Introduction and chronic disease crisis

Hey everybody, Dr. Rob Silverman here. I've got a luminary in the field of functional medicine, functional neurology, and overall patient care with over 30 years experience with patients, Dr.

Christopher Turnpope. Chris, my pleasure. Thanks for coming. Let's dig in. How are you? I'm doing great. Thanks for having me. It's been a long time coming.

Absolutely. It's tough to get you. You're a busy man, but I appreciate you taking a few moments to share some valuable insights. As of 2023, Over 76% of adult Americans in the U. S., which is 194 million, reported one or more chronic diseases.

They fall under the category of CVD, diabetes, obesity. The prevalence of chronic condition has increased by 7% in young adults in a decade from 2013 to 2023. Obviously, chronic rates continue to rise despite increased health care spending.

Lucky us. What systems level failures do you believe are most responsible for this mismatch? That's a great question to start with. Right out of the gate.

We have a great, we've built a phenomenal sick care system. We don't have a chronic disease system. We have a mismatch in our healthcare because we're not really equipped to deal with the 20-year progression of chronic disease.

We treat diagnosed diseases. We don't look for patterns that are coming down the road We're not even looking for these and we're waiting for them to be So severe that they walk in the office and we're waiting for the train to hit the patient rather than saying the trains coming So we have a system and it's it's it's not even the fault of the docs in the system.

It's the system itself There's not trained to deal with these chronic diseases. It's not like It's not like the old days where you had strep throat, you took an antibiotic, you got better type of thing.

We really have missed the boat with chronic disease and it's evident because we spend more on health care than any other nation and we're the sickest country in the world.

We are the sickest country in the world, and I want to emphasize what you said. We have a sick care system. It's not a health care system. And kudos to you.

You're right. It isn't the docs. It's the system. Well, if it's the system and not the docs, it begs the question, what do we need to do to fix that system?

Yeah, well, I think we need to re we need to start at the beginning, right? We look at the foundations, we look at root causes and functional medicine, we need to look at the root cause in the healthcare system.

And there needs to be some additional training or better training in this chronicity pattern. And it's going to be forced upon us if we don't take it, because we're seeing these in younger and younger and younger the US population.

So they're dealing with it. They just aren't equipped to deal with it. So we have to go back to the training. I think we have to go back to the health care training and see what's driving this and start to look for patterns and not look for the miracle cure drug and say, what can we do with lifestyle changes and environmental changes and things that we can do to not get to the point we are.

So I have a phrase that I use. When I teach I say we got to get to it for it gets to the patient is right so get to it before it becomes a diagnosis get to it before it becomes a problem and you can typically if you look at pattern recognition you can typically see it was coming.

Fixing the sick-care system with root-cause thinking

retrospectively we just got to do better saying wow can we identify these patterns earlier before it becomes a full-fledged disease and we have system breakdown or organ breakdown we're not doing that right now we're waiting for the heart attack to come we're waiting for the disease to hit them and it's really hard i say too it's hard to pull somebody back over the cliff when they fell off it's really easy to say stay away from that cliff stay away from that cliff so Right.

I agree. I agree. You know, it's interesting. You talk about pattern recognition. So I think you're referring to the idea of symptomology as the choice diagnosis, if you will.

Yeah. So if somebody comes in and they're having some symptoms, what can I do to have predictive power to say what might be coming? So not waiting for a named disease.

So, you know, for example, I'll pick on an easy one that people have heard of like diabetes. We'll wait for your sugars to get to a fasting level so high.

and we look at sugars, are we looking at insulin and C-peptide? Are we looking at things that are predictive of something to come? Are we waiting for that pancreas to wear out or the insulin receptors to wear out?

Are we waiting for that to happen? Or could we predict something is coming where the physiology can then adapt before it becomes broken? When it's just strained, can we actually change it so that it can recover?

It's really hard to recover when it's broken. It's easier to recover when it's strained, when it's just kind of fatigued. blood tests, which blood tests are really important to ascertain our longevity, our health, which blood tests are overrated, which are overutilized, which are underutilized.

And let's talk about the ranges from a functional range to an optimal range versus the range that they're using right now, which is mostly sick people, because sick people take blood tests.

Well, let's stick on diabetes, for example. If you're looking at diabetes and you're looking at just your fasting glucose, and if it's above 126, by the time it gets there, it's too late.

By the time it gets there, you're already a diabetic. So all your sugars are rising a little bit. But we normalize. When I started doing this, the normal insulin was 0 to 11. Then it was 3 to 11. Then it was 3 to 17. And now it's 3 to 25. We're normalizing to a sick population.

We know that fasting insulin below 8 is a reduction of all-cause mortality, but we consider it normal if it's 21. That's ridiculous. So it's not outside the range.

Well, yeah, but you know it's coming. This is what we talked about earlier. The train's coming. The train's coming. You're not going to jump off the track until you get above 24. It's just those are ranges.

I mean, looking at someone's total cholesterol is useless. It's a useless marker. Now, if you fractionate it down and you look at some specific markers like apolipoprotein B versus an APOA1 with a lipoprotein A, I think that becomes important.

We also miss in that whole cardiovascular disease, we miss the inflammatory process. So, you know, like osteoarthritis has the same inflammatory pattern as cardiovascular disease.

So a risk factor for cardiovascular disease is joint pain and arthritis. The glycosaminoglycans, all that pathway of

tissue destruction happens in the artery walls the same way it happens in the rest of the body.

So looking at these tests, you know, saying, oh, my total cholesterol is 250, a colleague of mine saying that's like somebody played a football game and said the other team had 21 points.

It doesn't tell us anything. What do you score? Does the other team score 40 or do you have zero? You need to know more to the picture. And the worst is we treat based on half the picture.

So your cholesterol is high, we're going to put you on a cholesterol medication. We don't even know if that's playing a role in your potential cardiovascular disease.

And patients come in, their cholesterol is normal, and they still have cardiovascular symptoms. So are we really looking at the right markers and making the right determinations and outcomes?

Sometimes the intervention's warranted and sometimes the intervention is, quite frankly, a problem because it's causing more problems than it's fixing.

I love the analogy about the score in a game, 21 points, but what does the other team have? Where are we? Is it the first quarter? Is it the end of the game?

All of that. And what I really like is that intersection of what you're talking about of musculoskeletal and inflammation. Because if you think about it, and I'm sure if I took you for an organic coffee like I'm having right here, And we were sitting and talking.

One of the things that we both agree on that we want to quell is inflammation, because most of our patients are inflamed. So we want to manage and modulate that inflammation.

And people don't realize when they go into a musculoskeletal practitioner's office, i.e. chiropractor, naturopath, maybe a primary care physician, certainly an orthopedist, there is a direct inlay to the systemic inflammation from a rotator cuff herniated disc to the body because it's part of you.

And that's what holistic is looking on the inside out. So, I mean, I run a lot of blood panels. I know you run a plethora of blood panels looking for inflammation.

Better lab markers for diabetes and cardiovascular risk

Give me your five top blood panels that you would want to run to rule in and out inflammation via musculoskeletal injury. Well, you want to look at the basic one, which is like HSCRP.

Now that moves quite a bit. That can move. I tell people, it doesn't tell me what your inflammation is coming from. If you got kicked in the shins or you're sick with a cold or a flu, it can go up.

But if we look at patterns again, and we see that elevated, we'll look at one of the things we actually look at is cholesterol to see what cholesterol change happens because they can be acute phase reactants.

We'll look at things. There's a marker from LabCorp called GlycA, which is an amalgamation of several inflammatory markers. I like that. I like homocysteine as a marker of inflammation.

I'll even use ferritin as a marker of inflammation as an acute phase reactant looking at that and then I'll match it with their iron levels and I can tell, listen, you're inflamed and your iron is low, but that's because your body's trying to not get iron in the body because it might be feeding a pathogen, something like that.

So I think those are key inflammatory markers. And then you can dive deeper into certain cytokines that might look at what might be inflamed, what might not be inflamed, and then look at why you're inflamed.

right? So, I mean, very simple, easy. We're talking chatting offline. If your vitamin D is 14, you're probably going to be inflamed, but nothing is regulated.

So, if your sugars are elevated and your A1C is elevated, you're going to be inflamed. So, looking at it from a standpoint, if you have a chronic infection, you're going to be inflamed and you know it gets to a concept of is it the infection or is it the terrain right so is so I think there's a big so looking at inflammation inflammation every single person with any kind of a mood disorder has neurologic inflammation.

So if their brain isn't working well, they're inflamed by definition. And so looking at inflammation and then where's that inflammation coming from, it may be precipitated in the gut, it may be precipitated in the back, it may be precipitated somewhere else.

I don't know too many orthopedic surgeons that say, Hey, you need a double knee replacement. You ought to get your arteries looked at because this is a predisposing factor in ASCVD.

And because you're chronically inflamed and those, like if you have arthritis, osteoarthritis in a joint, you're driving inflammation in the arteries.

And so that's a risk factor for, for how do you, so you got to quell that at the source, but that inflammation travels, right? So we, our body talks to each other.

We're not, just a bunch of parts put together by not communication. So, you know, kind of going back to the concept, I really can't understand this. And you've seen this too over 30 years, when you go to the doc, you can't talk about two problems.

Like, by the way, my foot hurts and I have a cough. That's two problems. We can't talk about that today. Like they're related. They're just, they're related.

So putting all those pieces together and usually an underlying pin is inflammation. without question. So I'm gonna give you a scenario. My buddy, he's getting back into shape and he's playing tennis, he's 60. And he had some knee pain, a little osteoarthritis, decreased joint space.

He could not find, it took a while at least, to find a doc who would address the knee so he could get it back to a point where he could go back and play tennis And at 60, not have to consider the knife.

And he's on the appropriate supplements we gave him, per resolved mediators, BPC 157, an immune and a green drink, pre and probiotics, et cetera. Where should the population, which is now becoming more active in our age bracket, go?

What kind of doctor and what are the things they should inquire about in the doctor to get back on that tennis court, playing field, gym, whatever? Well, I'll give you both scenarios, right?

So I'm not opposed to having it evaluated. If you have a true pathology in the knee, if something's torn, you know, I think it's okay to evaluate that.

That's your traditional orthopedic and that is kind of C-spot run. They do that pretty well. But does your doc or your provider ask you about what could be driving your inflammation, not just the tennis court?

What's your diet like? What's your sleep like? What have your movement patterns been? Does they evaluate you structurally to see if there's something biomechanically wrong?

Can they strengthen certain muscles? So you've really tied in there. A true holistic functional med, somebody who's understanding also the musculoskeletal system to see what kind of imbalance might be going on, but looking at drivers that might be blind spots in the patient.

So I'm sure you've had cases like this too, but you just changed their diet. and all the inflammation clears up, and now they're able to function again.

So maybe it was a blood flow issue, maybe it was just an overburden of inflammation. Again, from one of the biggest influences on our exposome, we'll call it what we're exposed to, that's our food, right?

So if we're eating inflammatory foods, that's going to raise our level of inflammation to a point of dysfunction in our weakest link. And if that's his knee, Very rarely you're going to go to an orthopedic surgeon.

They're going to say, what's your diet like? Can we calm down the inflammatory pieces? Being kind, un-rarely, but no knock. It's just not the conversation that most people have with them.

Right. Yeah. So I think looking at somebody who's going to evaluate them as a human being. So are they sleeping four hours a night? Are they getting up and overexposing themselves to stimulants?

What are they doing? How did you get to this inflamed state? It probably wasn't, unless it was a direct knee injury that, you know, he's playing football in college and tore something up.

It's probably as a result of his inflammatory burden and he wants to reduce that burden. And we can do that through supplements and targeted approaches, but we also have to look at what might be driving it.

So how do we get addition by subtraction? If you take this out, you might have less inflammation. Yeah, let's drill down on some of the supplements and let's talk about peptides.

Peptides have captivated the world in the last 24 months without question. You and I both utilize peptides.

Inflammation, musculoskeletal pain, and patient evaluation

We found them to be very health promoting. Let's start with the big guy, low-hanging fruit. Let's talk about BPC157. So one of the things I like to start the peptide conversation on is it's ancient wisdom Modern application.

It's ancient wisdom because peptides are something that are already in us. BPC157 is a gastric peptide that's already in us. It's a repair peptide. We already have these in us and we've done for centuries.

You're eating glandular tissue, so you're eating a glandular which is full of peptides. The reason these peptides work is because they're already in us and we're just promoting them in a way that preferentially gives the peptide the ability to talk to tissue.

So it's ancient wisdom. It's stuff that's always been around. We got it in our food sources. We got it in organ meats. We got it in different things to get these peptides.

Now what we do is we say we're isolating these peptides like the BPC157, which is a naturally occurring gastric peptide, which means it already has a communication pathway in the body.

And we're using it in a way that promotes what the peptide does in the body, in this case, tissue regeneration or body protective compounds. So that's how the peptides work.

So they're not new. Even if we talk about peptides, it's hard to have a conversation more without GLP1s, right? They're pep, but they're already in our body.

So they're already happening in our body. So we're just accentuating what we already have in our body. And then if we can refine targeted approaches to use those peptides to get the body to hear that message a little bit louder than it hadn't passed, and we talk about insulin's a peptide, right?

So all these things are We don't have to tease it all the way out to extreme medicine where we can use it as just

supporting the body, what's already in the body, working better.

Muscle peptides, recovery peptides, thymic peptides for the immune system. TB4 frag. Yeah. Like in ancient times they used to eat the thymus when you were sick and it was giving you thonic peptides and I don't know that I want to do that but my point is that's what without the knowledge they were using ancient wisdom.

This is just the modern application of that ancient wisdom. Great points. Let's sit back, let's relax. Let's do a little what we call New York City rapid fire, where I throw it out to you and you try and give me an answer in 30 seconds.

Oh, great. Yeah. Yeah. Are you ready? I'm ready. Did you do your burpees before you came or you spent? Mental burpees, mental burpees. BPC 157, oral or injectable?

Depends. So legally or practically, right? So legally, you're crossing a gray line when you're using some of these injectable things. The FDA doesn't have all these cleared.

Do they work injectable? Yes, they do. Do they work orally? Absolutely, they do. They do work orally. So a lot of people will use them site specific for an injection, but you will get, again, we don't want to just treat one area unless it's an acute injury.

We want to get the whole body. So I like oral peptides for systemic. Same here, I concur with you. I like the URLs myself. I find them to be very effective, and I use them on myself and many of my different patients.

Okay, you mentioned it for TB4FRAG. TB4FRAG, so TB4FRAG is a thymus derivative. It does help with immune system function and thymic recovery. They pair that together with the BPC, the Wolverine peptide, to help things.

heal up. I think using that injectable when they use the thymus and beta-4, we've seen some negative outcomes from that because you're driving the body too far too fast.

We've actually seen that in the office when we used to use them when they were illegal. So I like it orally. I like the TB4 fry. Let's dig into some anti-inflammatory supplements.

Better yet, I'll let you rate them. I'll give you three and we'll do them in trios. Let's try pro resolving mediators, PEA, and we'll talk omega-3 fatty acids.

Okay. So the pro resolving mediator is like a subset of the fish oil, right? So that's phenomenal. It's hard to go wrong with that. Really hard to go wrong with these pro resolving mediators, which is what your body needs to stop that acute inflammatory process, which is designed to do, so these pro-resolving mediators, you twist your ankle, you get some inflammation, your pro-resolving mediators come in, quell it down.

This chronic inflammatory state, it's not getting that pro-resolving mediator. So you can get a little bit of it from your fish oil, but really you want to hit it hard with the pro-resolving mediators.

The PEA is a nice supplement to use, especially for pain. It quiescence the pain down. The fish oil, you're going to get a little bit of those pro-resolving mediators, but not a ton.

The fish oil does so much more because it has other anti-inflammatory effects and it supports cell-to-cell communication, gets that bio-lipid layer fluid so cells can talk to cells easier.

I love all three of those. Can you take them all together? You can take them all together, and many times we'll start people on all three of them, and then we'll tamp down over time the SPMs, the protozoa of the mediators, because we've kind of got over that inflammatory threshold, and then we're just in the supportive phase.

We're seeing a surge in complex multi-system conditions, Lyme, mold toxicity, stealthy type of infections, neuroimmune disorders, What are the most overlooked root cause drivers clinicians should be focusing on now in 2025 because it's all about root causes?

It's root causes. So what's the root cause? One of the root causes here is everybody's looking at the microbe and not enough people are looking at the terrain.

We're not looking at the health of the human host, right? So we've become weaker as a host. So yes, there is a lot of things I mean, I like to break it down simple because I'm a simpleton.

If you see a mangy dog, what are they sick with? Everything. If you treat them with everything to kill that stuff off, they're still a mangy dog. They're going to get sick again.

So people that don't recover have these things. Two parts need to happen. You need to reduce the load of the pathogen. You want to get that bug down, but you also want to improve the terrain.

You want to improve the health of the host. Make sure the immune system can respond the way it was supposed to. So I think a large piece what we're seeing, especially in like these chronic diseases, one is exposure, right?

Peptides and anti-inflammatory supplements

So if you live in a moldy house, you can't just take anything for you. You got to get rid of the mold. That's the cause. But you also have to improve because you've seen it too.

You see people, family of eight, three are sick. and five are not. The five that are not were healthier to begin with. Maybe some genetics played into it, but these are families, so they share genetics, and the kids, some of them get sick, some of them don't.

So what's the terrain of the human body? What's the health of the immune system? What is deficient in the immune system? What does chronically drug them down?

So I think a big thing is we're seeing this explosion And yes, there's more prevalence, but we are seeing, as evidenced earlier in the conversation, we are sicker as a population, so we're more likely to get opportunistic bugs taking control of us.

And we need to help the terrain. We need to help boost the health of the host matters most. Great point. I mean, I'm almost speechless because you're really speaking to the choir when you mention about the human host and getting everybody healthy and lifestyle.

And that's what I tell everybody. What status are you in? How healthy are you? What is your structure like before this onslaught? You know, those big buildings, they don't move as much when the wind comes as a small little building made out of like pine wood, if you will.

Yeah. Interesting. So one of the things that we're seeing a tremendous increase in is neurodegenerative disease. And I know that's right in your belly wick for the simple reason that all these neurodegenerative diseases have origins in the gut.

They go to the brain. We all know they communicate via the vagus nerve. It's a triage. And let's talk about Alzheimer's. Let's talk about Alzheimer's in light of lab testing, because we know that certain lab tests, like an ATN test, can portend Alzheimer's by 20 years.

So that said, It's all yours, baby. Well, ATN, I like the ATN test, the ATN. So one of the markers I really like is that neurofilament light chain abbreviated, you know, NFL.

And that is kind of a marker of the degradation of the nervous system. So you can see it go up like in a rugby player after rugby batch because they did the crap out of themselves.

But if you're seeing it as a result of brain degeneration, Knowing what your NFL number is, your neurofilament light chain, and you can track it. This is something that's going to change, not like your amyloid beta, your p-thal.

Those things are kind of harder to change, but this NFL number, that fluctuates and you can see how well the nervous system is doing or degrading based on that NFL.

So these are, again, markers you can look at upstream or trackable. Also, is your intervention doing anything? Are you actually doing things to improve the breakdown of that central nervous system?

So those tests have come a long way. And I suspect we'll see some more working with the big guys, LabCorp and Quest, to look at more inflammatory numbers that drive it.

And you hit the nail on the head there. All of these great markers are coming out, but how many people are tracking it back to vagus nerve? How many people are tracked that back to gut health?

And you can see the one of the earliest signs according to even to the Parkinson's Society. Well, the first signs of Parkinson's is constipation, right?

Restless sleep. Did you were you a restless sleeper? Do you move around at night? Those are happening long before they get Parkinson's, right? So so looking at how the gut is functioning.

Now you can say there's not enough dopamine in the gut, so you're not triggering movement of the gut. But we want to look to the gut as a driver of these neurologic diseases, especially the psychological diseases.

I mean, they're very rarely just an isolated syndrome. They're usually related to gut function. I'm happy you picked up on the Parkinson's. I think that's a great conversation.

I think there's a tremendous rise in that. I think that every neurologist you go to now has a Parkinson's movement test. I'm not sure that everybody has Parkinson's that they think has it.

But really good point on constipation. Now, why is it constipation? Because your parasympathetic nervous system is decreased. And that means your vagus nerve tone is decreased.

Exactly what we're talking about, the gut-to-brain axis. Did you know that if you lived within a mile of a golf course, you increase your incidence of Parkinson's by 126%? How about that?

That's crazy, right? And also, I think there's some neurologic studies. If you live within a mile or two miles of a highway, you're more likely to have auto…

There's this exposure issue that's leading to brain issues. So that's what I was referring to earlier, the exposome. All these chemicals and different…

Love that term. disrupting their, their, and by definition, their endocrine disrupting compounds. So they screw up your endocrine system. They screw up your regulatory system.

They screw up your nervous system. So, I mean, if you just looking at that statistic and not correlating, you know, correlation isn't always causation, but in this case it is.

It's definitely causation. So, you know, it's, it's not just paraquat and high doses causing Parkinson's load over time, degrading the system. blowing through our glutathione and our antioxidant reserves and then all of a sudden something breaks and we call it a disease, going back to a sick care system as opposed to a chronic disease care system.

Really adding some legs to another first down to the Parkinson's. Interestingly enough, not only is it the tone of the vagus nerve, But now we're talking about mitochondrial dysfunction, DNA in mitochondria and how mitochondria leaks.

It becomes leaky, causing inflammation, causing a cascade. Interestingly enough, for the alpha-synculin, obviously

the clinical exam is the critical element for the diagnosis of Parkinson's, but you can test dopamine to see how much dopamine you have in the brain.

And you can also test to see if you have alpha-syncholine. Cambridge up in Massachusetts does it. So we have a lot of tests as opposed to using the drug trial.

But the reason it's top of the mind is so many patients are coming in with these newly-vested Parkinson's diagnosis. But I'm going to give you a thought-provoking question.

Both are in the gut, both Alzheimer's and Parkinson's. Alzheimer's usually more in the lower gut, more commonly with women. And I do not have an answer to this question.

We're going to ponder live or at least live and recorded on health alternatives. The upper GI tract is more implicated in Parkinson's and more men. Help me out.

I'm lost. I don't have it fully teased out as well. I would suspect though that the prior is something more hormonally related. Maybe it's from gallbladder dysfunction, binding those hormones in the lower gut, Getting rid of them with the the the the bile salts binding some of that.

Root causes of complex chronic illness

I don't know if it but it seems to me right the big difference might be hormonal hormonal fluctuations leading to some of these things and and is it any wonder that we see endocrine disrupting compounds as a precursor to these neurologic diseases.

And they're hormonally related. That's part of your endocrine system. So I have to believe that we have to look deeper in how it's affecting our endocrine system, specifically with females that have much more variation in, you know, month to month over their hormones fluctuating.

And of course, post-menopausal when they have just a drop off the cliff. So I think missing the hormone piece is huge. And That's just the first line.

Then the second line is, why do we have such hormonal shifts? And that goes back to our environment or our exposome. Exposome. I'm going to let you coin that.

Even though I've heard it before, I'm going to give it to you. All right, I'll take it. I don't know where I heard it, but I stole it from someone else.

That ended by Christopher Turnpole. There you go. I love it. Let's turn the page and get a little link to the idea of autoimmunity and neuro autoimmunity.

And when we talk about neuro autoimmunity, we're talking most precisely the brain. Well, if you have a brain problem, you want to start with the concept that it starts in the gut.

We've already talked about that. So if you have a leaky gut, you have a leaky brain. And you touched on something that I don't think we talk enough about is leaky mitochondria.

So we talk about leaky gut, leaky brain. We don't talk about leaky mitochondria. And we talk at the core of all of this. Yes, at the core of all of this is mitochondrial health.

whether it's cancer or neurologic autoimmunity, you need energy to drive these processes. And when the mitochondria leak, they leak out ATP and then it leaks out of the cell.

And when ATP leaks out of the cell, it's called the cell danger response. That sends a message to your actual immune system to go and attack that, right?

So if you're leaking ATP outside of the cell, that shouldn't happen. So the immune, these are my antibodies, these immune system comes in and they start to attack self-tissue, which is autoimmunity.

So mitochondria are at the core. If you're not doing something to evaluate, initiate, perpetuate mitochondrial health, we're probably missing a foundational piece, which I think even in functional medicine doesn't get enough attention.

That mitochondrial health is just crucial for overall health. Here, here, indeed, I totally agree with you. I love the idea of leaky. Here's the example I use.

Did you ever go get a goldfish from this fish store? They got that little plastic bag and it's leaking water? That's your mitochondria when it's leaking.

It just leaks. It doesn't fall out, but it's enough to cause a little bit of an issue. And the cell danger response, the idea really begs the question of how does that work, but why does it work?

Mitochondria is a critical ad to the immune function as a secondary function. It's not just our powerhouse of our cell producing ATP, it also subsidizes our immune function.

And that cell danger response, if I can say it, is one of the big reasons for the fatigue and long COVID or if you have a flu or something of that nature.

100%. And when the mitochondria are fatigued, even though there's not a ton of DNA pairs in the mitochondria, they're responsible for talking to the nucleus of the cell to tell it, to tell the city hall how to function.

So that mitochondria is telling that cell how to function, how to react. If it's not working correctly, Nothing's working inside the cell, which means nothing's working outside the cell.

So we call it the powerhouse of the cell, but it really is the driver of much of what goes on inside the cell, the cellular matrix and what's going on.

So that mitochondria, they did studies actually where they took cells, a cancer cell, and they put healthy mitochondria and the cancer recovered, and they did the opposite.

They took cancer of a mitochondria, this mitochondria in a cancer cell, put in a healthy cell, and cancer started to grow. So we know there's a correlation between mitochondrial health and it's more than just energy.

And when those illnesses like long COVID, they hit the mitochondria and you just don't recover. We call it lack of resolution. You're just not resolving what's going on.

Well, let's talk about mitochondria dysfunction or lack of mitochondria. Let's put the neurodegenerative diseases aside so we can stop scaring everybody.

Let's talk about long COVID.

Neurodegeneration, gut health, and Parkinson's

Let's talk about Lyme. Let's talk about tick-borne infections. Do they affect the mitochondria? And if so, how? They do in a couple ways and one of the easiest ways is one of the ways that Lyme or tick-borne infections has been addressed is with years and years of antibiotics.

Right? Years of antibiotics. And I have a real soft spot because these people are suffering. So if we look at the IDSA approach, three weeks of doxycycline, you're fixed.

That's never going to work. But you also can't stand 20 years of antibiotics because antibiotics, the mitochondria is like a bacteria. So when you're taking antibiotics over antibiotics over antibiotics, you're destroying your own

mitochondria, causing the mitochondrial dysfunction.

We know that. So the treatment sometimes is leading to the prolonged condition. The second one is if the mitochondria aren't healthy enough, you hit the nail on the head, you can't have a healthy immune response.

If you don't have a healthy immune response, we go back to the terrain theory. You can't have a healthy host without a healthy mitochondria. So both are true.

Sometimes the treatment is part of the cause, even though it might be necessary at times. The treatment is part of the cause and the dysfunction of the terrain or the health of the host is also part of the mitochondria.

So if you're not focusing on mitochondria in these long COVIDs, post-treatment Lyme syndrome disease, we're not looking at these chronic diseases. All of them have to have a mitochondrial, at least awareness as to why this is going on.

Well, you've obviously made the case that mitochondria is crucial to overall health. We know that our brain, our heart, our kidneys are full of mitochondria.

Statins, and we're not anti-statins, decrease mitochondrial function precipitously. So everybody listening now says these two guys just gave a great conversation of mitochondria dysfunction.

What do I do? Dr. Turnpall, what should they do? Well, a couple things, some things that are easy. First of all, I'll go back to labs for a second. A really easy cheat, it's not perfect, but it's something we use is your HDL relative to your triglycerides, right?

So triglycerides, think of them as raw fuel in your body. So if you haven't eaten in 12 hours and you get a blood test and you look at your triglycerides and they're high, that's because that fuel is not being used in the mitochondria.

So if you have a ratio of HDL to triglycerides, it's greater than three to one, you know your mitochondria aren't using the energy. So that's an easy, simple, easy test to be done.

So that's important. Ways you can help the mitochondria, you can switch, but if you are capable, you can do like zone two and zone five training. So you increase the resiliency of the mitochondria and the number of mitochondria.

I think that's important. oxidative stress. So simple supplement like NAC, really great for mitochondrial oxidative stress. Here's one, it's super expensive though, sunlight.

So sunlight comes in, I don't want to get too technical, but you have a nitric oxide molecule on complex three of the mitochondria. that sunlight displaces so that now your mitochondria can work so if you're not getting out in the sun you're not you could do it through photobiomodulation which is a fancy way to say like red light therapy but it's free get out in the sun get some sunlight knock off that nitric oxide you get buttered blood flow and by the way you opened up the channels for the mitochondria to work so They're super important.

Simple things like creatine, not terribly expensive. Creatine in high doses, first five feed the muscle. The muscles are very egocentric, so they eat first.

The second five grams goes to the brain. So we've dosed at five grams mistakenly, I was part of that. And now we're saying, hey, if we do higher doses, we're actually feeding the mitochondria in the brain and the cell energy in the brain.

So using some things like creatine. things like alpha-ketoglutarate, keeping inflammation down, urolithin A, eating pomegranate seeds if your gut is healthy will help mitochondria.

So there's a lot of ways to support mitochondria, not taxing it with too much sugar. Sugar is going to be, so it comes

back to diet again, getting proper sleep, not overstimulating, not exhausting your mitochondria.

So there are ways to do it through supplementation, activation through zone two and zone five training. Sunlight is the easiest, cheapest thing to do.

Just get out and displace it, make it work. And then there's some supplements you can take. How about NAD? Where are you on that for mitochondria? Coenzyme 210, alpha-lipalk acid.

I threw a few out at you. Yeah, so I like alpha lipoic acid. I like CoQ10 paired with PQQ, with Gigi, and Gigi, the three together work really well on that pathway.

That's really important to support the mitochondrial function. I think that those three are just powerhouses. They can be combined in a single pill so you don't get pill fatigue.

But I love taking those. I take it myself. I also take creatine myself. So supporting the mitochondria is super important. Just to reiterate, 10 grams of creatine a day, the first five are for muscle and the next five are brain.

What happens if somebody is doing 15 or 20? So it's interesting. The studies show that excess creatine doesn't have harm. It may not have benefit, but it doesn't have harm.

And some people need more. So 15 or 20 might be indicated for some people. Average, right? I don't like averages. We talked about the insulin. We don't want to, but an average five grams will feed the muscle.

And then the next will feed the next tissue that needs it. That's energy dependent, which could be brain or liver. and it will give you an artificial marker of creatinine, which makes it look like your kidneys aren't working well, but that has been debunked too.

You do a simple blood test called a cystatin C, which is gonna tell you if your kidneys are fine. So at least 10 grams. More may not be beneficial, but we also don't see any harm signals with excess.

So if somebody's taking 20, it's not harming them, it just may not be giving the benefits.

Mitochondrial dysfunction and recovery strategies

So I have no problem with people wanna take more. We've talked about creatine a lot. It's been one of the most viewed podcasts. It's a hot topic. And the only things that have been recommended on the podcast not to do is drink it when an aqueous solution breaks up the molecular structure.

Don't drink it with caffeine. The other thing is avoid the gummies. Because, again, you have to heat it with the gummy. The gummy's crap. You're not getting enough.

Creatine has a high molecular weight. So that's the new addendum and the answer to creatine. Turning the page, you have four, am I correct? Four practices.

Five. Five on Friday. Well, we opened it, but the grand opening is on this Friday, but it's been open for a month now. You have five practices, but they're very unique in that they're integrated practices.

Why don't you tell us a little bit about the brainchild of that? Well, I'll tell you, it started not with any grand scheme. It started with me just being busy, so recruiting other providers.

And we had other chiropractors, other physicians, MDs, DOs, nurse practitioners, physicians, assistants, nurses, they all kind of came. So we just got busier and kind of organically built them out.

But the beauty of it is we have a physician on staff who was at UPMC for decades as a nephrologist. So I can walk down the hallway and talk to Dr. West and see what's going on.

We have another one who's boarded internal medicine. She knows what she's doing. We have an ER physician on staff. So if something walks in, now he does functional medicine, but he also was trained.

I tell all the providers, Don't forget what you learned, just add to it. And listen, nobody has it figured out. Nobody has all the answers. So we're fortunate because we can walk down the hallway without a preconceived negative bias as to what we're doing and saying, what do you think?

And they're going to say, oh, I see you're working on the gut for that issue. But how about we look at this or let me look at that kidney marker from a nephrologist standpoint.

So being able to put all those pieces together and then you add on top of that, like just myself, 30 plus years of experience. Sometimes sometimes you only know something because you've seen something.

So you know a thing or two because you've seen a thing or two. Right for a day. You haven't seen a thing or two. So you get the benefit. We get the benefit of talking to each other.

Because a lot of our providers have seen a thing or two because they've been doing it for a long period of time. So it's collab. We also have a full time psychologist, PhD in psychology, because the patients, if you've been sick for 10 years and you don't have a psychological problem, you have a psychological problem, right?

So talking through, but not just looking at it from a pure talk therapy standpoint, what did you do to get here? Putting the functional medicine on top of the functional therapy, it really is a nice compliment to what's going on.

So I feel very fortunate because I have a great team around me that makes me look better. That's fabulous. I mean, I think integrated is the way to go.

And I think that's probably the number one complaint that I get from many patients coming in and saying he or she didn't see it. They looked at my pinky.

They were great at my pinky, but they didn't see the whole hand, you know, the hand was attached to the body. Not enough. The system is dysfunctional, not the doctors.

I agree with you on that. And I love the idea that you're not only using the integration, but you're using the integration for patient outcome. The patient comes first.

You know, you said something about human. I remember when I graduated 26 years ago from chiropractic school and, you know, I thought I was going to take over the world.

I thought I knew everything. Well, I found out how little I knew on the first day of practice. That being said, my dad came to me and he said, and my dad doesn't give a lot of advice, certainly not to me, and he said, listen, there are human beings in front of you, so just remember you have to treat them like humans and be a little human.

And the best way to get the human response and human outcome is through the integration with multiple ideas in the room, because no one individual has the answer.

Everybody together has the answers. You know, if I could be a little critical for a second too, it's not that hard to care about people sitting in front of you.

And we, a lot of the healthcare systems gotten away from, oh, they're looking, you know, they're looking, oh, look at, let me see what your labs are. You're talking to human beings.

So we were doing our core values as a company in a whole nine yards and they asked me, so what's your core values? I said, If it helps a patient, why aren't we doing it?

And if it hurts a patient, why are we doing it? And that should be it. And that's where it boils down to. And I tell them

all the time, it doesn't cost any more to care about the human being sitting in front of you so they can have a human experience rather than a clinical experience.

So I really think it's a lost art. By the way, I teach this too. By the way, if you care about a patient and they perceive you care about them, their immune system improves by doing nothing.

You've changed their CD4 cells and their T helper cells just by showing care and compassion. And it doesn't cost anything. And by the way, your outcomes are going to be better because you care about people.

So. I don't know much, but I know caring about people matters. Oh, without question. That's a beautiful concept. That's a beautiful thought. And you're implementing it.

It's great. So let me ask you as we get towards that finish line, if someone were listening to the podcast and they heard us go back and forth and chit chat, give them three things they should implement on Monday to lead a healthier day.

OK, so look at your exposome, things we talked about. What are you exposing yourself to? Are you around a lot of chemicals, pesticides? Is your diet cleaner, or is it more processed?

Looking at what you're constantly exposing yourself to. Are you moving? Are you moving with purpose? So are you doing some exercises that are stressing your body?

Are you doing some exercises that are sustaining your body? Are you moving? That's a key concept. And what's the stress in your life? And stress is a broad term, but are you sleeping well?

Are you are you constantly in a hostile environment?

Integrated practices and compassionate care

Look at look at those things and parlay that to what is your inner circle? Are they supportive? Are they negative? Are they beating you down? And that goes to your provider.

Does your provider care about you? I mean, are you talking with people that are helpful? Is your community, whatever your community is, is your inner circle, are they there to support you and be advocates for you and give you the feedback you need sometimes?

So I think, is your exposome toxic? And that includes your friends. That includes your work environment. Is there toxicity from the golf course you live near?

And is it your friends that you hang out with at night? So work to reduce the toxicity and just live in a less toxic environment. Get some sleep and move.

Outstanding. Let's close with the idea of the crystal ball. It says, look to the future, Chris. What do you see in the future for health care? Well, I think we're at a precipice.

I know we talked about this for 30 years, but we're at a precipice because I think that we need to, I think we need to change what healthcare looks like to deal with the chronic diseases of 76% of our population is chronic.

I think too, though, We need to make this an every person health care system. It can't just be an elite health care system. It can't be those who can afford $120,000 to have a doctor every year like some of these elite health care providers cost over a hundred grand to see.

And good for them, you know, good for the people that can do it. But how do you manifest this and make this available to the everyday patient? It can't be an elitist healthcare system.

It has to be an everyday healthcare system. And we also, you know, I had a conversation this morning with an emergency department pediatric physician about a case that we have together, and we had a very collegial conversation.

So we have to respect that the health care system is broken, but not because the people went into it because they're evil. They're just working in a bad system.

So how do we all work together and make it available to the everyday patient and and change the I would say, If you have, I like the phrase if we help the health of the children, we're going to have healthier adults.

So why are these children getting sicker younger, and it's not genetics because the genetics don't change that quick it's the environment we have to look at, and the environment isn't just It is the sprays on the golf course, but it's also the parents.

It's also the food reading. It's also the schools. We have to have a less toxic environment and then look at things more from a root cause. So if I had a crystal ball, I'd say, can we get back to basics of doing things in a healthier, more sustainable manner for our health?

Absolutely. It's been great. And I agree with you. What do we do to make health care affordable for the middle class guy? Clearly, the rich guy can do it.

Practical health habits and the future of healthcare

Like you said, $120,000 a year. You and I both know a particular individual charges more for that. And that's great. Good for him. You know, kudos. He's great.

But what about the person, you know, how do you elevate? You know, I have this conversation with a lot of my patients. How do you elevate the middle and lower middle class?

Keep them healthy because a healthy man wants a thousand things. A sick man wants one. That's a great, great quote. Yeah, that's a great quote. And by the way, a rich man wants a thousand things.

A sick rich man wants one thing. There you go. Wow. Great quote. Doesn't matter how much money you have, if you're sick, it doesn't matter. As one of the famous billionaires once said, health is your greatest asset.

Warren Buffett. Warren Buffett, yes. Without health, it's nothing. Health is wealth. Health is wealth. And if we can make health available to the middle and lower middle class, they can become wealthy because they can offer so much.

They're trying to just survive. They're not thriving, they're surviving. And that's just a shame. If you can't help your neighbor, you're no good. It's been my pleasure.

We have to do round two. It's been great. We got it all packed in in an hour. Some heavy conversation. Let us know how you feel. Put a comment down. Dr.

Turnpall loves to hear commentary. Let's do it. I'm Dr. Rob Silverman, Dr. Christopher Turnpall, Proven Health Alternatives. See you guys soon.