Introduction and Background

Welcome. I'm so glad you could join me today, Datis. and what I'm going to have to do is introduce yourself and explain why you have this level of expertize that you've acquired.

We will all start with having six. Remember, we had an autoimmune disease and actually had a neurological organ disease. As growing up, I got to see how it impacted our family and impacted loved ones.

So the interest sparked into like what to do. And then my family member went through the health care system and really wasn't getting much help and just wanted doctor, doctor and more frustrated and very confused.

And out of the blue, a chiropractor that did nutrition made a big difference in her life and her lifestyle and impacted her health. And then I realized, wow, I'd really like to learn more about that.

And then I went to grad school when I was in my twenties, like my twenties. And then once I finish that, I really need to learn more about nutrition. So I got masters of nutrition and then I thought, okay, I really need to learn more about research.

So again, my director of health science and that is a PhD. My PhD was on the impact of touch a promote best in all a neurological and we about proteins which was looking at how best to have either high retarded skin trigger autoimmune disease through new mechanism, immune related mechanism.

And then I did my post-doc for five years at Harvard Medical School. I also did a master medical science and clinical investigation with research, design and statistics at Harvard Medical School, learning how to really interpret research correctly and do my own research.

So I published several papers on autoimmune disease related to chemicals and chemical activity in particular, which I think is the topic we're going into today.

Okay. Excellent. You know, and in a love that you like me understand this from the patient perspective as well, because I certainly see that gives us a very unique perspective on the research that we do and a unique perspective on the care that we provide.

Absolutely. Now, what are we talking about? Chemical immune reactivity versus chemical load of people? Think about that. Why don't we define those two terms so everyone listening knows what we're talking about.

Is the chemical load is the classic term that's used, and it just basically is in reference to how much chemical is in your body. So the quantity of chemicals in your body, it doesn't matter what chemical you measure, whether it's pesticides or heavy metals would have.

The chemical is the actual quantity is the chemical. And we all have different come glowed. Sometimes we build it up over a period of time. Sometimes we get the huge exposure at once.

But in every one of us has some degree of chemical load in our tissues, in our body. And that's different. And I want to pause for just a moment. And these are not the the chemicals that are biology makes.

These are other chemicals that are not the chemicals that I'm creating as part of being alive. Correct? Correct. So let me clarify. Yes. So these are these are pollutants or toxins or toxic chemicals, say, with the toxic chemicals we have, like persistent toxic chemicals, which we can't clear out of the body, and then and then chemicals that we can clear out through liver pathways transformation.

So persistent and persistent. But the goal is that these toxic environmental chemicals like BPA plastics or fire retardants or pesticides or heavy metals and these things that are known to be inflammatory, harmful to us, create free radicals, that sort of chemical, though it's I'm afraid of chemical odor, definitely referring to toxic chemicals.

And then chemical immune reactivity is is a completely different concept. And it's also referenced to these toxic chemicals, but it's really not related to the quantity, but if the immune system reacts against it now the immune system, when reacts against a substance, it's going to make antibodies and antibodies as part of the immune response.

But chemicals alone don't trigger antibody production. Chemicals aren't able to do that. Proteins do that. So it happens. And this is where my Ph. D. thesis came in with the help of Dr.

Richard. The journey was that chemicals bind to albumin, and albumin is the most common protein have in our blood that allows us to maintain our osmotic pressure.

Chemical Load vs Chemical Immune Reactivity

The pressure of blood and proteins can bind to albumin and they change the structure of the protein. And now the protein changes into a neoantigen and a new entity, a new protein that our immune system is not seen.

So it's going to treat it like a pathogen, like a virus or bacteria or something foreign. And when that binding happens in the configuration changes, that's chemical immune reactivity.

So the chemical itself isn't necessarily in high amounts, but the immune system, it's binding to proteins. In our system, it's changing the structure and now there's antibodies against that protein chemical complex.

So you get antibody production so you can have mercury bound to albumin antibodies or BP bound to albumin antibodies and you can have trace levels of exposure but have significant immune reactivity.

So working with autoimmune disease patients and other both important, the chemical mode can distribute. The immune system can cause a whole host of inflammatory oxidative stress reactions.

But chemical immune reactivity is going to trigger the immune system specifically, and it may not even be related to the total load. So you could have someone that has it say nothing significant, a slight level of mercury, but nothing really outside the range.

But they could have really high mercury amount of antibodies or someone has BP antibodies. So then they have a little sip. They get a severe immune inflammatory action.

It's not even about the load because everyone has some degree of payload load in the body. And that's a whole different paradigm of looking at how environmental toxins, the chemicals impact autoimmunity and immunity itself.

Okay. So as I'm listening to you and one, if this is a bit like a hormone effect that it's very, very potent, even though it's a tiny concentration in my bloodstream, I am getting that.

Would that be an accurate way of thinking about this? What's possible? So if we did some research, we found we did a study, I sent my friends, Dani and myself, we did a study and we took 400 healthy blood donors.

And we wanted to see, first of all, what percentage of population actually have these chemical activities because you don't always it's just a few people.

And what we found was somewhere between we checked about a dozen to four chemicals and maybe 50 chemicals and things like BPA and we're green pesticides and fall lights and things like that.

And what we found was between 12 to 17%, depending on the chemical. So let's just say about 50% and the

average 50% of healthy population with no symptoms, no autoimmune disease, no conditions as just a healthy non disease patient was, about 15% of them had these chemical antibody reactions so doesn't have to everyone so and then the population that do have the antibodies and when you look at the immune response with any antibodies, it's not the antibody reaction that really causes the information destruction.

It's it's the antibodies is tag what's foreign and means needs to be aware of to deal with but it's how aggressive their T cell responses to the t cell responses to the fight or the fighters the solution are so if the T cell responses are really, really strong, then they can have severe reactions and have severe problems.

Then a little bit of tiny exposure can be a major flare up for someone and then for some people that the T cells weren't as reactive and they could go into like various reasons why the immune system is like healthy control of that, like regulatory T cells or it's just lost control in the natural killer cells.

And sometimes the T cells, these these immune soldier cells are very reactive, causing a reaction. So it's kind of like you have the population of people a percentage of them will react to these antibodies.

And then the ones that react to the antibodies, how severe it will be, won't just be the fact that's the antibody, that's one variable individual will be how strong their T-cell responses are.

Just like someone has, you know, myelin, basic protein antibodies, so will have them really, really high, but they don't have severe destruction. And and some people have very, very small lives in the destruction.

So the antibodies just part of the picture, but the T-cell response is really determining factor. So there are some people that have very powerful T cell responses and they may have like a BPA immune reactivity, not the not total lowered vitamin reactivity and that you get a plastic bottle and there could be a flare up of their or humidity.

And if people have an activity. So it seems that the t cell reactivity is really a big deal here. Yeah. What can people do if to sort of reduce the T-cell reactivity?

Right. So the T-cell reactivity and why people have a significant response to the antibody they kind of look at in the field of immunology under the specialty and feel of oral tolerance, immune tolerance.

So really depends on how tolerant the immune system is. So just, just like basic concepts, one of the main, main things is regulatory T cells. So the more healthy regulatory T cells are, the less reactive these t cell responses are.

So regulatory T cells from lifestyle are going to be impacted by sleep. Like if you have healthy sleep, that helps. We were battery t cells. Vitamin D helps your actual T cells good with iron helps bind to regulatory t cell receptors, activate them so the like things like that sleep exercise improves regulatory T cells.

So it's the obvious thing we all know is like let's leave, get some exercise, get some, you know, fresh, outdoor, some light and then make sure you buy them. And these are okay. Yeah.

You know. Reduce your added sugar, reduce your ultra processed foods, eat more protein, healthier proteins, eat more vegetables. Are those the the basic things that you do to help people manage their chemical immune reactivity that are all independent?

So so like in a functional industry practice, we know when we see patients, there's just like, you know, all of us in the field, we want to have patients doing all of those things right, many of them.

So we have two groups of patients, one group that have no idea what to do and they're just jumping into and lifestyle. And then we have another group that's been in it for a while.

They've gone for the. Rest and is still sick. And they're still sick. So it's for the and I think for for many of us, we, you know, we're seeing the ones that are still sick and we see they've already tried many things.

I mean, we read many things. So, you know, the key thing for me is like I first have to make sure they're getting proper sleep.

T-Cell Reactivity and Immune Tolerance

I just know t cells are not going to function. They're not getting proper sleep. That means the mass prime itself to regularly itself does that when we sleep.

So we've got to make sure. However we can't out to either sleep. So that could be a huge lifestyle factor and maybe like for some people they have an overactive bladder.

For some people they just need to stop taking water late at night. And people have a prostate issue or some people that blood sugar drops more and we got to stabilize blood sugar.

But whatever it takes to get them, we got to figure out how to get them to sleep because no way around this t cell thing without proper sleep. So we spend a lot of time looking at the mechanisms that are causing their inefficient sleep and then nutraceuticals obviously for the regular T cell directly would be things like vitamin D, short chain fatty acids like beta eight acetate, which come from fiber.

So it could be just getting more fiber into their diet. Get the short chain fatty acids levels up, making sure that my body levels are normal, maybe even optimizing vitamin D levels by making sure they're above 50, something like that.

And then the goal is that you can go deeper and go, what other things can cause? Loss of immune tolerance? Loss of times can be things, some intestinal problem, ability, overactive dendritic cells impaired by the transformation pathways. And those are all the things we try to go after.

I think we should define dendritic cells people as they may not know that. Right? So top of all your like gut cells or top volume mucous membranes, whether it's your mouth, your long lung barrier got bigger.

You have these cells that are quite interesting. So they just sample proteins that your sample that's coming in and these dendritic cells can become overzealous, they can be overactive.

This is one of the other main mechanisms of people that have loss of oral tolerance, and these dendritic cells are directly impacted by vitamin aid, vitamin D, red, no acid, and vitamin D both impact the regulation.

So sometimes we can share the vitamin D, but barramundi levels are healthy, or even maybe higher than normal levels. To make an impact on those would be really cool.

So everyone listening. This is why I love liver so much. Have a little bit of liver every week. They'll get you that vitamin A. Yeah, although not too much liver.

So just a little liver is good and get out in the sun that vitamin D up and we're using the term oral tolerance. People may not know what oral what we mean with oral.

So the immune system has a in immunology they use the term called tolerance and there's different types of tolerance is tolerance like self tolerance is really what autoimmunity is about.

So when you make antibodies against yourself, they just refer to that as loss of cell tolerance. You're overreacting. And there's something called chemical tolerance, which is we've been talking about when you start reactive chemicals, I mean, you've lost your chemical tolerance, you start reacting to chemicals around you.

And then oral tolerance is also known as dietary protein tart. That's when you start reacting to foods you ingest and your mucosal needs to be gotten immediately starts to become overreact things.

And in reality, if you look at the mechanisms, they're all identical. So when you lose one type of tolerance, you lose the other. So if you develop autoimmunity, you've lost self tolerance, most likely lost some degree of oral tolerance.

And this is probably why you react to more foods than before and you lose some degree of chemical tolerance, which may means you might be in that group of a normal, healthy population, which we found as 15% of them have this chemical reactivity.

And in the private practice, just anecdotal information. I would say about two thirds of the people that we check with our community have chemical immune reactivity, just like they have multiple food reactions as because they block tolerance.

So what we try to do is look at lifestyle dietary approaches to improve their homes in general. But if we know when we have a chemical immune reactivity, we can test them.

We can do a lab test to check to see if their antibodies are high. It's going to be as high to only like one source. We try to limit that switch like some can have really, really high antibodies to from on high.

And then we find out they have like installed like, you know, this vinyl flooring which offloads a lot of formaldehyde. Then maybe we have to have the discussion if maybe they feel sicker when they're in those environments, in those rooms with them or not, you know, and then go down that route, someone may have BPA antibodies.

So we really have to make sure that they stop using plastic products because specifically their BP antibody, chemical reactivity. So so we try to do some lifestyle that for some people like every chemicals high so they just last total total chemical tolerance reactive to everything around them and those are the ones you really trying to get their dendritic cells to calm down, make sure they don't have a leak.

God, make sure the military T-cells are functioning, make sure they sleep, actually put triggers are stable, make sure that my body short chain, fatty acids, fiber.

I guess we should define the t regulatory cell so people understand you and I have very fond feelings for our t regs, but let's help the audience understand what the T regs do for us.

So the T regs or like the the person immune system when it comes to immunity is the regulatory T cells. And they they kind of balance out your overactive underactive responses from the immune response.

And, you know, the entire field pharmacology is trying to figure out how to turn these on. And if they do, they can have a blockbuster medication. But T rex cells are really one of the most important fundamental cells for managing how overzealous an immune response becomes.

So yeah, from a bunker medicine point of view where I was trying to figure out how to optimize t ray function, the t cell function whenever someone has autoimmunity sense of fact could be enhanced and optimized.

Theoretically, we can we can we can calm down the overzealous immune response. We would ever have to worry about the t regs becoming overly active and creating harm by being overly active.

I've never read anything about that. It's possible we're really in that now. We also have all this new research coming out with regulatory B cells ready to be sold in regular T cells working together.

And it's really fascinating. So yeah, I'm certainly not aware of any descriptions of problems related to excessive Tregs, and I read that kimchi and sauerkraut are really beneficial of course, for the Tuaregs.

Yes, that's another reason why I'm so fond to tell my tribe to work on adding sauerkraut and kimchi into your diet. Right. And fermented foods and fibers and fermented foods and fibers especially really short chain fatty acids.

Butyrate acid properly. And those been found to directly bind to t regs and help their activity. Okay. Now, Mike

Regalia. Mike Regalia is something that everyone is talking about that that we'd like to figure out how to get the mike regalia to be more health promoting.

Do they have a role to play with this chemical immune reactivity? Sure. So, you know, whenever in like in a functional menaces model, one of the things one approach could be is like, you know, someone has an autoimmune disease, you know what their target protein antibodies are, right?

So for example, so it's the most basic protein can be one of the three proteins. So it has or without it, it could be very patriotic sentiment. We all immune disease has been target protein with immune since attacking herself so with neurological autoimmunity you know there is this antibody response against the nerve sheaths in the brain and the nervous system and the different proteins in the brain.

Microglia, Neuroinflammation, and Brain Health

And when that happens, there's the surrounding immune cells, the glial cells that are now turning on and being reactive. And these these these micro glial cells have an M1 pro-inflammatory state and an M2 anti-inflammatory state.

And as long as something is driving their M1 pathway, it's going to persist and continue that inflammatory response. So theoretically, chemical immune reactivity could be an ongoing activator of those things because once the chemical immune response gets triggered, meaning a chemical bound to a protein and that's a new for antigen initially going to be picked up by circulating immune cells called macrophages and dendritic cells.

What we just talked about and they're going to sample, they know this is for. And as soon as they say that's foreign, they're going to release protein messengers.

They can up regulate immune system all throughout the body, including glial cells. So the glial cells are going to be triggered by any kind of antigen or a neoantigen from a chemical, from chemicals, minor proteins.

And they can cause that persistent inflammation. So in a as model as, you know, we try to reduce the triggers, the antigens and for chemicals we have to look and load, but also chemical activity.

And then and then what do we do to turn this inflamed microglia from an M1 pro-inflammatory to M2 into inflammatory? The inflammatory can help help heal.

And with things like Hamas, we want we want the healing process take place. What myelin to free myelin it we want connectivity to happen and that's going to happen in M2 state.

And of that one state, M2 being inflammatory. So you know the key things that could shift in one, Tim two would be flavonoids have been shown to do that green tea, pine bark, resveratrol, turmeric.

They have some properties that that dampen microglia inflammation and tend to ketones have been shown to do that study. So when people that go into ketosis or do some time restricted feeding to get some ketone ketones build or even some extended feeding fasting to get some ketones built, I'll even have some patients take EXONDYS ketones as a supplement.

They can get made hydroxybutyrate that's it's you know, we're realizing it's not just a fuel source, but it's also a very powerful neuro type monitoring compound.

And as the ability to impact M2 expression is a one, so we'll basically use different degrees of flavonoids, whether it's from fruit or supplements. The more rainbow color, more fruitful your foods are, the more flavonoids that are. These flower Benoit tend to have some influence in these two pathways in fiber back to whether using sauerkraut or kimchi, those help produce little called short chain fatty acid in the gut.

And they've actually found studies where the regulatory T cells in the gut impact brain autoimmunity and that's

been done in several animal studies now where they've been able to modulate neuronal formation and animal models with short chain fatty acids like Butyrate in the gut to store inflammation and even optic inflammation.

So those are the main strategies it works on. Excellent. So if you've got a lot of systemic inflammation, this immune reactivity, we're making our microglia more reactive.

And that's when the glia, the immune activity in the brain are disrupting the synapses. So that is the connectivity and are damaging the myelin and you know, the drugs, whatever great drugs we have, we can we may slow some of the neuro immune response, but it's pretty hard to heal right, unless we begin to address this more functional medicine approach.

Yeah. So you know, we've always looked at is like the drugs are great for crisis care when it's needed to calm the destruction down and it basically blocks the M1 destructive pathway but isn't short on them too.

And it seems like they nutrition lifestyle is really we're turning on that meta protective restorative pathway really shines so. Yeah you know the the MSCI is in talking more and more about the neurodegeneration that is happening that we have drugs that are very effective at turning off inflammation, but there aren't drugs that are stopping the neurodegeneration.

And I'm curious, what are your thoughts about about why that neurodegeneration that that shrinking of the brain volume, shrinking of spinal cord volume, but why is that happening?

I think, you know, like all neurons integrate to each other. So all neurons cause inactivation to develop. Karaka genes and mitochondrial protein structure, just like a muscle.

If you don't if you don't contract and activate it, your muscles atrophies. So when neurons one neuron fires to this neuron and the starvation is known as they fire into each other, they just keep each other healthy, they just keep their cells.

So now you have a neuron that's injured that's no longer to this neuron. So this neuron just starts to give us input, starting to get atrophy. And it's no different, I think, than Alzheimer's disease.

When people get these plaques, build these beta amyloid plaques, build that, then get in the way of healthy synapses, and then the brain circuits atrophy.

So I think with a new inflammatory, like a mouse model, just getting injured to the cell and that cells no longer communicate with this one and there's debris there.

And over time, building atrophy state. Are they going to find a drug to form it? I don't think so. I think the main thing would be basically to optimize autophagy.

So once his cells injured, like you're getting it out of there so you can have healthy neurotransmission happening. So if you think about it like if you have neuron, so we had let's say neurons here, let's say you had three different neurons here.

These neurons all communicate with this one spider, this one this is right, this, this one, and then this one gets injured. So now it's like new to this one that is injured.

One is now having debris and build up. So it's going to get into synapse communication. So it's going to be cleared out. But this one also is going to branch into that.

Yes. So the main mechanisms is to, first of all, promote autophagy where you like clear rid of debris of these injured cells. And the other one is to really optimize brain derived neurotrophic factor and brain damage took this activity.

And another growth factor is allow these neurons to connect to each other so you can get function back. So one of the things that has been shown to profoundly do that in animal models yet in humans, because I don't think the studies involved will have studied humans because it's really extended fasting.

So especially in look at fasting, when someone goes into like past the 18 hour window, that's really when their autophagy gets more accelerated. So the degree and then the brain derived factor and even growth hormones start going up and then they get to the to even get more profound levels to change, even sometimes 400% increase production.

And then you get to day three and you have even a greater effect, but you get the same effect from just like an 18 hour time machine. Yeah. And then, but once you go past three days, then you start to lose muscle mass.

Now there's all this research showing muscle mass is absolutely critical because muscles and just for strength muscles release McCains, these different proteins that modulate the immune system and help modulate brain function.

And they found links between muscle mass and Alzheimer's disease really potentially. And that's because Mike Mayo kinds of packed brain. So a lot of times we're trying to shift M one pro-inflammatory these glial cells in the brain really them to M2 and we're trying to get nerve connectivity to back to get back in in addition to kimchi sauerkraut, you know, rich flavonoid foods, vitamin D, fatty acids, fiber supplements, you know, things like that.

Reduce the chemical load. We'll have people, you know, move into feeding and then eventually when they fast that they're okay with that two day and three day and then maybe repeat that just to help get rid of debris in the brain from injury and then have these bleeding F levels come back ups, they can reconnect.

Yeah. You know, when I was younger or a much younger, I would do a five day fast, you know, man, I was really hungry. Of course, by the end and a couple of times they did seven day fast and you know, during that re feed and I just felt like such a million so, so great now that I'm older and I realized muscle, you know, my muscles are much harder to get back because I'm over 65 now.

I no longer do those long water fasts. Yeah, it's, it's, it's very important to not lose muscle mass if you've to figure out what your tolerance is and for sure you're okay within one or two days, three days is right on the border when you start to lose muscle mass, but you have to see what your metabolism is.

You definitely, especially older, you cannot lose muscle mass. Right? The fasting window becomes much different. And and I'm curious, do you lean into a higher protein diet as people age?

Fasting, Protein, and Aging

For sure? And at what age do you have? You make a jump on the protein amount in the diet. I don't know if I have a specific age. I just look at the body composition, do dietary history, but especially if I see they're underweight and have low muscle mass and they have frailty in their strength.

We have an immediate discussion in some of the studies where they look at longevity risk. They see people that are underweight have the same all cause mortality risk as someone who's obese.

So if you see an elderly person is underweight, I mean, the number one reason is that getting a protein and negative physical activity and they just usually it's just because I not getting a protein.

So, you know, sometimes people get older just hungry and that and then when they eat, they just don't get enough protein in. And that's a dangerous combination.

And it's actually terrible for modulating immune system. You have to have proteins, have a food immune system like your immune system complement proteins and antibody proteins and all these things depend on you having enough protein to have the things you need to fuel machinery.

I am so distressed to what I see are elderly patients eating all of this sugar? You know. All this candy, all of this ultra processed foods. And no, I'm just very, very troubled by that. So.

Yeah. And the other thing too is like some of them, they do that they're not overweight. So you think that, however so they think about weight, but really they have lots of visceral fat and see where the muscle is.

So they're you know that they called that, right? Yeah. Yeah. And what, what I, what I am stressing to them is like you're robbing your brain when you're, when you're eating all of that sugar ultra processed foods.

Sure. So we've been talking a lot about M. S, but I know we also have some people listening who have other neuro immune conditions. So other systemic autoimmune diseases that have a neurologic or psychiatric symptoms.

And so how how would these concepts apply to them? They are definitely translatable because unrelated to the autoimmune response, the microglia, your inflammatory cascade is a player with genetic atrophy and autoimmune diseases, the player for schizophrenia, schizophrenia, the very overactive M1 pathways.

So all the strategies that we do to modulate this microglia one and two through lifestyle still or translatable. The main difference is there could be different trigger rhythms.

That's an autoimmune trigger to a specific target protein. But then at the end of day is this inflammation in the brain that's starting to injure it. And if we can modulate it, shifting into a M2 healing anti-inflammatory state against from an M1 for destructive state, it's still going to be transferable to that.

There's other conditions. So so I'm thinking about folks like Shoguns, rheumatoid arthritis, inflammatory bowel disease, but yet all of these systemic autoimmune diseases may have other parts of their body that being wrecked in addition to their brain.

Yeah. Like for example. Absolutely. And one of the thing is, is it's pretty rare to see something that only has one targeted protein antibody. So like in a setting, like we'll see someone that comes in and says they're not see disease.

Maybe it's from church, right? It's maybe it's a mask, maybe it's Hashimoto's hypothyroidism, whatever the condition is. Of course, clinical question is usually what is the rest of it?

You know, the history will just figure out, okay, this person that has joint pain also is on thyroid medication. And then we see that thyroid antibodies are this person that has severe, you know, brain fog thinks they only have, you know, aura, but it turns out they have myelin, basic protein antibodies and have severe there.

So we'll run a panel or like check 24, 25 for tissue antibodies, specific tissue antibodies and see where the rest of it is. And a lot of times, you see if something comes in has like a whole list of symptoms and you find out is there's just different target proteins being attacked.

So they have like low blood pressure and they have like 21 hydroxylase adrenal antibodies and then they have this weird hepatitis that no one can really figure out.

They don't have the branch but the swelling and pain. Then you find out they have autoimmune hepatitis and then you and a little bit of inflammation and then you're like, okay, well, they have one main thing, all these different tissues, a big attack, but really a lot of immunity.

And then you go, Well, what's the mean, Max? Final eats. It's loss of cell tolerance and they know what can digest nicely. I'll do two bags of tolerance.

It's all things you're talking to. Talking to. Absolutely. You know, and I tell my most patients, if we don't get this under control, you will be having a formal auto immune diagnosis in a new organ system probably every 5 to 10 years.

Yeah. Because what we're what date is and I've been talking about is your tissues are being attacked and there's finally enough damage to that tissue or that organ that now will come back and say, you know what, you do have rheumatoid arthritis now.

Yeah. And then it comes on and then another 5 to 10 years and now you are troubled enough that you have inflammatory bowel disease or that you now have psoriasis.

And so it's just so important that you find someone who can help you address the root causes as to why this is going on. Absolutely. Now, I know we've been talking about auto reactivity, the chemical immune, the chemical load.

What would you say would be the the single most important thing that people who are listening to us today that you would want them to take from our conversation?

Wow. That's a really profound question. And the first thing is that that lifestyle is really the main mechanism where you turn on mTOR pathways, that healing pathway.

So even if you're, if you, if you, if you're taking medication to dampen the inflammatory response, you still need to optimize your M2 pathway and monitor inflammatory stuff.

And that's that could be done by medication. The medication is going to stop the injury that in one part even at the M2. So, you know, your basics of getting proper sleep, getting exercise, getting healthy nutrition, even taking to your circles to help support your physiology because it's going to need to such as initially vision is going to need if you want, amenity can be really important.

Practical Takeaways and Resources

And then I would say as far as chemicals go, you know, you can't always you can't you can't get rid of chemical exposures. This happens to all of us, but you can reduce chemical spills in your home so you can stop using plastics in your home.

You can stop heating food in plastic products. You can use glass, ceramic. If you can make sure you have a really good whole water filter. And even over the sink water filter, you have good filtered water and.

I would say. Try to try to make sure you don't have fresh with fire retardants fire retardants that to my Ph. D. work showed it was really significant and actually technological autoantibodies I saw a very strong a relationship my data with them which we did published and I think at the very least you're living in your home many, many hours of day.

At least have 2 hours a day, reduce your chemical burn load, get good air filters, hip air filters. Yeah, yeah, yeah. It's the basic things. Do it to do investigation in your home and see how you can reduce the toxins.

Step by step. Now everyone is listening. You have a great website, I'm sure what people want to learn more about you, where they go. My is that DrKNews.com DrKNews.com Kharrazian really hard to spell.

Yeah, that is true. Dear k and he does the scum. Dr. Kane is. That that is excellent. And can, can people come to you know, I've got an autoimmune problem.

Are you are you seeing patients so I'm not. Well I am. See. So I have an institute for treating health care, training health care professionals called the Cross Institute.

We have about 3000 health care professionals and physicians in the group. And in that group I do ground rounds each month with new chronic patients to teach them like how we work them up and how we exam them.

So I'm only doing I'm only able to take patients now that are helping us educate on the practice with ground rounds. So it's kind of like limited to those that are also interested in helping us educate.

So we do have we it's limited and we're kind of limited with time and we're trying to I'm seeing my biggest impact is by helping other practitioners learn this.

So I'm working with patient that, allowing me to use their case to. Take just about. I know we have a lot of practitioners who will attend this summit, so if you're a practitioner, do go visit their website as well as you can learn more about his practitioner.

Training course in institute outcome. And then also if you go if you're patient looking for practitioner, we we have people who've taken all our course programs different doctors and health care professionals and the referral page but it's an institute or RHC and they can figure out how to share that and we did it.

But okay, I think you go to the doctor K News and start there. Yeah. Well I think there's. Yeah. All right. Well, love you. Love your work. You're brilliant.

And this has just been a fabulous interview. Thank you. So the feeling is mutual. I think you're having such great impact. I'm so proud of all the work you're doing.

It's awesome. Amazing. It's awesome.