Introduction and Ari Whittenu2019s Background

Welcome back to the conversation. Today I have my dear friend Ari Whitten. Thank you so much for participating in this project. My pleasure, my friend.

Thank you so much for having me. Oh, I'm so excited. You know, we've done a lot of projects together over the years and I couldn't, you know, do a talk on solving inflammation without bringing in, you know, the authority on cellular health, mitochondrial health, red light, all the things.

So I'm really excited to have you here because today we're going to shift gears and we're actually going to do a talk on resilience. Now I want to introduce our audience to who you are.

You're the founder of the Energy Blueprint System. It's a comprehensive lifestyle and supplement program which has helped more than 2 million people and counting experience optimal health, better performance, more energy.

You're also the bestselling author of The Ultimate Guide to Red Light Therapy, which is the most popular book ever written on this subject. And you are the world's authority on red light.

You're also the host of the popular podcast, The Energy Blueprint. It features the world's leading natural health experts. And finally, you are the founder of the Human Optimization Project.

Your latest project unveiling a new paradigm on health and longevity. This is going to be an exciting talk, so let's jump right in. And why resilience, Ari?

Why is this the thing that you're talking about now? Why are you creating the human optimization project? Yeah, good question. So, you know, maybe I'll maybe I'll introduce this with a little bit of a background, a context of medical paradigms.

This is something that has has always interested me tremendously in different fields. We have to understand that how we think about a problem and how we think about solving a problem has a lot to do with our paradigm, with our world view, with the way that we understand how things work.

And there are radically different ways of understanding how things work. I'll give you a few examples, sort of give endless examples here, but let's just imagine in the history of medicine, we had the ancient Greeks, this was sort of the initial version of medicine and prior to the ancient Greeks we had a basically there wasn't really any sort of scientific systems of medicine.

People thought of medical problems, health problems, diseases as sort of the will of the gods and supernatural forces.

Medical Paradigms and the Limits of Conventional Medicine

The ancient Greeks were the first, you could say, somewhat scientific system where they they started to see health problems as the result of natural causes.

And they started to talk about food, for example, as influencing health. You know, hypocrisies was famous for saying let food be thy medicine, right? So this was the first kind of conception of natural factors in the world influencing human health and disease outcomes rather than simply the will of the gods and mystical supernatural forces at the same time, or maybe actually prior to the ancient Greeks.

I don't know the exact timelines. I'd have to look it up. But we had, you know, other medical traditions in Ayurveda

in India or Eastern medical traditions in China, and with traditional Chinese medicine that were also emerging with different, completely different views of health.

Where were the ancient Greeks were focusing on the four humors, which is now a concept that's considered to be totally unscientific, that that was their paradigm of health.

We had these different humors in the body, these different sort of forces and and these were the things that controlled our health. The, the Ayurvedic practitioners were talking about chakras and, you know, energy flows in the body and prana and, and the Doshas of Pitta and Kappa and these kinds of things kind of in a way somewhat similar to the four humors and then traditional Chinese medicine had, you know, these accu points and, and yin and yang and different energies circulating in the body.

And they had, you know, a system of of acupuncture that was trying to address these energetic flows and and herbs and and cupping and all kinds of other, you know, interventions that were designed to address health problems.

Something happened about only about a hundred years ago, which was originally it was largely the result of needing to develop systems for war, for treating battle soldiers on the battlefield.

And we developed we started to developed a new kind of medicine that was designed to address these these wounds in the battle, people getting shot and stabbed and legs cut off and getting gangrene.

And so there was a system of medicine that started to develop around that, which was sort of the origins of modern medicine and and emergency care. Modern emergency care in particular, which has been amazingly transformative for for modern humanity in many, many ways.

In the roughly 1930s, 1940s, there was an observation that was was taking place, that took place that really transformed the way modern medicine is shaped.

And that was scientists observed in petri dishes that species of mold inhibited the growth of bacteria and actually killed bacteria. So there was some kind of toxic compound being produced by these mold species, especially Penicillium mold species that was inhibiting the growth of this bacteria.

And that observation led to the discovery of antibiotic, antibiotic chemicals which were transformative for medicine. And this was really a really the origins of what we now consider modern medicine.

And the reason why is because it it it led to something called the antibiotic revolution. It truly was a revolution. It was a game changer for for health, human health and disease, particularly, and really especially with infectious diseases, especially bacterial infectious diseases, also some parasitic diseases.

But basically it led to the synthesis first of penicillin, which was a game changing antibiotic that took certain diseases, bacterial induced caused infectious diseases that were previously lethal in many cases, and it cured them in a matter of days.

So you could take this pill, it would go into your digestive tract, into your bloodstream. It would have this chemical floating around your bloodstream that acted like a heat seeking, seeking missile that killed the bad guy, causing the disease and left the rest of your body intact and healthy and eliminated, completely cured what used to be, in many cases, a lethal, deadly disease.

And we developed dozens and dozens of antibiotics that cured many infectious diseases like this that were previously deadly. In a matter of days, you cured a previously deadly disease.

That observation, this this concept that you could take a single chemical and could cure in a matter of days, a deadly disease that typically killed lots of people.

That idea was so. And that this chemical, this single chemical, was highly targeted and specific for killing only the bad guy and leaving the rest of your body intact.

That idea was so alluring and so powerful and in our minds that basically what happened was that shaped the whole paradigm of modern medicine. They essentially said, if we can and do this for infectious diseases, maybe we can also do this for all the other diseases that affect us in heart disease and cancer and diabetes and obesity and high blood pressure and depression and anxiety and every other disease.

Maybe what we need to do is whatever this disease is that's affecting us, we need to go study the mechanisms on a micro level of how it works. So and we're taught to believe that the more micro we can get in understanding the specific cellular, biochemical, molecular, genetic, specific, you know, molecules and biochemicals that are involved and receptors that are involved in that particular sequence of of interactions that are found in that particular kind of disease.

Once we understand what's going on in that micro level, we understand the causes of that disease. We understand what the bad guy is, what the dysfunctional is.

And then once we have knowledge, in-depth knowledge of those mechanisms of the disease at the micro level, what we do is we go to a chemistry lab and we synthesize synthetic, manmade chemicals that are highly targeted for that specific micro level dysfunction.

So as an example, if we've got heart disease and it's caused by a atherosclerotic buildup of plaque in our arteries, let's analyze the specific micro level biochemical mechanisms of how that plaque gets deposited in the arteries.

It's associated with too much LDL. Let's go synthesize drugs that lower the LDL level or in depression. Let's let's understand what's going on in the brain of people with depression.

Oh, it's there seems to be a deficit in serotonin. Let's invent chemicals that a person can take, that raise a person's level of serotonin in their brain.

What about dementia and Alzheimer's? Well, there seems to be these amyloid plaques in the brain that are associated with this disease. Maybe these amyloid plaques are causing the disease.

Let's figure out the biochemical reactions that are involved in the formation of these amyloid plaques. Then let's go invent chemicals in the chemistry laboratory that inhibit certain enzymes or chemicals that are involved in the production of these plaques and by and that's the general principle.

So by using drugs that combat these mechanisms of disease, we can stop the disease. The only problem is this it worked really well for infectious disease because there is one clear cut bad guy, this specific pathogenic microbe that's causing that disease.

The problem is, as we've discovered, after 75 years of hundreds of thousands of scientists spending trillions of dollars trying to and synthesizing millions of potential drug molecules, 19,000 of which have gotten FDA approval, is that the problem is we've discovered this model doesn't work very well when it comes to chronic, complex diseases.

And the reason why is because there isn't one clear cut bad guy. It's not like infectious diseases. There are many things going wrong in the body. And it's not just this or that specific mechanism that we can fix or modulate or block with a drug that cures the disease.

The body simply doesn't work like that. So, you know, one interesting thing to consider, so maybe I'll go here. So this is this is paradigm, right? This is we have people who said, no, it's the four humans that controlled our disease.

Let's modify the four humors. It's it's these notions. It's these chakras. It's these meridians. Let's use acupuncture and let's use herbs. No, no, no. It's it's specific mechanisms that biochemicals and molecules in a micro level.

Let's go to a chemistry laboratory and synthesize manmade chemicals that block this or that mechanism. You know, these are paradigms, these are ways of understanding human health.

So that's kind of the conventional paradigm. And I'll let you jump in, Laura, if you if you want to say something I know I've been talking for a while, but I have some time more to add to this.

Yeah. So first off, I'm sitting on the edge of my seat because you just took us through a history of the world in health in 10 minutes. So actually you had the whole history piece done in like 5 minutes.

So Greek medical, the grandfathers of medicine all the way through to modern day discovery of penicillin. Right. I don't think anyone could ever give us a history of medicine on the edge of our seat that quickly.

So though that was extraordinary, I just want to acknowledge you for that. This is the first time I'm hearing you talk about this. And I knew it was going to be good, but I didn't know it's going to be this good.

Okay. So now we're now we're digging into these paradigms. So you've set this stage of paradigms. That's what I'm hearing you say. So in an Ari Whitten style, I know you are going to tie this into some sort of paradigm that we've either missed or that has been lost, or that is just right under our noses and we're not utilizing it.

I have a feeling that's where we're going. I mean, I know you're a cellular health guy. You're a mitochondria guy, you're a nutrition, you're a you know a lot about the inner workings of the human body. So why resiliency?

I know you're about to tie this for us. Resiliency must be a paradigm. Yeah. So there's one more step before we get there. Okay. Okay. So, okay, so that that's the, the conventional medical paradigm, what I just explained.

Now let's, let's go to what is the main paradigm of people in the natural health and especially the functional medicines space. And this is a different paradigm and it's called the it goes by various names and some people don't even name it.

Homeostasis, Root Causes, and the Homo Dynamic Space Model

But the general gist of it is a homeostasis, homeostasis or homeostatic paradigm of health or an almost stasis paradigm of health. And basically what people in this paradigm say is all that those people in conventional medicine who are trying to reduce the causes of disease down to the specific micro level mechanisms of it's the LDL or it's the it's the it's the amyloid plaques or it's the serotonin or it's that this mechanism or that mechanism.

No, no, no. Actually, we need to go more upstream of that and look at the root causes of why that thing is dysfunctional. And when we do that, we come back to environment and lifestyle and behavior, right?

And we start to see that there are things going on at the environment level, the lifestyle level, behavioral level that are heavily influencing the specific micro level parameter that we're measuring, whether it's LDL or triglycerides or fasting blood sugar or markers of internal inflammation, CRP, things like that, or even neurotransmitters in the brain or hormones, everything else is being heavily influenced by what are your exposures to environmental toxins, what are your nutrition habits like?

What are your exercise habits like? How are you managing stress? Right? What are these these factors in your lifestyle, in your nutrition, in your environment that are influencing this physiology that shows up on these tests?

Let's look at root causes of these these changes and let's try to address things there. This is a wonderful paradigm and it's vastly more accurate and helpful and closely, more closely aligned with truth and reality than a paradigm that confuses biochemical, correlates with causes.

So however and I want to do justice to this paradigm because it's a largely good paradigm. It's the one I operated with for 20 plus years. And I think that serves a huge amount of people, helps a lot of people.

So it's an excellent way of thinking. However, there is one error and a fairly large error that's built into this paradigm. So the error that's built into this paradigm is that health is assumed to be a natural, innate state of the body, that we basically just have to remove the dysfunctional pieces.

So we correct whatever is the toxic aspects of things or the deficient aspects of things. We correct the nutrient deficiencies, we remove the this toxin or that toxin, we mitigate psychological stress, we improve sleep, and then health is returned to automatically.

And there is some truth to that because the body is designed to try to maintain homeostasis and to move back to homeostasis. So there is absolutely an element of truth to that.

And if you do mitigate a lot of the toxic factors in a person's lifestyle and environment, oftentimes the body will certainly it will move in the direction of health and sometimes it will completely return to excellent health.

However, there is a big component that's missing from this paradigm and what's missing from this paradigm that's corrected for in another paradigm of health that very few people are aware of but exists and is not my unique creation.

It's it's a it's a paradigm that exists largely in the realm of pro-science and among experts in the science of aging. And this paradigm is called the homo dynamic space model.

And the homo dynamic space model adds another layer to this story that's a very, very crucially important layer that most people don't understand. Well.

And that is the layer of physiological resilience or capacity of the different systems of the body. And basically what this model says is that as our capacities of our various systems of our body shrink, we we are our are homo dynamics, space shrinks, homo dynamic space can can be thought of as physiological resilience or as total capacity, total work capacity or working capacity of the different systems of the body.

Ultimately, we have to understand, like what what are we as humans? We have been taught to believe in a paradigm that reduces everything down to like we're this black box of liquids where all kinds of mysterious biochemicals are floating around and hormones and neurotransmitters and this chemical and that chemical.

That's kind of how most people think of their health. But what I'm presenting is a different way of thinking about it. We are a collection of organ systems.

Ultimately, we're a collection of trillions of cells which are grouped into different organ systems. We have a brain, we have a heart, we have blood vessels, we have lungs, we have an immune system.

We have bones, we have muscles, we have skin. You know, these are the systems that make up our body. We're a bunch of these parts. And what the Homo Dynamics space model essentially says is what is the total working capacity of that, those systems?

And if that capacity starts to shrink, what happens is a state of overwhelm. Once the demands on that system exceed the capacity of those systems to handle those those demands, then you get dysfunction, damage and the generation of disease.

Okay, so once your home geodynamics space shrinks enough so that even very low demands on that system, even just your normal daily demands on that system are in excess of what your body systems are able to handle.

That equals death. That's when your life ends. When the homo dynamics space shrinks so much that your body can't handle any even basic demands on it, you die.

It can no longer sustain life. And what I'm saying is, on the other end of that spectrum, what health truly is, is not simply the absence of disease, which is what most people believe.

Most people believe that if only we attack this disease and remove this disease, we return to a state of health. If only we correct these environmental conditions that person's stress and sleep and this toxin, we return to a state of health.

What I'm saying is health is actually much more than that. Health is a high capacity, working capacity of the different system of your body, of your brain, of your cardiovascular system, of your lungs, of your muscles, of your bones, of all these different systems when the capacity is high, that is what a state of health is.

So our I can remember a couple months ago when I saw you and you asked me, you said, Bora, what is health? It was a trick question. Right. And so in my western medicine trained brain where I spent, you know, over 20 years and then later study in functional medicine and in functional medicine.

And what we do here is just the things you talked about where removing infections, we're removing toxins, we're helping repair nutrient deficiencies. And I said, I fell right into the trap.

And I said, Well, it's the absence of disease. And you said, No, that's not what it is. So in the second half of this talk, what we're going to do is we're going to unpack how to have that health, how to be resilient.

What what can we do beyond these paradigms of Western medicine, functional medicine, and all the types of medicine that came first? These paradigms that have that everyone has like died on the hill of righteousness about this is the way this is the way you know, this is the way you know, this is the way you're going to show us what's been missing all along.

So we're going to get into that. I want to thank you so much for joining us today for this talk on resilience to our audience. I hope you are finding this conversation insightful and helpful and on the edge of your seat, as am I.

If you're a summit purchaser, stay right here because we're about to dove even deeper into this discussion with Ari. If you're not, click on the button on this page to get access to a continuation of this conversation and many others and get the tools you need to reclaim your health.

If you're watching this continuation of my talk with Ari Whitten, thank you for being a valuable member of our community. We're going to dove right back in.

Ari, pick up where we left off here. So you just unpacked your dynamic space model and you said that health is is a high capacity of your systems so your body innately can solve this.

Where where do you want to go from here? I know you want to share with our audience how to be resilient. What does that mean? Okay. So let me crystallize this in a in a thought that really should blow everyone's mind.

Okay. And will expand from this this place once once you understand this principle I mentioned before, you know, the origins of modern medicine are about a century old, starting with the antibiotic revolution.

Leading to this paradigm of disease is caused by these micro-level things. We discover what those are. Then we go to a chemistry lab. We synthesize drugs to target these micro level things.

That's going to cure the diseases. For about 75 years, we've pursued that. Hundreds of thousands of scientists have, as I said earlier, have spent trillions, many I don't know if it's tens or hundreds of trillions of dollars to understand the diseases that are killing us.

And we have an enormous body of knowledge and a mount Everest sized body of knowledge on the mechanisms of disease. We know a lot about disease, I would argue.

Exercise as the Most Powerful Medicine

We know very little about health because we've been studying disease instead of studying health. There are two

different things, which is a big takeaway I want people to get from this so we can talk more about.

But we've gone down this path of the answer to health is because health is the absence of disease. So what we do to arrive at that is we study disease.

And once we can figure out how to cure disease, that is what's going to lead to health. That's the paradigm that we've been operating in. So for 75 years, hundreds of thousands of scientists with trillions of dollars behind them, pharmaceutical scientists, doctors, good, good, well-meaning people, brilliant people in many cases, people with much higher IQ than mine are working in chemistry laboratories or working in laboratories first to understand the mechanisms of disease, then go to mystery laboratories and saying where pharmaceutical scientists are synthesizing literally millions and millions of potential molecules, drug molecules that are then tested for their ability to block or modulate these specific mechanisms that are believed to be causing this disease.

And after 75 years of the world's brightest, medical scientists and doctors and pharmaceutical scientists synthesizing million and millions of these drugs to target the diseases that are killing us.

Do you know what the most effective drug for combating the diseases that are killing us is? I would say it's an antibiotic. It's what. Exercise. Exercise.

Okay. 21 year old who didn't go to college, who has spent a few years studying personal training and exercise regimens, is in possession of a more powerful drug or medicine for combating disease than all of the world's combined doctors and pharmaceutical scientists who have just spent 75 years and trillions of dollars synthesizing millions of of molecules designed to combat disease and enhance human health and longevity.

We don't have a single I'll add to this. We don't have a single drug of all of those millions of drugs, not one that we know that we can give to otherwise healthy people and make them healthier and live longer.

It's not one drug. Okay. So now exercise is interesting because exercise is a stressor. Exercise actually creates a big surge of stress hormones in your body when you do it.

And it creates a big spike of free radicals of of reactive oxygen species, free radicals, oxidants. These are these things we're all to believe are bad, right? Why?

Antioxidants are good. Oxidants are bad, right? Shouldn't we be avoiding and neutralizing the oxidants? Why is exercise? You know, forget if you imagine just for a moment.

Imagine, you know nothing about exercise. You've never heard that exercise is beneficial for you. Why would it be that simply moving your body around vigorously for half an hour would be a more effective medicine for combating disease and helping you live longer than any bug created by modern medicine over the last 75 years.

Why is it that moving your body around vigorously, jumping around, doing any type of movement, whether it's riding a bike or running or lifting weights or something like that, why wouldn't moving your body around vigorously and causing a bunch of stress hormones to surge in your system and a bunch of it a huge spike of oxidants in your system?

Why would that be more beneficial than all the combined drugs of modern medicine and pharmaceutical scientists for the last 75 years? Right. And shouldn't that thing given that it creates this surge of stress hormones and oxidants, shouldn't it be bad for us instead of good for us?

You would think. You would think. You would think. So what this leads to is an understanding that the body is more complex than most of our medical paradigms believe.

And the big piece that's missing from this is to understand that the body is it is an intelligent, adaptive system or machine. Okay. And I use that word not literally, obviously, but intelligent adaptive machine versus a simple non adaptive, non intelligent machine.

Let me let me present what I mean here. If if I take this object, these headphones or this clock or a the microphone we're using or the light or the camera or the computer or a phone or a car or a bicycle or a chair or any object like this.

Any inanimate object. The more stress I subject it to, the the faster that thing wears out and breaks down and degenerates and deteriorates. If I take a bicycle and I ride it hard down a bumpy, muddy dirt road and I get water and I get mud on it, and I beat up the suspension, the more I do that, the faster that bike is going to degenerate and deteriorate.

But the human body is not like that. And the human body is an intelligent, adaptive system that when it's stressed in the right ways, it actually grows stronger and healthier.

It makes adaptations in many different systems of the body that increase its working capacity, increase its homo dynamic space, and increase its ability to tolerate insults and stresses on that system so that it's less likely to be harmed and damaged by those things that it maybe it would be or other people might be damaged by.

So the right analogy to think of it is imagine a magical sports car where this magical sports car has a very special, magical ability, where when you take the sports car out and you drive it really hard and you push it to its limits, you take it on hard mountain roads, you drive it as fast and as hard as you possibly can, push it to its limits.

And you go park that sports car in your garage at night. You come back to it the next day, and it grew a bigger, stronger engine and it became more aerodynamic and the frame got stronger and it became more fuel efficient and the tires developed more friction to grip the road better and the suspension learned to absorb the bumps better.

That's the human body it has. It's an intelligent, adaptive machine that gets better, that is designed to get better at the things it's challenged by.

Now, here's the problem. There's a downside to this magical ability that we're programed with. If you leave that magical sports car parked in your garage for two months and you don't drive it hard, you'll come back to it and the frame will be rusting.

And that for that Ferrari V8 engine will have shrunk to a lawnmower engine and the whole car will be deteriorating, the wheels will be falling off, okay, it will be a mess of junk and that's the downside of having a malleable system.

So we're built by bye bye evolution to have this intelligent, adaptive ability to respond to the challenges on our body and we can adapt and grow stronger.

The goal it's not that the body cares. Let me put it this way the body only cares about survival. We're designed over, over hundreds of thousands of years, millions of years to to have biological systems built into us that are essentially stress transformation systems.

We are designed to sense demands and challenges, stressors on our system, certain kinds in particular, and respond to those stressors by making them less lethal to us, less damaging to us, and less likely to destroy us.

So to enhance survival. So that is why it's vigorously jumping around and moving your your physical body happens to be the most powerful longevity medicine in existence.

It is because by stressing the systems of your body, stressing your cardiovascular system a thing your lungs stressed, you're immune and inflammatory systems, stressing your mitochondria, stressing your muscle fibers, stressing your bones when.

Those stresses are taking place. The body senses them and makes adaptations in those systems that increase the working capacity of those systems. You grow bigger, stronger muscles, you grow bigger, stronger, physically, bigger, stronger mitochondria.

You grow physically a bigger, stronger heart capable of pumping more blood. Those adaptations increase the working capacity of those systems. And guess what?

It turns out that those adaptations that increase the working adaptation, the working capacity of those systems just so happen to be the most potent way to prevent disease known to man.

So what's occurring to me as our listeners here and viewers are hearing this, I find in my practice is that getting people to move their bodies is probably one of the hardest things to get people to engage in and believe in and do it because people want a magic pill.

Or even if it's not a prescription medication, they want a magic supplement, they want a protocol, they want a hack. They want to do that. Can't I just, you know, do this biohacking thing or do I really have to go out there and move my body?

And the answer is yes. I mean, clearly the answer is yes. And to another point that you were making about exercise being quite stressful on our body, I just went through a pretty intense workout about three days ago, and ever since then, every time I sneeze, I feel like somebody is punching me in the gut because it was such a big workout and I literally like, Oh God, don't stop sneeze.

So yeah, I mean, exercise hurts, right? I mean, I can feel it and I can imagine what that did to my mitochondria and to my cells when I did that intense workout.

So in the time that we have left here, I would love for you because I know we've done so many talks together on mitochondria and positive stressors on the body and how to enhance life through stress in the body.

And I have a feeling that this is where the rest of our talk is going to go, is just that like the stressors on the body that actually make us stronger, that don't make us weaker because we're so we're so differently.

WIRED As you just mentioned, that analogy of the car, the car, like there's no such thing as a sports car that you drive the heck out of it and it gets stronger.

It needs a full team of mechanics to keep it going. But the human body does not. So so in conclusion of this talk on resilience, where would you like to go to help our audience understand even deeper what they can do?

And obviously, moving your bodies is thing number one. You've got to do it. Yeah. So let me give you a few layers of insight to add to this. So first of all, this magical sports car analogy is magical sports car analogy is not pulled out of thin air.

Okay. I'm not just making up random numbers here. Let me relate it to the human body. So first of all, I said two months later, you go back car on a part if you don't use it.

Imagine as an example, just to take one layer of of the body that you break. Well, let's let's put it this way. You go to a gym, you lift heavy objects.

What is your body do in response to that? It grows bigger, stronger muscles. Okay. The opposite is true with this positive and this magical ability to adapt to lifting heavy objects that the challenge, the stress of heavy objects, your body goes your body, you're basically your body basically says in order to survive this environment and make this demand on our system less damaging and stressful, and to make it easier for us to handle and survive this environment of with this challenge that we're in, let's build bigger, stronger muscles, because that will make it easier to do this stuff that we're being asked to do, and we will incur less damage in the process of doing it.

So the muscles literally adapt so that the what used to be a stress that caused damage, that made your abs so sore that when you sneeze or cough it hurts you.

Now, two weeks later, you'll be able to do that same exact workout that you did, and it won't make your abs saw at

all. Okay, so that's what the body's doing.

It's it's creating an increase in capacity of those systems to neutralize damage in those systems, to prevent damage on future exposure exposures to that same stress.

Physiological Resilience Across the Body and Brain

Now, here's the the downside of that ability. If you break a leg and you get a cast on that leg, two months later, two months of having that cast on, not moving those muscles, you go to the doctor, they saw your cast, you look down at your leg and it's half the size of the other one.

That is the magical sports car. Okay. In the span of two months, your leg muscles atrophied because your body only about survival. It basically said, yes, we don't need those leg muscles to survive this environment anymore.

Let's get rid of them. They're just a survival liability. They're just taking energy and resources away and they're not serving any purpose. Let's get rid of it.

The body only cares about survival and it's ruthless in that. Now let's go down to the micro level for a second. Mitochondria, something you and I have talked a lot about in the past.

I talked about in that car that Ferrari V8 engine that you had. We all start with a Ferrari V8 engine in our youth, that's our mitochondria. There are cellular engine.

That's what produces the energy that powers ourselves. Now, this idea of shrinking to a lawnmower engine also isn't pulled out of thin air. We know from many lines of evidence that the average 70 year old has lost 75% of their mitochondrial capacity.

The physical mitochondria in their cells shrink about 50%. And in addition to that, the number of them decreases by about 50%. You half of your mitochondria die off and the half that are still there have shrunk to half the size.

So we lose. We go from a Ferrari V8 engine in our youth to a lawnmower engine. However, this is actually not a normal product of the aging process itself.

It's actually not designed into us. It is a product of modern lifestyles. It's a product of lack of challenge on the mitochondria. In the same way that immobilizing your leg in a cast causes those muscles to shrink, your mitochondria shrink and atrophy when they are not regularly challenged and stimulated.

We know that because when we look at lifelong athletes and exercisers who are 70 year old, seven year year, seven years old, they don't lose 75% of their mitochondrial capacity.

They have the same mitochondrial capacity as young people. Okay. Now, let me add a few more layers to this. The same principle applies at the level of the brain, and this is a principle, a term.

Well, let me explain the principle so we can grow neural circuitry that's stronger and more robust and can handle more workload in the brain at the level of our cognitive function and our neural circuitry.

However, that can also atrophy. And this is a term in the scientific literature called cognitive reserve capacity and it is very similar to what is also called in the literature bio energetic reserve capacity.

That's a function of your mitochondria. It's also very similar to there's various terms for this, but muscular reserve capacity and cardiovascular reserve capacity that applies to exercise.

What is your exercise tolerance? And we have the same thing going on in the brain cognitive reserve capacity. How do we grow it? Well, we know that pursuing higher education grows your cognitive reserve capacity.

We know that demanding jobs grow your cognitive reserve capacity. And we know that the shrink your reserve capacity, if you don't spend your time doing cognitively demanding things, your brain's reserve capacity decreases.

Why Does this matter? Well, we have a whole bunch of science showing that low brain reserve capacity is linked with a massively increased risk of dementia and Alzheimer's.

So what I'm what I'm and stated in the affirmative, it means having a higher cognitive reserve capacity using your brain frequently to do cognitively demanding things massively decreases your risk by about 50%.

It cuts your risk in half year time. I want to point really quick are so 50% decrease. So as we're talking, I want to play a little bit of the devil's advocate here because because I've taken care of so many people in my practice and seen my family.

And I think of people I know who are scholars and they are constantly learning, yet they didn't dodge the dementia bullet. Right. I mean, we've even seen it in well-known public figures.

We have presidents who have become, you know, victims of Alzheimer's. So there's this is a piece. So I just want to highlight that like 50% of this, the other piece that our audience can't can't deny or ignore is you still have to get the toxins out.

You still have to clear the infections. You still have to replace the nutrients. You still have to do these things. So I just want to put a pin in that and make sure that people understand like you can do all of this that you're talking about and still end up with dementia.

So let me add another layer to the story. Let's take one other type of reserve capacity, cardiovascular and muscular reserve capacity, and let's add that to the mix.

MM hmm. There was a study in Sweden that that tracked over 1400 women over 40 years. And one of the only studies of its kind and looked at the risk of dementia and Alzheimer's in relationship to a person's fitness habits.

Only that and their exercise capacity in the group of women with the lowest exercise capacity, about almost 50% of them like 46% of them, ended up getting mild cognitive impairment, dementia or Alzheimer's.

In the group with the highest levels of fitness, it was about 0%. It was close to 0%. Okay. That they determined based even comparing as baseline from a medium fitness level, the group with the highest fitness level so not starting from the lowest but starting from medium fitness comparing to the highest fitness level, they reduce their risk by 88% of ever having dementia, Alzheimer's over a span of 40 years.

Okay. This just this is also relevant because it's it's very high likelihood in women. Dementia is very high in Alzheimer's is very high in women. So this is quite a relevant point that you're making right now.

Exactly. So muscular and cardiovascular reserve capacity, which physically alters the physical structure of your muscles, of your heart and of your vasculature, which we know is a big factor in supplying blood to the brain, which heavily influences risk of dementia and Alzheimer's, reduces risk, almost eliminates risk completely.

Just that one variable of exercise cognitive reserve capacity, doing cognitively demanding things also decreases risk by 50%. And we haven't even touched nutrition yet.

We haven't even touched sleep yet. Okay, so I'm saying just even the one variable of exercise alone can virtually eliminate your risk of dementia or Alzheimer's.

Are there exceptions to the rule that certainly are there exceptions to the rule that people who are scholars and academics end up getting dementia? Yeah, by it's way more rare than people who are never scholars because of that cognitive reserve capacity.

But if it does happen, guess what? Actually, they weren't eating a very good diet and I bet you they weren't very good at exercise. They probably weren't very fit.

I wish they weren't wearing it. And they might. Well, I would guarantee that they were not fit. And so, you know, definitely one and probably multiple of those pieces are missing.

But the big picture of what I'm talking about, and this applies to almost everything, there are no drugs in existence that prevent your that lower your risk of ever getting dementia or Alzheimer's, no drugs in existence.

I can show you lots of things that massively lower your risk of dementia or Alzheimer's. The biggest ones are things that increase the working capacities, the physiological resilience, the mere dynamic space of your heart, of your muscles, of your vasculature, and of your brain, of the neural circuitry in your brain.

All of increasing the work capacity of those systems massively reduces your risk. Heart disease. We have drugs that are very, very ineffective in preventing heart disease that the only the only demographics that they seem to have an effect in are people who have already had preexisting heart disease and had a heart attack, statin drugs in people with mild to moderate risk who have never had a heart attack previously.

They don't work or they have the most minuscule of effects possible heart disease. So you can't take a drug to massively reduce your risk of ever getting heart disease.

However, you can do things that almost eliminate your risk of heart disease. You know, how much how much heart disease exists in hunter gatherer populations that exists in the world today, like the Simonet tribe in Bolivia, or the kit of arms in the South Pacific or any number of other tribes, almost 0%.

Yet it's the number one killer in our society. Hey, Ari, I want to. I want to. So this is what's coming up for me now. So as we've talked the paradigms and we've talked about about 100 years ago, so let's let's just go 120 years ago.

Let's go. Turn of the century. Yeah. So at one point, human life in developed countries and we'll just use the United States because this is where we're at was you know, there was a peak age, there was a life expectancy of around, you know, a sixties to seventies.

And then with the with the Western medicine paradigm and the development of antibiotic addicts, the lifespan drastically improved. And now today in, you know, at the time of this production of this project, 2024 is where we're at, the life expectancy of humans has drastically declined despite modern medicine.

So I guess where I'm going here is and the question I have for you is, can you connect? Why? Let's just call it 1930 or 1940. Why the life expectancy?

You know, just because people more active then? My point is people were more active. We didn't have this sedentary lifestyle that we have now because we weren't sitting in front of televisions and cell phones and computers and we weren't all working from home.

And so we were more active. How come the life expectancy wasn't, you know, so much better then can you connect that? Because there is a disconnect for me there?

Do you know what I'm trying to say? I give exercise. I do, yeah. And I just I just I, I just so happened to have explored that research very deeply that there are some in writing my new book.

So it's an important question. However, it's a bit of a long answer. I'll do my best to be very succinct. There are some misconceptions, very widespread, very common misconceptions built into the question.

Okay, so first of all, we have to understand let me let me introduce it with this first. Okay. If it's true that we're living so much longer today than our ancestors did, explain to me my well, explain to me why many of the most famous Greek Greeks, ancient Greeks 2000 years ago lived to 80, 90 and 100 years old.

Are we really living longer than humans ever lived before? If 2000 years ago, before modern medicine existed, before any drugs existed, how did those people live to that age?

Now, it's not just them. There are there are studies that have been done in the last six months in in the Simonet tribe, where they examined hunter gatherers over the age of 65.

Some of this the participants that in those studies in the actual cities, you can go look on Google scholar right now simonet testimony and look at the ages of the participants okay.

Some of them are over 90 years old. The oldest one is 94 years old. These are hunter gatherers living in the Amazon jungle with. No access to modern medicine.

Okay, now what is really going on is this misconception. Geez, I'll try to do this succinctly. This misconception is largely is is largely. No, it's okay.

So it's largely built around a statistic called life expectancy at birth. And life expectancy at birth doesn't tell you the age at which at which people, the maximal ages that people reach in that population where they die of old age.

Longevity, Life Expectancy, and the Role of Movement

What it tells you is the average age that people die. Now, imagine that 20%, 10%, 20% of your population dies at age zero because a very high incidence of child mortality.

And what that does to the average lifespan, it massively, massively lowers it. And the Samani tribe, it's about 14% of people die at age zero. There's also high.

A lot. Die maternal. Yeah yeah. It's a huge amount. It's a huge amount. It's it's it's way under 1% for us. So there's a huge difference between the ancient ancient humans in terms of child mortality and not even in ancients 200 years ago in the States and in Europe, about 50% of children died before the age of 15.

Okay. So to to maybe quickly summarize the remainder of this, basically, ancient humans lived just as long as we do. According to Daniel Lieberman, an expert in this field, hunter gatherers from 10,000 years ago frequently lived to ages 8 to 78.

Do you know how modern human how long modern humans live in the United States? For men, the average age of 73 and the for women, it's 78 or 79. Okay. So they were frequently 10,000 years ago pre modern medicine were frequently living to the same old ages that modern humans live today again ancient Greeks, same old ages.

What what happened is in the last few hundred years, as humans moved into apart from violence and child mortality, basically we became urbanized in Europe and in the United States.

People took on and in cities became polluted, lack due to lack of sanitation, which was a major driver of disease and infectious disease, massively lowered the average life expectancy and the biggest things that have actually created the change in average life expectancy are reductions in child mortality and reductions in violent deaths compared to hunter gatherers who a lot of them die from accidents and violence and and basically sanitation, modern sanitation in cities, not drugs that are curing disease.

And this is what I just said is not controversial in the least. Daniel Lieberman has written extensively about it. Harvard Harvard researcher who who who has written extensively on evolution and human health and lifespan.

So, Ari, what I'm hearing you say that's a modern woman is so everything is in my favor. I live in a country where child child birth mortality is low.

I'm not subject to, you know, major traumas that could end my life. And if my life ends early, it's my own fault because I didn't move my body, protect my mitochondria.

I stress myself because I have access to everything I need to be healthy. Yeah. So that's exactly right. And I'm glad you introduced this piece, the kind of the humanist Oracle piece in of of this, because it's it's important to understand we're still in the human stream of human history.

And there's a couple of things I'll say just to add to this. One is accidents still actually are a major cause of death, which is interesting and must be this is neglected because we all tend to see things through a paradigm of human health that says we're products of our biochemistry and these micro-level mechanisms of diseases.

A lot of people don't realize that a major cause of death in people over 65 and actually the major cause, the most common cause in people over 65 of of early death and disability are physical frailty and falls.

Accidents and falls are the main cause of that falling down and getting a fracture, you know. So now let's tie that back into the concept of physiological resilience.

What protects you against falls and fractures and physical frailty? Moving your body. Regularly, building up the work capacities of and the physical structure of your muscular system and of your bones and of your cardiovascular system so that you're and there's another term called movement of capacity, which is how well your body moves and balances in different positions.

And all of those are nothing, nothing to do with biochemistry, but they are hugely protective of the major cause of early death and disability in people over the age of 65, you know, physical structure and work capacity of your physical systems.

The irony of the full circle of this conversation. Crazy. So I worked in the largest fracture prevention fracture liaison service in the country. I worked specializing in osteopathy, ptosis and metabolic bone disease for 15 years.

I prescribed every drug out there, and this was before my functional medicine, you know, journey really began. And the hardest part in all of this was to get people to just move their body and preserve their muscle and their bone strength.

And it is true, a hip fracture is a death warrant. It truly is. If you have a hip fracture and survive it, you're in the minority. And and it may not you know, the mortality from that.

It may realize itself for another year or two years, but your life will be shortened. So it's just the irony of sitting here speaking to you right now.

It's that I spent over a decade working in and not really solving the problem for people. Because it's not a deficiency of Fosamax, it's a deficiency physical movement.

It's not. So this this talk, I mean, as per usual, we could go on and on for hours. I could always do that with you because you're just just your capacity and your level to break down these complex concepts, to storytel, to have people sit on the edge of their seat and experience this.

You have a gift in that, but alas, we cannot go for 2 hours. So I would love for you to wrap this with your final thoughts on resiliency and this paradigm and maybe also what's possible for humanity.

Share with us where you see this going. Yeah, absolutely. One thing, just to tie this directly into the topic of this summit of inflammation, infections and things like that, we also need to understand that layer of the story through that through this lens of physiological resilience being tied into that story heavily.

Why is COVID, for example, lethal to elderly people, especially elderly people who have preexisting conditions like heart disease or diabetes and things like that, but almost never lethal to young kids or to young people who are athletes.

Right. This is a matter of homo dynamic space that's built into the system. If you have a large reserve capacity built

into these key systems of your body, that's the difference between a particular kind of insult, whether it's an infection or toxins or things like that, whether it's debilitating and drives disease or death, or whether you recover easily from it.

Physiological resilience. So that's the layer of the story we tend to attribute these things only to the the specific causes or triggers. But what we're missing of the story is our body's own capacity to handle that.

So what we need to do, and the same is true with chronic inflammation, this is a chronic overwhelm of your body's capacity at cellular level. We also have systems at the mitochondrial level and of our internal redox system, our internal antioxidant system and ability to neutralize at the cellular level and at the biochemical level that are tied into this story heavily.

We have a capacity for a large we have a potential, I should say, for a large internal antioxidant and detoxification system, a lot of physiological resilience at that level or at the subcellular level or very little capacity.

And the relative the relative demand on that system versus our capacity to handle demand is what's going to determine. Okay.

Inflammation, Disease Resistance, and Human Optimization

Is that a level of stress that our body handles easily and we're still healthy and have lots of energy and feel great? Or is that same level of demand chronically overwhelming that system and driving chronic inflammation, chronic oxidative stress and dysfunction and disease?

So what we what we have to do is to understand that these reserve capacity, our cardiovascular or muscular reserve capacity, our immune our redox reserve capacity, our our metabolic flexibility and metabolic reserve capacities, which are hugely determined by the demands, how we train our body, essentially, and things like various kinds of exercise, heat and cold exposure, things like fasting and feeding windows.

These are determining these reserve capacities that are built in our physiological resilience of these key organ systems, which is a massive determinant of our overall health and our ability to live disease free.

So ultimately, you ask where this is going. The current lifespans that of of modern humans in the US are 73 and 78 or 79 for men and women respectively.

The average health span is considered to be 66 years old, though that term is poorly defined because, for example, over 40% of kids adolescents already have some kind of chronic condition.

So the semantics matter here. But basically 88% of the adult population over 25 is considered to be in poor metabolic health. So we have massive epidemics of disease.

We are incredibly unhealthy. We have become the sickest species of animal ever to walk the face of the earth. And and the answer to this is not just take more drugs, it's build up the capacity of your system so that instead of your body breaking down and becoming dysfunctional disease at age 50 or 60 or 70, it's more like 90 or 100 or 110.

That's what we're trying to achieve. And the main thing that influences that, of course, have a foundation of healthy habits, good nutrition, stress management, sleep, these sorts of things minimize your toxin exposure.

But the main thing, and especially the main thing that's missing from most modern, modern medical paradigms is to understand that our physiological resilience, our work capacity of these key organ systems is a massive, massive determinant of that.

I was not expecting this talk to go there, although I don't know why. I'm not surprised you didn't just blow my mind. Ari, as always, this has been extraordinary to have this to have this enlightenment.

I think people watching are going to get up out of their chairs and go do something physical. Today, if they made it to the end of this talk, they can't not go move their bodies and I can't wait to see what you what you do next to see this new book that you have coming out.

Can you share with our audience where they can get more from you mean you've already you're you're you're a copious creator of health content. You have your podcast, you have previous books that you've written.

This new one is coming out. Can you share with our audience where they can find more from you? I'm going to be building out a whole new paradigm of health and longevity that's built around some of these core concepts that I've that I've shared here today.

I'm going to make it all very practical and step by step it's going to it's it's going to all be built out under my new brand, Human Optimization. Maybe the last thing that I'll leave people with, I'm not trying to so I don't have anything to, to sell right now or anything like that.

I would say follow human optimization and there's going to be lots more coming soon. But maybe the last thing I'll leave people with is just understand you've all been indoctrinated into a paradigm that has taught you to believe that you are a product of the biochemistry that shows up on your blood test, and that the way to modify that is by taking drugs.

Here's the chemicals that are controlling your disease. Here's the chemicals you need to take to influence these chemicals. And what I'm telling you is that, for example, your VO2 max, your maximal capacity to take an oxygen and you're muscular strength, physical measures of your physical capacity are way, way, way more powerful influence or predictors, I should say, of your risk of disease and your longevity and how long you'll live compared to anything that's showing up on those blood tests.

So I understand you've been indoctrinated into a paradigm where you've taught to externalize your power to practitioners in possession of chemical, synthetic, chemical drugs.

And what I'm saying is take your power back, be empowered to understand that it is your actions on a daily basis that are way more powerful predictors of how long live and how disease you'll be than any drug that they can give you.

And resilience or health, I should say, is not the absence of disease. That's right. Thank you so much, Ari. So tell me the Web site where people can come find you.

Humanoptimization.com Perfect. Thank you so much, Ari, for being a huge contributor to this project, as always. Until next time. Take good care. Bye now.