Introduction and Chris Schadeu2019s Background

Okay, welcome. Welcome to another edition of Mycotoxins and Chronic Illnesses 2.0. And it's really a pleasure to have a chance to talk to Doctor Chris Schade.

He is the founder and CEO of Quicksilver Scientific. But what really excites me about is that he is a thinking man. I've always been appreciative of his creative insights and his real desire to help us bring biochemistry to you, to help people improve their lives and get a little healthier.

And, you know, and really, a lot of people make supplements, but not many people really. I should say that not fair, but not many people think as deeply as you do about how to make it a little bit better every time.

So thank you. Thank you, Chris, for being with us. And, today, I not only we're going to have a I'm when I'm excited about is I also get to learn something every time I talk to you.

So, and I'm really intrigued how you're going to make today understandable for everybody. So it's all about glaciers. Goddamn glaciers. It's the ice age.

Okay. It actually will come up. We'll come up. Okay. Well, actually, you know, just in case there's, a little maybe talk a little bit about your background, give you two minutes because, for the people who don't know much about you, tell us a little bit how you started on your journey.

Yeah. You know, it is a long journey, and it goes way back. You know, when I was originally, I was, raised by academics. It was a sort of, you know, nonbeliever in things, you know, a real reductionist guy dropped some acid in college, became not a reduction.

Nice guy. Then I was doing environmental science, and I'm like, you know, all this is just, like, helping people who pollute think they're not polluting.

I don't know if I really like this. I went and became an organic farmer, and then I got into systems finance. So that was all soil systems and ecosystems and stuff.

And, I started organic farming. And I joke that I went out of business the year Whole Foods came around. And, so I, you know, I mean, is everything funny?

And, and so then I went back to school and I looked at, agricultural pollution. And then I ended up, looking at, the global biogeochemistry of mercury as a pollutant.

Patented some testing around it, which and then instead of taking it into environmental testing, I brought it into clinical testing and wanted to get back to people in health.

And so I started testing metals in people. And then you got to get them out. You know, if you point out a problem, you got to have the solution. So I started designing detox systems first I started taking key leaders, and they made me really sick, you know, because if your pathways aren't open to get stuff out, they just stir the pot up.

And so, in the the darkness of the dark night of my biochemical soul, I had the insight to start getting things out to the GI instead of the kidneys. And it made these binders specific for for mercury in the GI.

And that really started opening up the paths out to the liver. And then I got to know about glutathione. Glutathione pushing things out of the cells. Then you got to make glutathione.

And that got me into liposomes. So I started making a lot of semaglutide down. Then I started making everything in liposomes, and then I started into Gaba and CBD for the autonomic and neurological aspects of it.

Then I started making stuff for metabolic health, immunological health, hormone health, all in these high end deliveries, these liposomes and nano emulsions.

And that brings us to today. And those are really the specialties of quicksilver detoxification, cardio metabolic immune, hormones and whole longevity system that's based on all those.

Yeah, I think that's that's the thing I always tell everybody that if you really want to learn about longevity medicine, study people who've been chronically ill.

Yeah, that's where I started. And, you know, I used to think in a for I'm I'm like, you know, I'm just taking out the trash. They're doing the sexy stuff.

They got the exosomes and shit, you know, and are off to Ampk. The stuff we're going to talk about is the foundation of healthy aging. Yeah, yeah. No, that that is that that is the thing.

Because you can give all the sexy stuff to people who think they're healthy but not doing anything. You're wasting. Exactly. You wait, I, I see that all the time.

People have gone off to all these clinics, get all these stem cells, and they're not a whole lot different than they were. You know, they get a little bump and then they're back.

Yep, yep. So it's clean up. So. Totally. So you want me to roll with that? Yeah. You roll because I want to I people have been listening to me in between all the like for too long.

It's time now to listen to you. So what I wanted to cover today is stuff around Ampk and Nrf2. So last time we talked, we're talking about Nrf2 upregulation for detoxification.

So and are of two define it. Inside the cell there's a pair of proteins outside the nucleus one's keep one one's Nrf2 and keep one's holding inner of two tethered there until something triggers it to be released.

And it goes into the nucleus. And it binds to all the genes that have a promoter region called the antioxidant response element. And these are genes for glutathione synthesis.

Glutathione peroxide, Ace glutathione transferase, the transport proteins. It's all the chemo protective stuff. And what are the triggers that turns it on.

But oxidative or electrophilic stresses. So reactive oxygen species reactive nitrogen species when you have excess oxidative stress or electrophilic stress is another word for oxidative stress.

But it's chemicals that aren't really necessarily directly oxygen type of things. So this would be more toxins. This would be metals like mercury, cadmium, arsenic, lead.

So it's a stress sensor to chemical stress. And it turns up the cleanup crew to get stuff out of there. Now that's how I started all this development of detoxification.

And you know, when that cleanup crew is not working because it's inducible. And it also has a rhythm with which it turns itself on. And when you have that on, you're cleaning all this stuff out of the system, stuff that would go in and have toxic effects, great mitochondrial dysfunction or mitochondrial dysfunction might put you on this senescent phenotype, all kinds of damage to the membranes and stuff.

So and when things are working, you're pushing all this stuff away and out of the system. What did I just want to emphasize?

NRF2, Detoxification, and Cellular Cleanup

What you're saying is remind people that this is a system that's made to be dynamic, you know, and the stresses are good. You know, you need a little of that oxidative stress to turn on the Nrf2 system.

And just so just don't think that you want to keep pushing it. You want it's life is going to ebb and flow and that's what's going to make you strong.

You got a role like that. In fact constitutively upregulate again or of two brings problems with it, keeping it on all the time. And you know, remember back in the 80s, 90s it was all like vitamin C, just vitamin C all the time.

Well, that quenches so much oxidative stress. It's actually a negative modular beta of an R of two. So you're preventing a lot of the things that are supposed to be happening.

And so when that thing is up and running, when you need it to, it's keeping everything clean. It's keeping your genes clean. It's keeping your mitochondria running.

It's getting rid of. So they're we're talking about, stressors from the environment. But what about the stressors from our own metabolism. That's where NRF to dovetails into amp K and AMP K and its evil twin amp PD.

So Ampk is what's activated when you are fasting or carb restricted to exercising ketogenic diet. That's when, ATP is used up and ATP becomes ADP. Then it loses another, phosphorus becomes AMP.

And that's when it triggers the AMP kinase. So when it triggers the AMP kinase and it goes down this pathway, it turns you from anabolism to catabolism.

So you're going to stop building everything up and you're going to start breaking things down and recycling them. So mTOR is associated this mammalian target of rapamycin mTOR has a forward direction and a blocked direction and forward direction.

It's turning on Anabolism and it's turned on by insulin and branched chain amino acids. That's why a lot of those things like muscle milk and stuff, you know, try to be anabolic and build yourself all up.

You've got proteins, especially branching amino acids and sugars. So that makes you get all big. Now when you do that all the time, you start accumulating fat in your liver, fat around the waist.

You start driving the inflammatory situation. So in fact, the more you're driving that you're creating oxidative stress. That's trying to create insulin resistance because it's trying to make you gain weight.

And then instead of going, down this Ampk path, you go down the AMP path, which means, let me just stop you for one second is because I don't, you know, this is amazing, but I just want to just tell the story simply for a second so people don't lose track because these are just the complicated concepts.

But translate my English. Right. Just basically you've got to remember is that we were designed to survive, like all animals in times of not eating, you know, we have 365 days.

God bless most of us. Get to eat. Yeah. And, and we weren't designed for that. We were, you know, we were designed to go periods of time when there's just no food, whether it be a day two or even a week, you know?

And so all these pathways, that were designed for our survival are now hurting us, that mTOR pathways designed. So when you got that fruit, when you got a whole lot of carbs to eat, you could build up that fat to carry you through.

Because even today, you know, the unfortunate thing is, is carrying a few extra pounds when you're in your 70s or your 80s might keep you alive when you get really sick.

You know, people, to be fair, those really athletic folks with, you know, BMI of 20 don't die quickly. They die when they're in their 70s if they get sick because they need reserves.

Yeah, that's not too much. But anyway, so that's what that more pathway is designed to give you that body reserves. Okay. And that has with it the a impede pathway that's the put on weight create oxidative stress create uric acid which create some of that oxidative stress.

And that makes you insulin resistant which makes you fat. So what you do when food is scarce. Yes. And that that's the glacier ice. You know, I okay. Yeah.

That was when that was developed in the only people who lived through the ice ages were the ones who had really strong dominance on those pathways. And so when we get sugar, we shift over into trying to store everything.

So what we do want to turn it on is amp. Okay. So amp blocks mTOR. And when that happens we're in catabolism. We turn into we turn to autophagy Self-Heating.

So one of the things when we're making proteins, proteins are very difficult to make. And they're intricately folded. They're like little origami swans.

And you know, if you don't fold them right then the swan's you know, the the the wing is broken. Then you just throw them in a pile in the back and you so we accumulate all these piles of these misfolded proteins, and eventually they'll cause the cell to self-destruct.

And so you need the unfolded protein response to go and take them, put them into autophagosomes, which are little like vesicles or like, like bosoms, a sphere inside the cell.

And you merge with a lysosome, and the lysosome brings the enzymes in to chop them all up into amino acids. So instead of building mass, you take all your broken mass, you break it down into amino acids and you recycle it.

And that's cleaning out instead of environmental waste. This is metabolic like waste, but this is actually the ecology of the body. It truly is. And then fat, you break it down, you make ketones out of it for energy.

You mobilize, glycogen. You mobilize, store sugar. You actually make more glucose transporters on this cell, and you lower insulin resistance and you create insulin sensitivity.

So one of the beautiful things, about fasting and, you know, fasting can totally do that, but a lot of nutraceuticals in pharmaceuticals are really good at that fact.

That's the whole that's what metformin is. It's why it's used for metabolic dysfunction, type two diabetes. It's an Ampk activator. And then in the natural world we have a lot of these things berberine, resveratrol, quercetin, even, Silliman and dim, you know, we put all these together with a little cinnamon in this, in this product that jams up and it'll put you into ketosis really quick.

And so it's really important that we swing back and forth and that we have these times and, and having, you know, the supplements and the ability to do a little intermittent fasting, some of these supplements and then at night have some carbs so that we sleep.

Right. We can we have tools so that we can find what's that best rhythm for us. You know, and and you know, often like especially for women of childbearing age, you know, fasting too much disrupts their cycles.

And so we want to bring in some of these nutraceuticals to keep them clean. But that's the Ampk is the clean burn. And it dovetails with Nrf2 in that when Ampk is activated, it's a piece of cake to get enough to activate it.

In fact, you know it like supercharges an hour of to activation. And they work together on things like the unfolded protein response, on my autophagy.

And then the flip side of my top veggie is so my autophagy, we're going to find the bad mitochondria. And we're going to put them into the little autophagosome and break them all down.

And then on the flip side we're going to have mitochondrial biogenesis. And we're going to build new mitochondria. And so those all work together and are off to an amp okay.

And then for the biogenesis then you need sirtuins. So I always say what AMP gate begins in clean burning cardio metabolic space. So to encode sirtuins codify into the system and build more depth and reserve around.

Yeah. Now that is a beautiful way to put it. I always like to think that these, you know, the the whole point of, of, regenerative medicine is just that regenerate, you know, recycle because it's and this is exactly I mean, it's a beautiful way to help your body to, burn up, you know, burn up the trash.

I mean, that is the problem. The cell gets loaded with garbage, and that's why we can't detox. Yeah. You know, right there in the beginning. And it's so nice that you're showing us the physiology and the biochemistry of this process.

Yeah, and it's beautiful. And there's a war to go one way or the other. There's a war to go PD versus Ampk. And, Perlmutter really turned me on to that because down the AMP path, which is the more forward path you make uric acid, uric acid comes along and blocks Ampk.

So it's like the further you get out there, the harder stuck you are into that. And then you get all the inflammation that's coming with it and you get something like nuclear factor kappa B, which is one of the inflammations, the, the, inflammation culprits, the things that keeps aging going.

AMPK, mTOR, and the Survival Metabolism Switch

Well, nuclear factor kappa beta can block sirtuins, but sirtuins can block nuclear factor couple beta, you know, so who's going to get on top of the game.

And the best way to start getting on. You know you're going to use your nutraceuticals and stuff to do this. But fast a little and you can flip over and get back on top of it that way.

And then as those pools build up, as you get cleaner and you clear out all the inflammations and a lot of the nutraceuticals you're moving over, there are taking away senescent cells.

So the senescent cells are propagate in the fields of inflammation. They're propagating senescence itself. And so how are you going to get rid of them.

There's two ways to do it. We talk about analytics killing them and letting them die. But you can reverse senescence too. How do you do that? By clearing up the interest cellular terrain with NRF two and a and b k.

So there's a lot of ways we move down the good or the bad. And it's just because we didn't have so much food before, you know, we were turned to use the inflammation to pack on mass.

And then we were inevitably going to run out of food and we flip around and clean up and recycle. Yeah. No, I mean, this is I mean, again, the, the environmental, analogy is just so strong. It's amazing.

I mean, it's just so totally if you only if we only could recycle instead of just storing the garbage, we'd have a healthier planet. And I know, like, you know, it's funny, people are all on their high horse.

You know, I'm here in Boulder County. They're on their high horse about where you put the recycling, but they're not. They don't know that 90% of it's going in the freaking dumpster.

It's going in the landfill. We still are not recycling. But if we were, everything would be so, so so so so good.

Agricultural systems. Yeah. Because, you know, the body knows how to break the pieces down and then use the pieces to rebuild.

We haven't got that far. We just take the pieces and. Yeah. You know. Yeah. And hide. Hide the garbage is the best we can do. Okay. Yeah. That's about what it is. But the cycle is is just, I mean, is, you know, is what's behind as we say, you know, you know, inflammation, chronic inflammation that often is the fodder for chronic illness because that's what people, you know, I have to want to emphasize is that, you know, if you start off healthy and you get sick, yeah, okay.

You're going to you won't get stuck in this pathway. And if you're just an American or most people in the Western world, if you live to about 40 or 50, you wind up in this situation unless you really work at it.

This is the natural history. Everybody puts on 10 pounds a year, you know, 10 pounds a decade or so. Yeah. And by the time that they're 50, you know, they're free.

Ride is over and the inflammation is starting to pack on. Right. And now let's look at what inflammation does, you know, to the systems that are supposed to clean it up.

So what is the surest way to block detoxification. It's inflammation. And why is that. So inflammation is a pro oxidant endeavor that's intended to go and kill things. And to work.

It turns down temporarily during acute inflammation. It turns down detoxification, which is an antioxidant thing. We'll have time to process dismutase all those, you know, peroxide aces and stuff.

So it turns this down temporarily to go, you know, put the fight, you know, you know, shoot fire at something and kill it off. But then chronically, it's chronically down regulating your detoxification.

So you're chronically accumulating toxins. You're chronically out of Ampk, which is chronically adding more layers of inflammation. That's chronically breaking down all the barriers.

That's chronically creating leaky gut. It's chronically creating leaky blood brain barrier. It's chronically creating leaky vagina. We talked about that one yesterday in my webinar.

But it's another it's just another barrier function break. And what are the keys to re. Oh and leaky liver. And then the liver starts getting fatty and then it starts getting fibrotic.

And it's even worse it clearing things out. And what's the antidote to all those things. It's Ampk and NAD and sirtuins. That's where the tight junctions seal back together.

And that's where all these inflammation stop leaking into the system. So yeah, I mean, often once that gut's open, you got to go and repair that thing, clear it up.

And you know, the the endotoxins in the system then. And that's just keeping it going down. And it's going to the brain is making neuroinflammation and keeping you sympathetically dominant.

But do you see how all these things pile on to keep you in the I'm fucked pile. And and you want to clear these things out and move yourself over and get yourself into the unclear pile.

And then you get to the immune system with it soon as the glue that throws down your immune system totally dis regulates, all your interference goes to shit, you start having a lot of 2817 type inflammation.

You can't go in and kill things. So there's that downregulation of it. Then Ampk well, we just talked about autophagy. Ampk is a master of immune defense.

Zen off a juice. When you take the virus and you break open the virus in you, and you use your autophagosome to

break the virus or the bacteria into parts and make your higher order antibodies against them.

And then Covid, Nrf2 and Ampk gets squashed by the virus. So there's like a little like, you know, award. You have enough to, like, have it be a not bad Covid.

But that's how it becomes a really bad Covid. Is it shut and or if it's already weak and picks weak and it just pounds those things down and then it just takes you for that ride.

Well, inflammation you know chronic. Well just getting back to I think most yeah. You know, important point especially for our audience is how chronic inflammation, keeps you stuck in a state that will allow, fat to accumulate, because that's one of the things that that we that really, I think is so frustrating to so many people.

I mean, besides being sick, they they sometimes just gain weight, sometimes very rapidly. And unable to lose it despite all kinds of caloric restriction and not and they just feel so frustrated.

And again, we don't understand that they've turned on a very ancient primitive. It's in every known. It's in every I think, I know in every mammal, it exists in probably even in other, in other, simpler or more elementary forms.

We like to think of ourselves as higher forms. Yeah. So, you know that this pathway for survival exists in to, to, you know, that inflammation as a signal to store fat.

Yeah. Because it's supposed to be temporary. Yeah, yeah. And, you know, but Haley turned me on the insulin. Receptors are details. They're highly reduced.

And so as soon as that oxidative stress comes up, you just, you know, shut them off and you get insulin resistance so you can get fat. And then when you run out of food, everything all upregulate on the other side and clear all that stuff out, right?

If food is what if, if, if we're back into a more natural state where food is driving the problem, but when we have an issue where there's a chronic infection or chronic exposure.

Yeah, that's driving the inflammation, then we have a little more, a little more trouble, in getting back to normal. And, and that's where, you know, we often need help.

And so sometimes, you know, like I tell people, you know, sometimes you can remove the trigger and sometimes we just need a lot of support for the system.

You need to crunch it up and help it. Yeah. Yeah. That's where where you know when NRF two is broken. Vitamin C is your freaking Wonder child, you know, and you can just pour that stuff in and really cool things down.

Post Covid that was a big thing. You know, I was giving everybody tons of vitamin C, and then slowly trying to get their NRF two back on, you know, question to big.

You know, part of the repair. And so then that'll start bringing in or of two back. But you know post Covid a lot of CBD curcumin and vitamin C just put the fire out.

And then you're you know you end up taking antihistamines and stuff just crushing everything up while it flips over, you know? And I know, you know, use an MD.

We've probably used a lot of pharmaceuticals in crushing people up until you can flip them back on. Well, that yeah. Unfortunately that that's I always called bandaid medicine.

But we do a lot of it because, you know, that's what you need. Until you need the vitality to come up, you need the the ship to drive straight for a while and get used to that.

And then you can start taking the Band-Aids off of the crutches out. And they can you can flip it back up because it's an inflammatory signal. We have to use whatever we can.

And it's nice when we can use nutraceuticals to help flip that signal, you know, to change, to change the information. And that's what's so interesting about the products that you put together is because they're that's what each have designed them for.

Yeah. Yeah, I've designed them to hit these triggers, you know, and then you have a laundry list of stuff you can use. And so like what am I going to stack into this particle.

Well I do want some liver support. This is a Ampk sirtuin and liver. And you know, I do want some anti-microbial. So I'll put that in there and then you know how harmonious they are.

And then there's a little bit of shamanic activity, you know, that's muscle test all together, you know, and, and but it's all starting from the pathway that we want to work with.

And, you know, and then you're getting informed from either older medicines or, you know, any number of different things on, on how you're going to put the protocols together and what you're going to pair together.

Yeah. For that, for that person. But again, I just want to say it again, because I think it's just so important for people to to hear that what's often gets you into trouble is your body's mechanism for survival.

You know, it's not this like evil Genie. That's come and gotten got you. It's just that your body has, a well-worn pathway that is that that's work for Millennium Ski Conservation Line.

Yeah, they keep you alive, and it's just stuck on. And we just have to help create the situation where it knows that it's safe to go back. Yeah. And to to, to a healthier, a healthier, less inflammatory pathway because, you know, remember, you you turn on all those inflammatory pathways to kill bugs.

Autophagy, Mitochondria, and Sirtuins

Yeah. You know, and it just you should stop, though, after a while. Yeah. Yeah. So those yeah, those are the inflammatory pathways that are, you know, like endotoxin and, and those sort of things.

And so, you know, even like the metals that you that tie up the files as you saying, because the files, the, the sulfur groups, for those people that we see English, we have to be careful.

You know, anytime you, you have two sulfur groups, you have a lot of places in the body where these two sulfur groups stick together with the hydrogen.

And when you when they get separated, they change their function. And that's often, and that's when your glutathione stops working. And the thing I know, which is really cool, your insulin receptors depend on that program.

But so much of the biochemistry in your body, depends on those sulfur groups doing it right have been reduced. So they get oxidized at a reduced set. And so a lot of people are just like, I gotta raise the glutathione, but you need it over to the reduced side for your body to turn all these programs back on.

I mean, this is probably a big part of the cell danger response when the oxidative stress builds up a lot of proteins that are active proteins, you turn them off by linking a glutathione on to their active sulfur group.

It's called glutathione ablation. And it's to protect that protein. So it doesn't get destroyed by all this oxidative stress. So you're turning off a lot of essential or more regenerative functions.

And it's waiting for the coast to clear and the redox potential to become more reduced again. Then it's going to pick

those all off and restart all those processes.

So how do you get there though? You need glutathione Redux lactase, which is under the domain of Nrf2, to flip that redox environment back. And when the NRF two has been damaged, like mold toxins can turn off enter of to certain epigenetic things can turn it off.

It's hard to get it back on. Yeah. And right, I mean, I don't want to kill the cell danger spots to talk about too much today, but but just the simple I mean, the most basic form is that it's the idea that the the ATP gets sent out to the cell membrane instead of being used just inside the cell.

And what that channel, that one of the channels that opens up is when glutathione, gets oxidized, and there's a little channel there that allows the ATP to get to because again, when glutathione oxidize, that's a signal.

Yeah. So reduced glutathione is keeping it closed. Closed. Exactly. So it's nature is open and reduced keeps it closed. And then the reduced isn't there.

And it's open. Open and it's good really there's inflammation and you know and then you got your immune system coming back at you're how do you say amplifying the dangerous signal?

I mean, that that is the thing is that we're we're are our cells are a community. And they take, you know, they they they operate inside, but they dance a lot with what the information they got from every cell around them.

And that's what gets it to us. But I just want to swing for a minute because, you know, when we were, before we started, you had mentioned that you were going to touch on the cardio metabolic effects and, and their effect on, detox and, Yeah.

And this is that Ampk helps drive in our Nrf2. So, then amp PD is this, you know, put on the mast, bring up the inflammation, and shut down the Nrf2. So you've got this switch that goes Ampk or AMP, PD.

And, you know, so this is why high fructose diets are absolutely the worst thing that happens to us. Because that drives us down a amp. And then at the end of that is uric acid, which is going back and and knocking out a Ampk.

So you're running that way, running that way, running that way, running that way. And so it's like, okay, I'll take out the fructose. And so whenever you're down that the inflammation is driving cardio metabolic problems and driving, neuro inflammatory problems.

So how do you switch out of that? But there's some triggers that we don't always realize. And, one of the guys who worked for me brought a paper to me a while back, and he said, Chris, high salt diets create, cardiovascular problems and no great cardio metabolic problems.

I said, bullshit, you know? What are you talking about? You know. Yeah, fructose does and carbs do that and all that, but fucking salt does it, you know, so as molar pressures that suck.

And that's one of the ways fructose does this is sucks water out of the cells drive you down that path. And that's how I always wondered how alcohol does it.

How does that call create cardiometabolic problems. And people who don't know any biochemistry say it's because I call a sugar. It's like, no, no, it was sugar, now it's alcohol.

And then you fucking sugar. It isn't a smaller thing. It's sucking the water out of the cells and driving you down the Ampk pathway. And so of course, that drove me to make better anti-alcohol damage remedies, Yeah.

And so now is milk thistle, a quercetin and luteal. And because they're, there's anything oxidase blockers that blocks the uric acid. So the uric acid is not blocking all the good stuff.

And so some B1 it turns out, you know, well b-complex but B1 is the, the cofactor for alcohol dehydrogenase, but it's also as anything oxidase inhibitor and flips you over to Ampk and the quercetin luteal and are big amp drivers.

So it's keeping you from driving down the amp pathway. And that's how alcohol does that. It drives you in and that's how salt does it. It drives you down. That amp pathway. Yeah.

Because salt yeah actually interesting basically that you can defeat the salt a lot if you just drink enough water because it is. Yeah. Yeah. You know it's you know and but it's interesting how and that's another then talk for another day.

Is this how pivotal pivotal uric acid seems to be and bring on this survival pathway. I've always wondered like why you. But it just seems to cause because it blocks it blocks Ampk.

Yeah. So it's designed to be a forward modulator of AMP, PD and a reverse blocker of Ampk, and that's why it does it. So, Perlmutter got me obsessed on on, uric acid.

And so now I'm designing whole uric acid blocking systems, but they're very similar. You know, most of the things that are driving Ampk are also blocking that.

But we're finding, you know, we're looking at all the constants for this anti and oxidase blocking and what the most important ones are. And so we're going to have a whole cardio metabolic system and then encourage people to get a uric acid meter a blood sugar meter and a ketone meter.

And then here the supplements you take. And when this goes up because when that uric acid goes up, the ketones will go down and the sugar will go up. And so there will be this whole cardio metabolic thing to keep yourself on the right side.

And one of the simplest things I have to offer people is lose the fruit juices. I mean, they all know how to lose the sodas, but but please, there is no good fruit juice.

Okay, I just zero I mean, if you know, you want to, you know, if you want to put a half an ounce of juice in your smoothie, probably not a big deal. But, you know, go up and down.

Orange juice. Yeah. I mean is like, not good, not good, not good. Unless you're planning on fasting for the next 2 to 3 days. Yeah. You know, to get you back.

It's just it's the it's the word, you know, I mean, and we've all been sold on it. I mean, every juice bar and I mean, it's all about health food. Oh yeah. And so is that healthy?

I was, I was just at a biohacker event called Run Gut and there was a, two, two women partners there, and one of them was way into juicing and the other one wasn't so sure.

And, Stephen. Oh, God. Who's the big, like, lectin guy? Oh, Philip. Not Phillips. Gundry. Gundry. All right. So Gundry was at this show and and so she grabs him, says, can I talk to you for a second?

What do you think of juicing? He goes, oh, juicing. Yeah. Great. So you get your vegetables and your fruits and you get your juicer, and you push him through there, and you get all this beautiful full juice, and then pour that down the drain, take everything that's left over and eat it.

Oh, yeah. Excellent advice. I mean, because you eat the fruit, it's, you know, unless, you know, because they said, you know, it's unless you're going to eat like a pound of grapes.

Inflammation, Uric Acid, and Metabolic Disease

Grapes might be an exception because we managed to make them overly sweet, but, you know. Yeah. Eat the

fruit. You're fine. You know what? Apples. Fine. Don't eat three, you know. Yeah.

And in in the peels, like, you know, like even an orange has and is just rife all through the pith. Yeah. And that's an Ampk actor and is an oxidase blocker.

And, you know, there's all these phytochemicals there that kind of steer the ship for you. Make sure you don't go too far down there. But there's the juice itself.

It's just like a a rocket ship to the cardiovascular ward. Yeah, yeah. No, I mean, and this is, this is, I think, one of the greatest services of, of of the food and of, of, you know, the FDA has and the, you know, what is it the, the.

No, no, that's on the FDA. It's the, the our agricultural. I forgot that the. Yeah, the People Services division where they make the food pyramid. Yeah. Well be yeah. The food pyramids.

But the people, you know, the fact that that, you know, the corn sirup because the fruit, the high fructose corn sirup, which is in everything. I mean, people who buy tomato sauce have no idea that they're buying, you know, a pretty much a direct toxin.

Yeah. And their system, you know, I mean, that's the people who can't lose weight and they wonder why. Well, get rid of anything with high fructose corn sirup, and you might begin to shift your body.

But yeah. And know don't and don't replace it with fruit juice. Oh, right. Right right right right now. But I mean, this is is funny, but I, I, I mean, it's not funny when I think about it.

It's just how, how much, a chronic disease is being driven by people who, who are home juicing because they said if you're juicing vegetable juice, you're probably pretty safe.

But so many people, it's it's there's a fair amount of fruit thrown in there. Yeah. There is. They blend it all together, make it sweeter. You know, it shouldn't be sweet.

It should be like, oh, yeah, yeah, yeah. Like, you know, because as you know, like because your intestines can handle a small amount of fructose and metabolize it, you know, it doesn't get into your liver and drive this whole pathway, you know.

And then there's the whole brain thing. I mean, you know, that was promoter's whole thing is the people who had these inflammatory pathways 20 years ago all have Alzheimer's. Now.

And, you know, it's because it's driving the neuroinflammation and then it's driving the type three diabetes, which is a brain specific insulin resistance.

And those are the people who benefit so well from ketones. So, you know, once you start driving down that path, you're going to have cardiovascular disease and you're going to have, Alzheimer's dementia.

There is just no freaking way around it if you live long enough. Unless you're very lucky. Yeah, but but, you know, it's some people just have the genetics to deal with stuff, but most people don't.

Yeah, yeah. See, now I look at my parents and it was like I have a tendency to high uric acid. I see what they died of and all their complications. I'm like they were high uric acid for sure.

And so now it's like, oh this is great. You know, now when it goes high or low, I really feel that it's like, oh yeah. Well that that is what I think is, I, I have to admit, in the last it's only in the last year that I really started to pay attention to, uric acid and, and, you know, like the, the, the, the, the what they call the nonalcoholic fatty liver disease.

You know, I don't know, for a long time I knew. Yeah. You shouldn't, you know, like, lower the sugar load, lower the

carbs and that'll get better. But I didn't really understand the driver that the, the that the fructose was and the uric acid component and I.

Yeah. I thought it was just all carbs before. Just for seven carbs, but specific carbs really lock it down that path. But you know, we did. We, a guy named General Wada, MD, down in Houston did a fatty liver study that took 103 patients, did our push catch liver detox, which is Nrf2, Ampk, and and binder.

And you got to get bile flow go with it. And the bitters thing, he just did that along with one of two diets. Anti candida or a my health diet for my 82% resolution of fatty liver in 1 to 2 months.

Well, you know, take the bad shit out. Whack it over with the right new nutraceuticals, you know, catch the toxins that are coming out when you, you know, when you freakin pull the plug out of the drain.

And it's like, it's really fast. How fast? You know, it's really amazing how fast you can reverse that. And it's amazing how many people are dying from this epidemic of that.

Yeah. I mean, this is this is a crazy thing. I mean, like, this is I mean, and that's what I'm so upset about, our public health is because this is a public health disaster.

Disaster. I have no idea how big it was because I was hiding from the world. I, I didn't have a TV for like 15, 20 years. And then, I got a TV and I started watching ads, you know, because I was watching football games and I'm watching the ads, and every other ad is for a diabetes drug, you know, and the ones that are diabetes drug are other autoimmune conditions.

And it's just like, oh my God, you know. Yeah. Well that's I'm right. Right. I don't I don't actually I buy my TV went away but but right. But two years ago I was watching a TV and that was I was always amazed how many how can you be selling so many drugs?

Yeah, it's all they sell now. Vast proportion of them are metabolic disease drugs. Yeah. Yeah. No, no it's and and the thing is, is that you I mean you know diet and the right supplements.

Yeah. Are the, you know, are, you know will will help most of this. I mean, you know, this the thing is that, you know, we I spend my life with people.

To be fair, that diet because the inflammation is being run by, in extrinsic factor, if you will. Yeah. There's a chronic infection that's there. Either the bug was there or it turned on the system in such a way that we have a hard time turning it off.

Yeah. You know, and also because there's a retained protein or a retained signal, you know, like the signaling device gets stuck on, you know. Yeah. But, but even with that, we can begin to move the dial if we clean up the diet, and we and we you can.

Because if one, you know, we can't always get the antioxidant system to be working full time. But if we can just get it pulsing, we can begin to get the detox working and you begin to get a virtuous cycle.

Yeah, yeah. A that's a really well said because it's a downward one. And then you get the virtuous the virtuous cycle and it really starts reinforcing itself.

And you just got to gently bring it back together. And the more the parts of the puzzle, you know, the faster you bring the thing up. But if it's just straight up metabolic out, call it fatty liver.

That's a piece of cake. It's when there's a big infection in the way. And and like you said, and they want you in living in a. Yeah. If you're living in a movie house you're not this is isn't going to help much because like, you know, the the system is the the pro oxidant system is screaming all the time, all the time and down regulating all that stuff.

Yeah. And that's why, you know, you know, I hate having people having to move out of homes. It's my least favorite piece of advice. But when I think that's the nastiest part of, of, of mycotoxins illness is that it often is is so disruptive to life because it's your whole family.

You know, if you've got if you've got lime, we got to treat you. You know, maybe other people in the family have it, but their life isn't necessarily affecting you.

But but mold it's. Yeah. And everybody's got it. Everybody's got to deal with it. You know it's it's a, it's it is a toughie. But still the stronger we can make the detox pathways, the more leg up we can give you.

So if for using I mean I said using your products, where do you like to start. If you had somebody who you felt was like, you know, in a, in an inflammatory either, you know, a house that they couldn't quite clean yet there was still some exposure, you know, and you can't move too fast.

Yeah. So you like our push catch. You have this liver sauce and binder. Now that's a little too strong for some of those people. We can't move too fast.

So you have to deconstruct it. And what's inside of it? Bittrex. And almost everybody can handle that. It's a, you know, it's just moving. But because bile gets stuck and that's a big it's a big block in the detox, the bile transporters of the toxin transporter.

So you got to get that going. There's faster, clean faster co-leads. Part of the thinning and fluid izing the bile. So you bring that in. That's helping rebuild all of the membranes and stuff.

And then it's got some methyl stabilized. It's crystalline luteal it. Now there also are of two up regulators, but they're much more tolerated than the lipoic acid or something like sulforaphane, which is the most toxic of them.

It's the strongest, but it's harming a toxin. So you want to take that out, and you'll have your bitters, your PC, and then start. You use his. The aid is our product.

That's just quercetin luteal and and dim. And you start bringing that up slowly. If they're really moldy, a little bit more dim. Because dim can reverse a lot of the blacks on Nrf2.

And so the bitters in the PC, they can usually go right into that. And then you bring up these others, you might bring up the milk thistle. And if they're really inflamed, you're going to have to crush them up a little bit with vitamin C, and then you're going to see how they respond to the glutathione.

Mold, Detox Support, and Gentle Recovery Strategies

Now, the other tool that I use a lot in the really inflamed ones and tons in, autism is CBD. So the CBD comes in, it lowers the inflammation, creates the window where you can, like open up the paths and dump some toxin out.

So open up the window dump, open up the window dump. And like you said, the virtuous cycle. Once it starts going, the more you get, the more you get. Yeah, but when we started coupling bile flow to the binder and the CBD, that opened all the doors to get into the difficult cases, and then what else you add in there, you know, becomes a little bit more individualized.

I but I think that that that is a very I mean, just that concept, you know, because the CBD, by lowering the reactivity of the planetary, the inflammatory system, I mean, because that's where it's kind of talk and, and it works at an immune level because there's cannabinoid receptors on the immune cells.

But really getting that neurological autonomic level because it's that neuroinflammation is the, the activated, the the activated sounds. What's the name of them.

The, the the immune cells in the brain. The might be the microglia fighting with the glutamate receptors in the

neurons and the CBD goes in. It's calms down the the microglia and calms down the glutamate receptors.

And that then gives you this autonomic break while at an immunological level the cannabinoids are turning down them too. So yeah. And sports neuro on the whole neuro immune thing down is great.

Yeah, yeah. That's because, you know, I said every every immune cell is a is as far as I'm concerned, is a neurologic cell. You know that's great way. Wait.

Look, I, I, I'm just a big believer that this is like, you know, day if your brain's not happy, your immune system's not happy. And if your immune system's not a happy brain's not happy, brain's not going to be happy.

And I love that. I think that's a very nice because, you see, this is people often, get overambitious when they first start trying to get healthy. And if you're really inflamed and you know, and you want to do some do it yourself work, I think that that CBDs I mean, again, people are often afraid of CBD because they're worried about, you know, they react badly to marijuana and they're going to get crazy and anxious and, you know, but they you know, for most people, I mean, I said CBDs are non-psychoactive.

They can make you sleepy occasionally, but, you know, they're not going to make you get really anxious. I mean, again, nothing's 100%. One thing I have to say, my caveat for everybody is I've seen one person react.

I mean, I can't, you know, I never want to guarantee anything. So I think some people, if they had bad marijuana experiences, have developed an allergy to CBD.

And those are the paradoxical ones. Right, right. And that but in the absence of that, CBD has done so much for our ability to treat autism slime mold, you know, any toxicity just by taking that autonomic break and letting the body go, okay.

I'm going to dump some stuff out. And remember, this is the beauty is that we're using the cannabinoid system is a is a rather complex system. It's been that, you know, you know, anandamide and and powerful ethanol I mean I mean these these are all natural cannabinoids.

These are I mean like so our because you put up for this, we're not adding foreign chemicals to our system. I mean that is the beauty. This wasn't, you know, a Frankenstein molecule that somebody came up with.

Oh your body can process this stuff. It's not harsh. And I think that's and that's the beauty of CBD is it tones up your own formation and sequence of your own endocannabinoids.

The CBD doesn't the receptors. It makes your own stuff that hits them a little bit of THC in there from the natural amount really helps hit the receptors.

It's much more efficient than even your own cannabinoids. So that's why you want a little bit of THC in the CBD if you want it. That's called full spectrum CBD.

If you want no THC because you're drug tested is really unless you have psychosis, you're prone to psychosis or drug tested as the only reason you want to take the THC out.

Then that's called broad spectrum CBD. And then you want you'll never drug test or anything. And that's the, you know, safest one. But it's better to have just that.

Yeah. No, no, that is something that, you know, and we've been working, in California with, medical marijuana for a long time. And that's something that, that, that the, the people who are experts have been telling me for years that, you know, if you're not getting anywhere with just CBD, but a tiny little bit in there doesn't have to be much half a percent, just a little bit is not enough to get that system to really open up.

Totally, totally is what we're doing. And getting back to the our basic approach, you know, is lower the

inflammation. Yep. Get a little bit of tiny binders in there because too much you know, the whole thing is if you move stuff too fast and really sensitive people, you get into trouble. But yeah, beauty is fine.

Do you think they're passive? But they're they're like magnets. They're sucking. And if I take too much binder, I get a little nauseous. You take a shot of bitters and it's gone because that's opening up that biofilm.

So coupling the bile flow and the binding together while you've calmed down the inflammation is what opens the door for the whole thing. Yeah. You know that that that is a very nice, you know, a kind of like, first step, gentle plan.

And again, if you're doing this at home, you know, I mean, like, I think, you know, like, how do you say, you know, when people have been chronically ill, if you kind of have to often take your own health into your own hands a little bit, you know, I don't want you to feel it, but I don't want you going out there buying drugs or taking, like, a ton of stuff.

But if you strike a drop or two of things and find out how your body reacts, you're going to be you're going to be able to talk to your doctor and give them information.

I mean, I'm, I'm, I'm a great believer in that, like patients feedback is what can really guide me. And so I love when people come in and I try that. And and it's sort of they tell me I tried that.

It made me sick. It's questions. How much did you try. Yeah. Or did you do it together. Because if you do that, you're right. If that's where, you know, like lipoic acid, that'll get cells to dump out.

But it's not going to get the liver to process. It's not going to get anything. But you know, and so that's why a lot of people were afraid of like podcasts and but, you know, once you couple it to the bio flow and the binder, then you're good, but you never start with that.

And that's why, you know, I really love question as a slow it's a, it's an inner of two but not too strong. It's amp okay. So it's bringing those two together and it's a mast cell stabilizer.

And it's a uric acid blocker. It's like working all over the place. And it's it's year two and activator PGC one and activator. So it's working on mitochondria.

But it's doing it a little bit slower a little bit more gently. Yeah. Well that that goes again that's where the nutraceuticals at the right doses are just so important because it gives you a chance to find out what your body can dance with.

Yeah, about blowing you up if you use them gently. And that's the thing. So don't start off with the thousand milligrams of quercetin and say it didn't work. Yes, yes, as.

Anyway, I never like to talk too much about dosing on on these things because it is the, you know, random. You know, I, I have discovered that, anything can blow some people up.

And so we always want to be be gentle, but but just just know that but but think about I mean, I think it just giving people the ability to start to realize that this is a, these are healing cycles.

These are cycles of self-protection that have just gone awry, you know, and that you're not necessarily broken. And, you know, it's just that your body is functioning.

It's just the the wrong message. It's like having a fire department that oh, the the alarms going off. So the guys are always running around and yeah, you know, and they're putting they're spraying water.

But you know and it's it's not useful anymore. Now, now they're just now they're just causing water damage. Yeah. And then you get the mold from the water damage.

They got a mold issue. You got a total mess. Anyway. I'm mixing metaphors. They're bad. Like yeah, but, you know, Chris, this has been a lot of fun. It's always, you know, it's it's just so cool.

To just talk about the amazing biochemistry of of of, of the body, you know, it's it's it's a magical system. And the learning goes on. Yeah. I want to thank you for for taking the learning and bringing it to the next level of making products that we can use in any creative ways.

I mean, that's really cool. Yeah. It's been wonderful. And, you know, the more you learn and then we hear like, you get bored until something new comes up and then you're like, now I can put more of the puzzle together.

Yeah, that that is for sure. That is for sure. So I want to thank you so much for your time. And, you know, we'll check in again and, you know, get a little, another, another dose.

I will yeah. It's been a pleasure, Eric. Thanks so much. I love talking to you. And, you know, these forums, We'll go. Great. It's same here. Looking forward to it. Okay.

Have a great one. Thank you. You, too.