

Paleo Solution - 292

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Hi folks. Robb Wolf here, another edition of the PaleoSolution podcast. Today we have possibly our most prolific guest on the show. He's the guy that knows your gut better than you do, Dr. Michael Ruscio. Doc, how are you doing?

Dr. Ruscio: Hey, Robb, thanks for having me back. I'm good how are you?

Robb Wolf: Oh fantastic. We were jibby jabbering for quite a bit before recording and probably 90% of it should have been recorded and useful for the show.

Dr. Ruscio: I know.

Robb Wolf: So what's new with you? What's happening? You have some new information or maybe some clarifications on non-Celiac gluten sensitivity.

Dr. Ruscio: Yeah. I wanted to maybe throw in a few clarifying points on that because I recently released a post on a study showing that IBS maybe caused nonCeliac gluten sensitivity in this really well performed, randomized control trial. A lot of people commented on the post that oh I thought that IBS was caused by SIBO. It is true but it's not to say that the only cause of IBS is from SIBO. So I thought it might be a good chance to kind of zoom us a way out and cover IBS and SIBO and the interplay there and also nonCeliac gluten sensitivity and kind of pick into is that legit, is that not legit, is it really fodmaps, is it not fodmaps and then how do we kind of sort all this stuff out.

Robb Wolf: Cool. Cool. Sounds good. We just had a dinner guest over and a really nice gal. She's in the media and of course ended up stirring over to food and she was like so, I just thought that this gluten sensitivity is all made up. Like that's what the headlines were saying. I was like oh mother of god, give me another cocktail. So yeah, let's talk about this.

Dr. Ruscio: well you make a good point about sensationalist headlines. I think we see a lot of that in our space because I mean let's call it what it is information in a lot of the space is marketing right?

Robb Wolf: Right.

Dr. Ruscio: So people just need to take a piece of information and give it an attractive sensationalist spin and that's why I think we see so much garbage on in the internet. Because you don't get highly truthful things in a lot of cases. You get things that are picked apart for sensationalism or spun away from sensationalism than Mary Sue. So get home and goes online trying to figure out what to do for IBS. She sees some people saying that gluten is the devil and can do everything from ruin your gut to your love life and then on the other side people are saying it's complete BS because either endpoints sells well but a more conservative perspective looking at all the evidence and coming up with a reasonable recommendation isn't quite as sexy.

Robb Wolf: Right. Right, absolutely. So talk a little bit about IBS itself. I'm sure virtually everybody is kind of familiar with IBS in theory but I mean one of the interesting things is that it is a syndrome. It's got a variety of different manifestations. Some people have diarrhea, some people have constipation, some people cycle between diarrhea and constipation. So

maybe the fact that that is so variable might not be surprising that there are a multitude of inputs that might influence this.

[0:05:08]

Dr. Ruscio:

Right, yean and that's why this really is kind of an exclusion of the diagnosis and a diagnosis of a constellation of symptoms. But some of those common ones that we see are gas, bloating, abdominal pain and altered bowel function that can be kind constipation, it could be diarrhea, it could be an oscillation between the two. Dr. Pimentel likes to use the term, they are regularly irregular.

Robb Wolf:

Uh-hum.

Dr. Ruscio:

So those are some of the textbook examples of what IBS constitutes and it can also be things that are melded in with that like reflux, heartburn, flatulence. Then of course there can be this whole interesting world of all these extra intestinal or nonintestinal manifestations. I actually just had a patient sent me a study through Twitter a little while ago about using an alimantal diet in the treatment of rheumatoid arthritis. They use alimantal diet which is just like a liquid diet. They use that next to prednisone to induce remission in rheumatoid arthritis and it was shown to be the alimantal diet was shown to be as effective as the prednisone, the anti-inflammatory drug.

So we see that the gut can have really powerful influences on lots of things outside of the gut. I'm sure everyone listening already kind of gets that.

Robb Wolf:

With that alimantal diet, correct me if I'm wrong but part of the goal there is that it's a super low residue diet. So we're not really – we're supplying things that theoretically should be digested superly in the small intestine. There's not much leftover that could be feeding bacteria which on the one hand we could argue is bad because we're decreasing mucosal layer and all that type of stuff but for acute therapeutic intervention looks like it's good.

Dr. Ruscio:

Yes, I think look framing it that way is the best way to frame it which is these lower carb, these lower fiber, these lower prebiotic sort of interventions tend to be very helpful for kind of our frontline therapy. Someone is really sick, they're not feeling well, they're having a flare, they're inflamed, there's some sort of over pathology that needs to be kind of quelled. These tend to work really well in those applications.

The alimantal diet as you put it is exactly that. It's a liquid diet that absorbs just in the first few feet of the small intestine. So the rest of the

intestinal tract is unburdened by having to digest or to work and that can be very anti-inflammatory. It can also be very reparative. The analogy I would like to use with my patients is if you sprained your ankle and had to run three miles every day how long would it take for your ankle to heal? Right?

So if your gut is all inflamed and you're putting food particles through the gut every day that can cause problems if the intestines are damaged to put it loosely. It may take longer to heal whereas if you were to take a break if you will, a liquid break where that would be analogous to just sitting on the couch and elevating your ankle for a while, then you can facilitate healing much more quickly.

Robb Wolf: Right, right. I just had a bout with some sort of gut bug I got traveling and ended up needing to Flagyl and all kinds of stuff for that. You know, normally I eat a recently fat rich diet, still throw some carbs in there but I definitely get the preponderance of my calories from fat. While my gut was irritated, fat was a horrible idea. It was a horrible idea for about a month after being sick. Like I was Graham crackers, rice crackers white potatoes, blended and pureed with no fat added to it. Like that was basically what I can tolerate because that stuff tends to digest much earlier in the GI tract.

Dr. Ruscio: Right and that's maybe where the rice diet comes from for diarrhea which is it's rice, I'm sorry it's the BRAT diet.

Robb Wolf: BRAT, BRAT.

Dr. Ruscio: Bread, rice, apple sauce and toast and I would throw out there maybe gluten free toast but I guess that's something we can pick into here in a minute.

Robb Wolf: Right.

Dr. Ruscio: And I think for your gut health Robb, avoiding broths in the future would probably be good idea.

Robb Wolf: You know, I look at it as an immune challenge although it acts right off. So you know there are some – there's a multiple benefits there. So talk to us a little bit more about gluten sensitivity. There was a study that was done I don't know maybe a year ago now that Fasano commented on it.

Dr. Ruscio: The University of Monash study?

Robb Wolf: Yeah, yeah. I did a write-up on it. It was interesting. It maybe was talking about fodmaps. I didn't get in too much about the fact that you know like the controlled diets had dairy in it and you know, that dairy is a cross reactor with gluten potentially and whatnot, gluten sensitivity. Walk us through some of that.

[0:10:09]

Dr. Ruscio: Sure. Well there's one or two leading points more so overarching philosophical points that I think may just help people with how to think through some of this stuff. So we had to be careful with anecdotal reporting right because there's always an extreme risk of bias. We can definitely learn things from anecdotal reporting but going on message boards and chatrooms it's not always going to be the best information because again it has – especially for high risk of anecdotal reporting or bias.

The other thing we have to be careful with is clinicians who are making comments that in my clinical experience I see X, Y, and Z that certainly can also be very valuable but if the clinician is biased and the clinician is expecting everyone in their office to do really well from a gluten free diet, then you can see a real bias thing of the "clinical experience." So I think it's important for us to be aware of those so that when you're getting information from someone you had your feelers out to say this person feels like they are just so jazzed on this idea that they're totally biasing themselves into a placeboing these relationships or these findings.

Robb Wolf: Right.

Dr. Ruscio: And the other thing that I always try to do when looking at these things is when there's a controversy and in many issues there are controversies. There's rarely unanimous agreement on one side of an issue. When there's controversies I try to approach these things clinically or semi clinical model of in a way that minimizes risk and maximizes benefit to the patient should that controversy be disproven or proven you know, depending on what side of the issue that you're on. Does that kind of make sense?

Robb Wolf: Absolutely, yeah. It's a great point.

Dr. Ruscio: So the with that gluten free piece, just a final kind of philosophical point what is the potential harm that we can do and how can we mitigate risk with this whole thing, well there's not I suppose a lot of harm that can be vectored from someone going on a gluten free diet physiologically. But I think it's actually more so financial and psychological.

If someone does not need to avoid gluten and they're kind of fear factored into thinking that they do. That can create a lot of social stress for that person right? This is the person who goes to a wedding or a family event.

Robb Wolf: They become me.

Dr. Ruscio: Yeah. Now some people have to be that way or some people clearly just can't do it.

Robb Wolf: Right.

Dr. Ruscio: But other people will suffer with this internal conflict and turmoil and they may not need to in all cases. So that's one of the harms that if we're too overzealous about recommending a gluten free diet that can occur. The other is financial. It doesn't always have to be more expensive but for some people it can be more expensive especially if you're not one who wants to give up grains and you're trying to go on –you're trying to convert everything to its gluten free equivalent. So you're still eating waffles and toast and cookies and all this other stuff that you probably shouldn't be eating anyway. But again if you're someone in the coming from the more standard American diet, and you're just trying to implement gluten to gluten free, that can be a financial burden to you. So those are the two things that maybe you want to guard against.

But let's talk about the studies. So we have the university of I believe it's Monash study that a problem. It's important I think to kind of zoom out and look at what kind of evidence we have. So we have to date five randomized control trials looking at this issue. Four of them have concluded that nonCeliac gluten sensitivity is a legitimate issue. One has found that I may actually be the fodmaps and that's the Monash study and that has been criticized because the control and diet may not have been ample. They may not have had a high enough dose of the gluten. Some have criticized the cause or response.

I don't even know how much that really matters when we take a broader look at the larger body of evidence. We have five randomized control trials that have looked at this and four of them have found the nonCeliac gluten sensitivity to be an issue. Of those four two of those have control for fodmaps. So I mean a pretty simple look at the body of evidence at large, I think we can make a fairly confident evidence based conclusion that yes there is scientific published documented literature that really supports these concepts of nonCeliac gluten sensitivity, especially when

you think about how some of these studies are done for example the one that I did a post on recently was entitled....Rob I'll send you at the end of our call, I'll just send you a bunch of links because I know people are going to ask for it anyway. So I'll just send you a bunch of links and I don't know if you can put them in show notes or whatever.

[0:15:18]

Robb Wolf:

Yeah, perfect. We'll put them in there, yup.

Dr. Ruscio:

Okay. So this study was entitled nonCeliac gluten sensitivity has narrowed the spectrum of irritable bowel syndrome, a double blinded randomized placebo control trial. Essentially what they did is they took all these patients who had IBS and they put them on a gluten free diet for about six weeks. Then they either gave them a placebo which was a low fodmap placebo. So they isolated for fodmaps so they controlled for fodmaps or they gave them a gluten containing pill.

So people didn't know what they were getting and they controlled for fodmaps and they were given 100 gram gluten placebo. This hundred grams would actually contain about 50% gluten so that's 50 grams that-- that's maybe like 10 pieces of bread. It's a --

Robb Wolf:

You'll be shitting like a year.

Dr. Ruscio:

Yeah it's definitely a fair dose and what they've found when these people went on a gluten free diet, most patients experienced an improvement. When they then went on either the placebo or the control pill here, the gluten pill, the people taking the gluten only 25% of those people maintained their improvement. So 75% of the people regressed essentially.

The people that did not go on to gluten about 85% of those people maintained their improvement. So are you with me on that or are am I getting --

Robb Wolf:

Yeah, yeah, yeah. So possibly a small section of folks were maybe reacting to the fodmap part of that, that 85%. Is that the 15% that didn't improve maybe some other confounder in there?

Dr. Ruscio:

Well there's no fodmap in either.

Robb Wolf:

There's no fodmap in either one.

Dr. Ruscio:

Yeah. I mean that's what makes this study so important because one of the first questions people would ask is well wasn't this disproven and

wasn't it shown to be fodmaps. You know, one person made remark on Facebook and he links to one study and one study does not a case make. Right? We really want to look at what the overall body of evidence suggests because studies you know, we can have a certain group, we have a bias group. You cannot – you don't want to throw all your eggs in the basket one study.

So what I'm thinking there was that was the 25% of the people that that regressed even gluten free, that may have just been an oscillation of those people.

Robb Wolf: Uh-hum.

Dr. Ruscio: I mean you know, we can speculate as to why but I don't really know why but I think the takeaway point is when we take one group of people and put them on a gluten free diet and then some people go back on gluten and some people just take essentially a rice pill which is what this was, that's fodmap free, the people that go on the gluten most of them fall out or they feel terrible.

Robb Wolf: Regress right.

Dr. Ruscio: They regress and then the people that don't go on the gluten most of those people continue to maintain the improvement.

Robb Wolf: Uh-hum.

Dr. Ruscio: So it pretty definitively substantiates this concept that yes nonCeliac gluten sensitivity is a problem but that being said I don't think that means that everyone in the world needs to avoid gluten all the time. Right? I was back east for a friend's wedding in the Boston area and you know I was in Rockport Massachusetts which is this coastal New England town outside of Boston, a very, very working class. Then there was all the groomsmen and they want to do a shot of fireball which is a terrible idea.

Robb Wolf: Right.

Dr. Ruscio: And now they want to do a thing of like Miller Light. So you know, I partake because I know I can do that and I'll be fine right? I can have some gluten and I won't fall off the ladder. I did ask the waitress if they had any gluten free beers and she kind of gave me a gluten free beer, what is that?

Robb Wolf: [Laughs]

Dr. Ruscio: You know what I'm trying to say? So I was like alright this is probably not going to work because --

Robb Wolf: Right. I'm going to get my ass kicked here really soon, yeah.

Dr. Ruscio: Yeah and I think it's just you know, it's just important to for people I think to experiment with this themselves and find out where they fall on the spectrum. Because Robb you and my podcast host Susan you guys are at the end of the spectrum where you can't do any gluten right?

Robb Wolf: Right.

Dr. Ruscio: You have any and you're down for days. But then there's another end of the spectrum where people can have gluten and not really have much of a recourse. I still don't as a personal practice make gluten a part of my dietary staple. But I've tested the boundaries and I've seen that it doesn't really cost much of an issue for me.

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So I tried to have that same narrative with patients which is alright it's not all or none sort of thing. It's not a gluten as gluten free nonCeliac sensitivity is right or wrong. It's that some people yes, will certainly have a problem. Some will have an extreme problem Celiac, some will have a more subtle problem maybe nonCeliac gluten sensitive and then some can have some. And we need to get you healthy first and then have you go through the introduction and see where you're going to fall on the spectrum and then practice a level of avoidance that's in correspondence with your level of sensitivity.

Robb Wolf: That's crazy talk. Who would send out --

Dr. Ruscio: No, it's just so impractical. You know? But to I mean getting ready again for a second this how does that sound, you know, I mean I think it's a... I wish we can just talk about this for 45 minutes and I could really impress people. But I think it's pretty easy. We look at the randomized control trials and it's a pretty straightforward kind of linear calculation. But anything there you want to dig into?

Robb Wolf: No, no it's great. You know, if we had this conversation maybe eight years ago, I would have probably been way more freaked out about it. I'm like no for the love of god ,no gluten ever you know, and bringing up the social economic factors is a big deal. I mean it's when I go out to eat and I'm like hey I'm going to be that person you know, I'm like can you ask the chef when he cooks this? It's in a pan. It's not on the grill. That

they grill French bread and blah, blah, blah and some places are really good about it, some places are terrible. We went to one place here for breakfast maybe about three times and each time they just completely shifted on putting the stuff together and I was super sick afterwards.

That just sucks and so if you don't really need to go through it. Also just kind of a rigmarole and if you don't have to go through that then that's a big deal. You know, --

Dr. Ruscio: Yeah, yeah exactly. That's what's nice about being in clinical practice because I learned a lot from my patients and I listen to what they say.

Robb Wolf: Right.

Dr. Ruscio: Some patients will tell me Doc we've been gluten free for a while. We've treated my gut, I'm feeling so much better. I was at a bridal shower and I had some of the cake because I didn't want to be the person not to eat the cake. I was really concerned about what was going to happen and I felt fine.

Robb Wolf: Right. Right.

Dr. Ruscio: I said great you know, that tells you where you fall in the spectrum and just continue to observe and see if you can notice a certain threshold or what have you. Because yes well we can find evidence to show that some people will have terrific improvement gluten free, people who are Celiac for example. It doesn't mean that everyone is going to experience terrific improvement from going gluten free and that everyone has to be here to a Celiac level of avoidance.

Robb Wolf: Right.

Dr. Ruscio: And that's a textbook thing that happens in the space sometimes is that if for the sickest of the sick if this treatment is good then everyone should do this treatment and that's a really flawed logic right.

Robb Wolf: Yeah and I've gone down that rabbit hole a lot whether you're talking about carbs and diabetes or you know, just a variety of different things. You take that really extreme point and then back extrapolate it and assume that it fits everything. It just clearly does not.

Dr. Ruscio: Exactly and like you were mentioning, if we can save someone the social perils of that, then that can be significant because I think in my clinical observation one of the things that is most challenging for some patients

is kind of getting back to living a more normal life, right? They get so zoomed in at their health that they're not as present as a friend or letting go of hobbies and they're losing their grip on the other side of life that is so important to be healthy.

Robb Wolf: Uh-hum.

Dr. Ruscio: So if then they go to some sort of like gluten free group or weekend seminar and they get the bejesus scared out of them, that just reinforces this underlying like pseudo eating disorder that can really have some really costly social ties to it.

Robb Wolf: Right. Absolutely, no it's a fantastic point. Man it's one of these things that is an ongoing challenge how to get kind of simple stories that you can convey to the masses and get them kind of moving 80% in the right direction but then before you know it, those heuristics have been written down in stone and they become religious doctrine.

Dr. Ruscio: Right.

Robb Wolf: And then when you start talking about nuance and well this person might be able to get away with some gluten, this person can't and here's the reasons why and then it seems either contradictory or you know some sort of quasi-religious line has been drawn in the sand. It's super frustrating on the one hand I guess job security on the other end.

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Dr. Ruscio: [Laughs]

Robb Wolf: I don't know if we're ever going to figure that one out. So yeah, yeah.

Dr. Ruscio: Well I've been trying to have this sort of logical way of working through these things with the eBook I've been working on for a while the microbiota. It was going to be an article and then now I think I'm like 60 pages. So I think that's definitely too long for an article. But I review a multitude of different topics and I just work through it in this way that here's just a logical way to approach this. Here's a reasonable approach that's not going to be evangelical or anything crazy like that.

I've had a few people read it, read parts of it just to kind of beta test if there was going to be absolute garbage or not. I've gotten some really good feedbacks so far which is like yeah this makes a lot of sense. It seems really reasonable. But also, able to help people and you know like the artificial sweeteners was another thing I've reviewed, the impact on the microbiota and weight and things like that.

I had a friend who he – I got a diet coke one time at – I usually don't use artificial sweeteners but I got a diet coke and he goes you're going to drink that around me? He got personally offended. I was like come on man. Because he was a super anti artificial sweetener. I'm not trying to do that. I mean we can just look at what happens and say hey here's a risk here's a reward, here's a practical way of working through it. Do what you want to do.

Robb Wolf: Right.

Dr. Ruscio: Sort of thing, so.

Robb Wolf: Right.

Dr. Ruscio: But for people that really want to get super jiggy with some of this stuff there has been a proposed diagnostic criteria. I think you had posted something about this on Facebook maybe Robb.

Robb Wolf: yeah.

Dr. Ruscio: The Salerno expert criteria for diagnosing nonCeliac gluten sensitivity which is pretty straightforward. It's just having someone go on a gluten free diet, the other doctor would do this. Go on a gluten free diet and then report back to the doctor's office. He's going to give you either a placebo or a gluten pill and monitor you and you're going to essentially do what we've been recommending to do in the kind of the functional medicine community for a long time which is elimination reintroduction. Who would have thought? You don't have to do \$8000 worth of lab testing to figure some of this stuff out.

Robb Wolf: Right, right.

Dr. Ruscio: I'll put a link for that in the show notes and there's also and this would be for the people on the other side of the spectrum who want to spend like \$10,000 to figure out if they're nonCeliac gluten sensitive. But there has been a proposed diagnostic algorithm for working through and diagnosing. You're going to have to poop and pee and be biopsied and to me it just doesn't seem worth all the rigmarole to figure out what you could probably do a reasonably as accurately with just elimination reintroduction.

But I'll put a link in there for people if they want to have a look at that.

Robb Wolf: Cool yeah and I did throw that on my Facebook page with a little bit of a tongue in cheek deal of if this stuff doesn't exist then why have these other people in 2015 developed a diagnostic criteria for it? So yeah, yeah.

Dr. Ruscio: yeah exactly I mean again I don't know how we can have five randomized control trials four of which are concluding this is a legitimate clinical entity and the people are still saying it's not legitimate. I mean this is just that's just probably your friend who's a moron who wants to go find one study from their armchair scientist perspective and then post that thing that they have disproven a whole case which is I mean this is the kind of guy you want to punch in the face.

Robb Wolf: [Laughs] Right.

Dr. Ruscio: You know, I'm sorry but --

Robb Wolf: Doc, before we started recording, we talked to a fair amount about just the gut biome itself and there's definitely some push that you know potentially getting a specific profile of microbiota could have certain health benefits. You and I have talked about that. There seems to be some really fast acting lifestyle features stress, blood glucose, shift work that can alter the microbiota. I've noticed that with the gluten sensitivity and just food sensitivities in general it really is driven a lot by what's happening in the rest of the lifestyle. So somebody maybe find drinking a beer like they can't eat bread they can't do like pasta but they can drink a beer because the gluten has been kind of fermented a little bit.

But then they start doing shift work, they get real stressed out and then the beer becomes a problem. Have you kind of seen that and does it make sense within this spectrum of kind of immunoreactivity?

Dr. Ruscio: Yeah. I think what we're going to find with the microbiota is that lifestyle factors are going to be the most powerful way to influence that. I know that's not good for the sensationalist microbiotic crowd that are trying to sell fiber bars and probiotics and books. But if you really have a keen eye at the literature, you see that things like sleep, stress, even exposure to artificial sweeteners they can have a very fast impact on your microbiota.

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Even things like optimizing your environment like controlling blood sugar can have a favorable impact on the microbiota. There's even been some studies showing that people with Celiac disease have increased microbial diversity which I know people in the macrobiotic camp are probably yelling blasphemy when I say that but there have been

published studies showing that those with Celiac have increased micro biodiversity.

By going on a gluten free diet, we see that diversity become a little bit less diverse and start to shift more toward a healthy control sort of microbiota.

Robb Wolf: Uh-hum.

Dr. Ruscio: I think one of the bottom line things we see is that for the niche of opinion forming around microbiota information, we see a niche there thinking that probiotics are just like the next best thing in the universe. One of the things I've done as part of this eBook that I'm writing is a section that is boringly titled Review of Interventions where I look at IBS, IBD, Celiac, diabetes, metabolic syndrome, autoimmunity where evidence is available and I pick apart all of the clinical trials. I say there have been eight randomized control trials using probiotics as a treatment for inflammatory bowel disease. Here's what's been found.

Because that is what is going to matter right?

Robb Wolf: Right.

Dr. Ruscio: If you have IBD and you want to know if a probiotic is going to help you, we want to see what will happen if we take 400 people, put them on this prebiotic and try through IBD. I don't give a crap about what sort of bacteria population shifted or what sort of cool anti-inflammatory mechanism was facilitated because to me I want to know what is the clinical effect going to be right? I shouldn't say I don't give a crap. But I admittedly am venting some frustration here because I see people taking a mouse model probiotic study that showed a shift in some sort of inflammatory peptide and then they extrapolate from that because that happened and inflammation is higher in Crohn's disease. We should be giving people with Crohn's disease this prebiotic when at the same time we have clinical trials where that's been done and there have been no effect or maybe even a worsening of the Crohn's disease.

These are people who need to have their scientific card revoked right?

Robb Wolf: [Laughs]

Dr. Ruscio: Because come on.

Robb Wolf: Doc, some folks that I've talked to, some folks that I listened to, they will go back and say okay well we need to do like some SIBO testing. We need to see if why've got small intestinal bacterial overgrowth, biofilms all that type of stuff. Is this -- This is where it gets really complex. So on the one hand we're wanting folks to enact these simple say like elimination reintroduction diets, figure out what's going on. If that doesn't fix things or we're not getting kind of a good story with that, there seems to also be this real fear of having people eat a lower carb diet they days because of fear that they're going to starve the commensal bacteria and production of like mucus in the gut and that we're going to buy ourselves a little bit of upside on the front end but then all kinds of big problems on the backend.

What's kind of your clinical algorithm from moving people through this?

Dr. Ruscio: Right.

Robb Wolf: And stepping up to looking at like SIBO testing and whatnot?

Dr. Ruscio: Well yeah thank you for getting me off my soapbox there before I put my foot too far in my mouth. But yeah --

Robb Wolf: This show only six people listen to it so it can be too bad so.

Dr. Ruscio: Only got six hate mails so that will be manageable I guess.

Robb Wolf: perfect.

Dr. Ruscio: So I just wrote an article. I haven't relapsed this yet but I'll be releasing this on my website soon. I'll probably entitle it should you be gluten free and I kind of run through this whole thing of gluten free, yes or no, nonCeliac gluten sensitivity yes or no. And then if you've done that and you're not feeling any better, what do we do next? It's a pretty practical algorithm but we start with diet and then we reevaluate.

If after diet someone is still symptomatic then I think for most people the next best step is not a rule, not 100% of the time but for most people, a really thorough gut evaluation is going to be important because for example if someone has IBS symptoms that maybe caused by SIBO. Because many cases of SIBO or I'm sorry IBS have been shown to be caused by SIBO.

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The highest percentage I've seen published has been 84%. But again it's important to remember that you want to change your diet first because

this could solely respond to just improving your dietary symptoms. But if you change your diet, change your lifestyle, you're still not feeling well, a thorough gut evaluation is usually a good idea. SIBO breath test very important for that. You want to have a lactulose provoke, you want to measure methane and hydrogen. You want to do it for at least three hours. Because if you don't you may miss some cases.

Glucose is not a good reagent to use because glucose gets absorbed in the first few feet of the small intestine and if you have SIBO that's more distal toward the colonic end, you'll miss that colony and you'll be false negative for SIBO.

So definitely a thorough evaluation. SIBO is certain an important one. Probably the most common thing that I find but there's also candida which is you know, I think maybe ten years ago candida kind of had its peak where it was blamed for I think everything under the sun.

Robb Wolf: Right.

Dr. Ruscio: And now we're kind of realizing yes it's important but it's not the only you know, player in town so to speak. But Candida definitely and you can do that on stool culture and you can also do it via antibody. I actually had been looking more closely at the antibody lately because there is this new diagnosis emerging known as SIFO, small intestinal fungal overgrowth.

Robb Wolf: Uh-hum.

Dr. Ruscio: We don't have a test for it right now other than jejunal aspirate which is shove a tube down your nose, throat, stomach into your small intestine, extract some fluid and test that. Not really the thing I would want to be doing on a Tuesday afternoon right?

Robb Wolf: Right. [Laughs]

Dr. Ruscio: So I think we'll have testing for that hopefully the next few years. It would be great if there was a breath test for that. But we're waiting on that. What do we have that we could use? Well it's not official. It's not even been studied. It's just we don't have anything so what is the best thing we could maybe conjecture could be helpful and that's where I look at the antibodies that can be done via blood testing via Quest or LabCore.

So if I see a stool culture negative for fungus that tells you there's probably nothing in the colon but if I see the antibodies positive then

again it's not official but I'm looking at that as that person probably has SIFO or small intestinal fungal overgrowth.

Robb Wolf:

Uh-hum.

Dr. Ruscio:

So that's a nifty and a novel one. And during a really thorough battery of testing is important and good testing is really important and it's way beyond the scope of this call to go into all of that but as we've discussed in the past there are some labs that are not very good. And without giving any names one of the more popular functional medicine labs in my opinion has one of the worst stool tests I've ever seen. I don't say that trying to be a jerk. I say that as someone that I run stool tests side by side in most of my patients and I started to notice this relationship that a certain lab was missing infections over 75% of the time while the other lab was finding them.

So after doing that for over six months maybe even a year, I've kind of just given up on the one lab because things are being missed. What's been unfortunate for some of the patients that come in you know, patient John Doe comes in and he said I went to functional medicine person XYZ and they did this really expensive gut test and I came back normal. I look at that test and inside of my head I'm like this test is crap. So we do better testing and we find an infection and then we treat the infection and said patient gets a lot better.

So good testing is really important. I don't mean to sound overly crass there but it's unfortunate when patients especially if they're paying out of pocket from these things are doing testing that is really has not been shown to be very accurate because if you miss a gut infection, gosh I mean if I had missed my amoebic infection I would be a basket case right now. Right? It's what is causing so many problems.

So again please don't misinterpret my whatever emotion I'm portraying right now. Please don't misconstrue that as me being critical of other people. It's just me really caring what the patient getting a good test, a good diagnosis in this treatment that they need.

Robb Wolf:

Right, right.

Dr. Ruscio:

One other one that maybe important or another organism that's kind of important toxoplasmosis I've seen more and more of that in the clinic and I actually recently came across a paper and this is really interesting actually that showed that toxoplasmosis induced an increase in antiglutin antibody. So after somebody had toxoplasmosis infection, that

seemed to change the immune system in such a way that it started reacting against gluten. So that's a really interesting little bugger. There's a few different tasks you can do for that.

[0:40:16]

Usually it's a blood antibody profile. There is a test called toxoplasmosis agglutination that's kind of a verification that this maybe more accurate than the antibodies but it's kind of hard to get clinically. So I haven't been using that in the clinic just yet but that's one. If a clinician doesn't list that as part of your workup, I'd say make sure you start including that. If you're a patient if you haven't been tested for that, you may want to look into that one amongst some of the others. But unfortunately there's too many to kind of name all of them.

Robb Wolf: Wow, wow, that's interesting. I know like toxoplasma gondii is a – concerning feature for pregnant women like if you own a cat and you're cleaning the litter box and all that type of stuff. Because there can be some problems there. But I had no idea it had any potential modification on gluten reactivity. That's fascinating.

Dr. Ruscio: Yeah I didn't either until a few months ago and so I spent about at most I just spend an hour reading the recently published abstracts on a number of different topics in PubMed. It's really helpful to pick out new things that are emerging like so inflammatory bowel disease is nonresponsive to steroids and other stronger drugs. People may actually have a Cytomegalovirus infection. It's been shown to be one of the underlying causes of recalcitrant or nonsteroid responsive IBD.

So that's really impressive and a group published a kind of a biopsy guideline for determining if that's an issue. So there's lots of little things that I pull out from doing that. I mean it only cost me every night of my life social wise and having friends, so it's worth it.

Robb Wolf: [Laughs] You give and you give.

Dr. Ruscio: Right, yeah. But if people, I don't know if people have caught this but the Friday edition now with my newsletter it's essentially seven or eight studies with like a one sentence blurb about it that I've picked out of the recent medical literature. So that's – if people want to geek out in some of this stuff, that could be a nice thing to plug into to get this.

Robb Wolf: Nice, nice.

Dr. Ruscio: There's one other thing I wanted to mention. Oh yeah. So with the microbiota it has been shown that if you have an infection that infection

will cause of course inflammation and that inflammation will cause microbial dysbiosis. What seems to happen is that when you have an infection, inflammation more pathogenic species of bacteria can live in that higher inflammatory environment.

So if you have inflammation and inflammation can cause dysbiosis, so let's say you have a toxoplasmosis infection the toxoplasmosis can be causing inflammation. That inflammation can cause other families of bacteria to overgrow because these bacteria have evolved to be able to live in a higher inflammatory environment so to speak. So it's been shown that salmonella for example in certain enterobacteria species.

So it reinforces my posit that the key to this isn't testing the phlotypes if you will but it's removing any offenderings and optimizing the environment so you can allow the colony to express itself or to balance itself back out.

Robb Wolf: Totally makes sense. Doc, you know, for someone like me that it were I still have been fiddling with this you know, I feel great on a ketogenic diet, good cognition, kind of blood sugar swings when I consume more carbs but that higher carb intake sees to help with athletic performance. Like where would you walk me through this stuff? Like clearly the gluten box tip to like --

Dr. Ruscio: Right.

Robb Wolf: --pretty unequivocal on that but where would you go with someone like me as kind of the next step? I guess it's one question and another question I've been really getting a sense from some folks out in the blogosphere that optimally running on a low carb diet if that's what you think you're doing it's actually just indication that there's something broken. Everybody should be able to run fantastically on a higher carb diet if they get their gut microbes buttoned up and that's going to be a nonissue. So I guess two things. Maybe starting with that first one.

Dr. Ruscio: Right.

Robb Wolf: I mean you know, I had a vaginal birth no breastfeeding, antibiotics all throughout my adolescence. I was on tetracycline for like eight years for acne and so I'm just kind of thinking maybe my guts are just kind of hammered and you know.

Dr. Ruscio: Right.

Robb Wolf:

That's just kind of where I'm at and I'm going to have to eat a lower carb diet to be able to manage or mitigate that. Like what are your thoughts on all that?

[0:45:13]

Dr. Ruscio:

Well thank you for kind of steering me back here because I didn't really do a great job of answering fully your question about you know, what's the clinical kind of process I take people through which answers this question.

So first would be diet and lifestyle that we talked about and then would be an evaluation and treating anything that you find there which is definitely sometimes easier said than done. But then once we have cleared out an infection, treated any sort of inflammatory syndrome or what have you, gotten things rebalanced. The gut has healed, everything there is good.

Then I have to go through a reintroduction right of potential allergens so people bring back in dairy, some people do it, some people can. Eggs, they'll bring back nuts and beans. So bring back in these foods and we'll try to get someone the broadest diet that we can.

After we do or kind of in tandem with the food reintroduction I have people go through a carbohydrate reintroduction. I think someone told me that Sisson has something similar that he recommends is like the carbohydrate curve or something like that.

Robb Wolf:

Uh-hum. Uh-hum.

Dr. Ruscio:

But essentially we want to have people see what they can get away with in terms of their carb intake right? Because I've clearly seen in the clinic that I would say 70% of people do better. I'm a little bit low on the carb diet and not crazy low but maybe somewhere between 70, 120 grams a day. But I've also seen from maybe 30% of people that are doing low carb and it's making them ill. They have high blood sugar, they have low testosterone. They have high cholesterol and I'll tell them I want you to eat at least 150 grams of carbs every day. Their blood sugar goes down, their cholesterol goes down. So we can't discount that.

I think it has to do with a concept that a Christopher Gardner pioneered – so there's a metabolic answer and there's a gut answer. The metabolic answer I think Christopher Gardner has pioneered and I don't mean you talked about him coming on my podcast which I'm super excited about because I think he's really on to something. But he's published a concept

known as heterogeneity of insulin sensitivity which is a big world for saying some people process sugar better than others right?

But what he did in one of his studies, a study called ASE weight loss trial, they put people on the Atkin's diet, the Ornish diet, the Learn diet or the Zone diet. So they put people on a spectrum of high carb diets to low carb diets. What they have found is that some people could lose weight on any diet and other people could only lose weight on a low carb diet. So they did more analysis, they analyzed what sort of glucose tolerance do these people have or how well do they process blood sugar and insulin. They found that people that only responded or can only lose weight on a low carb diet seemed to have poor insulin sensitivity.

But the people that can lose weight on any diet have good insulin sensitivity. So this maybe a genetic phenomenon. I mean certainly there are probably lifestyle and exercise factors at playing into this yes but this also maybe a genetic or maybe even a – I guess we could maybe term it like a ancestral phenomenon. Because remember there is what's called a latitudinal discrepancy in carbohydrate consumption. The closer to the equator you get at least from the evolutionary perspective, usually they're more carb rich. The closer to the poles you get usually the more carb sparse or fat rich the diet is.

So if you're northern European descent, it's not totally crazy to make the argument that you may do better on a moderate to lower carbohydrate diet. Whereas someone who is a Pacific Islander may do better on a higher carbohydrate diet.

Robb Wolf: Uh-hum.

Dr. Ruscio: So that's kind of the metabolic answer and then there's also kind of the gut answer and I think this comes down to and I heard your podcast with the perfect health diets --

Robb Wolf: Paul Jaminet?

Dr. Ruscio: Paul Jaminet?

Robb Wolf: Yeah.

Dr. Ruscio: I liked his perspective and I agree with when people's guts are in rough shape, a lot of times they are going to do better on a lower carbohydrate diet to start. That's why clinically I start people on a lower carb diet and

that eventually when they're healthier I have them open up and see where they fall on the carb spectrum.

But definitely conditions like SIBO for example they will do better usually on a lower carb diet. But there's more to it than just SIBO. So there's also the fungal piece right? So some people notice they have kind of candidal symptoms. Sometimes they eat much carbs and I mean candida symptoms and SIBO symptoms have so much overlap. It's hard to distinguish between the two. But here's what I'm driving at.

[0:50:12]

There are certain people that have polymorphisms and there's two polymorphisms I mean there's numerous we know about but two particular things have been fairly well studied, Dactin 1 and Carb 9. These polymorphisms they detract from your ability to regulate fungal growth in the intestines. So these people seem to have a higher predilection genetically to have fungus overgrow.

So if they are to eat a diet that is higher in sugar and carbs, they can feed fungus, they are at a higher risk for this overgrowth. It's interesting that other studies have correlated these genes or these polymorphisms with an increased risk of inflammatory bowel disease. If we look further, one of the things that is attacked in some forms of inflammatory bowel disease is *saccharomyces cerevisiae* antibodies or a fungal antibody. Probably because these genes don't regulate the growth of that of the second of *saccharomyces cerevisiae*. The *saccharomyces cerevisiae* overgrows and the immune system starts attacking and we have IBD.

So it's complicated right but it's also really simple. Works through the kind of model I'm outlining here which is start with diet and lifestyle. If that doesn't work the next thing I would do is have a very good gut evaluation and if you improve from that, give yourself a couple of months and then go into this food reintroduction and then carbohydrate reintroduction and listen to your body along in that process and you will settle into your allowable food allergens and your allowable carbohydrate intake that you will do best on. I really think that's –you know, this clinical model that I was talking about where we try to account for all these things and make sure we minimize harm and maximize benefit, we account for all these different things through that clinical model.

Right? It sounds confusing. What is my insulin sensitivity. Do I have Dactin 1, Carb 9, do I have SIBO? Do I need more carbs, less carbs? You know, but if you worked through this model, you really help address all of those things. So the what to do is a lot simpler than the why we're doing it but

its' fortunate for people that you don't have to really know a whole lot about why we're doing it. Right?

Robb Wolf: It's just empirically experiment and take it incrementally. Yeah. Yeah.

Dr. Ruscio: Yeah I mean that's not going to fix every problem for every person but it's a good, a really good starting point I think.

Robb Wolf: No, that's great. That's great. Well it's just the continual peeling of the onion for me trying to figure all this stuff out but it's both of my parents were type 2 diabetic, died from type 2 diabetes and autoimmunity complications. I can't think of anybody in my family that's not type 2 diabetic at this point.

Dr. Ruscio: Right.

Robb Wolf: So there's a you know, and clearly not spectacular diet, you know, low movements and all that type of stuff. But it's just a family of doughy northern europeanners and I was kind of the only one that really went into this lower carb way of eating. And that was just this completely life transforming event for me like basically doing the cyclic low carb diet. So you know, but fiddling with that over the course of about 15 years but still trying to figure out what the optimum air fuel mixture is on that.

Dr. Ruscio: And now you were saying when you're lower carb you have better cognition but when you have a little bit more carb, you have better training output is that --

Robb Wolf: Exactly yup, yup. And some of the folks on the more ketogenic diet side of things they say I just need to go longer, better keto adapt. There are some inserting stuff that's come out of the Phinney and Volek research that shows that when people adequately fat adapt. We may have like 150, 200% more ability to oxidize fat than what is historically been thought to be achievable and whatnot. So I have bounced back and forth in that but then there's also this other side of you know, apparently you need to provide enough fermentable carbohydrates so that the gut lining doesn't get damaged from lack of mucosal production and those sorts of things.

So for me personally it's I feel more confused and lost today than I did about ten years ago.

Dr. Ruscio: [Laughs] Well I think the scenario that you've fallen into in terms of what you are doing for your own health, I think it illustrates a really good point

because you're certainly feeling a lot better than you were back when the wheels fell off right?

Robb Wolf: Absolutely, yeah, yeah.

Dr. Ruscio: And from what you've told me you have a little bit more carbs on the days that you train.

Robb Wolf: Right.

Dr. Ruscio: On the days that you don't train you have a little bit less carbs. And you seem I mean at least from what I've seen you seem like you're very coherent and alive and vital and you've got a great voice. So that's something that you could away for radio. But I mean you seem like you're overall doing really, really well probably better than most and yeah I mean you have maybe a little thing here or there that seems like it can improve a little bit but I think that's part of being a growth oriented person.

[0:55:27]

Robb Wolf: Right.

Dr. Ruscio: Is you're aware of what could be better. It's both a gift and a curse. Right? It keeps you striving but also you keep noticing things that aren't 100%. So is 100% even ever achievable? I don't know. So I think your case is actually a great one where you fall into this pattern that works for you through your own observation and it's important I think for people just to know that yeah even guys like Robb Wolf this internationally acclaimed celebrity for paleo still has little things that bug him and you shouldn't expect that you would be any different than him. Meaning you know, if he can't have it 100% perfect feeling like a god all the time, then it's probably not a realistic expectation to feel that way.

Robb Wolf: Well unless I eat 30 bananas a day in which case everything would be good. [Laughs]

Dr. Ruscio: [Laughs] You know, but I think sometimes you get so you know, fixated upon the 4% improvement that we could get to 100 and we forget how lucky we are and how great we're doing and everything else. So it's not to say that maybe you couldn't get a little more improvement out of what you're doing but you know, you've fallen into kind of that carbohydrate ratio and the allergen ratio that works for you with your own observation.

I guess I have one question around have you ever been tested for SIBO, have you ever been tested for a full gut profile and have you tracked things like lactoferin and calprotectin that are very important for IBD and then inflammation in the gut.

Robb Wolf: I have not so maybe that's our homework fiddle. I'll work with you on and then we'll bring you back on and we'll do some analysis on that.

Dr. Ruscio: Yeah and there's definitely a little bit of a low hanging fruit there and I'm sorry if you don't want share this but -

Robb Wolf: No.

Dr. Ruscio: Have you ever been diagnosed? Were you diagnosed with IBD ever?

Robb Wolf: No.

Dr. Ruscio: Just --

Robb Wolf: The only thing I was diagnosed with was Crohn's disease and you know interestingly the celiac diagnosis was inconclusive.. There was a little bit of antibody titer but I had really dropped off on consumption and I really didn't feel motivated to even off to be able to get that titer and then if I wasn't consuming it that even like the scoping wasn't going to work. I – my mother you know, that's interesting stuff though because I ate gluten as a kid and I don't think I felt great from it but it was nothing like what it is now. And --

Dr. Ruscio: Right.

Robb Wolf: -that was a similar story for my mom and I did some reading related to like giardia exposure and that being a precipitator for full-blown celiac type symptoms which sounds maybe similar to the cryptosporidium or the other organism that you mentioned and triggering more for full-blown Celiac issues. So yeah, yeah I mean the only thing I have been officially diagnosed with was Crohn's disease back in like '96, '97. Managed to put that in remission if I'm largely gluten free then I'm good to go as far as that is concerned.

Dr. Ruscio: So with your gut then one of the things I would want to look at would be your Crohn's antibodies and

Robb Wolf: Uh-hum.

Dr. Ruscio: And then also look at lactoferin and calprotectin have been shown to be very good clinical corollaries and especially that they can predict relapse of IBD. Just looking at those may be really important to see how your guts looking and who knows you may benefit from a low dose or herbal anti-inflammatory that kind of help push those things a little bit more. You know, of some of those inflammatory markers are antibodies are elevated to push those down a little bit more because there maybe just a little bit of immune activation that maybe provocation these transient gut problems that you're having. That may come back to interestingly like the Dactin 1 and Card 9 maybe you have those and that's throwing off your blood irregularated fungus and that's why notice some of these things get funky when you start having too much carbs.

Robb Wolf: Hmm. Hmm. That makes sense.

Dr. Ruscio: Yeah I mean who knows, it could all be quackery, but that's what I think anyway

Robb Wolf: [Laughs] Oh well it's all pseudo-science at a minimum. So that for sure. Well Doc, I don't want to chew up your whole day. I know that you're super busy. Remind folks where they can find you. Also when is this new eBook going to be available?

Dr. Ruscio: I'm hoping, uh gah, I was just looking at the date, I was going to say I'm hoping to finish it up the end of September and it's already the 24th. Gosh, I'm hoping it will be done within a few weeks. It's been challenging though because I'm really writing this in a no BS way. You know, the things that I'm writing we're looking through a tremendous amount of studies. We're distilling it down to the practical pieces and we're trying to write in such a way that it reads like a story rather than like a medical journal. So it takes a surprising amount of time to do that. But I'm shooting to have that released within the next month or two.

[1:00:32]

Robb Wolf: Awesome.

Dr. Ruscio: I think it would be really helpful for people because a lot of these things that we've been talking about I pick apart and I'm just trying to give people a really practical nonBS, nonsensational view of the microbiota and your gut health and then some of the simple things that you can do. So hopefully soon but I almost feel like it's – you're running toward the finish line and every step you take someone is pulling the finish line further and further away from you. [Laughs]

Robb Wolf: [Laughs] Yes, that is definitely publishing it seems like. So yup, yup.

Dr. Ruscio: Yeah.

Robb Wolf: Totally. So DrRuscio.com is that where you hang out --

Dr. Ruscio: Oh, I'm sorry, yes D-R-R-U-S-C-I-O.com. We usually put out a piece every Monday, Wednesday and Friday. Right now Monday is usually a video, Wednesday is a podcast, Friday is what we call our Ruscio's wrap-up. It's just those research highlights and other things . And then there's a few interesting articles coming down the line. There's one in Celiac that I mentioned. There's obviously a microbiota eBook and then something else if I have time to do I would like to write something up on is timing of introduction of gluten into a child's diet and what effect that might have on future risk for Celiac disease.

Robb Wolf: Uh-hum.

Dr. Ruscio: It's interesting stuff being published there. But yeah that's the lion share of it.

Robb Wolf: Cool. Very cool. Well Doc, it's been great having you on again. Always super interesting and let's do an experiment on me and see what we can figure out and then we'll come back on the show and we'll let everybody know that I have like six months to live.

Dr. Ruscio: Yeah.

Robb Wolf: I'll do an Andy Hoffman, it will be like did he fake his death? Is he really dead? I don't know so.

Dr. Ruscio: Maybe we can both fake our deaths and move to an island in like Honduras or something and just surf all day and spear fish.

Robb Wolf: I am all over that.

Dr. Ruscio: [Laughs] Sounds pretty good.

Robb Wolf: Yup, I am all over that. Okay. Awesome, Doc. Will talk to you soon.

Dr. Ruscio: Alright, thanks Robb.

Robb Wolf: Okay. Bye-bye.

[1:02:22] End of Audio