because there is no avoiding it if your living in this home or in the car and you have the air freshener or you had the smoke, your breathing it in and it is damaging your immune system and your health.

So everybody's going to ask, so we might as well give them the answer. Where can they get a quality air freshener? We'll put it in the show notes as. Well, I have created a company specific to education around indoor air.

We do have an air purifier. It's a HEPA 14 air Purifier called the Lykan Air that we built specifically to target these brain damaging PM 2.5s. But you don't have to go to that.

There are so many different ways that you can approach this topic. And so much of this is simply cutting back on the things that damage your indoor air, opening your windows, being conscious of what you're creating.

So if a person is interested in taking that next step, we have lichenair.com. They can learn about that air purifier and also a bunch of articles I've written on how to improve your outdoor air.

But my hope, again, is not that you go out and buy this air-purifier, but rather that Fantastic. Listen, this has been a great 55 minutes. I really appreciate your time.

Dr. Austin Perlmutter, the rocket ship man in health and functional medicine. Roll with it. Thanks so much for your