

Paleo Solution - 197

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Robb Wolf: Hi folks. Robb Wolf here. Episode 197 of the Paleo Solution podcast. I'm still large and in-charge today, although Greg is not with us, but I'm here with Dr. Michael Ruscio. And doc, what's going on?

Michael Ruscio: Not a whole lot... Just lovin' life here in Walnut Creek, California.

Robb Wolf: Sweet.

Yeah. Well it probably a little better than what we have it in Reno. All of the fires in this... Sierra Nevada are blowing directly into my backyard. So, the air quality, the past couple of days, was worse than in Beijing, by like orders of magnitude like it literally would pull up air quality Beijing and air quality Reno. And Reno was like much worse. It was awesome.

[Cross-talk]

Robb Wolf: So doc, give folks a little bit of your background? We met for the first time in Chico, I think, at a Paleo Solution seminar, like, 4 years ago now? 3 years ago?

Michael Ruscio: Yeah. Kind of 4 years ago... Yeah.

Yeah, a little bit about me... I've practiced functional medicine in Walnut Creek, and I know functional medicine's kinda becoming a popular term, and just one quick, maybe, stand in my soapbox, which is — there are, in my experience, two kinds of functional medicine providers.

There are those who specialize in it and they only do that and they eat, live, and breathe functional medicine; and then there are those who dabble. Either approach's great as long as they're making positive movement in the right direction, but for me, all I do is functional medicine. It's my passion. I absolutely love it.

And kinda how I got into functional medicine, I was preparing to go to conventional medical school. I was 23 and getting all my ducks in a row, and at 23, I owned my own personal training company. I was just finishing up a degree, kinesiology, from U-Mass and was getting plenty of sleep, eating organic food, had no reason not to feel invisible, and I just started waking up at 3 o'clock in the morning unable to go back to sleep.

And I started to observe myself, getting in my car, driving to Cumberland Farms, buying a Kitkat at 3 in the morning because I was craving sugar, tired during the day, didn't have the energy that I used to have and I said okay. Something is clearly wrong 'cause I went from former college athlete to that — to insomnia, lack of energy during the day, losing muscle mass, having bouts of depression, feeling cold for the first time.

So I said let me go in and let me see a "expert." I went to my Endo, I went to my GP, and I went to an internist, thinking no problem. These guys will figure it out. I'll be turned in around in no time and I found myself in a situation that I think a lot of people find themselves which is — all the experts had nothing to say. All your labs are normal, nothing's wrong with you. And so then I was like, geez, what do I do now?

And I actually got hooked up with Dan Kalish who's a functional medicine doc in the city, and, he kinda took me under his wing and he was able to fix me right up and ironically, I ended up having the same parasitic infection that he had and I guess that Chris Kresser had.

So it's kinda maybe it's a good parasite that I found it that way but he found entamoeba-histolytica kind of infection in my intestines which was the thing that was causing all the problems and so I decided to follow in his footsteps which was do my training in chiropractic and do a heavy supplementation with functional medicine course work and as soon as I came I out, I really hit the ground running. So, that's what I do now and that's kinda the very long version of how I ended up in functional medicine practice.

Robb Wolf: No, that's awesome, and Dr. Kalish, we need to get him on the show, also at some time. Eva Twardokens is doing studying with him, he and Chris Kresser are good pals, so Dr. Kalish is kind of a serious hub particularly there in the Bay Area for functional medicine and he's been toting that barge and lifting that pail for a long long time. So very cool. I didn't actually know that background with you. So that's pretty cool.

Michael Ruscio: Yeah, it was probably some of the shittiest six months of my life. But it was great because I learned so much from it because I thought I had adrenal fatigue, I thought I had low testosterone, I thought I had low hypothyroid, and so I started doing what all my patients do which is reading stuffs on the internet, buying all these supplements that treat the cause and spinning my wheels and never getting anywhere.

Until I address the underlying infection, I really didn't get much better. So it was a great learning lesson for me even though it kind of sucked at the time...

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Robb Wolf:

We know it's funny an open tab on my browser which I usually have like 50 open tabs, which is probably why my computer runs kinda slow, but a friend of mine, Mike Maloy, who's a Ph.D. in Immunology just forwarded a paper to me that was a bit of a review paper but it was talking about the different gut flora and how that can really significantly influence testosterone, estrogen, progesterone, and in a way that generally both endocrinologist and immunologists had no idea that it could influence things that way.

So it starts looking... When you think about it, at the end of the day, people start thinking about adrenal fatigue, overtraining — stuff like that, because this gut pathogen stress looks a lot like the stress that the body is under like cholesterol levels can go up, lipoprotein levels can go up, HDL can drop because stress is kinda stress at the end of the day and the body ends up reacting relatively similarly regardless of what that stress is.

Do you have any sense of how you maybe grabbed this amoebic parasite?

Michael Ruscio:

Well, I think it was either through food or through a woman, one of the two. They can be transmitted sexually and they can be transmitted through just contaminated food, I hadn't really been out of the country, nothing — no travels abroad or anything like that but I think the thing that we all often overlook now, 'cause the classical paradigm is well, you're probably only gonna get a parasite if you travel somewhere third world.

But what my advantage point on this is that now that we have so much food coming from outside of the country to the country and so many people coming from outside of the country into the country, that leverage with too much stress, not enough sleep, poor quality food, our immune systems are very weak, the terrain is very hospitable to house one of these opportunistic infections which are just waiting for a chance to set up shop in your body should you go through a point of being immunosuppressed and so I think these critters are always in the environment. We've just become much more hospitable to them.

Robb Wolf: Right. Right. And then the kinda of catastrophic effects... It's crazy when we had Dr. Parsley on the show, maybe a couple of months ago, when you go to your endocrinologist, the normal variables, and maybe we could talk about this a little bit more of when we're talking about adrenals or thyroid or a number of things.

What can count or register as normal from an endocrinologists' perspective may be very very different than what's optimal, and optimal specifically for you, or maybe our normal values are quite skewed because we have a very very sick population but it's interesting that it's very... you need to be almost dead for an endocrinologist to say "Okay we've got a problem here."

For you, you were probably still relative to most of the population, particularly for most of the people that go under that endocrinologists' office. You're still fit, you're still young, you're still healthy, you're motoring along comparatively well to what he or she would typically see, but for where your optimum was, clearly, there was a huge difference that what was occurring. So it's hard to find any help with that.

Michael Ruscio: Yeah. And it sounds like if you have a fairly robust constitution, the deck is almost stacked against you because you go from the high end of the reference range, and then when you get ill and you drop, you still are in the reference range. You might be in the low end of the reference range but you're still in the normal. Do you know what I mean? So, yeah. Exactly.

I started off as a college athlete so I'm sure I was probably, at least midway, to at least not the upper half of the reference ranges. So yeah, when I got sick, I still look "normal" from the conventional range, but if we were to run that through more of like a functional range, I'm sure I would've been off pretty much everywhere.

Robb Wolf: So part of that treatment regimen then... Did Dr. Kalish then refer you out for, like, to an M.D. for, like, some flagyl... How did he tackle that or they do more an in house deal?

Robb Wolf: With amoeba-histolytica, although I'm not sure if I still agree with this based on some of the new findings we're finding with the gastrointestinal literature. Amoeba-histolytica can be pretty virulent and so using a course of antibiotics and then of pharmaceutical antibiotics and then in conjunction with that herbal antibiotics, may be the extent that you need to go to eradicate the histo...

So that's what I did. I did a combination of an antibiotic called alinia with some broad spectrum antimicrobial herbs and I actually had to do two rounds of it, and I made a stupid mistake. I made all the mistakes treating myself. So now I don't make any of them with my patients but I made a stupid mistake of not retesting.

And the parasite was still there and I got worse for another six months just because I blew off the retest and if I had just retested right away, I would've figured that I still had the infection and had been able to have treat it, but instead, I spent another several months suffering because it was still there. So, yeah a combination of antibiotics pharmaceutical and herbal and the retest was pretty key for me.

Robb Wolf: So unless you're a super good organic chemist and you wanna do a breaking bad deal at home and cook up your own flagyl or something like that then probably getting a further intervention is probably smart.

So when somebody comes in your office or maybe describe your typical person that's coming your office. I know that you've done a lot of specific work on thyroid, but, what's kind of a typical person or maybe what's three or four archetypes of people that you're seeing come in to your office?

Robb Wolf: Sure, sure. Maybe we can break it into just 3 types of categories for patients and that is patients that dietary change is 90% of what's gonna help them because that's a population of people. There was a population of people coming with myriads of complaints — a lot of what I see is hypothyroid or hyperthyroid or a lot of it is thyroid.

It maybe gastrointestinal, they may have irritable bowel disease, it maybe neurological, it may be suffering from depression, it maybe female hormones, it may be experiencing pretty bad PMS - whatever the symptom, group 1 of patients, we make some dietary change with them and they see 80-90% resolution in weeks to months.

Robb Wolf: Right.

Michael Ruscio: Then there's group 2, which is, they've been muddling around in the conventional medical system. They may be self-diagnosing, self-treating a little bit. They've changed their diet a little bit. They've gone on some supplements but they still don't feel very well. So that's group 2 and group 2 would be diet and some self-experimentation doesn't get it.

And then group 3 would be, I guess, you're really chronically ill. I've been sick for 10 years. I have a bout of depression every day. I can hardly get out of the bed every morning. I may have Lyme disease; I may have Graves' disease, someone who's got a long line of diagnoses and is really in dire straights. So, to give you a really preview, I guess that's the 3 kind of patient groups that we see.

Robb Wolf:

And that totally make sense to me. It's interesting looking back at my own experience because it's cool that we've met at one of the seminars that I did. The initial push that I did doing the Paleo stuff and doing the seminars, and again, it seemed like maybe 50-75% of people dietary change, focusing on sleep, getting some vitamin D —those were the things that largely fix them and the results were pretty shocking.

And then there were 15%-25% of people that that maybe was anywhere from helpful to almost did nothing. And it was a head-scratcher for a long time. It's like, well, I don't know what else you have going on and so then starting to refer to to people like Chris Kresser, like Dr. Kalish, like you to do some deeper investigating and typically there was some sorta either gut or hormonal dysregulation or gut and hormonal dysregulation but it's pretty interesting. As powerful as diet and lifestyle is clearly there's interventions that are necessary for folks for a number of folks if we're gonna make that next step up and really really get healthy.

Michael Ruscio:

Exactly and now it's patient type 2 is pretty much what I was — diet and lifestyle were dialled in. I was Paleo, I was exercising, I was getting enough sleep, but none of that really had any effect for me and that's a lot of people that I see and it's a really interesting part of medicine because you really get to put on your detective hat.

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And try to look at all these labs, all these symptoms, the history and try to elucidate based on all that data that you have. What is the underlying factor that's causing all these problems and in the majority of cases at least in the patient population that I'm seeing, there is to a greater or a lesser extent some sort of infection at play.

Robb Wolf:

Interesting. So that actually leads into my next question I was gonna ask you. Do you have a particular methodology or a rubric that most of the people come into your office? I assume that it's some way symptom based whether you're gonna run just blood work or whether you're

gonna run blood work and a oven parasite full fecal analysis and stuff like that.

But how do start that detective game and where do you start and what are maybe some of the logic trees and where have you run into some roadblocks in the past and then it took a little bit of extra digging to figure out “Okay, this is where I need to go for the next step?”

Michael Ruscio: Definitely. And that’s a great question. That’s a two-part answer. I’ll start off with the general procedures we have and then I’ll dovetail that into what we do and you can get conundrum thrown at you.

Robb Wolf: Cool, cool.

Michael Ruscio: So to obtain a big preface and maybe call out politely the functional medicine community a little bit, there seems to be this subset of people in functional medicine who are just test crazy and they just wanna do every test under the sun. And I really caution people to beware of that approach. If they find themself with someone who wants to do 8, 9, \$1200, \$1500 of testing on day 1, I would strongly consider that you re evaluate what you’re doing because it’s one thing to say, “Hey, this is out of balance,” but it’s another thing to say, “Hey, this is out of balance and this is something that we have to treat, ‘cause testing should only be ordered if testing changes the treatment outcome. Does that make sense?

Robb Wolf: Absolutely, yeah, yeah.

Michael Ruscio: And so a lot of functional medicine are super excited about diagnosing all these imbalances but a lot of times those imbalances don’t mean anything in terms of fixing the person. They’re more just academic pursuits. So just keep that in mind if you find yourself with a physician who is really they’re gonna test all these food allergies; they’re gonna test all these hormones; and they’re also gonna do gut; they’re gonna do anaemias... in my experience, a lot of the hormones don’t need to be tested right off the bat because the cause of dysfunction isn’t in the hormonal system.

So what I do is I start with the lowest hanging fruit which is diet. So we start with the blood chemistry and diet for the first 30 days. So a patient comes in day 1 after we’ve gone through our history and all that. We put them on autoimmune Paleo diet and we order a comprehensive blood panel where we’ll look at your CBC; we’ll look at some other immune cells; we’ll look at things like ferritin homocysteine; of course we’ll look at

a complete metabolic panel with your vitamin D; we'll look at thyroid; we may screen for autoimmunity depending on the patient's history.

So it's a through but it's also a reasonable starting point in terms of a blood panel. And we pretty much start with that. We start with just a diet and with a comprehensive blood panel to start. Now, what we'll find is for some people, after addressing a couple things found in their initial blood work maybe they have a little bit of an iron anaemia and a vitamin D deficiency, when we address that with a little bit of vitamin D and some iron and we change their diet, some people just – boom – they come right back to life. And that's pretty much all we have to do.

And so then the train stops there. But for a lot of patients that I see, those things are slightly helpful but we'll start to go deeper. So the next step is usually a chronic infection work up. And what I run for that is the GI Effects. The first tool in gastrointestinal test that I'll run is the GI Effects test by MetaMetrics. And I run a 2105 profile which is not the huge, largest most comprehensive profile they offer which is the 2100 because the 2100 has a lot of extra stuff that again doesn't really change the treatment of the patient.

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So the 2105 is slightly more curtailed; it's less expensive; and it gives you really the bottom line information that you need to be able to treat a lot of the gastrointestinal infections. And then in tandem with that, I use a lab called Medical Diagnostic Laboratories that will do a chronic virus and blood born infection and line panel.

And the nice thing about Medical Diagnostic Laboratories is with the way that we affiliate with them, they will bill insurance for the patient but if insurance rejects the claim, they cap the patient's bill at \$225.

Robb Wolf: Cool.

Michael Ruscio: So you don't end up getting an \$800 letter from the insurance company saying that we rejected this claim and you're now in the hook for this huge bill because it's a little bit ridiculous what the insurance companies will try to turn around and charge a patient if they decide not to cover the claim.

Robb Wolf: Right.

Michael Ruscio: So it's nice just to have that peace of mind where we can do a very comprehensive screening and then if insurance kicks it back, which they hardly ever do but, if they do it gets capped at \$225.

And so with those two tests, we get a quantitative and qualitative look at the GI microflora and for any kind of pathogens with the GI Effects by Genova and then with the Medical Diagnostic The gotta look at... we look for Lyme Disease; we look for the co-infections of Lyme Disease, things like Bartonella, Babesia, Anaplasmosis.

And we also look for viral infections, things like epstein barr virus reactivation, cytomegalovirus reactivation or high activity of any of the herpes simplex family where there'd 1, 2, 6, 7 or 8 and that is where most of the work takes place 'cause usually we'll find either dysbiosis or fungal infection, or fungal infection along with a blood borne infection or a virus and that usually tends to be where most of the internal fires are coming from, so to speak.

And then tertiary things that we do are looking at hormones. We might look at testosterone, estrogen with our female patients who may need a little bit of bioidentical hormone therapy. We may screen for some kind of toxicity if it's suggested at that period in time. But really, with the initial blood panel and then with the follow-up infection screen, that gets us to the bottom of the issue for the majority of the patients.

Robb Wolf: Nice, nice.

Michael Ruscio: And then I guess the number 2 part which is the clinical conundrums, there's a... I put a YouTube video out this really interesting case. It's on my YouTube page. It's just [youtube.com/michaelruscio](https://www.youtube.com/michaelruscio) and it's in the testimonials playlist. It's this gal who had... well, she came in, she was very strict paleo, intermittent fasting like just dialled to a tee; just everything was done right.

Yeah, this gal was gaining weight, couldn't lose an ounce. And so we worked her up and everything in my mind was screaming fungus for this gal. Yet, the GI Effects test came back negative. And so this is a good case because I ran another profile through a different lab, Diagnostex, and that lab came back with fungus positive.

So the GI testing isn't always a perfect science. So I guess the moral of that little story right there is it really pays to invest in the guides of a clinician because I know a lot these labs are becoming available direct to

public which is great but at the end of the day, you really... you ultimately treat the patient and you use the labs to help guide you.

And so having a clinician overlooking what you're doing is really helpful 'cause again, this gal looked like fungus. First test did not show any fungus. We had to do a follow-up test to find the fungus. Then we treated the fungus and she started losing weight. Her digestive system's already getting better. Her skin started clearing up. And then as soon as we stopped, she just went right back to square one. So that to me then looks very much like what's called a bio film and you can watch the video where we discuss together, her and I.

So we came back at the fungus again and we did a bio film eradication treatment built in with the anti fungal treatment and then she just started losing weight like crazy. Her digestion got better. Her sleep got better. And when we stopped the treatment – the anti fungal treatment – she was able to retain the gains that she had made.

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So that was a really cool case and that YouTube video is floating around out there but sometimes like with this gal you have to dig a little bit deeper.

Robb Wolf:

Interesting. Reminds of a client that we had. They were in the gym with us but the guy had had just some sort of a recurrent upper respiratory thing for literally a couple of years and we'd go on antibiotics; we'd go off antibiotics; we'd hack and cough and get a little better, get a little worse.

And he ended up going to the Bay Area. I forget who he ended up working with but he had some sort of an upper respiratory tract fungal infection which can be fatal if the thing goes too bad or if he became immune compromised or whatever.

But they ended up really aggressively going after this thing. They pulled in, I think, a couple of MDs who'd had some functional medicine background but they're rotating him through this treatment protocol and he was in the gym working out and we're really low level like dragging a sled, like heart rate was probably not much over 100 on anything that we did. I mean it was just like brisk walk type stuff.

Michael Ruscio:

Sure.

Robb Wolf: But this guy's feeling better and then all of a sudden he just leans over and starts coughing and he had this cast of his lungs come out. That was – I kid you not – like about half the size of your fist. And it was like a perfect... if you would filled up his lungs with plaster of Paris and then peel the lungs away and there was this cast. That was his cast made of the bio film and the tissue, the cellular structure of this with immune cells and the fungus and the whole thing and he ends up hocking this thing up.

And I was like "Good God! Man!" but we took a picture of it and sent it to his docs and the guy was like, "Wow, I feel really good now," but this was one of the most shocking things that I've ever seen up close and personal. So that was no joke, yeah.

Michael Ruscio: The bio films can be serious. I was like a bio film nazi for about 6 months. I just read anything and everything I could on it and I'm really glad that I have because for some patients, it can be really the game changer and from what I've seen, the pharmaceutical antibiotics don't really do a great job to much of a job at all with bio films. And actually, some of the natural agents like Samento, Banderol, lumbrokinase are highly efficacious of breaking down the bio film and yeah, I mean the bio film is huge.

And then at the same time, coming back to the functional medicine model, in a lot of cases, if we'd look at this from a germ or terrain perspective, the challenge or the limitation with just antibiotics is that you're not doing anything to modulate the terrain; you're not doing anything that increase good bacterial counts; you're not doing anything to increase natural endogenous production of white blood cells.

So that's why I think the functional medicine approach tends to work better for chronic infections because usually they're chronic because the terrain is hospitable. Acute infections that are gonna be life threatening definitely, antibiotic's the way to go, but for these chronic infections, that's where doing some work to get rid of the infection while you help repopulate with healthy bacteria, healthy fungus, and bolters, and increase one's endogenous immune production is really gonna be the key to long term success.

Robb Wolf: Tell folks really quickly what a bio film is. I mean it's almost like a colony of coral that sets up either in the gut or potentially in the lungs but give folks a little bit of background on what it is and how they come about.

Michael Ruscio: Sure. So both bacteria and fungus, and by the way, bio films, they were first, as I understand it, first looked at medicine in relation to things like

orthopaedic implants because orthopaedic implants could form bio films after surgery and those could be highly problematic. And then as we started learning more about them, we started seeing that they pretty much any fungus or bacteria can form a bio film.

When you have a colony of fungus or bacteria, there's a compound, I believe they're called quorum sensing molecules that the pathogen can release and essentially what you're doing is you're just saying like, "Hey, neighbour. Hey, neighbour," and you're just figuring out who's around you and then when you established there's a number of other bacteria or fungus around you, you can all say, "Hey, let's all contribute to and build a protective coating over us."

And this protective coating is like a glycoprotein matrix that has minerals in it and fatty acids in it and it's to a greater or lesser extent impervious to antimicrobials.

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So the reason why it's problematic is let's say someone comes back with a fungal infection and then you go to treat the fungal infection. Well, if you have a well formed bio film, then the anti microbial agents can't actually get at the fungus 'cause the bio film was like a protective fence around your house.

So some of the things that are used to treat bio film are because, they are minerals like calcium and iron that constitute these bio films, you can use things like EATA and some believe that it's best to avoid mineral supplementation while treating a bio film because you may be feeding the raw materials needed to make it.

So some will say to not use multi mineral complexes while treating a bio film and again you can use the EATA to pull out the minerals and then Samento which is also known as cat's claw or Banderol are two herbs that they're used quite often in the Lyme treatment because Lyme can form bio films also and they help to break down and eradicate the bio film.

And then I like to use lumbrokinase. You can also use nattokinase and those also help to breakdown the bio films.

Robb Wolf:

Wow, wow. That's pretty cool. And have you seen where it would be necessary to use both conventional antibiotics plus say the cat's claw or something like that or does it become an either/or story if that's one?

Michael Ruscio: Well, I mean if someone has a bio film then you're definitely gonna need to use a bio film degrading agent and I don't know offhand not that I've done an extensive search but I don't know offhand of good pharmaceutical agents that are available for that. So to my understanding anyway, I'll be at the... I have a natural medicine bias but for my understanding, the natural agents are the way to go for bio film.

And then what you wanted to add in as your chief anti-microbial agent I think it's a matter of philosophical perspective. I don't think it makes a huge difference one way or the other whether you do Diflucan or 2 months of antimicrobial herbs although I like to lean toward the antimicrobial herbs because I just find that they're gentler and a little bit less disrupting to the good bacteria or fungus. So that's my stent on things.

Robb Wolf: Nice, nice. So now you've really... I don't know if this is 100% your focus but it definitely like I'm signed up on your e-mail list and what you send out a lot of thyroid information, what has stirred your boat towards the thyroid issue. I mean clearly because a lot of people coming through the door have some thyroid issues but tell a little bit of that story and how you're tackling thyroid issue.

Okay, folks, we're back. We had a little hiccup in the Skype chain there. Sorry, doc.

All rights folks, we're back. We had a serious, serious Skype intervention there, serious Skype problem.

Michael Ruscio: Yeah.

Robb Wolf: So doc, I had to ask a little bit about the direction that you've gone with the thyroid and thyroid dysregulation. Tell folks a little bit about why you've gone in that direction and what's going on with people?

Michael Ruscio: Sure. Well, I'm writing a book right now on thyroid disease and it's been a really interesting ride just to see that the population of patients with autoimmune condition is really underserved and hypothyroid is probably the most common one that people have complained to as the most common autoimmune that people have complaints with and so it was just an outgrowth of seeing so many people who just weren't happy with the treatment that they're getting whether it be Hashimoto's or just Euthyroid Sick or Graves' Disease.

So while the book is focused toward thyroid, the real big underlying theme is autoimmunity. And the nice thing about looking at it from that perspective is autoimmunity is a primary cause of hypothyroidism in the United States. So if you can really nail the immune piece, then you can really do a good job managing most thyroid disease.

And it's said that the closer one gets the truth, the more commonalities you find and I've certainly found that to be true with autoimmunity because if you look at the research being published on thyroid autoimmunity, the kind of underlying causative architecture is very similar to that of celiac disease or multiple sclerosis or Crohn's disease or what have you.

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So it's been a really great area to focus on because with a lot of patients, yes it's a thyroid manifestation in a lot of people but ultimately, the cause tend to be from the immune system and so that's been a great synergist I guess. And one of the biggest provocateurs after you look at diet for autoimmunity are going to be chronic infections.

Robb Wolf:

And do you think that we've always been in this state like in the westernized societies or how long do you think that we've had these low to moderate grade thyroid issues and autoimmunity? It seem like all these stuff is blossoming. It seems like it's on an accelerated pace, like the lack of sleep, the lack of Vitamin D particularly from sun exposure. It seems like gluten is in just about everything. I mean what do you feel like are the main ideologies going on with all that?

Michael Ruscio:

And you're right, these things are becoming more common and there's a few different hypothesis as to why this and maybe one of the forerunners is the hygiene hypothesis which most people have probably heard of. And I did a review in my video newsletter maybe a month or two ago called...

It was just reviewing a paper published in the New England Journal of Medicine I believe in 2012 outlining the hygiene hypothesis and that while we have ameliorated a lot of the infectious disease in our society and they actually... they published a great graph that I have in the video as the incidence of an infectious disease has gone down, the incidence of autoimmune disease has gone up.

And what it's looking like is that when we have no exposure to pathogens at a young age while our immune system is developing, our immune system can't develop. It's like the analogy I use with my patients is it's like

target practice. The immune system needs to be exposed to measles and mumps and dirt and all these pathogens that we've villainized because that gives the immune system target practice so that when the pathogen actually shows up, the soldier that is your immune self can say, "Okay, that's klebsiella; I'm gonna kill that – Oop! And that's my thyroid; I'm not gonna kill that."

But what happens when we don't get exposed to these germs at a young age, our immune system never gets to target practice and so then we get exposed to these germs for the first time at 17 years old, at 22 years old, at 33 years old. And now the immune system has to go out there and attack but it's got really bad aim.

And so now, it's shooting Klebsiella; it's shooting thyroid; it might be shooting joint tissue because the immune system hasn't had a chance to develop. And there's certainly a body of evidence to support this. Certain studies have shown that when children are colonized by *Helicobacter pylori* below or earlier than 3 years of age, it doesn't seem to have any impact on autoimmunity whereas when someone becomes colonized with *H pylori* later in life, it has a prerogatory or autoimmune stimulating impact.

And the same thing has been noticed with Epstein-Barr virus. Again it seems that if you're exposed with Epstein-Barr before 3 years of age, it doesn't have prerogatory influence on multiple sclerosis in some of the studies that we're looking at MS yet when you are exposed, when you have a bad bout of infectious mononucleosis, which is what the Epstein-Barr virus causes, when you have that later in life, it highly increases your chance of developing multiple sclerosis.

So it seems like these infections, they're not bad if you get exposure early because your immune system is still training but if you don't get that training early on, and then you get exposed to that infection later on in life, the immune system has to come in and has to attack and because they have bad aim, there's a higher chance that you'll end up damaging your own tissue and forming an autoimmune attack.

Robb Wolf:

That's interesting. So doc, so people go back and forth on say like the vaccination story.

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I mean this is a lot if where some of these measles, mumps, those things are largely gone from our childhood experience now. But there's also

some back and forth on if somebody isn't immunized early then they're liable to get some of these diseases later in life and it can be really severe and then we still have some things like polio and what not that used to be very very life altering.

Take me for example. We are immunizing Zoey, our 15 month old daughter. We're being pretty conservative with it. We're spreading some stuff out but what's a way to maybe mitigate some of the down sides. So we're not slathering her in Purell. We expose her to other kids. Do you think that that's a reasonable way to... and when we're outside she's digging in the dirt, she's sticking rocks and sticks and twigs in her mouth and everything. Clearly there's a lot of subjectivity to this but do you feel like that's a decent way to try to get the benefits of not succumbing to some of these really gnarly diseases, childhood diseases but then tuning the immune system at the same time?

Michael Rucio: Yes and this area is something I'm really passionate about. I'm hoping to be able to present a whole hour or a whole segment on this at the Ancestral Health Symposium next year because this is something that I think is just really important and a couple of things one, when you go to the line of thinking that exposure to pathogens early will develop the immune system and help prevent autoimmunity then that would suggest that vaccination may help prevent autoimmunity.

Yet that doesn't seem to be the case and I'm speculating a little bit here but I think it has to do with the fact that it's very specific to the route and the type of administration. For example some studies have shown that early exposure to pathogens via inhalation will retard the development of allergies via inhalation later in life but not through oral ingestion.

So it seems that the mode of delivery is very specific. It's kind of like specific adaptations imposed demand on, it's very specific too. So that's something that I'm exploring right now because if the vaccines were helping with autoimmunity then we wouldn't see or we would potentially wouldn't see the pronounced increase in autoimmunity that we're seeing in westernized countries because there is vaccination plans in place.

But what one can do to help mitigate the effect of that is I think if you look at the vaccines you can fairly easily figure out that some of these are not necessary and then there are some vaccinations that if you look at what is the quality of this pathogen you can get a bad cough. It's like okay well I think we can do without this one.

Robb Wolf: Or one day of diarrhea. I forget what that one was.

Michael Rucio: Exactly. I think it's rubella.

Robb Wolf: Rubella, yeah, and one of the most highly even in the orthodox medical literature, one of the highest complication risks but yet a day or two of diarrhea and granted diarrhea's no party for anybody but it's we're going to pass on that one.

Michael Rucio: Exactly and especially because as long as you have access to hydration and if you needed to get your self to a hospital to get some kind of IV then the chances of dying from that are extremely low and so yeah when you look at those... Some of them you can rule out pretty easily and that reminds me.

There was one study done when the measles, mumps, rubella vaccines was delayed by six months there was a dramatic decrease in asthma. So it seems like if you can delay and curtail the vaccines then they tend to not have quite the detrimental impact on the immune system.

So I think a reasonable approach is to cut out some of the ones that seem excessive and then have a graduated or slow down time table where it's not so much and it's not so quick. So that's one factor and the other is let your children get dirty.

Studies have been done looking at and these are really interesting... looking at children who grew up on crop farms versus animal farms and the children who grew up on animal farms had a lower incidence of autoimmunity across the board probably because of all the zoonotic infections and all the increased pathogens that animals have and children that grew up with an older sibling had a lower incidence of infection and children that have a dog in the house have a lower incidence of autoimmunity rather.

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So letting your children get dirty and maybe even dirtier than you may feel comfortable with can actually be really helpful to the development of their immune systems. If you can get your self out to an animal farm maybe one day a month and help out and get a little dirty that actually maybe a really helpful intervention.

Robb Wolf: Well you know we have rabbits all around our house. They're just wild rabbits and we try to keep an eye on Zoey because we don't want choking hazards and stuff like that but she generally is pretty good. She

doesn't put too many things in her mouth but it is hilarious because we'll be out stomping around and there'll be a rock, there'll be a stick and then there'll be a glob of bird shit on the ground and she wants the bird shit.

And I mean she just wants it which I'm not quite that avant garde but there was one day when we were outside and she's messing around and we're in the backyard and she finds a rabbit pellet and she grabbed it and popped it in her mouth quicker than a sick shooter, a gun slinger. I'm like "Oh man." And I went in there trying to fish it out and this thing was gone and I'm like "Okay. We're tuning the immune system today friends. There you go."

Michael Rucio: Yeah exactly and so it's a little bit... it definitely challenges some of the belief structure especially when I was reading this literature but you can't refute the observations that we're seeing and yes these are observational. They're not clinical trials but I think in alignment with the paleolithic line of thinking is just try to replicate the ancestral way of living as reasonably as one can and I think and this published has been published, this line of thinking via the hygiene hypothesis that the over sterility in the environment is really just crippling our immune systems.

Robb Wolf: Well you know to wrap this around too to where we first started off there's also just an understood cost benefit trade off in all this because some of the things that we avoid in this very sterile environment is the amoeba hystolitica like what you had contracted.

I guess something that would be important for people to take away with is it's not a guarantee either way. You could have a super clean sterilized environment and you could potentially have some autoimmune issues with that but then you drink a little bit of creek water or something and you end up giardia.

There's just not a guarantee to any of this stuff but trying to make reasonable risk versus reward decisions is about the best that you can do out of this and then you end up with some sort of problem that there's likely a solution with somebody like you that practices functional medicine can help get things back on a normal track.

Michael Rucio: Yeah so that's a good dovetail into one of the things I'd like to mention well two quick things. One for anyone out there with grave's or who knows someone who have Graves' I'm kind of in a little personal mission to help reach more people with Graves' because it seems that it's just such a fast process where people go in, they get put on an anti thyroid drugs for a little while that doesn't do it.

Soon they're quickly in to surgery or radioactive ablation of their thyroid and then wham, bam, thank you mam, your thyroid's gone forever yet there are some great natural approaches for both managing the hyper thyroidism in the short term and then also for treating infections that have known to be to prerogatory to Graves' diseases and I'm writing a whole paper comparing and contrasting functional medicine versus conventional medicine treatment.

I'm hoping to have that done within a couple of weeks. I'll flip it over to you, Robb, as soon as I have it done but one quick side note on that because it always breaks my heart when someone comes in with Graves' two years after they've had surgery and they're saying is there anything left I can do doc and then sure there is but man it would have been great to have reached that patient before the surgery or the radioactive iodine.

Robb Wolf:

It's just like the gallbladder removal. The person will still benefit from a gluten free diet and digestive support and everything but it sure would have been nice to intervene before that pretty important organ gets removed.

[0:50:05]

Michael Rucio:

Exactly regarding maybe some more specifics on the infection connection to auto immunity in our society hence people haven't been exposed to infections early in life. There is a strong correlation with contraction of these infections and then the formation of an autoimmune attack and some are very popular kind of in the health pop culture.

H pylori is one of the forerunners that is known to propagate automimmunity and so is in one of its friends named yersinia enterocolitis both are gut pathogens and we routinely find these in patients and also something that people may not know as much about or hear as much about is Epstein barr virus; 95% of the population by adulthood is serum positive for Epstein barr virus and just like chicken pox you have it, you get a little sick and then chicken pox stays latent in your body unless you become immuno compromised and then it come back as shingles.

Well mono nucleosis is what Epstein barr causes and it's pseudo latent once you recover from it but it can be re activated later in life and you can have what's called Epstein barr reactivation and that has also been correlated with autoimmunity and there's 30 case studies published

recently of three grace patients with Epstein barr potentially as the major causative factor contributing to Graves'.

And there's also been some papers published and I see in my clinic routinely is that when we treat chronic infections like H. Pylori, for example, we can see anti body levels drop and this is and the reason that this may be is because these infections stimulate the immune system.

And so when you have that immune system being chronically stimulated by an infection the immune system goes out, tries to kill the infection but remember the immune system has bad aim and so you just start attacking your own tissue which is an autoimmune attack.

So it seems that in people who are predisposed these infections can really turn on auto immunity and there's certain genotypes, there's CTLA genes and some of the HALA genes that are known to cause autoimmunity and how it may actually work is the people that are prone to form autoimmunity today may actually have been more resistant to infection back when we were cavemen because it seems like the people who mount this more robust response it would have been great for the infection but now that the immune system has bad aim then it is not good because you end up attacking your self.

Robb Wolf: Like in the case of celiac which they clearly have enhanced resistance to a variety of gut pathogens but that it's almost like the immune system's kind of looking for a fight and it can be good on the one hand but then kind of problematic on the other.

Michael Rucio: Yeah and we're starting to get some of these pretty well mapped out. There's the CTLA, cytotoxic T cell lymphocyte anti gen cell, that's now being connected with celiac and with Graves' and Hashimoto's. What this polymorphism, this CTLA polymorphism, is just a receptor on immune cells that helps down regulate them and when you have a polymorphism on this receptor your immune cells essentially aren't getting the signal to chill out.

Robb Wolf: To turn off.

Michael Rucio: Good for an infection back when we were cave men but now it's kind of a detriment.

Robb Wolf: Right. Doc awesome stuff. Where can people track your down if they need your services or want to sign up for newsletter which they

absolutely should. I've loved your newsletter for along time now. Where they can track you down and what projects do you have going on?

Michael Rucio: Well they can go to my website which is just drruscio.com They can plug in to the newsletter and watch a few videos and get a link from there to my YouTube page which is another good spot to keep track of me. YouTube.com/Michaelrucio and then in terms of other stuff that's going on out side of that.

I am a member of the post graduate continuing education faculty at Life West and another doctor who's a neurologist myself are putting together a few seminars. We'll be doing one in the bay area in Union City. I believe it's November 23rd. It's a weekend seminar that you can get CE credits for if you're a health care professional.

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So that's coming up. We also do a lecture, one or two lectures at the office once or twice a month now if anyone's in the Walnut Creek area and the book is stuff that I keep trying to carve out time for but man life's just throwing some challenges at me.

So that was supposed to be done in three months but it's looking more like a year with the way things are going right now. So that would get out there as soon as I can get as many monkeys off my back as possible and that's pretty much it.

Robb Wolf: Awesome. We'll get all the links to your site and YouTube in the show notes for this and then clearly when the book is ready to go just ping me back and we'll get this pushed out to everybody and let's get you back on the show in a couple of months and I'm sure the folks will have questions for you.

Michael Rucio: Oh yeah I'd love to.

Robb Wolf: Awesome doc. Well thanks for being on. Super stoked. I definitely learned a lot. I know the folks will enjoy this.

Michael Rucio: I also. Thanks for helping me out. It was a lot of fun.

Robb Wolf: Awesome doc. We'll talk to you soon.

Michael Rucio: All right take care.

Robb Wolf: Bye bye.

Michael Rucio: Bye.

[0:56:13] **End of Audio**